Diamond Dorado Retail Center Project
Draft Environmental Impact Report

APPENDICES

State Clearinghouse No. 2008012004

El Dorado County ▪ December 23, 2011

Michael Brandman Associates
2000 "O" Street, Suite 200
Sacramento, CA 95811

DRAFT
Environmental Impact Report
Diamond Dorado Retail Center Project
Diamond Springs, El Dorado County, California

State Clearinghouse No. 2008012004

APPENDICES

Prepared for:

El Dorado County
2850 Fairlane Court
Placerville, CA 95667
530.621.5355

Contact: Mel Pabalinas, Senior Planner

Prepared by:

Michael Brandman Associates
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Janna Waligorski, Assistant Project Manager

Michael Brandman Associates

December 23, 2011

TABLE OF CONTENTS

Appendix A:
Notice of Preparation (NOP)

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) AND NOTICE OF PUBLIC SCOPING MEETING FOR THE DIAMOND DORADO RETAIL CENTER

Date: January 4, 2008
To: Interested Parties
From: El Dorado County Development Services Department – Planning Services

Applicant: GGV Missouri Flat LLC
4330 Golden Center Drive, Suite D
Placerville, CA 95667

The El Dorado County Development Services Department, Planning Services (County) will be the Lead Agency under the California Environmental Quality Act (CEQA) for preparation of an Environmental Impact Report (EIR) for the Diamond Dorado Retail Center Project. The purpose of this Notice of Preparation / Notice of Public Scoping Meeting is to obtain the views of agencies and interested persons as to the scope and content of the environmental information and analysis, including the significant environmental issues, reasonable alternatives and mitigation measures that should be included in the Draft EIR. Applicable agencies will need to use the EIR when considering related permits or other approvals. The project description, location, and the potential environmental effects are described in the attached materials. As provided in State CEQA Guidelines section 15060(d), based on the potential for significant impacts, an EIR is deemed necessary and a separate Initial Study has not been prepared.

Due to the time limits mandated by State law, written comments must be sent at the earliest possible date but not later than 30 days after receipt of this notice. Submittal of electronic copies of comments in MS Word format is also appreciated. Please send your comments or email to:

Jason Hade, Senior Planner
County of El Dorado
Development Services Department, Planning Services
2850 Fairlane Court, Building "C"
Placerville, CA 95667
jason.hade@co.el-dorado.ca.us

The County will conduct two public scoping meetings for the proposed Project to provide additional information and receive oral and written input on the scope and content of the Draft EIR. The format of the meetings will include a brief overview of the Project by the County and its consultant(s) followed by an informal question/answer session. The scoping meetings will be held at the time and place listed below:

DATE: January 24, 2008

TIME: 3:00 p.m. and 6:00 p.m.

LOCATION: El Dorado County Planning Commission Hearing Room
2850 Fairlane Court
Placerville, CA 95667

Signature: Jason R. Hade Date: January 4, 2007

Jason Hade, AICP, Senior Planner
Planning Services
County of El Dorado Development Services Department

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE DIAMOND DORADO RETAIL CENTER

The Project Applicant will be preparing an Environmental Impart Report (EIR) for the proposed Diamond Dorado Retail Center Project (Project) for the El Dorado County Development Services Department (County).

Location: The Project is located within unincorporated El Dorado County, California, south of the Missouri Flat Road/ U. S 50 Interchange, west of the City of Placerville, and north of the town of Diamond Springs (see Exhibit 1, Regional Locator). The principle roadway network in the vicinity of the Project includes Diamond Road [State Route (SR) 49], Pleasant Valley Road (SR 49), Lime Kiln Road, and the proposed Diamond Springs Parkway (see Exhibit 2). Land use within the Project area is primarily industrial in nature with scattered vacant lots. Residential areas border the Project site to the south and east. The County's Western Materials Recovery Facility (MRF) is located on the southwestern portion of the Project site. The Project site includes the following Assessors Parcels Numbers (APNs) 051-250-12, -46, -47, -51, -54, and -55.

Project Description

The Applicant is proposing a General Plan Amendment (GPA) from Industrial to Commercial use, an associated rezoning to General Commercial (CG), and a Planned Development (PD) Overlay to allow for the development of the Diamond Dorado Retail Center (DDRC) Project (Project). The lands subject to the proposed GPA and rezone are illustrated in Exhibit 2. The Project would include the development of up to approximately 435,000 square feet (ft^2) of commercial/retail space consisting of up to ten commercial/retail buildings and 1,895 parking spaces on approximately 44 acres. The Project would include up to three large retail stores (one-story) and seven small retail/office buildings (two-floors). The buildings would be connected by pedestrian walkways and accessible from Diamond Road (SR 49), the proposed Diamond Springs Parkway, and the proposed El Dorado Multi-Use Trail. A separate EIR is being prepared for the County Department of Transportation to address the construction and operation of the Diamond Springs Parkway Project. A preliminary site plan for the Project is illustrated in Exhibit 3.

Development of the DDRC will be designed to conform to the Draft Missouri Flat Design Guidelines (October 2007), and the County's development standards for the CG zoning district. The Project would include a minimum 100-foot buffer from the defined edge of the adjacent, unnamed drainage way, thereby preserving the existing riparian corridor along the western and southern perimeter of the DDRC site and integrating this natural feature into the associated site plan.

The potential relocation of the existing MRF would occur in advance of the Project. The owner of the MRF, Waste Connections, Inc., is currently proposing to demolish the existing MRF and construct a new state-of-the-art MRF on an industrially-zoned site located at the terminus of Industrial Street. A separate EIR is being prepared by the County to address the potential environmental impacts associated with the relocation and development of an expanded MRF and any associated changes in operations.

Site Access. Site access would be provided from two signalized intersections situated along the proposed Diamond Springs Parkway and one right turn in and right turn out at Lime Kiln Road. Truck access to the site would be provided from the proposed Diamond Springs Parkway. As part of the Project, a private access lane would be extended south from the proposed Diamond Springs Parkway to connect with Lime Kiln Road. The Project would also dedicate and secure an easement to the County for a bicycle pathway connecting the site to the proposed El Dorado Multi-Use Trail. No parking would be provided in relation to the bike trail.

Hours of Operation. Uses associated with the Project would have the potential to operate 24 hours a day, seven days a week.

Project Objectives

The specific objectives of the Project Applicant include the following:

Objective 1a. Minimize the existing leakage of sales tax dollars into adjacent jurisdictions as concluded in the County Economic Development Study [Economic Planning Services (EPS) 2007], by creating a mix of commercial land uses that will contribute to the fiscal health of the County.

Objective 1b. Provide new employment center(s) for retail and commercial uses compatible with the County's General Plan Commercial land use designation.

Objective 1c. Provide an implementation financing and maintenance mechanism, including cost of and responsibility for necessary capital and other improvements, phasing of development, financing measures, plan administration and enforcement, etc.

Objective 1d. Protect open space areas by promoting infill commercial development on existing, under-utilized, vacant industrial lands.

Level of Detail for the Environmental Analysis in the Draft EIR

The Project will be analyzed at a project-level in the EIR. The analysis will focus on reasonably foreseeable physical environmental effects that could result from the planning, construction, and operation of the Project.

Scope of the EIR

Pursuant to the State CEQA Guidelines section 15060, the County conducted a preliminary review of the proposed Project. The County has determined that there is a reasonable possibility that aspects of the Project could have significant effects on the environment. Based on the potential for significant impacts, an EIR is deemed necessary.

Less Than Significant Impacts That Will Not Be Addressed in the EIR. Based on a preliminary review of the Project application, the County has determined that the proposed Project would have a less than significant impact or no impact on the CEQA issue areas identified below. The primary reasons for these preliminary determinations are as follows:

Agricultural Resources. No agricultural uses currently occur on or adjacent to the Project site. The Project site includes previously disturbed areas, with much of the project area under existing industrial and/or commercial zoning. This factor, in combination with unfavorable soils and variable topography, render the Project site unsuitable for agricultural use.

Mineral Resources. The Project site is not located within a Mineral Resource Zone designated by the State or County and does not affect resources that may be deemed to be a locally important mineral resource of value to the region and residents of the State.

Potentially Significant Impacts to be Addressed in the EIR. Comments and suggestions are requested regarding the following environmental issues that will be analyzed in the EIR. The EIR analyses will be based on, but not limited to, the "Significance Criteria" contained in *Appendix G* of the State CEQA Guidelines.

- General Plan Consistency and Land Use Compatibility
- Aesthetic Resources
- Geologic and Soil-Related Hazards
- Displacement of Existing Structures
- Air Quality and Health Risk
- Noise and Acoustics
- Traffic, Circulation, and Alternative Transportation

- Biological Resources, Oak Woodland, and Wetlands
- Drainage and Water Quality
- Hazards and Hazardous Materials
- Public Services and Utility Service Infrastructure
- Historic and Archaeological Resources

Alternatives to be Addressed in the EIR

In accordance with section 15126.6 of the State CEQA Guidelines, an EIR must "describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." The State CEQA Guidelines also require that a No Project Alternative be evaluated, and that under specific circumstances, an environmentally superior alternative be designated from among the remaining alternatives.

The EIR will utilize an alternatives screening analysis, which will evaluate a reasonable range of alternatives, provide the basis for selecting alternatives that are feasible and reduce significant impacts associated with the proposed Project, and provide a detailed explanation of why other alternatives were rejected from further analysis in the EIR. The alternatives analysis may, in addition to the No Project Alternative, consider one or more of the following types of alternatives for further development and analysis in the EIR. The selected alternatives will be analyzed at a qualitative level of detail for comparison against the impacts identified for the proposed Project, consistent with the requirements of CEQA.

No Project Alternative. This alternative will maintain existing land use on the project site and result in a continuation of existing County Zoning.

Reduced Intensity Alternatives. At least two alternatives will look at reduced buildout intensities within the Project site.

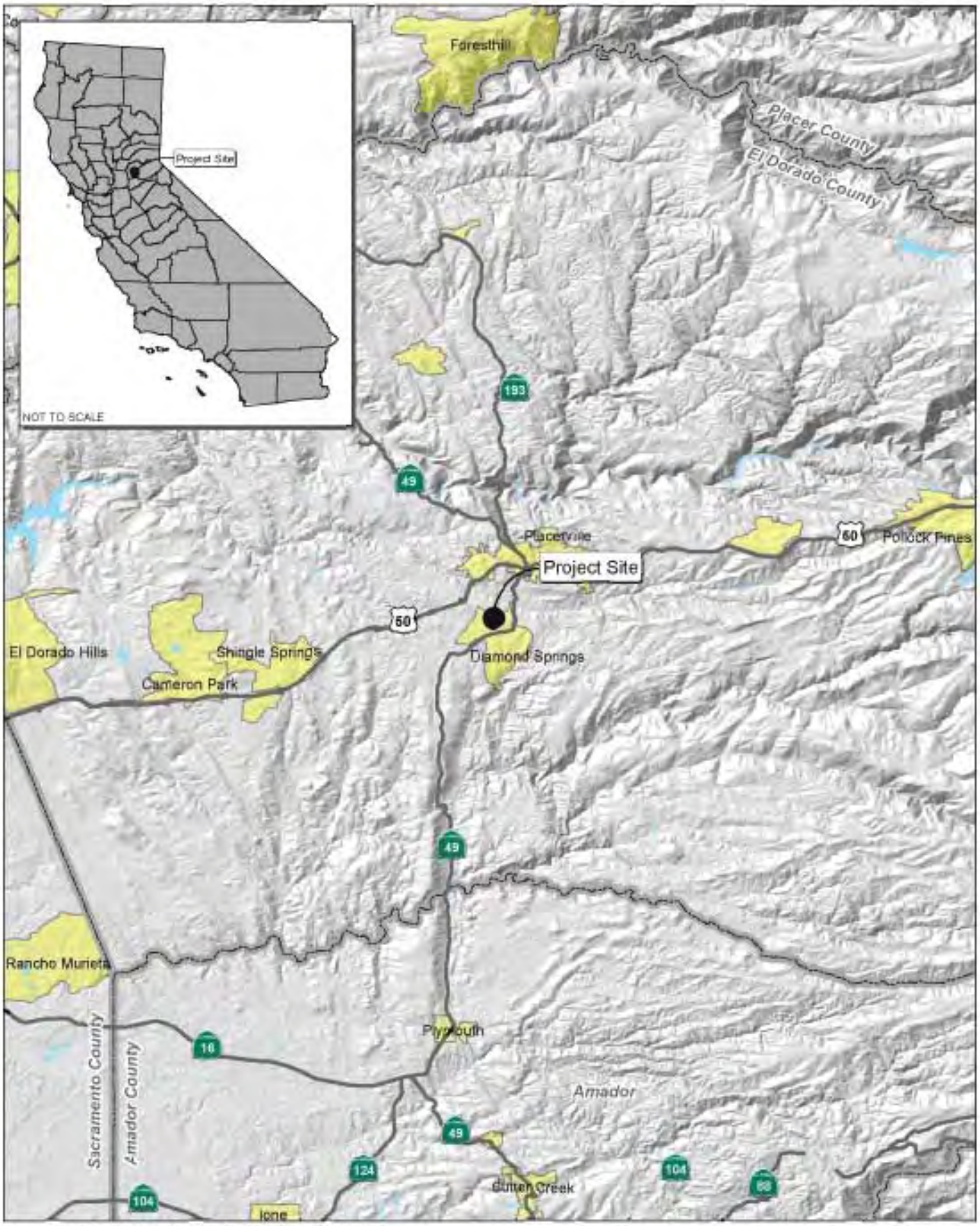
Alternate Project Locations. Up to two alternative project locations will be considered but may not be carried forward for analysis in the EIR if they are found to be infeasible, conflict with Project Objectives, or are not able to reduce potential environmental impacts.

Requests for Additional Information

If you have any questions, please contact Jason Hade at the County of El Dorado, Planning Services, 2850 Fairlane Court, Building "C", Placerville, CA 95667, by telephone at (530) 621-5355, or by e-mail to jason.hade@co.el-dorado.ca.us. Copies of this notice will also be available at the Public Scoping Meetings.

Attachments:

Exhibit 1: Regional Location Map
Exhibit 2: Proposed Materials Recovery Site
Exhibit 3: Site Plan



Source: Census 2000 Data, The CaSIL, MBA GIS 2007.

Michael Brandman Associates

NORTH

0 1 2 4 6 8 Miles

3337.0001 • 1/2008 |

Exhibit 1
Regional Location Map

EL DORADO COUNTY / DIAMOND DORADO RETAIL CENTER
RECIRCULATED EIR

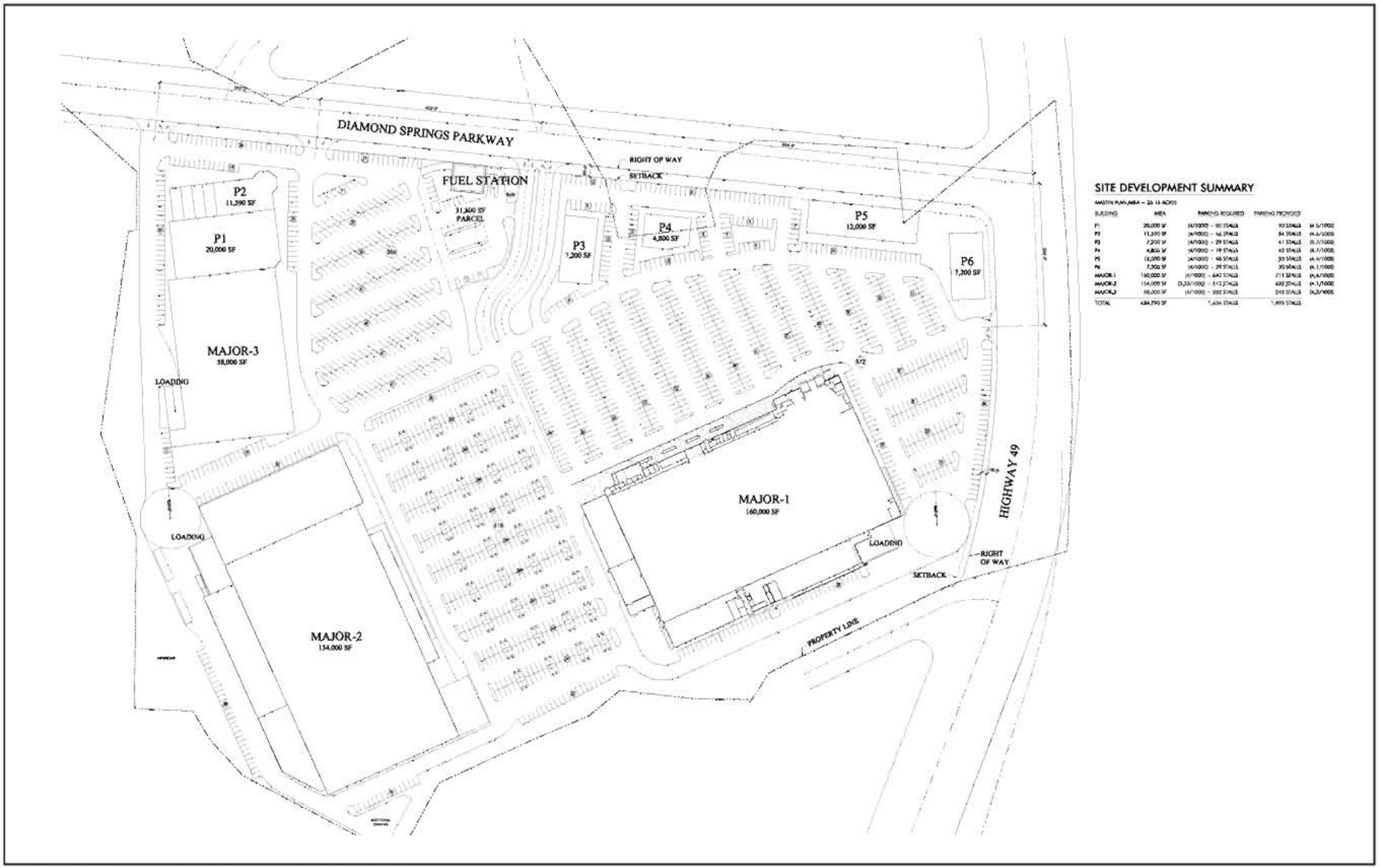
Source: CTA, 2007; El Dorado County, 2005; and MBA, 2008

Michael Brandman Associates

3337.0001 • 1/2008

Exhibit 2
Project Site

EL DORADO COUNTY • DIAMOND DORADO RETAIL CENTER
DRAFT EIR PREPARATION



Source: FWA Architecture Planning Interiors, November 2007.

NORTH

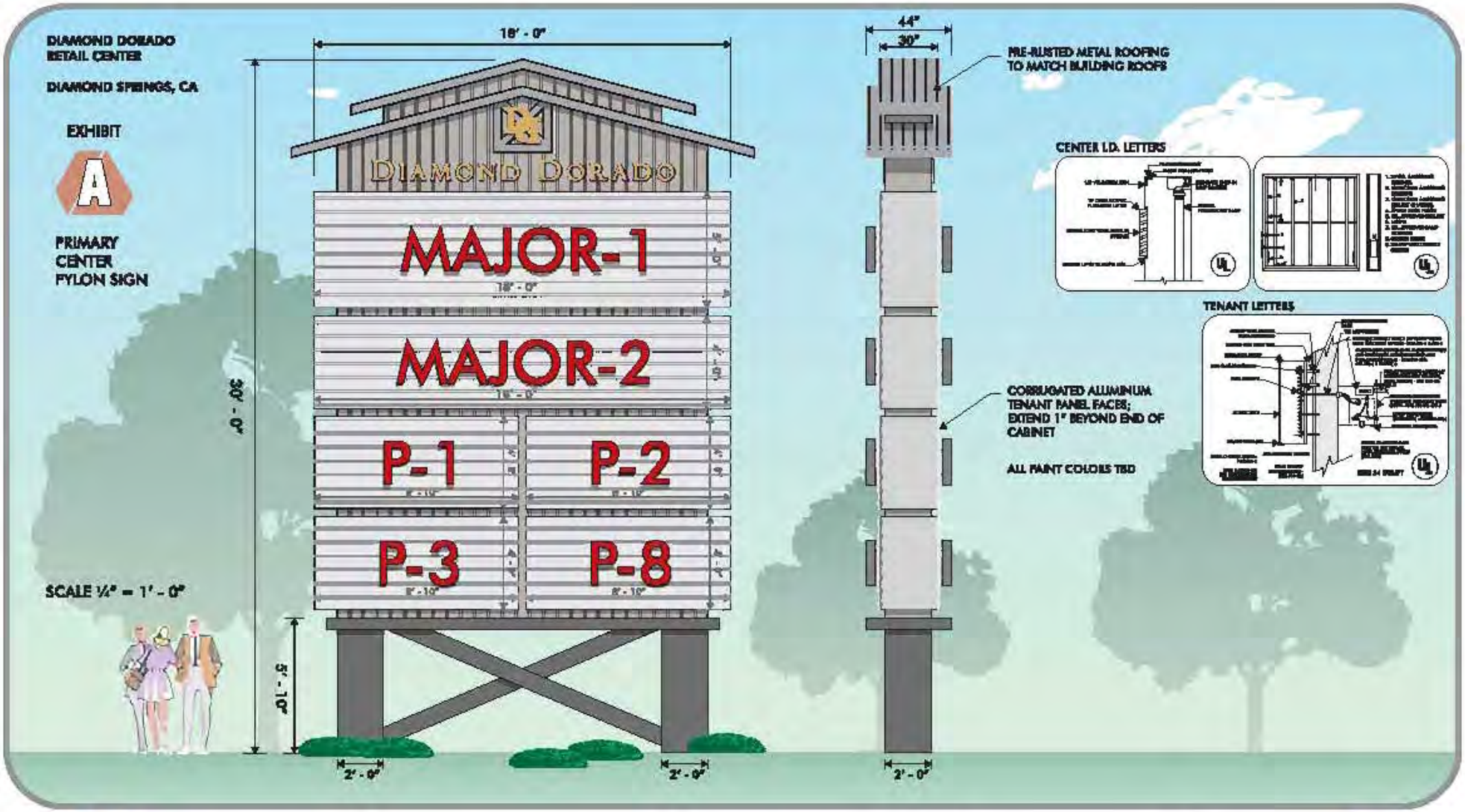
240 120 0 240 Feet

Michael Brandman Associates

33370001 • 01/2008 | 3_site_plan.cdr

Exhibit 3
Diamond Dorado Retail Center Site Plan

Appendix B: Signage Plans



Western

6221 Enterprise Drive Diamond Springs, CA 95619

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SALESPERSON
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LOCATION
DATE
REVISED

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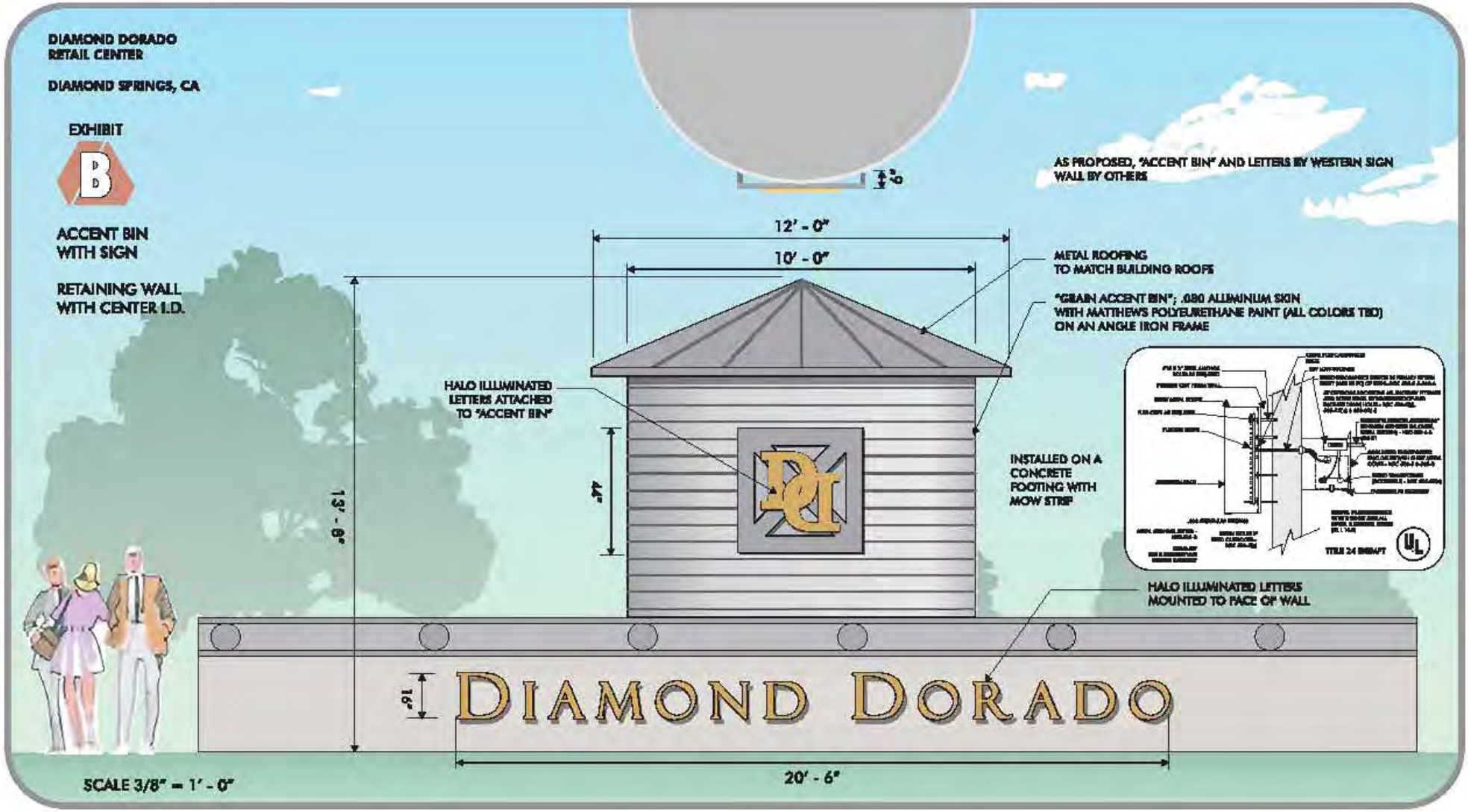

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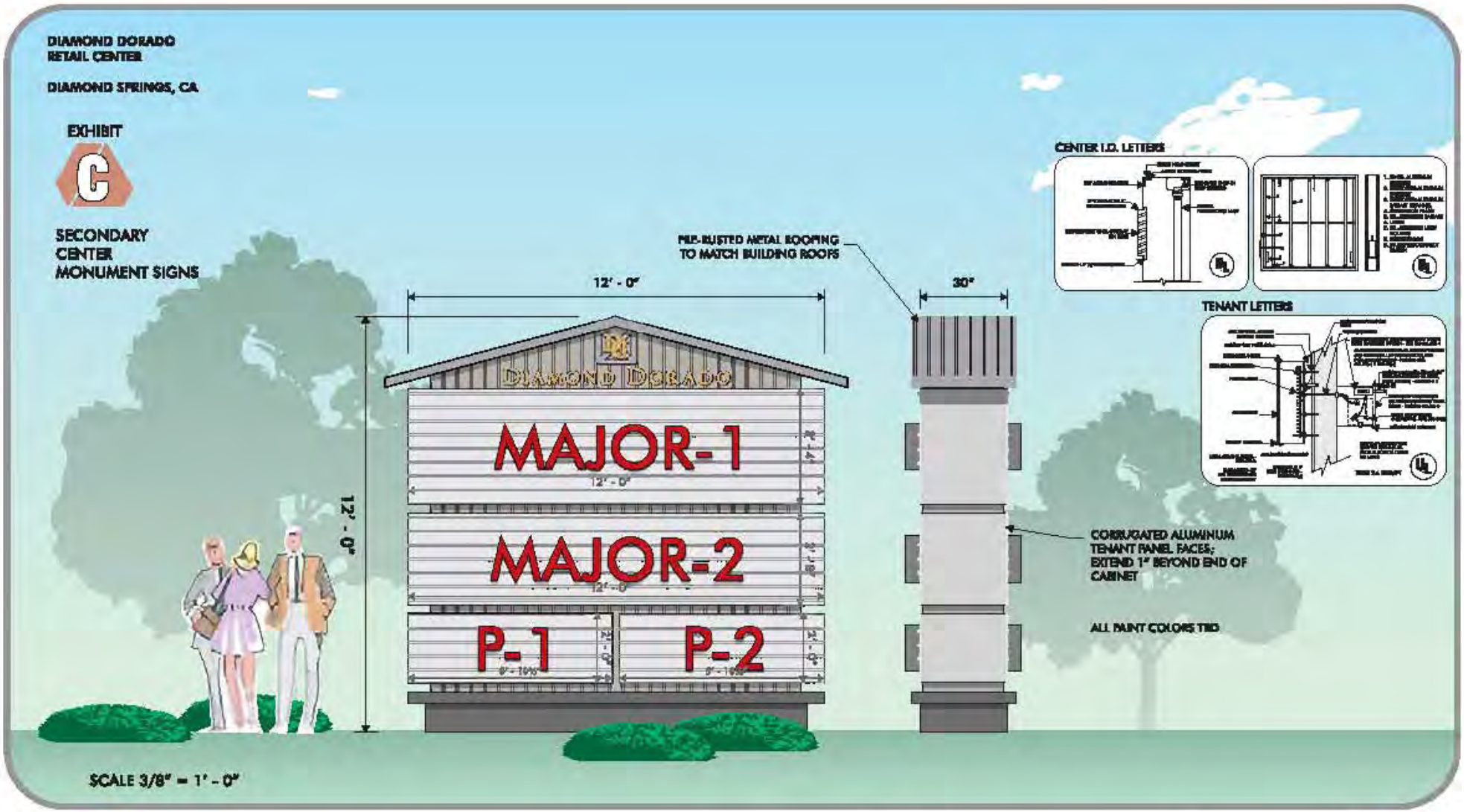
EXHIBIT

C

SECONDARY
CENTER
MONUMENT SIGNS



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DIAMOND SPRINGS, CA

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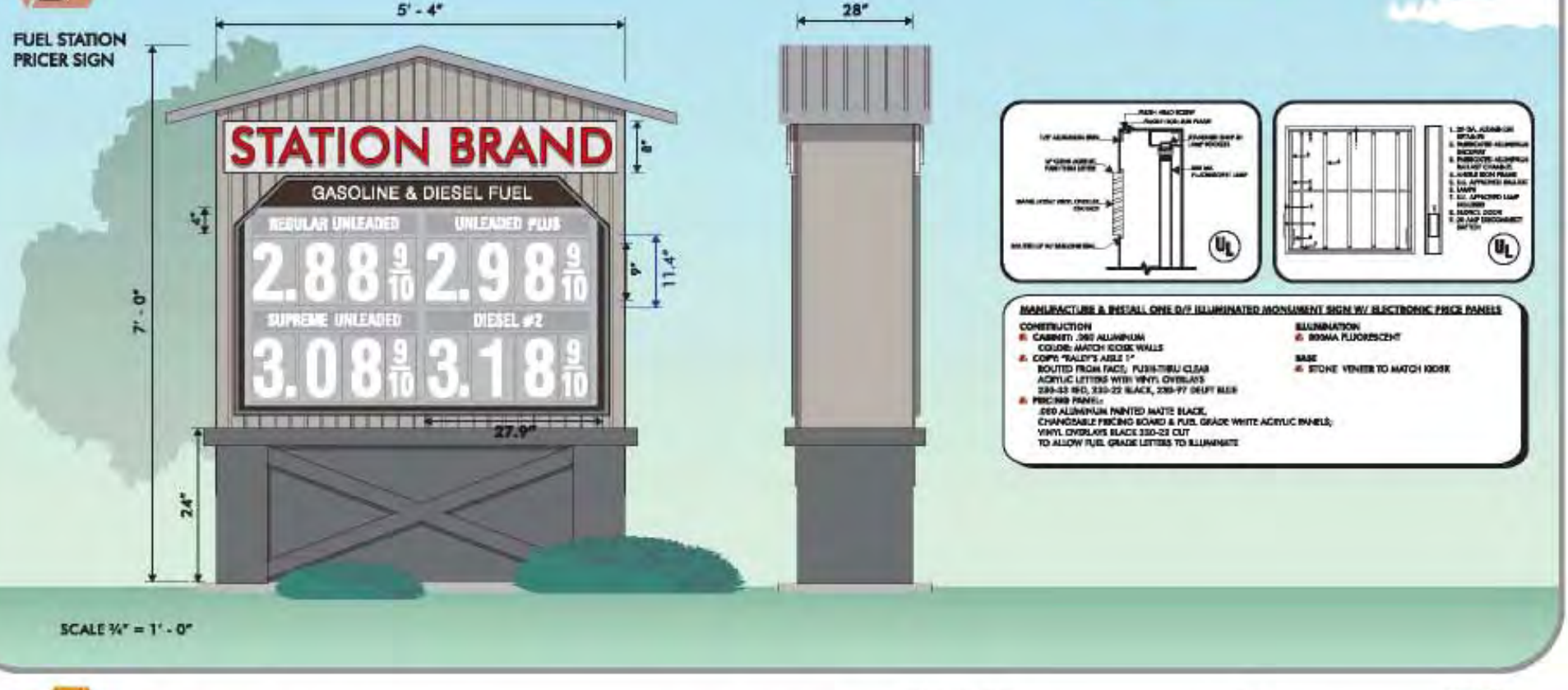
D

FUEL STATION
PRICER SIGN



MANUFACTURE & INSTALL ONE D/F ILLUMINATED MONUMENT SIGN W/ ELECTRONIC PRICE PANELS

CONSTRUCTION
- CABINET: .080 ALUMINUM
  COLOR: MATCH KIOSK WALLS
- COPY: "BAILEY'S AGLE 1"
  ROUTED FROM FACE; PUSH-THRU CLEAR ACRYLIC LETTERS WITH VINYL OVERLAYS 230-53 RED, 230-22 BLACK, 230-97 DELFT BLUE
- PRICING PANEL:
  .080 ALUMINUM PAINTED MATTE BLACK. CHANGEABLE PRICING BOARD & FUEL GRADE WHITE ACRYLIC PANELS; VINYL OVERLAYS BLACK 230-22 CUT TO ALLOW FUEL GRADE LETTERS TO ILLUMINATE

ILLUMINATION
- 800MA FLUORESCENT

BASE
- STONE VENEER TO MATCH KIOSK

Western SIGN COMPANY, INC.
8221 Enterprise Drive Diamond Springs, CA 95619
Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

SALESPERSON: Keith Wills
DESIGN: Perry Wilson
LOCATION: Diamond Springs, CA
DATE: 05/10/09
REVISED: 12/17/09, 01/11/10, 01/20/10

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RETAIL CENTER

DIAMOND SPRINGS, CA

EXHIBIT

E

"WATER TOWER"
SIGN

BY WESTERN SIGN

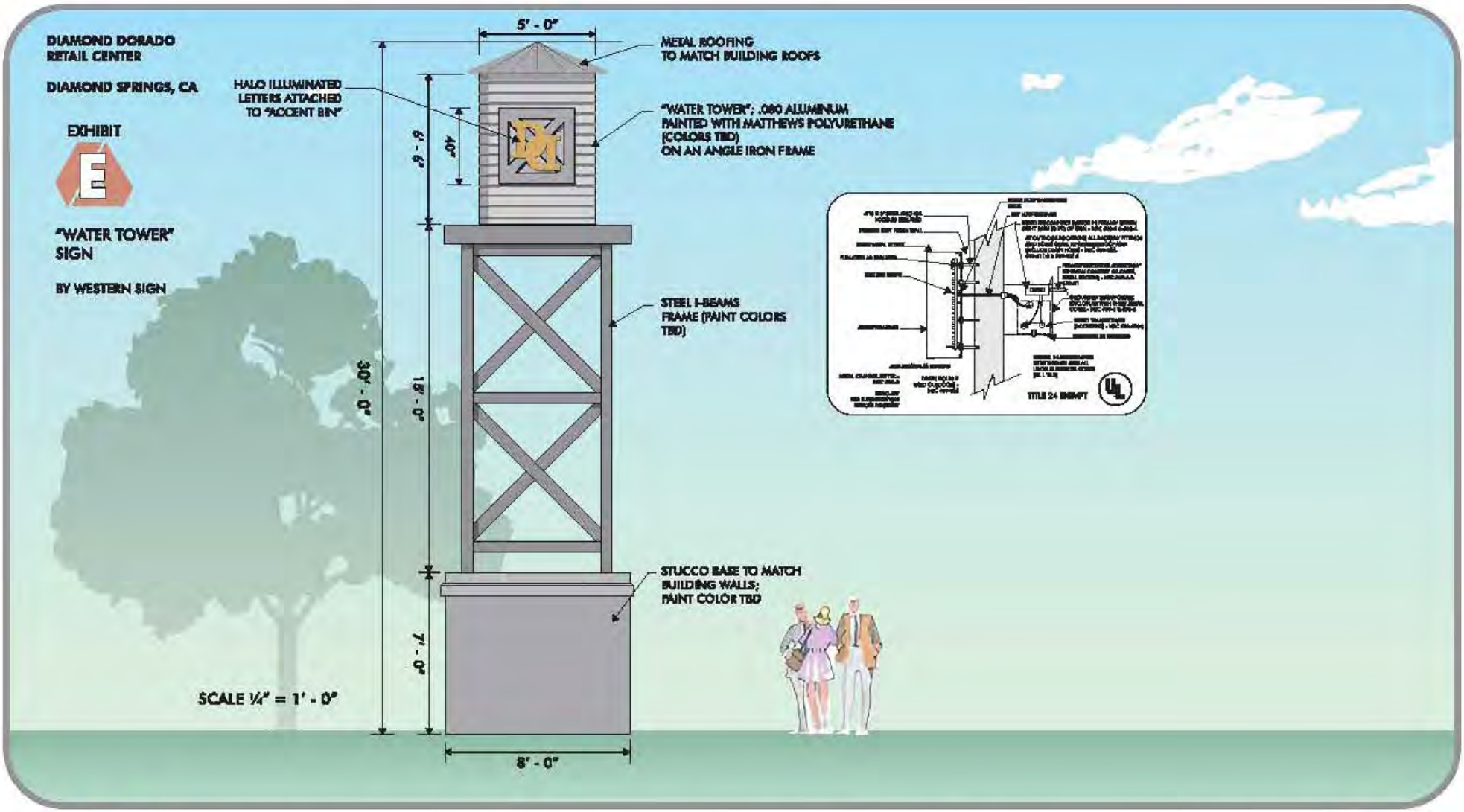

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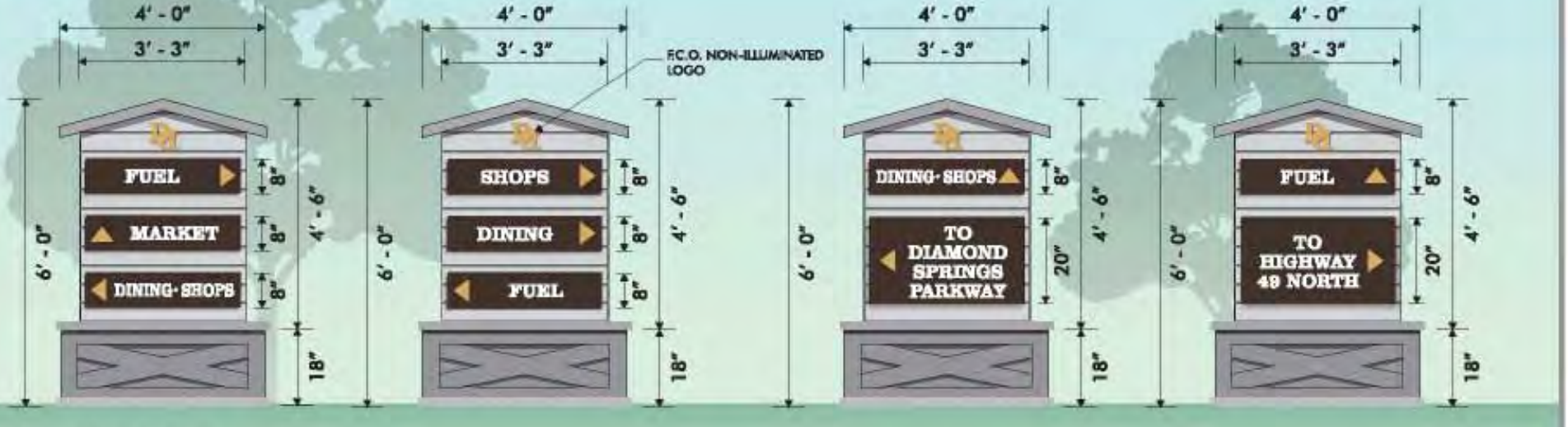
EXHIBIT

F

INSIDE-CENTER
DIRECTIONAL SIGNS
(NON-ILLUMINATED)

(SAMPLE COPY;
ACTUAL COPY TBD)



SCALE ½" = 1' - 0"

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8221 Enterprise Drive Diamond Springs, CA 95619
Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

SALESPERSON Keith Wills
DESIGN Perry Wilson
LOCATION Diamond Springs, CA
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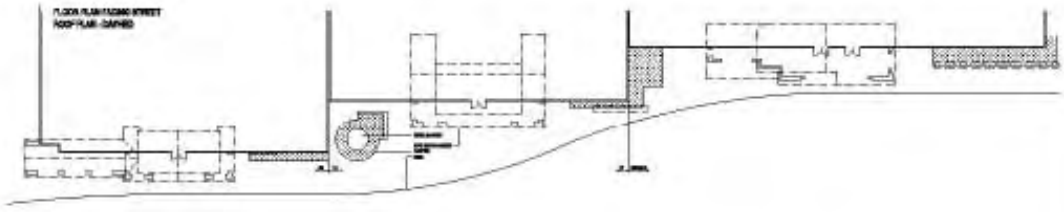
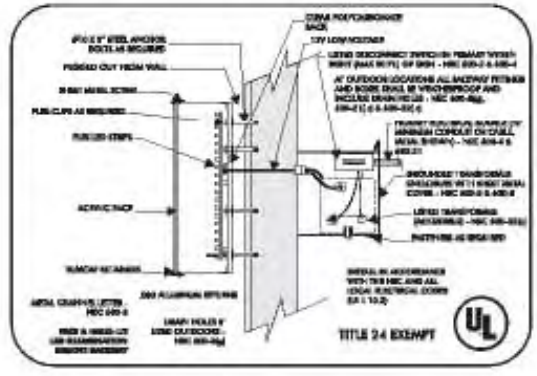
DIAMOND DORADO RETAIL CENTER

DIAMOND SPRINGS, CA

EXHIBIT G

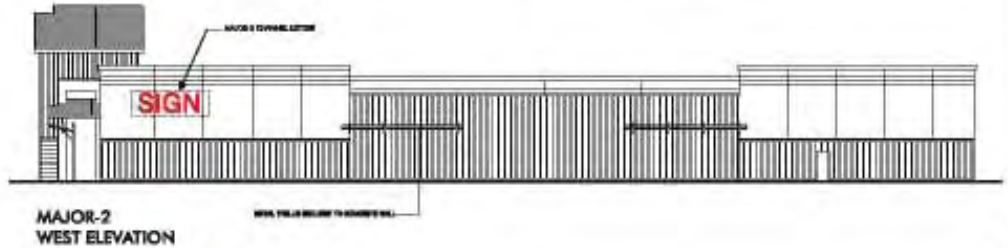
MAJOR-2, P-1 & P-2





MAJOR-2, P-1 & P-2
NORTH ELEVATION (FRONT/PARKING)

P-2
EAST ELEVATION



MAJOR-2
WEST ELEVATION

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Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

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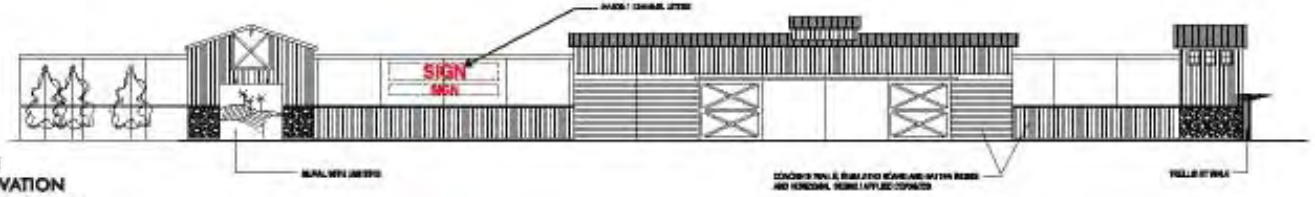
DIAMOND DORADO RETAIL CENTER

DIAMOND SPRINGS, CA

EXHIBIT

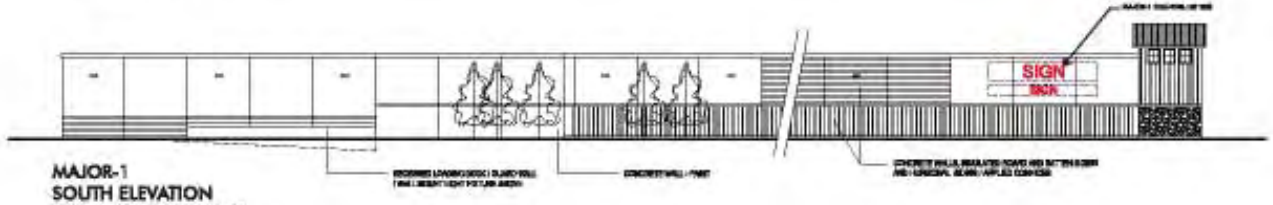
MAJOR-1

MAJOR-1
NORTH ELEVATION
(FRONT FACADE FROM PARKING)



MAJOR-1
EAST ELEVATION
FACADE FROM HIGHWAY 49

MAJOR-1
WEST ELEVATION



MAJOR-1
SOUTH ELEVATION
LOADING / LIME KILN RD. ELEVATION

Western SIGN COMPANY, INC.
8221 Enterprise Drive Diamond Springs, CA 95619
Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

SALESPERSON Keith Wills
DESIGN Perry Wilson
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DIAMOND DORADO
RETAIL CENTER

DIAMOND SPRINGS, CA

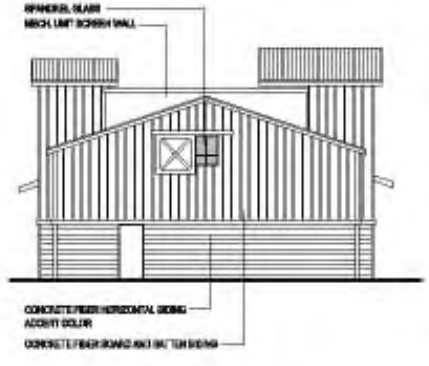
EXHIBIT

P-4

P-4
EAST ELEVATION
(FRONT/PARKING)

P-4
NORTH ELEVATION

P-4
WEST ELEVATION



P-4
SOUTH ELEVATION

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SALESPERSON Keith Wills
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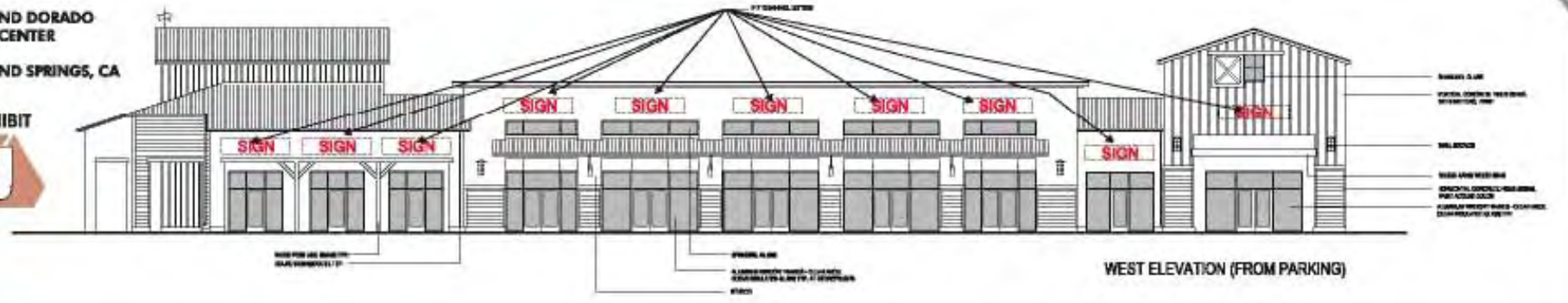
DIAMOND DORADO
RETAIL CENTER

DIAMOND SPRINGS, CA

EXHIBIT J

P-7



WEST ELEVATION (FROM PARKING)

EAST ELEVATION (FROM STREET)

SOUTH ELEVATION

NORTH ELEVATION (FROM PLAZA)

Western SIGN COMPANY, INC.
8221 Enterprise Drive Diamond Springs, CA 95619
Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

SALESPERSON Keith Wills
DESIGN Perry Wilson
LOCATION Diamond Springs, CA
DATE 08/10/09
REVISED 12/17/09
01/11/10
01/25/10

CUSTOMER APPROVAL _____ DATE_____

LANDLORD APPROVAL _____ DATE_____

COLORS ON THIS PRINTOUT MAY VARY SLIGHTLY FROM FINAL MATERIALS COLORS. APPROVAL OF THIS ILLUSTRATION INCLUDES APPROVAL OF THE FINAL MATERIALS COLORS AS DESCRIBED IN THE WRITTEN CALLOUT. WRITTEN DIMENSIONS ON THIS ILLUSTRATION HAVE PRECEDENCE OVER SCALED DIMENSIONS.

SALESPERSON SIGNOFF _____ DATE_____

DIAMOND DORADO
RETAIL CENTER

DIAMOND SPRINGS, CA

EXHIBIT

K

P-6

SOUTH ELEVATION (FROM PARKING)

NORTH ELEVATION (FROM STREET)

EAST ELEVATION (FROM PLAZA)

WEST ELEVATION (FROM PARKING)

Western SIGN COMPANY, INC.
8221 Enterprise Drive Diamond Springs, CA 95619
Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

SALESPERSON Keith Wills
DESIGN Perry Wilson
LOCATION Diamond Springs, CA
DATE 08/10/09
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01/11/10
01/25/10

CUSTOMER APPROVAL _____ DATE_____

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SALESPERSON SIGNOFF _____ DATE_____

DIAMOND DORADO
RETAIL CENTER

DIAMOND SPRINGS, CA

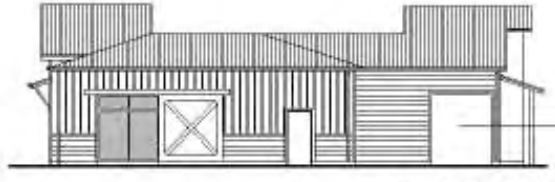
EXHIBIT

P-5

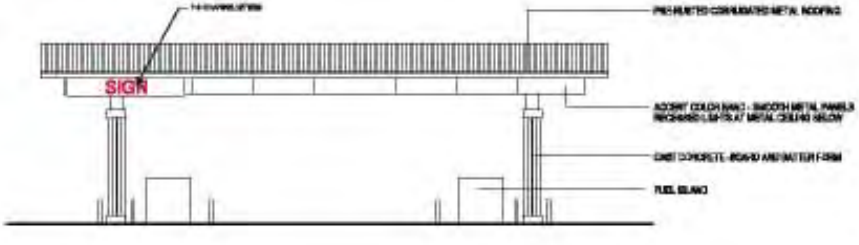
NORTH / STREET ELEVATION

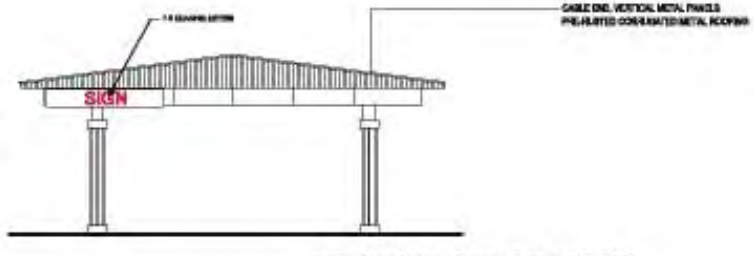
EAST ELEVATION

ENTRY / WEST ELEVATION



SOUTH ELEVATION





FUEL CANOPY EXTERIOR ELEVATIONS

Western SIGN COMPANY, INC.
8221 Enterprise Drive Diamond Springs, CA 95619
Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

SALESPERSON Keith Wills
DESIGN Perry Wilson
LOCATION Diamond Springs, CA
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SALESPERSON SIGNOFF _____ DATE_____

DIAMOND DORADO
RETAIL CENTER

DIAMOND SPRINGS, CA

EXHIBIT

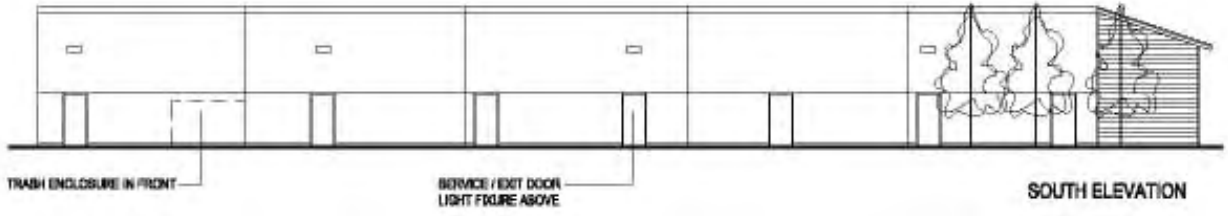
M

P-3

NORTH ELEVATION

EAST ELEVATION

WEST ELEVATION



SOUTH ELEVATION

Western SIGN COMPANY, INC.
8221 Enterprise Drive Diamond Springs, CA 95619
Phone 916 933-3765 • 530 622-1420 • Fax 530 622-9367

SALESPERSON Keith Wills
DESIGN Perry Wilson
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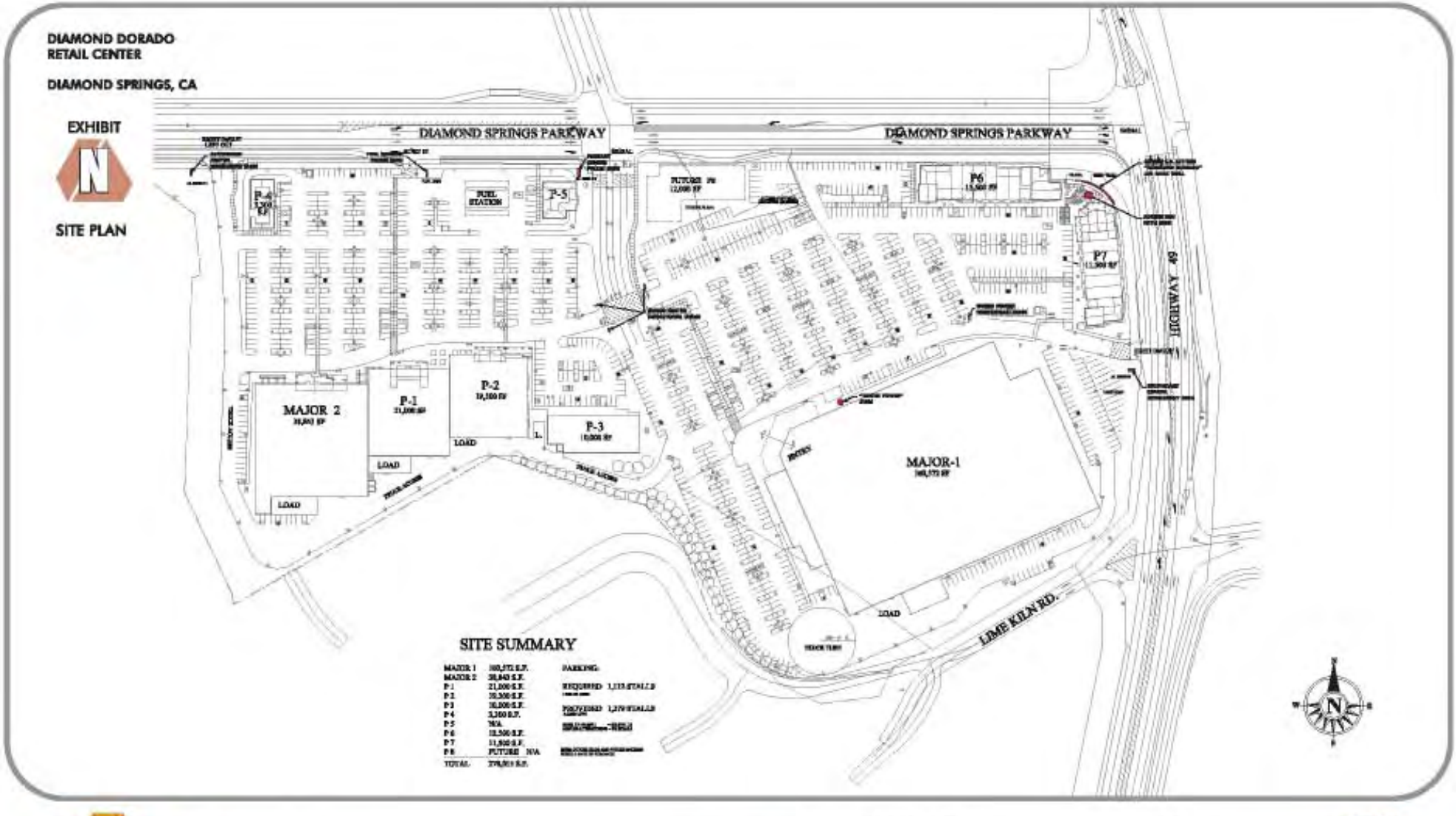

Western SIGN COMPANY, INC.
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SALESPERSON Keith Wills
DESIGN Perry Wilson
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SALESPERSON SIGNOFF _____ DATE_____

Appendix C:
Air Quality Data

C.1 - Air Quality Modeling Data

Summary of Operational Greenhouse Gases

Project:	Diamond Dorado Retail Center
Prepared by:	Michael Brandman Associates
Prepared on:	8-Aug-10
Year of analysis:	2012

	Emissions (tons per year)				
Source	**Carbon Dioxide**	**Nitrous Oxide**	**Methane**	**Other**	**Metric Tons CO2e**
Motor vehicles	8,747	0.53	1.21		8,107
Natural gas (Commercial)	614	0.00	0.04		558
Indirect electricity	2,238	0.03	0.09		2,040
Water transport	17	0.00	0.00		15
Refrigerants				0.44	519
Total	11,616	0.55	1.34	0.44	11,239
Total	10,538	0.50	1.22	0.40	metric tons per year
GWP	1	310	21	varies	
Total	10,538	156	26	519	MTCO2E per year
Total	0.0105	0.0002	0.0000	0.0005	MMTCO2E per year

Total - all gases	11,239	MTCO2e per year
	0.0112	MMTCO2e per year
California emissions in 2004	500	MMTCO2e per year
Project percent of emissions	0.002248%	
U.S. emissions in 2005	7,260.4	
Project percent of emissions	0.000155%	
Global emissions in 2004	20135	
Project percent of emissions	0.000056%	

Last updated 4/14/10

Notes:

Emissions converted from tons per year to metric tons of carbon dioxide equivalents (MTCO2e) per year by using the formula: (tons of gas) x (global warming potential) x (0.9072 metric tons)

Emissions converted to million metric tons of carbon dioxide equivalents (MMTCO2E) using the formula: MMTCO2e = (metric tons of gas) / (1,000,000).

Motor vehicle carbon dioxide and natural gas carbon dioxide values are from the URBEMIS2007 output.

Mobile Emissions - Methane
Diamond Dorado Retail Center
Prepared by Michael Brandman Associates

Page 1
8-Aug-10
Vehicle Miles Traveled 51,713
Vehicle Trips 13,569

	Pounds/day	Tons/day	Tons/year
Starting Emissions	1.57	0.0008	0.29
Running Emissions	5.05	0.0025	0.92
Total	6.62	0.0033	1.21

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	1.2	98.2	0.6
Light Truck < 3,750 lbs	24.5	2.9	88.5	8.6
Light Truck 3,751- 5,750	19.7	1.0	98.5	0.5
Med Truck 5,751- 8,500	9.2	1.1	97.8	1.1
Lite-Heavy 8,501-10,000	2.5	0.0	68.0	32.0
Lite-Heavy 10,001-14,000	1.2	0.0	41.7	58.3
Med-Heavy 14,001-33,000	0.9	0.0	22.2	77.8
Heavy-Heavy 33,001-60,000	0.9	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	57.8	42.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	5.0	80.0	15.0

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.3250	0.0250	0.0080
Light Truck < 3,750 lbs	LDT1	0.3310	0.0330	0.0040
Light Truck 3,751- 5,750	LDT2	0.3300	0.0300	0.0060
Med Truck 5,751- 8,500	MDV	0.3910	0.0370	0.0030
Lite-Heavy 8,501-10,000	LHDT1	0.2500	0.0280	0.0070
Lite-Heavy 10,001-14,000	LHDT2	0.2500	0.0330	0.0100
Med-Heavy 14,001-33,000	MHDT	0.3210	0.0720	0.0100
Heavy-Heavy 33,001-60,000	HHDT	0.7950	0.2250	0.0480
Line Haul > 60,000 lbs	LHV	0.7950	0.2250	0.0480
Urban Bus	UB	0.3680	0.0920	0.0280
Motorcycle	MCY	0.2230	0.1620	0.0000
School Bus	SBUS	0.3210	0.1260	0.0130
Motor Home	MH	0.3210	0.0560	0.0050

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.14	0.91	0.00
Light Truck < 3,750 lbs	0.27	0.81	0.01
Light Truck 3,751- 5,750	0.07	0.66	0.00
Med Truck 5,751- 8,500	0.05	0.38	0.00
Lite-Heavy 8,501-10,000	0.00	0.05	0.01
Lite-Heavy 10,001-14,000	0.00	0.02	0.01
Med-Heavy 14,001-33,000	0.00	0.02	0.01
Heavy-Heavy 33,001-60,000	0.00	0.00	0.05
Line Haul > 60,000 lbs	0.00	0.00	0.01
Urban Bus	0.00	0.00	0.00
Motorcycle	0.94	0.50	0.00
School Bus	0.00	0.00	0.00
Motor Home	0.04	0.10	0.00
Total	1.51	3.45	0.09

Mobile Emissions - Methane Page 2
Diamond Dorado Retail Center
Prepared by Michael Brandman Associates

Total Trips 13569

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.384	0.032	0
Light Truck < 3,750 lbs	LDT1	0.381	0.038	0.000
Light Truck 3,751- 5,750	LDT2	0.377	0.034	0.000
Med Truck 5,751- 8,500	MDV	0.463	0.044	0.000
Lite-Heavy 8,501-10,000	LHDT1	0.615	0.106	0.000
Lite-Heavy 10,001-14,000	LHDT2	0.615	0.123	0.000
Med-Heavy 14,001-33,000	MHDT	0.923	0.277	0.000
Heavy-Heavy 33,001-60,000	HHDT	1.756	0.829	0.000
Line Haul > 60,000 lbs	LHV	1.756	0.829	0.000
Urban Bus	UB	1.127	0.314	0.000
Motorcycle	MCY	0.183	0.155	0.000
School Bus	SBUS	0.923	0.313	0.000
Motor Home	MH	0.923	0.200	0.000

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	52.9	4330.6	26.5
Light Truck < 3,750 lbs	LDT1	96.4	2942.1	285.9
Light Truck 3,751- 5,750	LDT2	26.7	2633.0	13.4
Med Truck 5,751- 8,500	MDV	13.7	1220.9	13.7
Lite-Heavy 8,501-10,000	LHDT1	0.0	230.7	108.6
Lite-Heavy 10,001-14,000	LHDT2	0.0	67.9	94.9
Med-Heavy 14,001-33,000	MHDT	0.0	27.1	95.0
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	122.1
Line Haul > 60,000 lbs	LHV	0.0	0.0	13.6
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	501.9	366.5	0.0
School Bus	SBUS	0.0	0.0	13.6
Motor Home	MH	13.6	217.1	40.7
Total		705.3	12035.9	827.9

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0447	0.3049	0.0000
Light Truck < 3,750 lbs	LDT1	0.0808	0.2460	0.0000
Light Truck 3,751- 5,750	LDT2	0.0222	0.1969	0.0000
Med Truck 5,751- 8,500	MDV	0.0140	0.1182	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0538	0.0000
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0184	0.0000
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0165	0.0000
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	0.0000
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.2021	0.1250	0.0000
School Bus	SBUS	0.0000	0.0000	0.0000
Motor Home	MH	0.0276	0.0955	0.0000
Total		0.3913	1.1751	0.0000

- Source of vehicle percentages: URBEMIS.
- Source of emission factors: EMFAC2007, Statewide average, year 2010, temperature 60F, relative humidity 50%

Mobile Emissions - Nitrous Oxide Page 1
Diamond Dorado Retail Center **Vehicle Miles Traveled** 51,713
Prepared by Michael Brandman Associates

	Pounds/day	Tons/day	Tons/year
Starting Emissions	1.33	0.0007	0.24
Running Emissions	1.56	0.0008	0.28
Total	2.89	0.0014	0.53

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	1.2	98.2	0.6
Light Truck < 3,750 lbs	24.5	2.9	88.5	8.6
Light Truck 3,751- 5,750	19.7	1.0	98.5	0.5
Med Truck 5,751- 8,500	9.2	1.1	97.8	1.1
Lite-Heavy 8,501-10,000	2.5	0.0	68.0	32.0
Lite-Heavy 10,001-14,000	1.2	0.0	41.7	58.3
Med-Heavy 14,001-33,000	0.9	0.0	22.2	77.8
Heavy-Heavy 33,001-60,000	0.9	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	57.8	42.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	5.0	80.0	15.0

Running Emission Factors (mg/km)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Automobile	8	20	1
Light duty truck	9	26	1
Heavy duty trucks and buses	20	55	3
Motorcycle	3	3	3

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0050	0.0124	0.0006
Light Truck < 3,750 lbs	LDT1	0.0056	0.0162	0.0006
Light Truck 3,751- 5,750	LDT2	0.0056	0.0162	0.0006
Med Truck 5,751- 8,500	MDV	0.0056	0.0162	0.0006
Lite-Heavy 8,501-10,000	LHDT1	0.0124	0.0342	0.0019
Lite-Heavy 10,001-14,000	LHDT2	0.0124	0.0342	0.0019
Med-Heavy 14,001-33,000	MHDT	0.0124	0.0342	0.0019
Heavy-Heavy 33,001-60,000	HHDT	0.0124	0.0342	0.0019
Line Haul > 60,000 lbs	LHV	0.0124	0.0342	0.0019
Urban Bus	UB	0.0124	0.0342	0.0019
Motorcycle	MCY	0.0019	0.0019	0.0019
School Bus	SBUS	0.0124	0.0342	0.0019
Motor Home	MH	0.0124	0.0342	0.0019

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.00	0.45	0.00
Light Truck < 3,750 lbs	0.00	0.40	0.00
Light Truck 3,751- 5,750	0.00	0.36	0.00
Med Truck 5,751- 8,500	0.00	0.17	0.00
Lite-Heavy 8,501-10,000	0.00	0.07	0.00
Lite-Heavy 10,001-14,000	0.00	0.02	0.00
Med-Heavy 14,001-33,000	0.00	0.01	0.00
Heavy-Heavy 33,001-60,000	0.00	0.00	0.00
Line Haul > 60,000 lbs	0.00	0.00	0.00
Urban Bus	0.00	0.00	0.00
Motorcycle	0.01	0.01	0.00
School Bus	0.00	0.00	0.00
Motor Home	0.00	0.06	0.00
Total	0.02	1.53	0.01

Mobile Emissions - Nitrous Oxide Page 2

Total Trips 13569

Starting Emission Factors (mg/start)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Automobile	**28**	72	0
Light duty truck	**9**	26	-1
Heavy duty trucks and buses	**70**	194	-2
Motorcycle	**12**	12	0

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.028	0.072	0
Light Truck < 3,750 lbs	LDT1	0.009	0.026	-0.001
Light Truck 3,751- 5,750	LDT2	0.009	0.026	-0.001
Med Truck 5,751- 8,500	MDV	0.009	0.026	-0.001
Lite-Heavy 8,501-10,000	LHDT1	0.070	0.194	-0.002
Lite-Heavy 10,001-14,000	LHDT2	0.070	0.194	-0.002
Med-Heavy 14,001-33,000	MHDT	0.070	0.194	-0.002
Heavy-Heavy 33,001-60,000	HHDT	0.070	0.194	-0.002
Line Haul > 60,000 lbs	LHV	0.070	0.194	-0.002
Urban Bus	UB	0.070	0.194	-0.002
Motorcycle	MCY	0.012	0.012	0.000
School Bus	SBUS	0.070	0.194	-0.002
Motor Home	MH	0.070	0.194	-0.002

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	52.9	4330.6	26.5
Light Truck < 3,750 lbs	LDT1	96.4	2942.1	285.9
Light Truck 3,751- 5,750	LDT2	26.7	2633.0	13.4
Med Truck 5,751- 8,500	MDV	13.7	1220.9	13.7
Lite-Heavy 8,501-10,000	LHDT1	0.0	230.7	108.6
Lite-Heavy 10,001-14,000	LHDT2	0.0	67.9	94.9
Med-Heavy 14,001-33,000	MHDT	0.0	27.1	95.0
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	122.1
Line Haul > 60,000 lbs	LHV	0.0	0.0	13.6
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	501.9	366.5	0.0
School Bus	SBUS	0.0	0.0	13.6
Motor Home	MH	13.6	217.1	40.7
Total		705.3	12035.9	827.9

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0033	0.6860	0.0000
Light Truck < 3,750 lbs	LDT1	0.0019	0.1683	-0.0006
Light Truck 3,751- 5,750	LDT2	0.0005	0.1506	0.0000
Med Truck 5,751- 8,500	MDV	0.0003	0.0698	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0985	-0.0005
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0290	-0.0004
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0116	-0.0004
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	-0.0005
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	-0.0001
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.0133	0.0097	0.0000
School Bus	SBUS	0.0000	0.0000	-0.0001
Motor Home	MH	0.0021	0.0927	-0.0002
Total		0.0213	1.3160	-0.0028

Sources: Vehicle percentages: URBEMIS2007.
Emission Factors (mg/km and mg/start): 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2: Energy, Table 3.2.3, www.ipcc-nggip.iges.or.jp/EFDB/find_ef_main.php

Electricity - Indirect Emissions

Project: Diamond Dorado Retail Center
Prepared by: Michael Brandman Associates
Prepared on: 8/8/2010

Land Use	square feet (sf)	Residential Units	Electricity Use (kWh/sf-year) or (kWh/unit-year)	Electricity Use (kWh/year)
Shopping Center	280515		22.04	6,182,551
Total (kWh/year)				**6,182,551**
Total (MWh/year)				**6,183**

Greenhouse Gas	Emission Factor (pounds per MWh)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	724.12	4,476,909	2,238
Methane	0.0302	187	0.09
Nitrous oxide	0.0081	50	0.03

Emission factor source: California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 3.1, January 2009. Table C.2
www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf

Water Conveyance, Treatment, Distribution

Project: Diamond Dorado Retail Center
Prepared by: Michael Brandman Associates
Prepared on: 8/8/2010

	kWh per million gallons	
Electricity Requirements	**Northern California**	**Southern California**
Water Supply, Conveyance	2,117	9,727
Water Treatment	111	111
Water Distribution	1,272	1,272
Wastewater Treatment	1,911	1,911
Total	*5,411*	*13,021*

Project

Water Usage	23,175.62	gallons per day
Water Usage	8.459103	million gallons per year
Energy Usage	45,772	kWh
Energy Usage	46	MWh

Greenhouse Gas	Electricity Emission Factor (pounds per MWh)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	724.12	33,145	17
Methane	0.0302	1.38	0.001
Nitrous oxide	0.0081	0.37	0.000

Source for electricity emission factor:
California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 3.1, January 2009. Table C.2.
www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf

Source for electricity requirements:
Navigant Consulting, Inc. 2006. Refining Estimates of Water-Related Energy Use in California. California Energy Commission, PIER Industrial/Agricultural/Water End Use Energy Efficiency Program. CEC-500-2006-118. www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html

Natural Gas Combustion

Diamond Dorado Retail Center
Prepared by Michael Brandman Associates
8/8/2010

Gas	Type of Land Use	Square Feet	Annual Natural Gas Usage Factor* (kBTU/sf)	Natural Gas Usage for Project (MMBTU/year)	Emission Factor (kg/MMBTU)**	Emissions (kg/year)	Emissions (tons/year)	Emissions (MTCO2e/year)
Methane	Commercial	280,515	25.99	7,291	0.005	36.5	0.040	0.76
Total Methane				*7,291*		*36.5*	*0.040*	*0.76*
Nitrous Oxide	Commercial	280,515	25.99	7,291	0.0001	0.7	0.0008	0.23
Total Nitrous Oxide				*7,291*		*0.7*	*0.0008*	*0.23*

Greenhouse Gas	Global Warming Potentials
Methane	21
Nitrous Oxide	310

* Natural gas usage: Table E-1 from California Energy Commission. California Commercial End-Use Survey. Consultant Report. March 2006. CEC-400-2006-005

** Emission factors: Table C.8 from California Climate Action Registry, General Reporting Protocol. Version 3.1, January 2009. www.climateregistry.org/tools/protocols/general-reporting-protocol.html

Table E-1: Overview of Energy Usage in the Statewide Service Area

Building Type	Floor Stock (kft^2)	Annual Energy Intensities			Total Annual Usage	
		Electricity (kWh/ft^2)	Natural Gas (therms/ft^2)	Natural Gas (kBtu/ft^2)	Electricity (GWh)	Natural Gas (Mtherms)
All Commercial	4,920,114	13.63	0.26	25.99	67077	1278.60
Small Office (<30k ft^2)	361,584	13.10	0.11	10.54	4738	38.10
Large Office (>=30k ft^2)	660,429	17.70	0.22	21.93	11691	144.80
Restaurant	148,892	40.20	2.10	209.96	5986	312.60
Retail	702,053	14.06	0.05	4.62	9871	32.50
Food Store	144,209	40.99	0.28	27.60	5911	39.80
Refrigerated Warehouse	95,540	20.02	0.06	5.60	1913	5.30
Unrefrigerated Warehouse	554,166	4.45	0.03	3.07	2467	17.00
School	445,106	7.46	0.16	15.97	3322	71.10
College	205,942	12.26	0.34	34.24	2524	70.50
Health	232,606	19.61	0.76	75.53	4561	175.70
Lodging	270,044	12.13	0.42	42.40	3275	114.50
Miscellaneous	1,099,544	9.84	0.23	23.34	10817	256.60
All Offices	1,022,012	16.08	0.18	17.90	16430	182.90
All Warehouses	649,705	6.74	0.03	3.44	4380	22.40

Air Conditioning and Refrigeration Fugitive Emissions

Project: Diamond Dorado Retail Center
Prepared by: Michael Brandman Associates
Prepared on: 8/8/2010

Type of Unit	Units	Capacity of Unit (kg)	Annual Leak Rate in percent of capacity	Emissions (kg/year)	Emissions (tons/year)	Global Warming Potential	Metric Tons CO2 Equiv./year
Office A/C		100	10%	0	0	1,300	0
Commercial A/C	40.0	100	10%	400.0	0.440	1,300	519
Industrial A/C		100	10%	0	0	1,300	0
Total					**0.440**		**519**

Source:
U.S. Environmental Protection Agency, Climate Leaders. May 2008. Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment. EPA430-K-03-004. http://www.epa.gov/stateply/documents/resources/mfgrfg.pdf, Accessed January 21, 2010.

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\Diamond Dorado Retail Center.urb924

Project Name: Diamond Dorado Retail Center

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	9.23	79.16	56.68	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
2011 TOTALS (lbs/day mitigated)	9.23	79.16	56.68	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
2012 TOTALS (lbs/day unmitigated)	300.43	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68
2012 TOTALS (lbs/day mitigated)	63.77	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.02	2.82	3.90	0.00	0.02	0.01	3,366.81
TOTALS (lbs/day, mitigated)	2.02	2.82	3.90	0.00	0.02	0.01	3,366.81
Percent Reduction	0.00	0.00	0.00	NaN	0.00	0.00	0.00

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	98.13	95.22	901.60	0.51	89.40	17.43	52,750.11
TOTALS (lbs/day, mitigated)	93.07	90.11	853.21	0.49	84.60	16.49	49,919.19
Percent Reduction	5.16	5.37	5.37	3.92	5.37	5.39	5.37

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	100.15	98.04	905.50	0.51	89.42	17.44	56,116.92
TOTALS (lbs/day, mitigated)	95.09	92.93	857.11	0.49	84.62	16.50	53,286.00
Percent Reduction	5.05	5.21	5.34	3.92	5.37	5.39	5.04

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 7/1/2011-8/12/2011 Active Days: 31	7.07	**79.16**	34.58	**0.07**	**155.26**	**3.44**	**158.70**	**32.46**	**3.16**	**35.62**	**10,407.58**
Fine Grading 07/01/2011-08/12/2011	7.07	79.16	34.58	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
Fine Grading Dust	0.00	0.00	0.00	0.00	155.00	0.00	155.00	32.37	0.00	32.37	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	3.08	47.43	15.70	0.07	0.25	1.75	2.01	0.08	1.61	1.69	7,272.79
Fine Grading Worker Trips	0.08	0.13	2.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.31

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Time Slice 8/15/2011-8/26/2011 Active Days: 10	9.23	39.11	**56.68**	0.03	0.15	2.70	2.84	0.05	2.47	2.53	6,074.77
Asphalt 08/13/2011-08/27/2011	4.46	19.32	13.10	0.01	0.04	1.42	1.46	0.01	1.31	1.32	2,095.11
Paving Off-Gas	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.32	4.95	1.64	0.01	0.03	0.18	0.21	0.01	0.17	0.18	759.51
Paving Worker Trips	0.13	0.20	3.29	0.00	0.01	0.01	0.02	0.00	0.00	0.01	203.69
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26
Time Slice 8/29/2011-12/30/2011 Active Days: 90	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26
Time Slice 1/2/2012-3/8/2012 Active Days: 49	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37

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Time Slice 3/9/2012-3/23/2012 Active Days: 11	**300.43**	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37
Coating 03/09/2012-04/06/2012	296.02	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	295.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Time Slice 3/26/2012-4/6/2012 Active Days: 10	296.02	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Coating 03/09/2012-04/06/2012	296.02	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	295.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82

Phase Assumptions

Phase: Fine Grading 7/1/2011 - 8/12/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 31

Maximum Daily Acreage Disturbed: 7.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1806.45

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Phase: Paving 8/13/2011 - 8/27/2011 - Default Paving Description

Acres to be Paved: 7

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 8/13/2011 - 3/24/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 3/9/2012 - 4/6/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 7/1/2011-8/12/2011 Active Days: 31	7.07	**79.16**	34.58	**0.07**	**155.26**	**3.44**	**158.70**	**32.46**	**3.16**	**35.62**	**10,407.58**
Fine Grading 07/01/2011-08/12/2011	7.07	79.16	34.58	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
Fine Grading Dust	0.00	0.00	0.00	0.00	155.00	0.00	155.00	32.37	0.00	32.37	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	3.08	47.43	15.70	0.07	0.25	1.75	2.01	0.08	1.61	1.69	7,272.79
Fine Grading Worker Trips	0.08	0.13	2.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.31
Time Slice 8/15/2011-8/26/2011 Active Days: 10	9.23	39.11	**56.68**	0.03	0.15	2.70	2.84	0.05	2.47	2.53	6,074.77
Asphalt 08/13/2011-08/27/2011	4.46	19.32	13.10	0.01	0.04	1.42	1.46	0.01	1.31	1.32	2,095.11
Paving Off-Gas	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.32	4.95	1.64	0.01	0.03	0.18	0.21	0.01	0.17	0.18	759.51
Paving Worker Trips	0.13	0.20	3.29	0.00	0.01	0.01	0.02	0.00	0.00	0.01	203.69
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26
Time Slice 8/29/2011-12/30/2011 Active Days: 90	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26

Time Slice 1/2/2012-3/8/2012 Active Days: 49	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37
Time Slice 3/9/2012-3/23/2012 Active Days: 11	63.77	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37
Coating 03/09/2012-04/06/2012	59.37	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	59.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Time Slice 3/26/2012-4/6/2012 Active Days: 10	59.37	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Coating 03/09/2012-04/06/2012	59.37	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	59.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Architectural Coating 3/9/2012 - 4/6/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

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For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 80%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 80%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.20	2.80	2.35	0.00	0.01	0.00	3,364.00
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, unmitigated)	2.02	2.82	3.90	0.00	0.02	0.01	3,366.81

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.20	2.80	2.35	0.00	0.01	0.00	3,364.00
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, mitigated)	2.02	2.82	3.90	0.00	0.02	0.01	3,366.81

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	98.13	95.22	901.60	0.51	89.40	17.43	52,750.11
TOTALS (lbs/day, unmitigated)	98.13	95.22	901.60	0.51	89.40	17.43	52,750.11

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	93.07	90.11	853.21	0.49	84.60	16.49	49,919.19

TOTALS (lbs/day, mitigated)	93.07	90.11	853.21	0.49	84.60	16.49	49,919.19

Operational Mitigation Options Selected

Residential Mitigation Measures

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Transit Service Mitigation

Percent Reduction in Trips is 0.37%

Inputs Selected:

The Number of Daily Weekday Buses Stopping Within 1/4 Mile of Site is 33

The Number of Daily Rail or Bus Rapid Transit Stops Within 1/2 Mile of Site is 0

The Number of Dedicated Daily Shuttle Trips is 0

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 3%

Inputs Selected:

The Number of Intersections per Square Mile is 0

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Nonresidential Mitigation Measures

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 0%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Regnl shop. center		46.79	1000 sq ft	290.00	13,569.10	51,713.08
					13,569.10	51,713.08

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	1.2	98.2	0.6
Light Truck < 3750 lbs	24.5	2.9	88.5	8.6
Light Truck 3751-5750 lbs	19.7	1.0	98.5	0.5
Med Truck 5751-8500 lbs	9.2	1.1	97.8	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	68.0	32.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	41.7	58.3

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	57.8	42.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	5.0	80.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\Diamond Dorado Retail Center.urb924

Project Name: Diamond Dorado Retail Center

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	9.23	79.16	56.68	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
2011 TOTALS (lbs/day mitigated)	9.23	79.16	56.68	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
2012 TOTALS (lbs/day unmitigated)	300.43	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68
2012 TOTALS (lbs/day mitigated)	63.77	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.90	2.80	2.35	0.00	0.01	0.00	3,364.00
TOTALS (lbs/day, mitigated)	1.90	2.80	2.35	0.00	0.01	0.00	3,364.00
Percent Reduction	0.00	0.00	0.00	NaN	0.00	NaN	0.00

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	125.47	141.10	1,122.81	0.47	89.40	17.43	46,448.09
TOTALS (lbs/day, mitigated)	118.74	133.53	1,062.55	0.45	84.60	16.49	43,955.38
Percent Reduction	5.36	5.36	5.37	4.26	5.37	5.39	5.37

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	127.37	143.90	1,125.16	0.47	89.41	17.43	49,812.09
TOTALS (lbs/day, mitigated)	120.64	136.33	1,064.90	0.45	84.61	16.49	47,319.38
Percent Reduction	5.28	5.26	5.36	4.26	5.37	5.39	5.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 7/1/2011-8/12/2011 Active Days: 31	7.07	**79.16**	34.58	**0.07**	**155.26**	**3.44**	**158.70**	**32.46**	**3.16**	**35.62**	**10,407.58**
Fine Grading 07/01/2011-08/12/2011	7.07	79.16	34.58	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
Fine Grading Dust	0.00	0.00	0.00	0.00	155.00	0.00	155.00	32.37	0.00	32.37	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	3.08	47.43	15.70	0.07	0.25	1.75	2.01	0.08	1.61	1.69	7,272.79
Fine Grading Worker Trips	0.08	0.13	2.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.31

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Time Slice 8/15/2011-8/26/2011 Active Days: 10	9.23	39.11	**56.68**	0.03	0.15	2.70	2.84	0.05	2.47	2.53	6,074.77
Asphalt 08/13/2011-08/27/2011	4.46	19.32	13.10	0.01	0.04	1.42	1.46	0.01	1.31	1.32	2,095.11
Paving Off-Gas	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.32	4.95	1.64	0.01	0.03	0.18	0.21	0.01	0.17	0.18	759.51
Paving Worker Trips	0.13	0.20	3.29	0.00	0.01	0.01	0.02	0.00	0.00	0.01	203.69
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26
Time Slice 8/29/2011-12/30/2011 Active Days: 90	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26
Time Slice 1/2/2012-3/8/2012 Active Days: 49	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37

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Time Slice 3/9/2012-3/23/2012 Active Days: 11	**300.43**	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37
Coating 03/09/2012-04/06/2012	296.02	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	295.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Time Slice 3/26/2012-4/6/2012 Active Days: 10	296.02	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Coating 03/09/2012-04/06/2012	296.02	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	295.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82

Phase Assumptions

Phase: Fine Grading 7/1/2011 - 8/12/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 31

Maximum Daily Acreage Disturbed: 7.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1806.45

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Phase: Paving 8/13/2011 - 8/27/2011 - Default Paving Description

Acres to be Paved: 7

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 8/13/2011 - 3/24/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 3/9/2012 - 4/6/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 7/1/2011-8/12/2011 Active Days: 31	7.07	**79.16**	34.58	**0.07**	**155.26**	**3.44**	**158.70**	**32.46**	**3.16**	**35.62**	**10,407.58**
Fine Grading 07/01/2011-08/12/2011	7.07	79.16	34.58	0.07	155.26	3.44	158.70	32.46	3.16	35.62	10,407.58
Fine Grading Dust	0.00	0.00	0.00	0.00	155.00	0.00	155.00	32.37	0.00	32.37	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	3.08	47.43	15.70	0.07	0.25	1.75	2.01	0.08	1.61	1.69	7,272.79
Fine Grading Worker Trips	0.08	0.13	2.06	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.31
Time Slice 8/15/2011-8/26/2011 Active Days: 10	9.23	39.11	**56.68**	0.03	0.15	2.70	2.84	0.05	2.47	2.53	6,074.77
Asphalt 08/13/2011-08/27/2011	4.46	19.32	13.10	0.01	0.04	1.42	1.46	0.01	1.31	1.32	2,095.11
Paving Off-Gas	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.32	4.95	1.64	0.01	0.03	0.18	0.21	0.01	0.17	0.18	759.51
Paving Worker Trips	0.13	0.20	3.29	0.00	0.01	0.01	0.02	0.00	0.00	0.01	203.69
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26
Time Slice 8/29/2011-12/30/2011 Active Days: 90	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building 08/13/2011-03/24/2012	4.77	19.79	43.58	0.02	0.11	1.27	1.38	0.04	1.16	1.20	3,979.66
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.19	2.24	2.20	0.00	0.02	0.08	0.10	0.01	0.08	0.08	468.21
Building Worker Trips	1.19	1.88	30.53	0.02	0.09	0.05	0.15	0.03	0.04	0.08	1,890.26

Time Slice 1/2/2012-3/8/2012 Active Days: 49	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37
Time Slice 3/9/2012-3/23/2012 Active Days: 11	63.77	18.87	46.17	0.03	0.13	1.17	1.30	0.05	1.07	1.12	4,332.68
Building 08/13/2011-03/24/2012	4.41	18.55	40.90	0.02	0.11	1.16	1.27	0.04	1.06	1.10	3,980.86
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.18	2.01	2.04	0.00	0.02	0.07	0.09	0.01	0.07	0.07	468.29
Building Worker Trips	1.09	1.73	28.35	0.02	0.09	0.05	0.14	0.03	0.04	0.07	1,891.37
Coating 03/09/2012-04/06/2012	59.37	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	59.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Time Slice 3/26/2012-4/6/2012 Active Days: 10	59.37	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Coating 03/09/2012-04/06/2012	59.37	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82
Architectural Coating	59.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.20	0.32	5.27	0.00	0.02	0.01	0.03	0.01	0.01	0.01	351.82

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Architectural Coating 3/9/2012 - 4/6/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

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For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 80%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 80%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.20	2.80	2.35	0.00	0.01	0.00	3,364.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, unmitigated)	1.90	2.80	2.35	0.00	0.01	0.00	3,364.00

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.20	2.80	2.35	0.00	0.01	0.00	3,364.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, mitigated)	1.90	2.80	2.35	0.00	0.01	0.00	3,364.00

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	125.47	141.10	1,122.81	0.47	89.40	17.43	46,448.09
TOTALS (lbs/day, unmitigated)	125.47	141.10	1,122.81	0.47	89.40	17.43	46,448.09

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	118.74	133.53	1,062.55	0.45	84.60	16.49	43,955.38

TOTALS (lbs/day, mitigated)	118.74	133.53	1,062.55	0.45	84.60	16.49	43,955.38

Operational Mitigation Options Selected

Residential Mitigation Measures

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Transit Service Mitigation

Percent Reduction in Trips is 0.37%

Inputs Selected:

The Number of Daily Weekday Buses Stopping Within 1/4 Mile of Site is 33

The Number of Daily Rail or Bus Rapid Transit Stops Within 1/2 Mile of Site is 0

The Number of Dedicated Daily Shuttle Trips is 0

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 3%

Inputs Selected:

The Number of Intersections per Square Mile is 0

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Nonresidential Mitigation Measures

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 0%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Regnl shop. center		46.79	1000 sq ft	290.00	13,569.10	51,713.08
					13,569.10	51,713.08

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	1.2	98.2	0.6
Light Truck < 3750 lbs	24.5	2.9	88.5	8.6
Light Truck 3751-5750 lbs	19.7	1.0	98.5	0.5
Med Truck 5751-8500 lbs	9.2	1.1	97.8	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	68.0	32.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	41.7	58.3

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	57.8	42.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	5.0	80.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\mba\Desktop\Diamond Dorado Retail Center.urb924

Project Name: Diamond Dorado Retail Center

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.37	2.31	2.78	0.00	2.41	0.12	2.54	0.51	0.11	0.62	370.78
2011 TOTALS (tons/year mitigated)	0.37	2.31	2.78	0.00	2.41	0.12	2.54	0.51	0.11	0.62	370.78
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012 TOTALS (tons/year unmitigated)	3.24	0.56	1.28	0.00	0.00	0.03	0.04	0.00	0.03	0.03	123.12
2012 TOTALS (tons/year mitigated)	0.76	0.56	1.28	0.00	0.00	0.03	0.04	0.00	0.03	0.03	123.12
Percent Reduction	76.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.36	0.51	0.57	0.00	0.00	0.00	614.18
TOTALS (tons/year, mitigated)	0.36	0.51	0.57	0.00	0.00	0.00	614.18
Percent Reduction	0.00	0.00	0.00	NaN	NaN	NaN	0.00

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	19.57	20.17	178.00	0.09	16.32	3.18	9,243.52
TOTALS (tons/year, mitigated)	18.55	19.09	168.45	0.09	15.44	3.01	8,747.45
Percent Reduction	5.21	5.35	5.37	0.00	5.39	5.35	5.37

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	19.93	20.68	178.57	0.09	16.32	3.18	9,857.70
TOTALS (tons/year, mitigated)	18.91	19.60	169.02	0.09	15.44	3.01	9,361.63
Percent Reduction	5.12	5.22	5.35	0.00	5.39	5.35	5.03

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2011	0.37	2.31	2.78	0.00	2.41	0.12	2.54	0.51	0.11	0.62	370.78
Fine Grading 07/01/2011-08/12/2011	0.11	1.23	0.54	0.00	2.41	0.05	2.46	0.50	0.05	0.55	161.32
Fine Grading Dust	0.00	0.00	0.00	0.00	2.40	0.00	2.40	0.50	0.00	0.50	0.00
Fine Grading Off Road Diesel	0.06	0.49	0.26	0.00	0.00	0.03	0.03	0.00	0.02	0.02	46.62
Fine Grading On Road Diesel	0.05	0.74	0.24	0.00	0.00	0.03	0.03	0.00	0.02	0.03	112.73
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
Asphalt 08/13/2011-08/27/2011	0.02	0.10	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	10.48
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.04	0.00	0.00	0.01	0.01	0.00	0.01	0.01	5.66
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.80
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
Building 08/13/2011-03/24/2012	0.24	0.99	2.18	0.00	0.01	0.06	0.07	0.00	0.06	0.06	198.98
Building Off Road Diesel	0.17	0.78	0.54	0.00	0.00	0.06	0.06	0.00	0.05	0.05	81.06
Building Vendor Trips	0.01	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.41
Building Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	94.51
2012	3.24	0.56	1.28	0.00	0.00	0.03	0.04	0.00	0.03	0.03	123.12
Building 08/13/2011-03/24/2012	0.13	0.56	1.23	0.00	0.00	0.03	0.04	0.00	0.03	0.03	119.43
Building Off Road Diesel	0.09	0.44	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	48.64
Building Vendor Trips	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.05
Building Worker Trips	0.03	0.05	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.74
Coating 03/09/2012-04/06/2012	3.11	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69
Architectural Coating	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69

Phase Assumptions

Phase: Fine Grading 7/1/2011 - 8/12/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 31

Maximum Daily Acreage Disturbed: 7.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1806.45

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 8/13/2011 - 8/27/2011 - Default Paving Description

Acres to be Paved: 7

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 8/13/2011 - 3/24/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

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Phase: Architectural Coating 3/9/2012 - 4/6/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2011	0.37	2.31	2.78	0.00	2.41	0.12	2.54	0.51	0.11	0.62	370.78
Fine Grading 07/01/2011-08/12/2011	0.11	1.23	0.54	0.00	2.41	0.05	2.46	0.50	0.05	0.55	161.32
Fine Grading Dust	0.00	0.00	0.00	0.00	2.40	0.00	2.40	0.50	0.00	0.50	0.00
Fine Grading Off Road Diesel	0.06	0.49	0.26	0.00	0.00	0.03	0.03	0.00	0.02	0.02	46.62
Fine Grading On Road Diesel	0.05	0.74	0.24	0.00	0.00	0.03	0.03	0.00	0.02	0.03	112.73
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
Asphalt 08/13/2011-08/27/2011	0.02	0.10	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	10.48
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.04	0.00	0.00	0.01	0.01	0.00	0.01	0.01	5.66
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.80
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02
Building 08/13/2011-03/24/2012	0.24	0.99	2.18	0.00	0.01	0.06	0.07	0.00	0.06	0.06	198.98
Building Off Road Diesel	0.17	0.78	0.54	0.00	0.00	0.06	0.06	0.00	0.05	0.05	81.06
Building Vendor Trips	0.01	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.41
Building Worker Trips	0.06	0.09	1.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	94.51
2012	0.76	0.56	1.28	0.00	0.00	0.03	0.04	0.00	0.03	0.03	123.12
Building 08/13/2011-03/24/2012	0.13	0.56	1.23	0.00	0.00	0.03	0.04	0.00	0.03	0.03	119.43
Building Off Road Diesel	0.09	0.44	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	48.64
Building Vendor Trips	0.01	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.05
Building Worker Trips	0.03	0.05	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.74
Coating 03/09/2012-04/06/2012	0.62	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69
Architectural Coating	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Architectural Coating 3/9/2012 - 4/6/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 80%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 80%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.04	0.51	0.43	0.00	0.00	0.00	613.93
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.31						
TOTALS (tons/year, unmitigated)	0.36	0.51	0.57	0.00	0.00	0.00	614.18

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.04	0.51	0.43	0.00	0.00	0.00	613.93
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.31						
TOTALS (tons/year, mitigated)	0.36	0.51	0.57	0.00	0.00	0.00	614.18

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	19.57	20.17	178.00	0.09	16.32	3.18	9,243.52
TOTALS (tons/year, unmitigated)	19.57	20.17	178.00	0.09	16.32	3.18	9,243.52

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	18.55	19.09	168.45	0.09	15.44	3.01	8,747.45

TOTALS (tons/year, mitigated)	18.55	19.09	168.45	0.09	15.44	3.01	8,747.45

Operational Mitigation Options Selected

Residential Mitigation Measures

Nonresidential Mitigation Measures

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Transit Service Mitigation

Percent Reduction in Trips is 0.37%

Inputs Selected:

The Number of Daily Weekday Buses Stopping Within 1/4 Mile of Site is 33

The Number of Daily Rail or Bus Rapid Transit Stops Within 1/2 Mile of Site is 0

The Number of Dedicated Daily Shuttle Trips is 0

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 3%

Inputs Selected:

The Number of Intersections per Square Mile is 0

10/20/2010 4:48:30 PM

Nonresidential Mitigation Measures

The Percent of Streets with Sidewalks on One Side is 0%

The Percent of Streets with Sidewalks on Both Sides is 0%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 100%

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Regnl shop. center		46.79	1000 sq ft	290.00	13,569.10	51,713.08
					13,569.10	51,713.08

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	1.2	98.2	0.6
Light Truck < 3750 lbs	24.5	2.9	88.5	8.6
Light Truck 3751-5750 lbs	19.7	1.0	98.5	0.5
Med Truck 5751-8500 lbs	9.2	1.1	97.8	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	68.0	32.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	41.7	58.3

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	57.8	42.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	5.0	80.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Operational Changes to Defaults

8/6/2010 2:35:36 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\DDRC Modeling\Diamond Dorado Retail Center_Mitigated.urb924

Project Name: Diamond Dorado Retail Center - Mitigated Operations

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.02	2.82	3.90	0.00	0.02	0.01	3,366.81
TOTALS (lbs/day, mitigated)	1.98	2.26	3.43	0.00	0.01	0.01	2,694.01
Percent Reduction	1.98	19.86	12.05	NaN	50.00	0.00	19.98

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	98.13	95.22	901.60	0.51	89.40	17.43	52,750.11
TOTALS (lbs/day, mitigated)	93.04	90.08	852.93	0.48	84.58	16.49	49,903.87
Percent Reduction	5.19	5.40	5.40	5.88	5.39	5.39	5.40

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	100.15	98.04	905.50	0.51	89.42	17.44	56,116.92
TOTALS (lbs/day, mitigated)	95.02	92.34	856.36	0.48	84.59	16.50	52,597.88
Percent Reduction	5.12	5.81	5.43	5.88	5.40	5.39	6.27

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.20	2.80	2.35	0.00	0.01	0.00	3,364.00
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, unmitigated)	2.02	2.82	3.90	0.00	0.02	0.01	3,366.81

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.16	2.24	1.88	0.00	0.00	0.00	2,691.20
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, mitigated)	1.98	2.26	3.43	0.00	0.01	0.01	2,694.01

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	98.13	95.22	901.60	0.51	89.40	17.43	52,750.11
TOTALS (lbs/day, unmitigated)	98.13	95.22	901.60	0.51	89.40	17.43	52,750.11

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	93.04	90.08	852.93	0.48	84.58	16.49	49,903.87
TOTALS (lbs/day, mitigated)	93.04	90.08	852.93	0.48	84.58	16.49	49,903.87

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Regnl shop. center		46.79	1000 sq ft	290.00	13,569.10	51,713.08
					13,569.10	51,713.08

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	1.2	98.2	0.6

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck < 3750 lbs	24.5	2.9	88.5	8.6
Light Truck 3751-5750 lbs	19.7	1.0	98.5	0.5
Med Truck 5751-8500 lbs	9.2	1.1	97.8	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	68.0	32.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	41.7	58.3
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	57.8	42.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	5.0	80.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Regnl shop. center				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\mba\Desktop\DDRC Modeling\Diamond Dorado Retail Center_Mitigated.urb924

Project Name: Diamond Dorado Retail Center - Mitigated Operations

Project Location: Mountain Counties Air Basin

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

8/6/2010 2:35:45 PM

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.90	2.80	2.35	0.00	0.01	0.00	3,364.00
TOTALS (lbs/day, mitigated)	1.86	2.24	1.88	0.00	0.00	0.00	2,691.20
Percent Reduction	2.11	20.00	20.00	NaN	100.00	NaN	20.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	125.47	141.10	1,122.81	0.47	89.40	17.43	46,448.09
TOTALS (lbs/day, mitigated)	118.70	133.49	1,062.24	0.45	84.58	16.49	43,941.85
Percent Reduction	5.40	5.39	5.39	4.26	5.39	5.39	5.40

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	127.37	143.90	1,125.16	0.47	89.41	17.43	49,812.09
TOTALS (lbs/day, mitigated)	120.56	135.73	1,064.12	0.45	84.58	16.49	46,633.05
Percent Reduction	5.35	5.68	5.43	4.26	5.40	5.39	6.38

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.20	2.80	2.35	0.00	0.01	0.00	3,364.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, unmitigated)	1.90	2.80	2.35	0.00	0.01	0.00	3,364.00

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.16	2.24	1.88	0.00	0.00	0.00	2,691.20
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	1.70						
TOTALS (lbs/day, mitigated)	1.86	2.24	1.88	0.00	0.00	0.00	2,691.20

Area Source Changes to Defaults

8/6/2010 2:35:45 PM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	125.47	141.10	1,122.81	0.47	89.40	17.43	46,448.09
TOTALS (lbs/day, unmitigated)	125.47	141.10	1,122.81	0.47	89.40	17.43	46,448.09

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Regnl shop. center	118.70	133.49	1,062.24	0.45	84.58	16.49	43,941.85
TOTALS (lbs/day, mitigated)	118.70	133.49	1,062.24	0.45	84.58	16.49	43,941.85

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Regnl shop. center		46.79	1000 sq ft	290.00	13,569.10	51,713.08
					13,569.10	51,713.08

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	32.5	1.2	98.2	0.6

8/6/2010 2:35:45 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck < 3750 lbs	24.5	2.9	88.5	8.6
Light Truck 3751-5750 lbs	19.7	1.0	98.5	0.5
Med Truck 5751-8500 lbs	9.2	1.1	97.8	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.5	0.0	68.0	32.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	41.7	58.3
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	6.4	57.8	42.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	2.0	5.0	80.0	15.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Regnl shop. center				2.0	1.0	97.0

C.2 - Health Risk Assessment Modeling Output

```
**
**************************************
**
** ISCST3 Input Produced by:
** AERMOD View Ver. 6.6.0
** Lakes Environmental Software Inc.
** Date: 8/4/2010
** File: C:\Documents and Settings\mba\My Documents\misc ceqa projects\3337.0001
DDRC\odor study\ddrcmini.INP
**
**************************************
**
**
**************************************
** ISCST3 Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Documents and Settings\mba\My Documents\misc ceqa projects\3337.0
   MODELOPT DFAULT CONC  RURAL
   AVERTIME ANNUAL
   POLLUTID NH3
   TERRHGTS ELEV
   FLAGPOLE 1.50
   RUNORNOT RUN
CO FINISHED
**
**************************************
** ISCST3 Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PT1 POINT 183.000 302.000 0.000
** DESCRSRC bldg 1
   LOCATION PT2 POINT 221.000 314.000 0.000
** DESCRSRC bldg 2 loading dock
   LOCATION PT3 POINT 251.000 316.000 0.000
** DESCRSRC bldg 3 loading dock
   LOCATION PT4 POINT 278.000 307.000 0.000
** DESCRSRC bldg 4 loading dock
   LOCATION PT5 POINT 396.000 240.000 0.000
** DESCRSRC bldg 5 loading dock
** Line Source represented by Separated Volume Sources
** ------------------------------------------------------------------------
** LINE Source ID = LINE1
** DESCRSRC lonsite to bldg1
** Length of Side = 3.66
** Emission Rate = 3.83E-07
** Vertical Dimension = 3.84
** SZINIT = 1.79
** Nodes = 2
** 176.00, 279.00, 0.00, 3.84, 0.0
```

```
** 183.00, 302.00, 0.00, 3.84, 3.16
** ----------------------------------------------------------------------
   LOCATION L0000218 VOLUME 176.532 280.750 0.00
   LOCATION L0000219 VOLUME 178.511 287.250 0.00
   LOCATION L0000220 VOLUME 180.489 293.750 0.00
   LOCATION L0000221 VOLUME 182.468 300.250 0.00
** End of Line Source
** Line Source represented by Separated Volume Sources
** ----------------------------------------------------------------------
** LINE Source ID = LINE2
** DESCRSRC onsite to bldg 2
** Length of Side = 3.66
** Emission Rate = 1.15E-06
** Vertical Dimension = 3.84
** SZINIT = 1.79
** Nodes = 4
** 176.00, 279.00, 0.00, 3.84, 0.0
** 177.00, 291.00, 0.00, 3.84, 1.95
** 219.00, 306.00, 0.00, 3.84, 2.96
** 221.00, 314.00, 0.00, 3.84, 1.92
** ----------------------------------------------------------------------
   LOCATION L0000222 VOLUME 176.152 280.822 0.00
   LOCATION L0000223 VOLUME 176.500 285.000 0.00
   LOCATION L0000224 VOLUME 176.848 289.178 0.00
   LOCATION L0000225 VOLUME 181.278 292.528 0.00
   LOCATION L0000226 VOLUME 187.278 294.671 0.00
   LOCATION L0000227 VOLUME 193.278 296.813 0.00
   LOCATION L0000228 VOLUME 199.278 298.956 0.00
   LOCATION L0000229 VOLUME 205.278 301.099 0.00
   LOCATION L0000230 VOLUME 211.278 303.242 0.00
   LOCATION L0000231 VOLUME 217.278 305.385 0.00
   LOCATION L0000232 VOLUME 219.556 308.226 0.00
   LOCATION L0000233 VOLUME 220.556 312.226 0.00
** End of Line Source
** Line Source represented by Separated Volume Sources
** ----------------------------------------------------------------------
** LINE Source ID = LINE3
** DESCRSRC onsite to bldg 3
** Length of Side = 3.66
** Emission Rate = 1.53E-06
** Vertical Dimension = 3.84
** SZINIT = 1.79
** Nodes = 4
** 176.00, 279.00, 0.00, 3.84, 0.0
** 177.00, 291.00, 0.00, 3.84, 1.95
** 219.00, 306.00, 0.00, 3.84, 2.96
** 250.00, 316.00, 0.00, 3.84, 3.03
** ----------------------------------------------------------------------
   LOCATION L0000234 VOLUME 176.152 280.822 0.00
   LOCATION L0000235 VOLUME 176.500 285.000 0.00
   LOCATION L0000236 VOLUME 176.848 289.178 0.00
   LOCATION L0000237 VOLUME 181.278 292.528 0.00
   LOCATION L0000238 VOLUME 187.278 294.671 0.00
   LOCATION L0000239 VOLUME 193.278 296.813 0.00
   LOCATION L0000240 VOLUME 199.278 298.956 0.00
   LOCATION L0000241 VOLUME 205.278 301.099 0.00
   LOCATION L0000242 VOLUME 211.278 303.242 0.00
```

```
   LOCATION L0000243 VOLUME 217.278 305.385 0.00
   LOCATION L0000244 VOLUME 223.460 307.439 0.00
   LOCATION L0000245 VOLUME 229.660 309.439 0.00
   LOCATION L0000246 VOLUME 235.860 311.439 0.00
   LOCATION L0000247 VOLUME 242.060 313.439 0.00
   LOCATION L0000248 VOLUME 248.260 315.439 0.00
** End of Line Source
** Line Source represented by Separated Volume Sources
** ----------------------------------------------------------------------
** LINE Source ID = LINE4
** DESCRSRC onsite to bldg 4
** Length of Side = 3.66
** Emission Rate = 2.1E-06
** Vertical Dimension = 3.84
** SZINIT = 1.79
** Nodes = 5
** 176.00, 279.00, 0.00, 3.75, 0.0
** 177.00, 291.00, 0.00, 3.75, 1.95
** 250.00, 313.00, 0.00, 3.75, 3.22
** 270.00, 307.00, 0.00, 3.75, 3.24
** 278.00, 307.00, 0.00, 3.75, 1.86
** ----------------------------------------------------------------------
   LOCATION L0000249 VOLUME 176.152 280.822 0.00
   LOCATION L0000250 VOLUME 176.500 285.000 0.00
   LOCATION L0000251 VOLUME 176.848 289.178 0.00
   LOCATION L0000252 VOLUME 181.885 292.472 0.00
   LOCATION L0000253 VOLUME 188.522 294.472 0.00
   LOCATION L0000254 VOLUME 195.158 296.472 0.00
   LOCATION L0000255 VOLUME 201.794 298.472 0.00
   LOCATION L0000256 VOLUME 208.431 300.472 0.00
   LOCATION L0000257 VOLUME 215.067 302.472 0.00
   LOCATION L0000258 VOLUME 221.704 304.472 0.00
   LOCATION L0000259 VOLUME 228.340 306.472 0.00
   LOCATION L0000260 VOLUME 234.976 308.472 0.00
   LOCATION L0000261 VOLUME 241.613 310.472 0.00
   LOCATION L0000262 VOLUME 248.249 312.472 0.00
   LOCATION L0000263 VOLUME 254.915 311.526 0.00
   LOCATION L0000264 VOLUME 261.582 309.526 0.00
   LOCATION L0000265 VOLUME 268.248 307.526 0.00
   LOCATION L0000266 VOLUME 272.171 307.000 0.00
   LOCATION L0000267 VOLUME 276.171 307.000 0.00
** End of Line Source
** Line Source represented by Separated Volume Sources
** ----------------------------------------------------------------------
** LINE Source ID = LINE5
** DESCRSRC onsite to bldg 5
** Length of Side = 3.66
** Emission Rate = 3.47E-06
** Vertical Dimension = 3.75
** SZINIT = 1.74
** Nodes = 4
** 389.00, 217.00, 0.00, 3.75, 0.0
** 387.00, 221.00, 0.00, 3.75, 0.38
** 376.00, 236.00, 0.00, 3.75, 2.88
** 396.00, 240.00, 0.00, 3.75, 3.16
** ----------------------------------------------------------------------
   LOCATION L0000202 VOLUME 388.182 218.636 0.00
```

```
   LOCATION L0000203 VOLUME 387.818 219.364 0.00
   LOCATION L0000204 VOLUME 384.415 224.525 0.00
   LOCATION L0000205 VOLUME 380.748 229.525 0.00
   LOCATION L0000206 VOLUME 377.081 234.525 0.00
   LOCATION L0000207 VOLUME 380.873 236.975 0.00
   LOCATION L0000208 VOLUME 387.540 238.308 0.00
   LOCATION L0000209 VOLUME 394.207 239.641 0.00
** End of Line Source
** Source Parameters **
   SRCPARAM PT1 3.14E-06 3.840 366.483 51.81600 0.091
   SRCPARAM PT2 3.14E-06 3.840 366.483 51.81600 0.091
   SRCPARAM PT3 3.14E-06 3.840 366.483 51.81600 0.091
   SRCPARAM PT4 3.14E-06 3.840 366.483 51.81600 0.091
   SRCPARAM PT5 0.0000624 3.840 366.483 51.81600 0.091
   SRCPARAM L0000218 9.575E-08 3.84 3.16 1.79
   SRCPARAM L0000219 9.575E-08 3.84 3.16 1.79
   SRCPARAM L0000220 9.575E-08 3.84 3.16 1.79
   SRCPARAM L0000221 9.575E-08 3.84 3.16 1.79
   SRCPARAM L0000222 9.5833E-08 3.84 1.95 1.79
   SRCPARAM L0000223 9.5833E-08 3.84 1.95 1.79
   SRCPARAM L0000224 9.5833E-08 3.84 1.95 1.79
   SRCPARAM L0000225 9.5833E-08 3.84 2.96 1.79
   SRCPARAM L0000226 9.5833E-08 3.84 2.96 1.79
   SRCPARAM L0000227 9.5833E-08 3.84 2.96 1.79
   SRCPARAM L0000228 9.5833E-08 3.84 2.96 1.79
   SRCPARAM L0000229 9.5833E-08 3.84 2.96 1.79
   SRCPARAM L0000230 9.5833E-08 3.84 2.96 1.79
   SRCPARAM L0000231 9.5833E-08 3.84 2.96 1.79
   SRCPARAM L0000232 9.5833E-08 3.84 1.92 1.79
   SRCPARAM L0000233 9.5833E-08 3.84 1.92 1.79
   SRCPARAM L0000234 1.02E-07 3.84 1.95 1.79
   SRCPARAM L0000235 1.02E-07 3.84 1.95 1.79
   SRCPARAM L0000236 1.02E-07 3.84 1.95 1.79
   SRCPARAM L0000237 1.02E-07 3.84 2.96 1.79
   SRCPARAM L0000238 1.02E-07 3.84 2.96 1.79
   SRCPARAM L0000239 1.02E-07 3.84 2.96 1.79
   SRCPARAM L0000240 1.02E-07 3.84 2.96 1.79
   SRCPARAM L0000241 1.02E-07 3.84 2.96 1.79
   SRCPARAM L0000242 1.02E-07 3.84 2.96 1.79
   SRCPARAM L0000243 1.02E-07 3.84 2.96 1.79
   SRCPARAM L0000244 1.02E-07 3.84 3.03 1.79
   SRCPARAM L0000245 1.02E-07 3.84 3.03 1.79
   SRCPARAM L0000246 1.02E-07 3.84 3.03 1.79
   SRCPARAM L0000247 1.02E-07 3.84 3.03 1.79
   SRCPARAM L0000248 1.02E-07 3.84 3.03 1.79
   SRCPARAM L0000249 1.1053E-07 3.75 1.95 1.79
   SRCPARAM L0000250 1.1053E-07 3.75 1.95 1.79
   SRCPARAM L0000251 1.1053E-07 3.75 1.95 1.79
   SRCPARAM L0000252 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000253 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000254 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000255 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000256 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000257 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000258 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000259 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000260 1.1053E-07 3.75 3.22 1.79
```

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   SRCPARAM L0000261 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000262 1.1053E-07 3.75 3.22 1.79
   SRCPARAM L0000263 1.1053E-07 3.75 3.24 1.79
   SRCPARAM L0000264 1.1053E-07 3.75 3.24 1.79
   SRCPARAM L0000265 1.1053E-07 3.75 3.24 1.79
   SRCPARAM L0000266 1.1053E-07 3.75 1.86 1.79
   SRCPARAM L0000267 1.1053E-07 3.75 1.86 1.79
   SRCPARAM L0000202 4.3375E-07 3.75 0.38 1.74
   SRCPARAM L0000203 4.3375E-07 3.75 0.38 1.74
   SRCPARAM L0000204 4.3375E-07 3.75 2.88 1.74
   SRCPARAM L0000205 4.3375E-07 3.75 2.88 1.74
   SRCPARAM L0000206 4.3375E-07 3.75 2.88 1.74
   SRCPARAM L0000207 4.3375E-07 3.75 3.16 1.74
   SRCPARAM L0000208 4.3375E-07 3.75 3.16 1.74
   SRCPARAM L0000209 4.3375E-07 3.75 3.16 1.74

** Building Downwash **
   BUILDHGT PT1         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT1         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT1         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT1         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT1         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT1         10.00    10.00    10.00    10.00    10.00    10.00

   BUILDHGT PT2         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT2         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT2         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT2         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT2         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT2         10.00    10.00    10.00    10.00    10.00    10.00

   BUILDHGT PT3         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT3         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT3         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT3         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT3         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT3         10.00    10.00    10.00    10.00    10.00    10.00

   BUILDHGT PT4         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT4         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT4         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT4         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT4         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT4         10.00    10.00    10.00    10.00    10.00    10.00

   BUILDHGT PT5         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT5         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT5         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT5         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT5         10.00    10.00    10.00    10.00    10.00    10.00
   BUILDHGT PT5         10.00    10.00    10.00    10.00    10.00    10.00

   BUILDWID PT1         42.72    48.93    53.66    56.76    58.14    57.74
   BUILDWID PT1         55.60    51.76    46.35    42.42    48.69    53.49
   BUILDWID PT1         56.66    58.11    57.80    55.73    51.96    46.62
   BUILDWID PT1         42.72    48.93    53.66    37.32    38.61    38.72
   BUILDWID PT1         37.65    35.44    46.35    42.42    48.69    53.49
```

```
   BUILDWID PT1          56.66    58.11    57.80    55.73    51.96    46.62

   BUILDWID PT2          27.00    31.43    33.64    35.78    36.83    36.77
   BUILDWID PT2          35.58    33.32    30.04    31.37    34.86    37.30
   BUILDWID PT2          38.60    38.72    37.67    35.48    32.21    27.95
   BUILDWID PT2          27.00    31.43    33.64    35.78    36.83    36.77
   BUILDWID PT2          35.58    33.32    30.04    31.37    34.86    37.30
   BUILDWID PT2          38.60    38.72    37.67    35.48    32.21    27.95

   BUILDWID PT3          26.39    30.48    33.64    35.78    36.83    36.77
   BUILDWID PT3          35.58    33.32    30.04    27.63    31.46    34.35
   BUILDWID PT3          36.19    36.93    36.54    35.05    32.49    28.95
   BUILDWID PT3          26.39    30.48    33.64    35.78    36.83    36.77
   BUILDWID PT3          35.58    20.43    16.13    11.35    16.13    34.35
   BUILDWID PT3          36.19    36.93    36.54    35.05    32.49    28.95

   BUILDWID PT4          28.56    30.09    30.71    30.40    29.17    27.05
   BUILDWID PT4          24.11    20.43    16.13    11.35    16.13    20.43
   BUILDWID PT4          24.11    27.05    29.17    30.40    30.71    30.09
   BUILDWID PT4          28.56    30.09    30.71    30.40    29.17    27.05
   BUILDWID PT4          24.11    20.43    16.13    11.35    16.13    20.43
   BUILDWID PT4          24.11    27.05    29.17    30.40    30.71    30.09

   BUILDWID PT5         116.26   117.46   115.08   109.22   100.03    87.80
   BUILDWID PT5          72.91    76.08    90.48   102.12   110.66   115.84
   BUILDWID PT5         117.50   115.59   110.17   101.40   103.41   111.53
   BUILDWID PT5         116.26   117.46   115.08   109.22   100.03    87.80
   BUILDWID PT5          72.91    76.08    90.48   102.12   110.66   115.84
   BUILDWID PT5         117.50   115.59   110.17   101.40   103.41   111.53

   SRCGROUP ALL
SO FINISHED
**
**************************************
** ISCST3 Receptor Pathway
**************************************
**
**
RE STARTING
** DESCRREC "office" ""
   DISCCART       293.00       236.00    0.00    1.50
   DISCCART       130.00       409.00    0.00    1.50
** DESCRREC "res" ""
   DISCCART        51.00       150.00    0.00    1.50
   DISCCART        32.00       177.00    0.00    1.50
   DISCCART        59.00       150.00    0.00    1.50
   DISCCART        71.00       124.00    0.00    1.50
   DISCCART        45.00       158.00    0.00    1.50
   DISCCART       520.00       191.00    0.00    1.50
   DISCCART       502.00       148.00    0.00    1.50
   DISCCART       636.00       193.00    0.00    1.50
   DISCCART       359.00       195.00    0.00    1.50
RE FINISHED
**
**************************************
** ISCST3 Meteorology Pathway
**************************************
```

```
**
**
ME STARTING
   INPUTFIL C:\DOCUME~1\mba\MYDOCU~1\METDAT~1\cimis\013cmo\cmo91.met
   ANEMHGHT 10 METERS
   SURFDATA 99013 1991
   UAIRDATA 99013 1991
ME FINISHED
**
**************************************
** ISCST3 Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE ANNUAL ALL DDRCMINI.IS\AN00GALL.PLT
OU FINISHED


 *** Message Summary For ISC3 Model Setup ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            5 Warning Message(s)
A Total of            0 Informational Message(s)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
SO W320   179 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   180 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   181 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   182 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   183 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS

**********************************
*** SETUP Finishes Successfully ***
**********************************
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
PAGE   1
CONC                    RURAL ELEV  FLGPOL DFAULT

                                           ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for RURAL Mode

**Model Accepts Receptors on ELEV Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates ANNUAL Averages Only

**This Run Includes:    63 Source(s);      1 Source Group(s); and      11
Receptor(s)

**The Model Assumes A Pollutant Type of:  NH3

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
```

```
                                                                    m for Missing
Hours
                                                                    b for Both Calm
and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;
Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                   ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.3 MB of RAM.

**Input Runstream File:          ddrcmini.INP
**Output Print File:             ddrcmini.OUT
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                   ***
***        17:41:57
**MODELOPTs:
PAGE   2
CONC                    RURAL ELEV  FLGPOL DFAULT


                                                  *** POINT SOURCE DATA ***


             NUMBER EMISSION RATE                    BASE     STACK   STACK
STACK     STACK    BUILDING EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC)     X        Y      ELEV.    HEIGHT  TEMP.
EXIT VEL. DIAMETER   EXISTS   SCALAR VARY
     ID       CATS.               (METERS) (METERS) (METERS) (METERS) (DEG.K)
(M/SEC)  (METERS)               BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -

  PT1           0   0.31400E-05     183.0     302.0     0.0     3.84   366.48
51.82     0.09      YES
  PT2           0   0.31400E-05     221.0     314.0     0.0     3.84   366.48
51.82     0.09      YES
  PT3           0   0.31400E-05     251.0     316.0     0.0     3.84   366.48
51.82     0.09      YES
  PT4           0   0.31400E-05     278.0     307.0     0.0     3.84   366.48
51.82     0.09      YES
  PT5           0   0.62400E-04     396.0     240.0     0.0     3.84   366.48
51.82     0.09      YES
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
PAGE   3
CONC                    RURAL ELEV  FLGPOL DFAULT


                                                    *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                      BASE    RELEASE    INIT.
INIT.   EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ      SCALAR VARY
     ID       CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)        BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

  L0000218      0   0.95750E-07     176.5     280.8     0.0     3.84     3.16
1.79
  L0000219      0   0.95750E-07     178.5     287.3     0.0     3.84     3.16
1.79
  L0000220      0   0.95750E-07     180.5     293.8     0.0     3.84     3.16
1.79
  L0000221      0   0.95750E-07     182.5     300.3     0.0     3.84     3.16
1.79
  L0000222      0   0.95833E-07     176.2     280.8     0.0     3.84     1.95
1.79
  L0000223      0   0.95833E-07     176.5     285.0     0.0     3.84     1.95
1.79
  L0000224      0   0.95833E-07     176.8     289.2     0.0     3.84     1.95
1.79
  L0000225      0   0.95833E-07     181.3     292.5     0.0     3.84     2.96
1.79
  L0000226      0   0.95833E-07     187.3     294.7     0.0     3.84     2.96
1.79
  L0000227      0   0.95833E-07     193.3     296.8     0.0     3.84     2.96
1.79
  L0000228      0   0.95833E-07     199.3     299.0     0.0     3.84     2.96
1.79
  L0000229      0   0.95833E-07     205.3     301.1     0.0     3.84     2.96
1.79
  L0000230      0   0.95833E-07     211.3     303.2     0.0     3.84     2.96
1.79
  L0000231      0   0.95833E-07     217.3     305.4     0.0     3.84     2.96
1.79
  L0000232      0   0.95833E-07     219.6     308.2     0.0     3.84     1.92
1.79
  L0000233      0   0.95833E-07     220.6     312.2     0.0     3.84     1.92
1.79
  L0000234      0   0.10200E-06     176.2     280.8     0.0     3.84     1.95
1.79
  L0000235      0   0.10200E-06     176.5     285.0     0.0     3.84     1.95
1.79
```

L0000236	0	0.10200E-06	176.8	289.2	0.0	3.84	1.95	1.79
L0000237	0	0.10200E-06	181.3	292.5	0.0	3.84	2.96	1.79
L0000238	0	0.10200E-06	187.3	294.7	0.0	3.84	2.96	1.79
L0000239	0	0.10200E-06	193.3	296.8	0.0	3.84	2.96	1.79
L0000240	0	0.10200E-06	199.3	299.0	0.0	3.84	2.96	1.79
L0000241	0	0.10200E-06	205.3	301.1	0.0	3.84	2.96	1.79
L0000242	0	0.10200E-06	211.3	303.2	0.0	3.84	2.96	1.79
L0000243	0	0.10200E-06	217.3	305.4	0.0	3.84	2.96	1.79
L0000244	0	0.10200E-06	223.5	307.4	0.0	3.84	3.03	1.79
L0000245	0	0.10200E-06	229.7	309.4	0.0	3.84	3.03	1.79
L0000246	0	0.10200E-06	235.9	311.4	0.0	3.84	3.03	1.79
L0000247	0	0.10200E-06	242.1	313.4	0.0	3.84	3.03	1.79
L0000248	0	0.10200E-06	248.3	315.4	0.0	3.84	3.03	1.79
L0000249	0	0.11053E-06	176.2	280.8	0.0	3.75	1.95	1.79
L0000250	0	0.11053E-06	176.5	285.0	0.0	3.75	1.95	1.79
L0000251	0	0.11053E-06	176.8	289.2	0.0	3.75	1.95	1.79
L0000252	0	0.11053E-06	181.9	292.5	0.0	3.75	3.22	1.79
L0000253	0	0.11053E-06	188.5	294.5	0.0	3.75	3.22	1.79
L0000254	0	0.11053E-06	195.2	296.5	0.0	3.75	3.22	1.79
L0000255	0	0.11053E-06	201.8	298.5	0.0	3.75	3.22	1.79
L0000256	0	0.11053E-06	208.4	300.5	0.0	3.75	3.22	1.79
L0000257	0	0.11053E-06	215.1	302.5	0.0	3.75	3.22	1.79

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
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CONC                    RURAL ELEV  FLGPOL DFAULT


                                                    *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                      BASE    RELEASE    INIT.
INIT.   EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ      SCALAR VARY
     ID       CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)        BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

  L0000258      0   0.11053E-06     221.7     304.5     0.0     3.75     3.22
1.79
  L0000259      0   0.11053E-06     228.3     306.5     0.0     3.75     3.22
1.79
  L0000260      0   0.11053E-06     235.0     308.5     0.0     3.75     3.22
1.79
  L0000261      0   0.11053E-06     241.6     310.5     0.0     3.75     3.22
1.79
  L0000262      0   0.11053E-06     248.2     312.5     0.0     3.75     3.22
1.79
  L0000263      0   0.11053E-06     254.9     311.5     0.0     3.75     3.24
1.79
  L0000264      0   0.11053E-06     261.6     309.5     0.0     3.75     3.24
1.79
  L0000265      0   0.11053E-06     268.2     307.5     0.0     3.75     3.24
1.79
  L0000266      0   0.11053E-06     272.2     307.0     0.0     3.75     1.86
1.79
  L0000267      0   0.11053E-06     276.2     307.0     0.0     3.75     1.86
1.79
  L0000202      0   0.43375E-06     388.2     218.6     0.0     3.75     0.38
1.74
  L0000203      0   0.43375E-06     387.8     219.4     0.0     3.75     0.38
1.74
  L0000204      0   0.43375E-06     384.4     224.5     0.0     3.75     2.88
1.74
  L0000205      0   0.43375E-06     380.7     229.5     0.0     3.75     2.88
1.74
  L0000206      0   0.43375E-06     377.1     234.5     0.0     3.75     2.88
1.74
  L0000207      0   0.43375E-06     380.9     237.0     0.0     3.75     3.16
1.74
  L0000208      0   0.43375E-06     387.5     238.3     0.0     3.75     3.16
1.74
  L0000209      0   0.43375E-06     394.2     239.6     0.0     3.75     3.16
1.74
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
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CONC                    RURAL ELEV  FLGPOL DFAULT



                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

GROUP ID                                                SOURCE IDs


 ALL       PT1     , PT2     , PT3     , PT4     , PT5     , L0000218, L0000219,
L0000220, L0000221, L0000222, L0000223, L0000224,

           L0000225, L0000226, L0000227, L0000228, L0000229, L0000230, L0000231,
L0000232, L0000233, L0000234, L0000235, L0000236,

           L0000237, L0000238, L0000239, L0000240, L0000241, L0000242, L0000243,
L0000244, L0000245, L0000246, L0000247, L0000248,

           L0000249, L0000250, L0000251, L0000252, L0000253, L0000254, L0000255,
L0000256, L0000257, L0000258, L0000259, L0000260,

           L0000261, L0000262, L0000263, L0000264, L0000265, L0000266, L0000267,
L0000202, L0000203, L0000204, L0000205, L0000206,

           L0000207, L0000208, L0000209,
```

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 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
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CONC                    RURAL ELEV  FLGPOL DFAULT

                                        *** DIRECTION SPECIFIC BUILDING
DIMENSIONS ***


SOURCE ID: PT1
 IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH
BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK
   1  10.0,  42.7, 0     2  10.0,  48.9, 0     3  10.0,  53.7, 0     4  10.0,
56.8, 0     5  10.0,  58.1, 0     6  10.0,  57.7, 0
   7  10.0,  55.6, 0     8  10.0,  51.8, 0     9  10.0,  46.3, 0    10  10.0,
42.4, 0    11  10.0,  48.7, 0    12  10.0,  53.5, 0
  13  10.0,  56.7, 0    14  10.0,  58.1, 0    15  10.0,  57.8, 0    16  10.0,
55.7, 0    17  10.0,  52.0, 0    18  10.0,  46.6, 0
  19  10.0,  42.7, 0    20  10.0,  48.9, 0    21  10.0,  53.7, 0    22  10.0,
37.3, 0    23  10.0,  38.6, 0    24  10.0,  38.7, 0
  25  10.0,  37.7, 0    26  10.0,  35.4, 0    27  10.0,  46.3, 0    28  10.0,
42.4, 0    29  10.0,  48.7, 0    30  10.0,  53.5, 0
  31  10.0,  56.7, 0    32  10.0,  58.1, 0    33  10.0,  57.8, 0    34  10.0,
55.7, 0    35  10.0,  52.0, 0    36  10.0,  46.6, 0



SOURCE ID: PT2
 IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH
BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK
   1  10.0,  27.0, 0     2  10.0,  31.4, 0     3  10.0,  33.6, 0     4  10.0,
35.8, 0     5  10.0,  36.8, 0     6  10.0,  36.8, 0
   7  10.0,  35.6, 0     8  10.0,  33.3, 0     9  10.0,  30.0, 0    10  10.0,
31.4, 0    11  10.0,  34.9, 0    12  10.0,  37.3, 0
  13  10.0,  38.6, 0    14  10.0,  38.7, 0    15  10.0,  37.7, 0    16  10.0,
35.5, 0    17  10.0,  32.2, 0    18  10.0,  28.0, 0
  19  10.0,  27.0, 0    20  10.0,  31.4, 0    21  10.0,  33.6, 0    22  10.0,
35.8, 0    23  10.0,  36.8, 0    24  10.0,  36.8, 0
  25  10.0,  35.6, 0    26  10.0,  33.3, 0    27  10.0,  30.0, 0    28  10.0,
31.4, 0    29  10.0,  34.9, 0    30  10.0,  37.3, 0
  31  10.0,  38.6, 0    32  10.0,  38.7, 0    33  10.0,  37.7, 0    34  10.0,
35.5, 0    35  10.0,  32.2, 0    36  10.0,  28.0, 0



SOURCE ID: PT3
 IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH
BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK
   1  10.0,  26.4, 0     2  10.0,  30.5, 0     3  10.0,  33.6, 0     4  10.0,
35.8, 0     5  10.0,  36.8, 0     6  10.0,  36.8, 0
   7  10.0,  35.6, 0     8  10.0,  33.3, 0     9  10.0,  30.0, 0    10  10.0,
27.6, 0    11  10.0,  31.5, 0    12  10.0,  34.3, 0
  13  10.0,  36.2, 0    14  10.0,  36.9, 0    15  10.0,  36.5, 0    16  10.0,
35.0, 0    17  10.0,  32.5, 0    18  10.0,  29.0, 0
```

```
  19  10.0,  26.4, 0    20  10.0,  30.5, 0    21  10.0,  33.6, 0    22  10.0,
35.8, 0    23  10.0,  36.8, 0    24  10.0,  36.8, 0
  25  10.0,  35.6, 0    26  10.0,  20.4, 0    27  10.0,  16.1, 0    28  10.0,
11.4, 0    29  10.0,  16.1, 0    30  10.0,  34.3, 0
  31  10.0,  36.2, 0    32  10.0,  36.9, 0    33  10.0,  36.5, 0    34  10.0,
35.0, 0    35  10.0,  32.5, 0    36  10.0,  29.0, 0
```

```
SOURCE ID: PT4
 IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH
BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK
   1  10.0,  28.6, 0     2  10.0,  30.1, 0     3  10.0,  30.7, 0     4  10.0,
30.4, 0     5  10.0,  29.2, 0     6  10.0,  27.0, 0
   7  10.0,  24.1, 0     8  10.0,  20.4, 0     9  10.0,  16.1, 0    10  10.0,
11.4, 0    11  10.0,  16.1, 0    12  10.0,  20.4, 0
  13  10.0,  24.1, 0    14  10.0,  27.0, 0    15  10.0,  29.2, 0    16  10.0,
30.4, 0    17  10.0,  30.7, 0    18  10.0,  30.1, 0
  19  10.0,  28.6, 0    20  10.0,  30.1, 0    21  10.0,  30.7, 0    22  10.0,
30.4, 0    23  10.0,  29.2, 0    24  10.0,  27.0, 0
  25  10.0,  24.1, 0    26  10.0,  20.4, 0    27  10.0,  16.1, 0    28  10.0,
11.4, 0    29  10.0,  16.1, 0    30  10.0,  20.4, 0
  31  10.0,  24.1, 0    32  10.0,  27.0, 0    33  10.0,  29.2, 0    34  10.0,
30.4, 0    35  10.0,  30.7, 0    36  10.0,  30.1, 0
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
PAGE   7
CONC                    RURAL ELEV  FLGPOL DFAULT

                                        *** DIRECTION SPECIFIC BUILDING
DIMENSIONS ***


SOURCE ID: PT5
 IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK  IFV   BH
BW  WAK  IFV   BH     BW  WAK  IFV   BH     BW  WAK
   1  10.0, 116.3, 0     2  10.0, 117.5, 0     3  10.0, 115.1, 0     4  10.0,
109.2, 0     5  10.0, 100.0, 0     6  10.0,  87.8, 0
   7  10.0,  72.9, 0     8  10.0,  76.1, 0     9  10.0,  90.5, 0    10  10.0,
102.1, 0    11  10.0, 110.7, 0    12  10.0, 115.8, 0
  13  10.0, 117.5, 0    14  10.0, 115.6, 0    15  10.0, 110.2, 0    16  10.0,
101.4, 0    17  10.0, 103.4, 0    18  10.0, 111.5, 0
  19  10.0, 116.3, 0    20  10.0, 117.5, 0    21  10.0, 115.1, 0    22  10.0,
109.2, 0    23  10.0, 100.0, 0    24  10.0,  87.8, 0
  25  10.0,  72.9, 0    26  10.0,  76.1, 0    27  10.0,  90.5, 0    28  10.0,
102.1, 0    29  10.0, 110.7, 0    30  10.0, 115.8, 0
  31  10.0, 117.5, 0    32  10.0, 115.6, 0    33  10.0, 110.2, 0    34  10.0,
101.4, 0    35  10.0, 103.4, 0    36  10.0, 111.5, 0
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                   ***
***        17:41:57
**MODELOPTs:
PAGE   8
CONC                    RURAL ELEV  FLGPOL DFAULT


                                                *** DISCRETE CARTESIAN RECEPTORS ***
                                                  (X-COORD, Y-COORD, ZELEV, ZFLAG)
                                                              (METERS)

    (    293.0,     236.0,       0.0,       1.5);          (    130.0,
409.0,       0.0,       1.5);
    (     51.0,     150.0,       0.0,       1.5);          (     32.0,
177.0,       0.0,       1.5);
    (     59.0,     150.0,       0.0,       1.5);          (     71.0,
124.0,       0.0,       1.5);
    (     45.0,     158.0,       0.0,       1.5);          (    520.0,
191.0,       0.0,       1.5);
    (    502.0,     148.0,       0.0,       1.5);          (    636.0,
193.0,       0.0,       1.5);
    (    359.0,     195.0,       0.0,       1.5);
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
PAGE   9
CONC                    RURAL ELEV  FLGPOL DFAULT


                                          *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                              (1=YES; 0=NO)

          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1
1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1
1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1
1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1
1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1
1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1
1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1
1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

```
                                  *** UPPER BOUND OF FIRST THROUGH FIFTH WIND
SPEED CATEGORIES ***
                                                      (METERS/SEC)

                                             1.54,   3.09,   5.14,   8.23,
10.80,
```

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00

	E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
	F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***

(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
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CONC                    RURAL ELEV  FLGPOL DFAULT


                     *** THE FIRST  24 HOURS OF METEOROLOGICAL DATA ***

     FILE:   C:\DOCUME~1\mba\MYDOCU~1\METDAT~1\cimis\013cmo\cmo91.met
     FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
     SURFACE STATION NO.:  99013                    UPPER AIR STATION NO.:
99013
                    NAME: UNKNOWN                                    NAME:
UNKNOWN
                    YEAR:   1991                                     YEAR:
1991

              FLOW   SPEED  TEMP  STAB  MIXING HEIGHT (M)  USTAR  M-O LENGTH   Z-
0 IPCODE PRATE
YR MN DY HR VECTOR  (M/S)   (K)  CLASS   RURAL   URBAN    (M/S)     (M)
(M)       (mm/HR)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - -

91 01 01 01  234.8   2.14  275.8   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 02  242.3   2.43  276.4   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 03  251.5   1.97  275.5   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 04  239.4   2.56  275.6   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 05  237.5   2.54  275.9   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 06  235.7   2.64  276.4   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 07  240.8   2.75  275.9   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 08  244.5   3.27  275.7   5     400.0   400.0    0.0000       0.0
0.0000   0   0.00
91 01 01 09  236.9   3.08  277.9   4     166.7   500.0    0.0000       0.0
0.0000   0   0.00
91 01 01 10  247.3   1.73  282.5   3     333.3   600.0    0.0000       0.0
0.0000   0   0.00
91 01 01 11  103.8   1.00  285.8   2     500.0   700.0    0.0000       0.0
0.0000   0   0.00
91 01 01 12   83.9   1.69  286.7   1     666.7   800.0    0.0000       0.0
0.0000   0   0.00
91 01 01 13  113.5   1.53  287.4   1     833.3   900.0    0.0000       0.0
0.0000   0   0.00
91 01 01 14   87.4   1.31  287.7   2    1000.0  1000.0    0.0000       0.0
0.0000   0   0.00
91 01 01 15   74.3   1.87  286.5   3    1000.0  1000.0    0.0000       0.0
0.0000   0   0.00
```

```
91 01 01 16  167.4   1.10  285.6   3    1000.0  1000.0    0.0000       0.0
0.0000   0   0.00
91 01 01 17  262.6   1.00  284.6   4    1000.0  1000.0    0.0000       0.0
0.0000   0   0.00
91 01 01 18  235.1   1.54  282.6   5     914.3   914.3    0.0000       0.0
0.0000   0   0.00
91 01 01 19  219.5   1.81  280.9   6     828.6   828.6    0.0000       0.0
0.0000   0   0.00
91 01 01 20  227.6   2.23  278.7   6     742.9   742.9    0.0000       0.0
0.0000   0   0.00
91 01 01 21  231.0   2.92  279.0   6     657.1   657.1    0.0000       0.0
0.0000   0   0.00
91 01 01 22  238.1   2.57  278.9   6     571.4   571.4    0.0000       0.0
0.0000   0   0.00
91 01 01 23  261.6   1.91  279.1   6     485.7   485.7    0.0000       0.0
0.0000   0   0.00
91 01 01 24  244.4   2.45  277.0   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00


*** NOTES:  STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
            FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                       ***
***        17:41:57
**MODELOPTs:
PAGE  11
CONC                    RURAL ELEV  FLGPOL DFAULT

                               *** THE ANNUAL (   1 YRS) AVERAGE CONCENTRATION
VALUES FOR SOURCE GROUP: ALL      ***
                                    INCLUDING SOURCE(S):      PT1     , PT2     ,
PT3     , PT4     , PT5     , L0000218, L0000219,
          L0000220, L0000221, L0000222, L0000223, L0000224, L0000225, L0000226,
L0000227, L0000228, L0000229, L0000230, L0000231,
          L0000232, L0000233, L0000234, L0000235, L0000236, L0000237, L0000238,
L0000239, L0000240, L0000241, L0000242,  . . .  ,

                                                *** DISCRETE CARTESIAN RECEPTOR
POINTS ***

                                             ** CONC OF NH3      IN MICROGRAMS/M**3
**

      X-COORD (M)   Y-COORD (M)        CONC                         X-COORD (M)
Y-COORD (M)        CONC
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
           293.00        236.00        0.00315                          130.00
409.00        0.00067
            51.00        150.00        0.00260                           32.00
177.00        0.00260
            59.00        150.00        0.00264                           71.00
124.00        0.00336
            45.00        158.00        0.00253                          520.00
191.00        0.00224
           502.00        148.00        0.00085                          636.00
193.00        0.00119
           359.00        195.00        0.00910
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                  ***
***        17:41:57
**MODELOPTs:
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CONC                    RURAL ELEV  FLGPOL DFAULT

                                          *** THE SUMMARY OF MAXIMUM ANNUAL (
1 YRS) RESULTS ***


                                       ** CONC OF NH3      IN MICROGRAMS/M**3
**


NETWORK
GROUP ID                       AVERAGE CONC                RECEPTOR  (XR, YR,
ZELEV, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

ALL      1ST HIGHEST VALUE IS       0.00910 AT (     359.00,      195.00,
0.00,      1.50)  DC      NA
         2ND HIGHEST VALUE IS       0.00336 AT (      71.00,      124.00,
0.00,      1.50)  DC      NA
         3RD HIGHEST VALUE IS       0.00315 AT (     293.00,      236.00,
0.00,      1.50)  DC      NA
         4TH HIGHEST VALUE IS       0.00264 AT (      59.00,      150.00,
0.00,      1.50)  DC      NA
         5TH HIGHEST VALUE IS       0.00260 AT (      32.00,      177.00,
0.00,      1.50)  DC      NA
         6TH HIGHEST VALUE IS       0.00260 AT (      51.00,      150.00,
0.00,      1.50)  DC      NA
         7TH HIGHEST VALUE IS       0.00253 AT (      45.00,      158.00,
0.00,      1.50)  DC      NA
         8TH HIGHEST VALUE IS       0.00224 AT (     520.00,      191.00,
0.00,      1.50)  DC      NA
         9TH HIGHEST VALUE IS       0.00119 AT (     636.00,      193.00,
0.00,      1.50)  DC      NA
        10TH HIGHEST VALUE IS       0.00085 AT (     502.00,      148.00,
0.00,      1.50)  DC      NA


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/04/10
                                   ***
***        17:41:57
**MODELOPTs:
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CONC                    RURAL ELEV  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            5 Warning Message(s)
A Total of           14 Informational Message(s)

A Total of           14 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
SO W320   179 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   180 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   181 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   182 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS
SO W320   183 PPARM :Input Parameter May Be Out-of-Range for Parameter       VS

   ***********************************
   *** ISCST3 Finishes Successfully ***
   ***********************************
```

C.3 - Odor Impact Analysis

Odor Impact Analysis
Diamond Dorado Retail Center
City of Placerville, El Dorado County, California

Prepared for:

County of El Dorado
2850 Fairlane Court
Placerville, CA 95667
530.21.5355

Contact: Jason Hade, AICP, Project Planner

Prepared by:

Michael Brandman Associates
2000 "O" Street, Suite 200
Sacramento, CA 95811
916.447.1100

Contact: Elliot Mulberg, Senior Air Quality Scientist

Michael Brandman Associates

August 9, 2010

TABLE OF CONTENTS

LIST OF TABLES

LIST OF EXHIBITS

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
ATSDR	Agency for Toxic Substances and Disease Registry
EDAQMD	El Dorado Air Quality Management District
CARB	California Air Resources Control Board
CIMIS	California Irrigation Management Information System
DDRC	Diamond Dorado Retail Center
g/hr	grams of emissions per hour of idling
ISC	USEPA Industrial Source Complex Short Term Air Dispersion Model
m	meters
MRF	materials recovery facility
NWS	National Weather Service
OU	odor unit the ratio of dilutions to the threshold
PMI	point of maximum impact
SCAQMD	South Coast Air Quality Management District
SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District
USEPA	U.S. Environmental Protection Agency
WEDRS	Western El Dorado Recovery Systems

SECTION 1: INTRODUCTION

1.1 - Purpose and Regulatory Setting

The proposed project is located in the community of Diamond Springs in El Dorado County, California. The purpose of this report is to assess whether the proposed Diamond Dorado Retail Center (DDRC) may experience a public nuisance from objectionable odors emanating from the existing Western El Dorado Recovery Systems facility (WEDRS) adjacent to the DDRC. The El Dorado County Air Quality Management District (EDAQMD) Rule 205 defines nuisance as " . . . such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such person or to the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."

The determination of a nuisance often depends on whether there exists a significant impact. The EDAQMD CEQA Guide Guidelines (EDAQMD 2002) identifies a significant odor impact if a project with the potential to expose the public to odors that meets the definition of a nuisance. The DDRC project is not anticipated to produce odors but will be located near a source of odors at the WEDRS facility. The EDAQMD CEQA guidance states that the determination of significance should be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility. Complaints are likely to occur when the odor reaches a certain threshold of detection and then exceeds that threshold.

An odor threshold can be defined in several ways. The detection threshold can be defined as the lowest concentration of a substance that can be detected above a blank sample by an odor panel. The recognition threshold, an alternate threshold, is the lowest concentration of a substance that can be recognized based upon the character of the odor. Published odor threshold values for specific compounds have generally been derived in the laboratory and represent the concentration at which a compound can be detected by the "average" person (Pope and Diosey 2000).

The odor threshold is not necessarily the nuisance level, or the level that would draw a complaint. Studies have found that the nuisance level depends on the pleasantness of the odor, but it generally ranges from 3 to 5 times the odor threshold (Pope and Diosey 2000; SCAQMD 1993; Mahin 2003). The ratio of the dilution or concentration to the threshold is defined as an odor unit (OU). The SCAQMD Air Quality Handbook identifies less than 5 OU as preferable and below 10 OU as acceptable. For the purposes of this study, the qualitative evaluation will identify the types of potential odor-producing activities at WEDRS, assess whether any complaints have been filed, and discuss the experience in other districts that have facilities of similar size.

The quantitative analysis, although not required by the EDAQMD, will identify activities that have potential to emit odors and estimate any potential impacts from those activities at receptors located

within the DDRC project boundaries. The quantitative assessment will be concerned about whether activities at WEDRS would result in an impact of 5 OU or more at the DDRC.

1.2 - Methods of Analysis

The assessment is both qualitative and quantitative. The qualitative assessment satisfies the EDAQMD's guidelines. It will focus on current operations of WEDRS, any measures that are already in place to dissipate odors, and whether there are presently any sensitive receptors close to the facility. The qualitative assessment will also review the supporting documents for the South Coast Air Quality Management District's (SCAQMD's) Rule 410, which addresses odors emanating from materials recovery facilities (MRFs).

The quantitative assessment is based on the results of air quality modeling to estimate concentrations from emissions during processing of greenwaste. The greenwaste processing area is the closest to the proposed DDRC project. Several studies have analyzed emissions from composting of greenwaste (SCAQMD 2002). Although WEDRS is not a composting facility, the emission factors from decomposing greenwaste can be used to estimate potential impacts.

One of the compounds emitted during composting is ammonia (CalRecycle 2010). Ammonia is also commonly emitted from landfills. Sufficient studies have been performed to identify the odor threshold for ammonia (ASTDR 2001). The analysis will compare estimated concentrations to the odor threshold for ammonia to determine if it is likely that a complaint will be filed.

Ammonia concentrations will be estimated using the ISCST3 model with 1 year of meteorological data from the CIMIS site at Camino, which is approximately 9 miles east of the project along Highway 50. The Camino site was chosen because the terrain is similar and the meteorology is characterized by slope flows in a manner similar to the area around the project site in Diamond Springs.

Sometimes odor impacts can be of much shorter duration than 1 hour. The 1-hour average includes a peak concentration of short duration that is averaged out over an hour. The ISC model makes use of Gaussian dispersion equations. The equations are empirically based and assume steady-state conditions. These assumptions limit the calculation to averaging times of 3 minutes to 1 hour. Because of the model limitations, a 3-minute averaging time, or peak concentration, will be estimated by adjusting the 1-hour average with a peaking factor. The factor is calculated using a variable power law. The calculation will be discussed in subsequent sections of this analysis.

The quantitative odor assessment, then, is the ratio of the concentration estimated at a nearby receptor to the odor threshold. The ratio, an odor unit, if determined to be in excess of 5, would likely generate complaints to require mitigation.

1.3 - Executive Summary

The proposed project is located in the community of Diamond Springs in El Dorado County, California. The purpose of this report is to assess whether the proposed Diamond Dorado Retail Center (DDRC) will experience a public nuisance from objectionable odors emanating from the existing Western El Dorado Recovery Systems facility (WEDRS) adjacent to the DDRC.

The assessment is both qualitative and quantitative. The qualitative assessment satisfies the EDAQMD's guidelines. It will focus on current operations of WEDRS, any measures that are already in place to dissipate odors, and whether there are presently any sensitive receptors close to the facility. The qualitative assessment will also review the supporting documents for the South Coast Air Quality Management District's (SCAQMD's) Rule 410, which addresses odors emanating from materials recovery facilities (MRFs).

The quantitative assessment is based on the results of air quality modeling to estimate concentrations from emissions during processing of greenwaste. The greenwaste processing area is the closest to the proposed DDRC project. Several studies have analyzed emissions from composting of greenwaste (SCAQMD 2002). Although WEDRS is not a composting facility, the emission factors from decomposing greenwaste can be used to estimate potential impacts.

The EDAPCD Rule 205 defines nuisance as " . . . such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such person or to the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."

The determination of a nuisance often depends on whether there exists a significant impact. The EDAPCD defines a significant odor impact as one confirmed complaint. Because of variability in the sensor—the human nose—the precise level at which a complaint is likely to be registered is highly variable. Studies have shown that complaints may be registered when the odor is 3 to 5 times the threshold (Pope and Diosey 2000). The South Coast Air Quality Management District (SCAQMD 1993) sets 5 times the odor threshold as a desirable level. Because of the variability, this analysis will adopt 5 times the odor threshold as the level at which complaints are most likely to occur when the odor reaches or exceeds 5 times the odor threshold.

This analysis is concerned with whether the DDRC project, which is close to the existing Western El Dorado Recovery Systems (WEDRS), will experience an odor nuisance. The WEDRS is permitted for both 400 tons per day materials recovery and 200 tons per day greenwaste processing. In researching odor studies, very little information was found on materials recovery facilities (MRFs), but emissions data were available for greenwaste processing and composting.

The analysis has shown that:

- There have been no complaints registered with the EDAQMD of odors from the WEDRS MRF.
- The WEDRS MRF is an enclosed facility that transfers the material within 24 hours and employs a system of misters to dissipate any potential odors.
- A study of odor emissions from MRFs in the SCAQMD showed there have been no complaints registered from facilities permitted to process 400 tons per day.
- Modeling analysis shows that the concentration of ammonia emitted at the greenwaste processing section of WEDRS is less than 5 times the odor threshold, which is the level that would generate a complaint.
- The WEDRS MRF operations would not result in a significant odor impact at nearby sensitive receptors at the DDRC project.

SECTION 2: SETTING

2.1 - Project Location and Description

The proposed project is located within unincorporated El Dorado County, California, south of the Missouri Flat Road/U.S. 50 Interchange, west of the City of Placerville, and north of the town of Diamond Springs (Exhibit 1). As illustrated in Exhibit 2, the project site abuts Diamond Road/State Route 49 to the east, the proposed Diamond Springs Parkway (Parkway) and Bradley Drive to the north, and Lime Kiln Road to the south.

2.1.1 - Surrounding Land Uses

North

Areas north of the project site include industrial land uses along Truck Street and Bradley Drive, including a mini storage facility, auto mechanic shops, and a recycling center. Beyond the industrial land uses, undeveloped land, rural residences, and wooded areas are present.

East

Diamond Road/SR 49 borders the project site on the east. Beyond Diamond Road/SR 49 is an undeveloped area consisting of rural (weedy) vegetation and large trees. Further east are several scattered rural residences. A small residential subdivision is located southeast of the project site.

South

The El Dorado Materials Recovery Facility and Lime Kiln Road are located adjacent to the southern boundary of the project site. Beyond the MRF and Lime Kiln Road are rural residences and undeveloped woodlands. The Community of Diamond Springs is located approximately 0.30 mile south of the project site on Pleasant Valley Road/SR 49.

West

West of the project site are commercial and industrial land uses along Chuckwagon Way and Stage Court. Uses include a mini storage facility, auto mechanic shops, small manufacturing operations, and small storage warehouses. A mobile home park is located between these uses and the commercial uses on Missouri Flat Road.

2.2 - Sensitive Receptors

The purpose of this study is to determine if odors emanating from the WEDRS facility would be sufficient to create a nuisance at the DDRC. Sensitive receptors would be located at the DDRC project site, which is about 75 meters from the WEDRS facility. Exhibit 3 shows the locations of the receptors with respect to the restaurant.

Source: Census 2000 Data, The CaSIL, MBA GIS 2009.

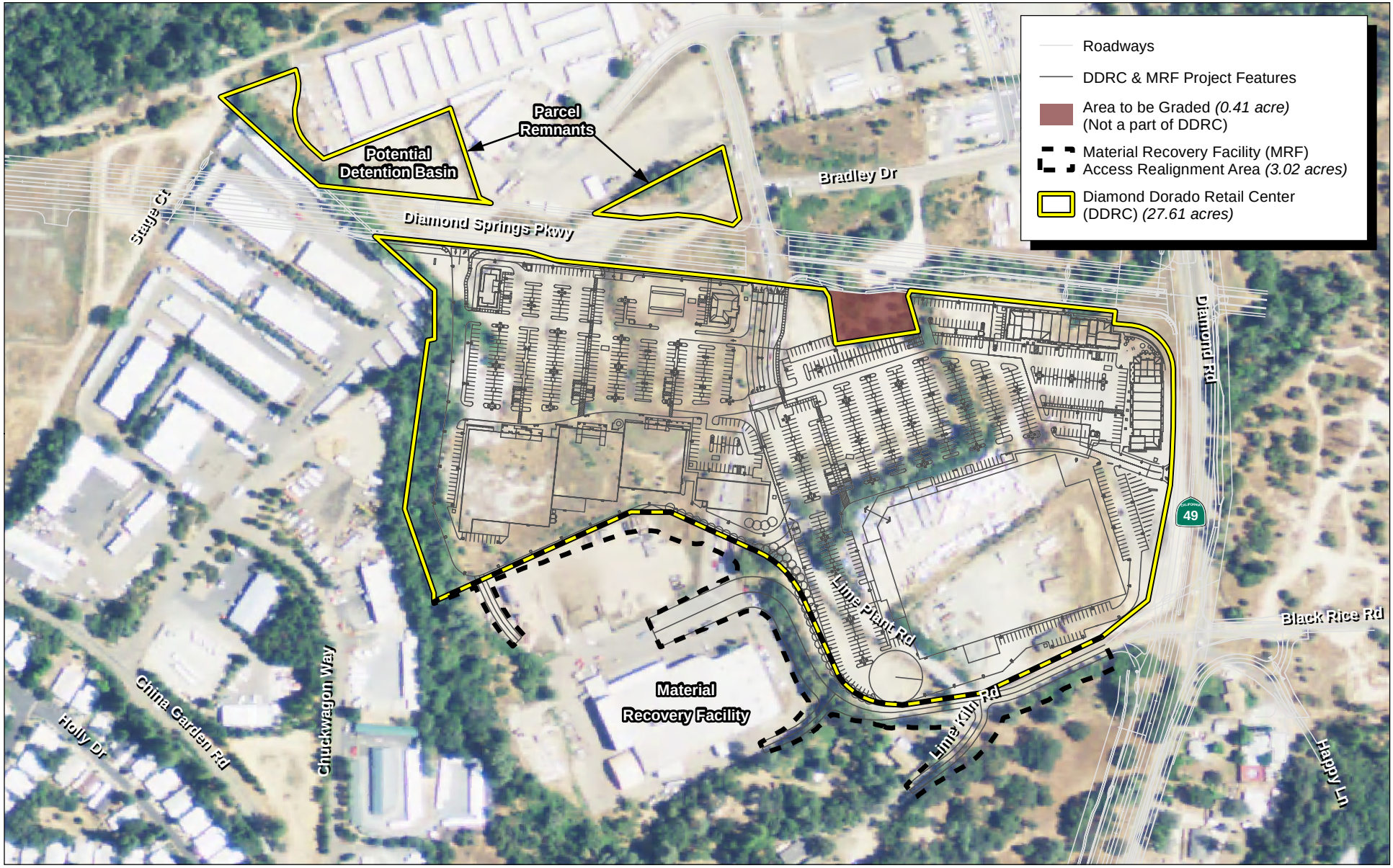
NORTH

5 2.5 0 5

Miles

Michael Brandman Associates

Exhibit 1
Regional Vicinity Map



Source: CTA Engineering & Surveying (2010) & NAIP for El Dorado County (2009).

NORTH

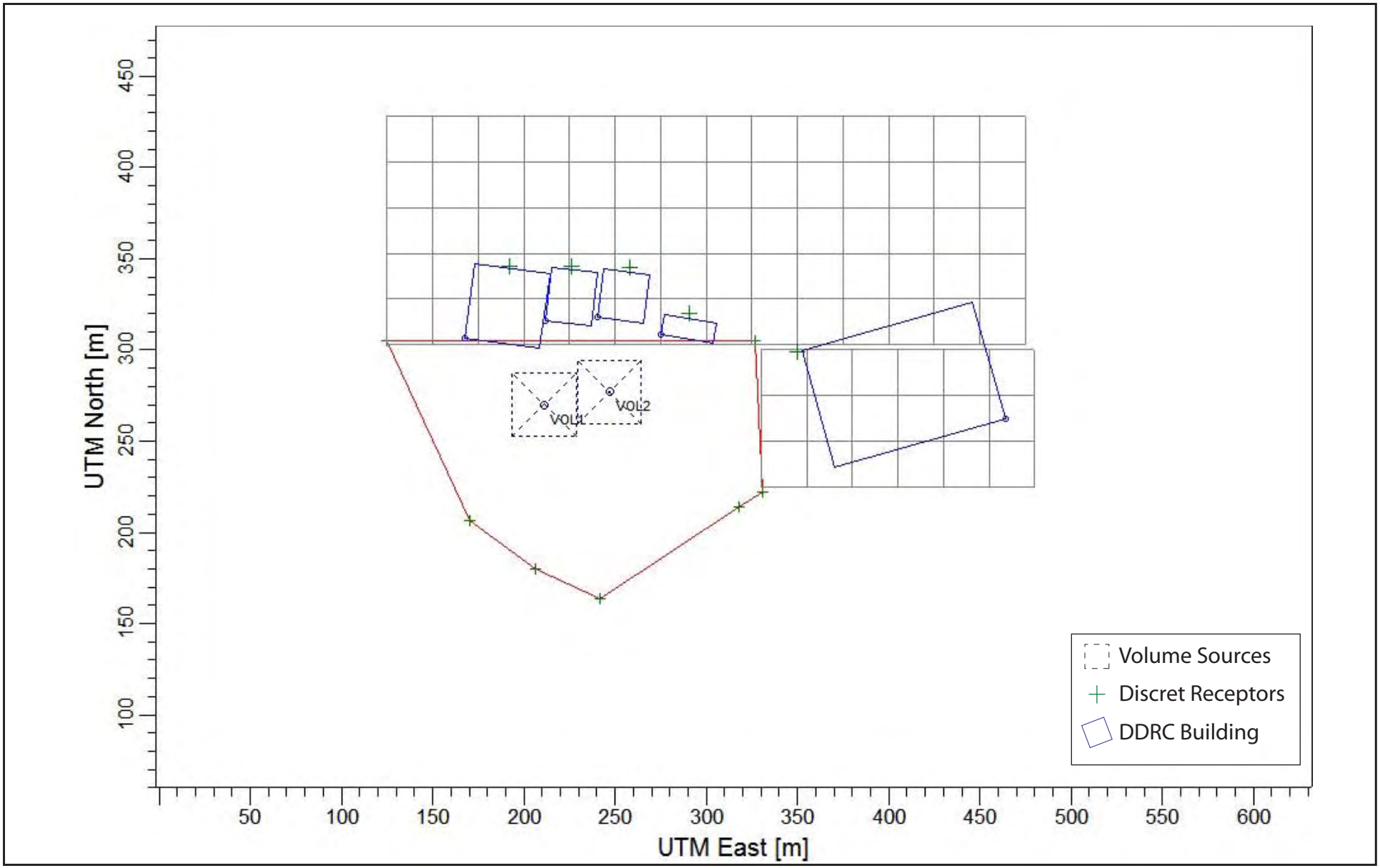
300 150 0 300

Feet

Michael Brandman Associates

33370001 • 08/2010 | 2_Site_Plan.pdf

Exhibit 2
Site Plan



Source: Michael Brandman Associates, 2010.

NORTH

Michael Brandman Associates

33370001 • 08/2010 | 3 Emission Source.pdf

Exhibit 3
Emission Source and Receptor Locations

SECTION 3: THRESHOLDS OF SIGNIFICANCE

3.1 - Odor Thresholds

An odor threshold can be defined as the detection threshold or the recognition threshold. The detection threshold is considered the lowest concentration of a substance than can be detected above a blank sample by an odor panel. The recognition threshold represents the lowest concentration of a substance that can be recognized based upon the character of the odor. The odor threshold is not necessarily the nuisance level, or the level that would draw a complaint. Studies have found that the nuisance level depends on the pleasantness of the odor, the sensitivity of the individual, and the level and duration of exposure, but generally ranges from 3 to 5 times the odor threshold (Pope and Diosey 2000; SCAQMD 1993; Mahin 2003). The ratio of the dilution or concentration to the threshold is defined as an odor unit (OU). Based on the literature, the goal of this analysis is to determine if 5 OU or higher would be expected to occur at the nearby receptors.

SECTION 4: ODOR ASSESSMENT

4.1 - Qualitative Assessment

The WEDRS facility is permitted to process 400 tons per day of recyclable waste as an MRF and up to 200 tons per day of greenwaste materials. The materials recovery portion of the facility is located in a building on the south side of the facility. The materials received are transferred within 24 hours of receiving them. The MRF also contains a series of misters to dissipate any odors that might be generated from processing waste materials.

Greenwaste is processed on the north side of the facility. Processing includes chipping and grinding. Typically, processed greenwaste is removed from the facility within 3 or 4 days to a composting facility in Yolo County (Little 2010).

Odor assessments of MRF/transfer stations are limited, since the waste material generally leaves the premises within 24 hours. The South Coast Air Quality Management District (SCAQMD) in 2006 adopted Rule 410 regarding odors emanating from MRFs. In developing the rule, the SCAQMD identified 48 facilities within the district with throughput ranging from 100 to over 5,000 tons per day. The study included eight facilities in the 250- to 500-tons-per-day range, similar to the WEDRS facility. Part of the study included compiling complaint and notice of violation data for each facility from January 2001 through December 2005. In the 5-year period, 2,352 complaints were filed and 57 notices of violation were issued. Not all facilities received complaints or notices of violation (SCAQMD 2006). In fact, none of the facilities in the 250- to 500-tons-per-day range received complaints or notices of violation and MRFs that were enclosed tended to be complaint-free (Gottschalk 2010a, 2010b). As with similarly sized facilities in the SCAQMD, no complaints have been filed with the EDAQMD regarding WEDRS to date (McTaggert 2010).

The qualitative analysis is required by EDAQMD. It shows the WEDRS facility is operated to minimize the amount of time that waste remains onsite. In addition, the MRF is an enclosed facility with a system of misters to dissipate potential odors. To date there have been no complaints filed against the facility. Data from the SCAQMD Rule 410 study have indicated there were no complaints from a similar facility the size of WEDRS and that enclosed MRFs are less likely to receive complaints. Therefore, the qualitative analysis can conclude that the WEDRS facility is unlikely to generate odors of sufficient intensity to cause a nuisance at the DDRC.

4.2 - Quantitative Assessment

A quantitative odor analysis requires the completion and interaction of four general steps:

1. Quantify project-generated emissions.
2. Identify nearby ground-level receptor locations that may be affected by the emissions

3. Perform air dispersion modeling analyses to estimate ambient pollutant concentrations at each receptor location using project emissions and representative meteorological data to define the transport and dispersion of those emissions in the atmosphere.

4. Characterize and compare odor units with the applicable significance thresholds. The first requirement to carry out the assessment involves the process of identifying and quantifying the sources of emissions from the project, also termed an emission inventory. The emissions from the project sources are described and quantified below.

4.2.1 - Emission Source Estimates

Ammonia is one of the identifiable compounds emitted from composting piles. It is easily measured, has a distinctive odor, and a defined odor threshold. For the purposes of this analysis, ammonia was chosen as the compound to compare the odor threshold to estimated concentrations at the DDRC. Although the greenwaste is not being composted on-site, it is possible that some material may arrive at the site already decomposing.

The emission estimates were derived from a recent a study conducted by the SCAQMD (SCAQMD 2002). The emission factors were generated from measurements made of greenwaste composting piles of 2 days. The WEDRS facility transfers greenwaste for composting to a facility in Yolo County, but some of the waste remains for 3 to 4 days before being transferred. The measurements were made in early fall and early winter and summarized in Table 1.

Table 1: Ammonia Emissions Calculations

Parameter	Value	Units
Early Fall	0.091	lbs/hr-1,000 ft^2
Early Winter	0.018	lbs/hr-1,000 ft^2
Mean	0.055	lbs/hr-1,000 ft^2
Source: SCAQMD 2002		

4.2.2 - Emission Source Characterization

Table 2 provides a summary of the assumptions used to configure the emission source. The source was characterized as two volume sources. The configuration was chosen because of the uncertainty surrounding the exact location and dimensions of the greenwaste processing. The two volume sources cover the approximate greenwaste processing area. A volume source is a three-dimensional area source chosen because the greenwaste would have a certain thickness as well as area.

Table 2: Source Parameters

Emission Source Type	Geometric Configuration	Relevant Assumptions
Greenwaste Processing Area	Volume Source	Two volume sources Stack release height: 0.1 meter Area: 1,225 m^2 each source

4.2.3 - Receptor Network

Exhibit 3 also shows the various receptor locations. Receptors were assigned so as to cover the DDRC area in two arrays with receptors spaced at 25 m interval. One receptor grid consists of a 14 by 5 array that covers the section of the DDRC project to the north of WEDRS. The second receptor grid, a 6 by 3 array, was placed to cover the DDRC project area that is east of WEDRS. The spacing was selected to place receptors in areas frequented by shoppers at the commercial center. Additional receptors were placed at the entrances of the supermarket and the other commercial buildings.

4.2.4 - Dispersion Model Selection

The next step in the quantitative assessment process utilizes the emissions inventory along with a mathematical air dispersion model and representative meteorological data to calculate impacts at the various receptor locations. The ISC dispersion model was used in this assessment.

The ISC model has been used in other odor assessment studies in Southern California (Voelz et al. 2006). ISC predicts pollutant concentrations from point, area, volume, line, and flare sources, with variable emissions in terrain from flat to complex with the inclusion of building downwash effects from buildings on pollutant dispersion. It captures the essential atmospheric physical processes and provides reasonable estimates over a wide range of meteorological conditions and modeling scenarios.

4.2.5 - General Model Assumptions

The basic options used in the dispersion modeling are summarized in Table 3.

Table 3: General Modeling Assumptions – ISC Model

Feature	Option Selected
Terrain processing	Flat terrain
Emission source configuration	Volume source
Regulatory dispersion options	• Includes missing data processing routine • Includes calm processing option
Land use	Urban
Coordinate system	UTM
Building downwash	Included in calculations
Receptor height	1.5 m
Averaging time	Hourly and 3 minutes

The ISC model provides estimated of pollutant impacts for averaging periods of 1 hour or longer. Frequently, for odor assessments, odors are observed for shorter periods than 1 hour. Typically, the peak concentration is determined over a 3-minute period. Factors have been developed that allow an estimate of peak concentrations from the 1-hour averages calculated by the ISC model. These factors vary according to atmospheric stability class, which in essence characterizes the meander of the plume. The commonly used atmospheric stability classification was attributed to work by Pasquil and Gifford, who identified six stability classifications based on the dispersion of a pollutant plume in the atmosphere. The classification ranges from A to F, where F is the most stable with the least amount of dispersion. The averaging time is adjusted from a 1-hour average to a 3-minute average by the following equation:

$C_p = C_m(t_m/t_p)^a$, where: C_p = predicted 3-minute concentration
C_m = modeled 1-hour concentration
t_m = 60 minutes
t_p = 3 minutes
a = power law exponent based on stability class shown in Table 6

Table 4: Peaking Factors

Stability Class	Power-Law Exponent	Peaking Factor
A	1/2	4.47
B	1/2	4.47
C	1/3	2.71

Table 4 (cont.): Peaking Factors

Stability Class	Power-Law Exponent	Peaking Factor
D	1/5	1.82
E	1/6	1.65
F	1/6	1.65
Source: Voelz, et al, 2006.		

Meteorological Data

Hourly meteorological data consisting of air temperature, wind speed, wind direction, and atmospheric mixing heights are also required to operate the ISC model to determine the direction and rate of dispersion of emissions released into the atmosphere. The closest source of meteorological data in the appropriate format for use with ISC is from the CIMIS station located in Camino approximately 9 miles from the project site. Camino was chosen because of similar terrain and the slope flow patterns common to the two areas. Although only the highest one-hour concentration is needed , the entire year of meteorological data was used to find the worst-case combination of meteorology. Available data included two years, 1991 and 1993. Both years were used in the model. The 1991 data produced the highest concentrations.

Exhibit 4 provides a wind rose from the Camino meteorological data site for 1991. As this exhibit indicates, the predominant winds at this location are from the northwest. These data are considered representative and descriptive of current and future meteorological conditions at the project site.

4.3 - Quantitative Odor Assessment Results

The odor analysis was based on a comparison of the model results to the odor threshold for ammonia. The odor threshold for ammonia was reported at 1 ppm or 750 $\mu g/m^3$ (ATSDR 2001). One OU, then, is a concentration of 750 $\mu g/m^3$, and 5 OU is 3,750 $\mu g/m^3$. The analysis was performed for both 1-hour and 3-minute averages to determine whether the impacts would approach a level 5 times the odor threshold, the level that might trigger a complaint.

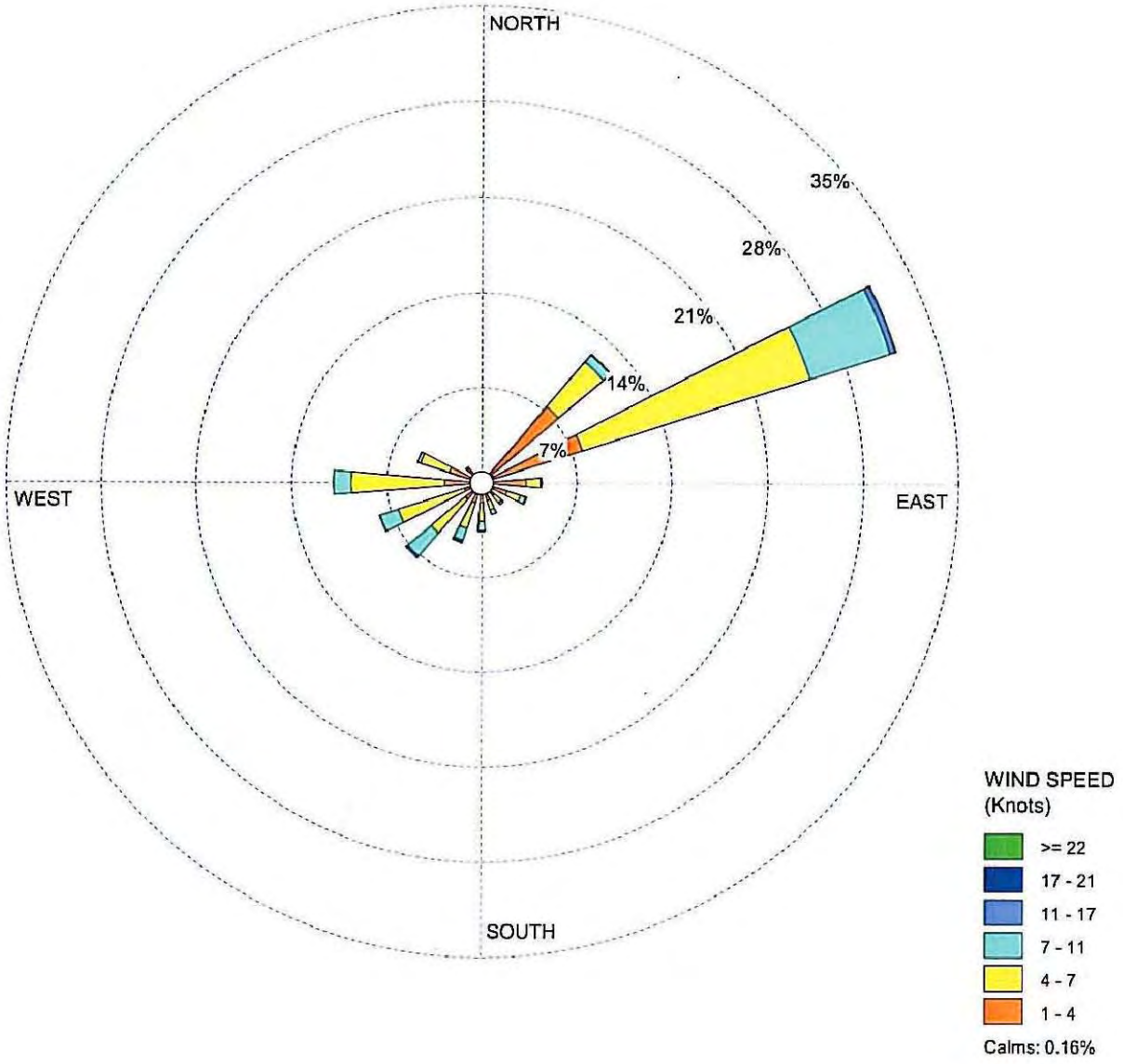


Exhibit 4
Wind Rose - Camino, CA 1991

The highest estimated 1-hour concentration was 1,912 $\mu g/m^3$ at the northeast corner of the WEDRS facility between the supermarket and a small retail outlet. The highest estimated concentration occurred under stable atmospheric conditions. The 3-minute values were estimated by adjusting the 1-hour average by the factors listed for stability classes E and F in Table 4. Applying the adjustment factor yielded a 3-minute average concentration of 3,155 $\mu g/m^3$ or 4.21 OU, which is less than the 5-OU threshold. The conclusion of the quantitative assessment is similar to the qualitative assessment. It is unlikely the WEDRS facility will be the source of a nuisance at the DDRC.

4.4 - Assessment Uncertainty

There are substantial uncertainties involved in assessing odor impacts. The standard for determining an impact is the human nose whose sensitivity varies form individual to individual. There are also uncertainties in dispersion modeling, threshold factors, and odor assessment. The methodology described above for assessing odor involving emission estimations, dispersion modeling, and odor thresholds have been developed to provide conservative results (in terms of over-predicting impacts).

The quantitative assessment involves several conservative assumptions. Among them are that greenwaste is allowed to begin composting before removal. The operator has stated that no composting occurs onsite, but that greenwaste is removed to a recycling center for composting. The modeling analysis shows that the maximum impact occurred under stable conditions. Stable conditions are only likely to occur at night when there are no shoppers at the retail center. Finally, there is the uncertainty of the ultimate sensor—the human nose. Some individuals have a shaper olfactory sense than others. The odor threshold for some is much lower than the odor threshold for others.

Given the uncertainty and the conservative analysis, it is unlikely that the project will cause an odor nuisance. The analysis shows odors are still two orders of magnitude below a conservative threshold, which is 5 times below the level that would trigger a complaint.

SECTION 5: REFERENCES

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Appendix A:
Quantitative Odor Analysis Model Output

```
**
**************************************
**
** ISCST3 Input Produced by:
** AERMOD View Ver. 6.6.0
** Lakes Environmental Software Inc.
** Date: 8/9/2010
** File: C:\Documents and Settings\mba\My Documents\misc ceqa projects\3337.0001
DDRC\odor study\ddrcodor\ddrcodor.INP
**
**************************************
**
**
**************************************
** ISCST3 Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE C:\Documents and Settings\mba\My Documents\misc ceqa projects\3337.0
   MODELOPT DFAULT CONC  RURAL
   AVERTIME 1
   POLLUTID NH3
   TERRHGTS FLAT
   FLAGPOLE 1.50
   RUNORNOT RUN
CO FINISHED
**
**************************************
** ISCST3 Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION VOL1 VOLUME 211.000 270.000
** DESCRSRC composting area
   LOCATION VOL2 VOLUME 247.000 277.000
** DESCRSRC composting area
** Source Parameters **
   SRCPARAM VOL1 0.0905467389 0.100 8.140 0.100
   SRCPARAM VOL2 0.0905467389 0.100 8.140 0.100
   SRCGROUP ALL
SO FINISHED
**
**************************************
** ISCST3 Receptor Pathway
**************************************
**
**
RE STARTING
   GRIDCART UCART1 STA
                    XYINC 125.00 15 25.00 303.00 6 25.00
                    FLAG    1     1.50     1.50     1.50     1.50     1.50
1.50
```

```
                    FLAG    1     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    1     1.50     1.50     1.50
                    FLAG    2     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    2     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    2     1.50     1.50     1.50
                    FLAG    3     1.50     1.50     1.50     1.50     1.50
1.50
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1.50
                    FLAG    3     1.50     1.50     1.50
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1.50
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                    FLAG    6     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    6     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    6     1.50     1.50     1.50
   GRIDCART UCART1 END
   GRIDCART UCART2 STA
                    XYINC 330.00 7 25.00 225.00 4 25.00
                    FLAG    1     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    1     1.50
                    FLAG    2     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    2     1.50
                    FLAG    3     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    3     1.50
                    FLAG    4     1.50     1.50     1.50     1.50     1.50
1.50
                    FLAG    4     1.50
   GRIDCART UCART2 END
** DESCRREC "" ""
   DISCCART       192.00       346.00    1.50
   DISCCART       226.00       346.00    1.50
   DISCCART       258.00       345.00    1.50
   DISCCART       291.00       320.00    1.50
   DISCCART       350.00       299.00    1.50
** Discrete Cartesian Plant Boundary - Primary Receptors
** Plant Boundary Name PLBN1
** Plant Boundary Name PLBN2
** Plant Boundary Name PLBN3
** Plant Boundary Name PLBN4
** Plant Boundary Name PLBN5
** Plant Boundary Name PLBN6
```

```
** Plant Boundary Name PLBN7
** Plant Boundary Name PLBN8
** DESCRREC "FENCEPRI" "Cartesian plant boundary Primary Receptors"
   DISCCART       330.77       222.36    1.50
   DISCCART       318.06       214.27    1.50
   DISCCART       241.84       163.46    1.50
   DISCCART       206.04       179.63    1.50
   DISCCART       170.25       206.19    1.50
   DISCCART       125.00       305.20    1.50
   DISCCART       327.00       305.20    1.50
RE FINISHED
**
**************************************
** ISCST3 Meteorology Pathway
**************************************
**
**
ME STARTING
   INPUTFIL C:\DOCUME~1\mba\MYDOCU~1\METDAT~1\cimis\013cmo\cmo91.met
   ANEMHGHT 10 METERS
   SURFDATA 99013 1991
   UAIRDATA 99013 1991
ME FINISHED
**
**************************************
** ISCST3 Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
   PLOTFILE 1 ALL 1ST ddrcodor.IS\01H1GALL.PLT
OU FINISHED

*********************************
*** SETUP Finishes Successfully ***
*********************************
```

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/09/10
                                   ***
***        14:24:01
**MODELOPTs:
PAGE   1
CONC                    RURAL FLAT  FLGPOL DFAULT

                                           ***     MODEL SETUP OPTIONS SUMMARY
***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.
           8. "Upper Bound" Values for Supersquat Buildings.
           9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     2 Source(s);      1 Source Group(s); and     130
Receptor(s)

**The Model Assumes A Pollutant Type of:  NH3

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
```

```
                                                                    m for Missing
Hours
                                                                    b for Both Calm
and Missing Hours

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =    0.000     ;
Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                   ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          ddrcodor.INP
**Output Print File:             ddrcodor.OUT
```

CONC RURAL FLAT FLGPOL DFAULT

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
VOL1	0	0.90547E-01	211.0	270.0	0.0	0.10	8.14	0.10	
VOL2	0	0.90547E-01	247.0	277.0	0.0	0.10	8.14	0.10	

CONC RURAL FLAT FLGPOL DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	VOL1 , VOL2 ,

**MODELOPTs:
CONC RURAL FLAT FLGPOL DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

125.0, 150.0, 175.0, 200.0, 225.0, 250.0,
275.0, 300.0, 325.0, 350.0,
375.0, 400.0, 425.0, 450.0, 475.0,

*** Y-COORDINATES OF GRID ***
(METERS)

303.0, 328.0, 353.0, 378.0, 403.0, 428.0,

**MODELOPTs:
PAGE 5
CONC RURAL FLAT FLGPOL DFAULT

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)											
	125.00	150.00	175.00	200.00	225.00	250.00	275.00	300.00	325.00			
428.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			
403.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			
378.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			
353.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			
328.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			
303.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			

**MODELOPTs:
PAGE 6
CONC RURAL FLAT FLGPOL DFAULT

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)					
	350.00	375.00	400.00	425.00	450.00	475.00
428.00	1.50	1.50	1.50	1.50	1.50	1.50
403.00	1.50	1.50	1.50	1.50	1.50	1.50
378.00	1.50	1.50	1.50	1.50	1.50	1.50
353.00	1.50	1.50	1.50	1.50	1.50	1.50
328.00	1.50	1.50	1.50	1.50	1.50	1.50
303.00	1.50	1.50	1.50	1.50	1.50	1.50

**MODELOPTs:
PAGE 7
CONC RURAL FLAT FLGPOL DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART2 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

330.0, 355.0, 380.0, 405.0, 430.0, 455.0, 480.0,

*** Y-COORDINATES OF GRID ***
(METERS)

225.0, 250.0, 275.0, 300.0,

**MODELOPTs:
PAGE 8
CONC RURAL FLAT FLGPOL DFAULT

*** NETWORK ID: UCART2 ; NETWORK TYPE: GRIDCART ***

* RECEPTOR FLAGPOLE HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS)						
	330.00	355.00	380.00	405.00	430.00	455.00	480.00
300.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50
275.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50
250.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50
225.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50

**MODELOPTs:
PAGE 9
CONC RURAL FLAT FLGPOL DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(192.0, 346.0, 0.0, 1.5); (226.0, 346.0, 0.0, 1.5);
(258.0, 345.0, 0.0, 1.5); (291.0, 320.0, 0.0, 1.5);
(350.0, 299.0, 0.0, 1.5); (330.8, 222.4, 0.0, 1.5);
(318.1, 214.3, 0.0, 1.5); (241.8, 163.5, 0.0, 1.5);
(206.0, 179.6, 0.0, 1.5); (170.3, 206.2, 0.0, 1.5);
(125.0, 305.2, 0.0, 1.5); (327.0, 305.2, 0.0, 1.5);

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/09/10
                                   ***
***        14:24:01
**MODELOPTs:
PAGE  10
CONC                    RURAL FLAT  FLGPOL DFAULT


                                           *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                              (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1
1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1
1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1
1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1
1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1
1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1
1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1
1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.



                                 *** UPPER BOUND OF FIRST THROUGH FIFTH WIND
SPEED CATEGORIES ***
                                                           (METERS/SEC)

                                                1.54,   3.09,   5.14,   8.23,
10.80,


                                                  *** WIND PROFILE EXPONENTS ***


               STABILITY                             WIND SPEED CATEGORY
               CATEGORY         1              2              3              4
5              6
                  A          .70000E-01     .70000E-01     .70000E-01
.70000E-01     .70000E-01     .70000E-01
                  B          .70000E-01     .70000E-01     .70000E-01
.70000E-01     .70000E-01     .70000E-01
                  C          .10000E+00     .10000E+00     .10000E+00
.10000E+00     .10000E+00     .10000E+00
                  D          .15000E+00     .15000E+00     .15000E+00
.15000E+00     .15000E+00     .15000E+00
```

	E	.35000E+00	.35000E+00	.35000E+00	
.35000E+00	.35000E+00	.35000E+00			
	F	.55000E+00	.55000E+00	.55000E+00	
.55000E+00	.55000E+00	.55000E+00			

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***

(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

CONC RURAL FLAT FLGPOL DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\DOCUME~1\mba\MYDOCU~1\METDAT~1\cimis\013cmo\cmo91.met
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 99013 UPPER AIR STATION NO.: 99013
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1991 YEAR: 1991

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0	IPCODE	PRATE (mm/HR)
91	01	01	01	234.8	2.14	275.8	6	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	02	242.3	2.43	276.4	6	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	03	251.5	1.97	275.5	6	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	04	239.4	2.56	275.6	6	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	05	237.5	2.54	275.9	6	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	06	235.7	2.64	276.4	6	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	07	240.8	2.75	275.9	6	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	08	244.5	3.27	275.7	5	400.0	400.0	0.0000	0.0	0.0000	0	0.00
91	01	01	09	236.9	3.08	277.9	4	166.7	500.0	0.0000	0.0	0.0000	0	0.00
91	01	01	10	247.3	1.73	282.5	3	333.3	600.0	0.0000	0.0	0.0000	0	0.00
91	01	01	11	103.8	1.00	285.8	2	500.0	700.0	0.0000	0.0	0.0000	0	0.00
91	01	01	12	83.9	1.69	286.7	1	666.7	800.0	0.0000	0.0	0.0000	0	0.00
91	01	01	13	113.5	1.53	287.4	1	833.3	900.0	0.0000	0.0	0.0000	0	0.00
91	01	01	14	87.4	1.31	287.7	2	1000.0	1000.0	0.0000	0.0	0.0000	0	0.00
91	01	01	15	74.3	1.87	286.5	3	1000.0	1000.0	0.0000	0.0	0.0000	0	0.00

```
91 01 01 16  167.4   1.10  285.6   3    1000.0  1000.0    0.0000       0.0
0.0000   0   0.00
91 01 01 17  262.6   1.00  284.6   4    1000.0  1000.0    0.0000       0.0
0.0000   0   0.00
91 01 01 18  235.1   1.54  282.6   5     914.3   914.3    0.0000       0.0
0.0000   0   0.00
91 01 01 19  219.5   1.81  280.9   6     828.6   828.6    0.0000       0.0
0.0000   0   0.00
91 01 01 20  227.6   2.23  278.7   6     742.9   742.9    0.0000       0.0
0.0000   0   0.00
91 01 01 21  231.0   2.92  279.0   6     657.1   657.1    0.0000       0.0
0.0000   0   0.00
91 01 01 22  238.1   2.57  278.9   6     571.4   571.4    0.0000       0.0
0.0000   0   0.00
91 01 01 23  261.6   1.91  279.1   6     485.7   485.7    0.0000       0.0
0.0000   0   0.00
91 01 01 24  244.4   2.45  277.0   6     400.0   400.0    0.0000       0.0
0.0000   0   0.00


*** NOTES:  STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
            FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.
```

**MODELOPTs:

CONC RURAL FLAT FLGPOL DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): VOL1 , VOL2 ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NH3 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)				
	125.00	150.00	175.00	200.00	225.00
428.0	523.74249 (91102819)	546.02942 (91080421)	563.82825 (91122919)	572.90082 (91062802)	595.89471 (91082621)
403.0	570.62152 (91041006)	604.73022 (91010707)	657.35455 (91062802)	673.57697 (91011121)	704.09967 (91010403)
378.0	678.57666 (91022405)	730.94989 (91041523)	765.07013 (91011121)	796.04388 (91082621)	838.69879 (91011022)
353.0	788.31091 (91010404)	857.83643 (91021701)	920.09387 (91122921)	972.65973 (91082621)	1007.71295 (91062802)
328.0	972.23511 (91111405)	998.53363 (91010404)	1086.90552 (91121121)	1129.88049 (91010403)	1153.52319 (91122921)
303.0	1260.54944 (91081921)	1325.67041 (91080703)	1233.64014 (91062822)	1185.42798 (91111405)	1150.62549 (91052120)

CONC RURAL FLAT FLGPOL DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): VOL1 , VOL2 ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NH3 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)				
	250.00	275.00	300.00	325.00	350.00
428.0	605.78839 (91040104)	599.41626 (91042501)	613.68372 (91091220)	630.85498 (91082021)	568.86627 (91120219)
403.0	713.99017 (91040104)	713.71631 (91042501)	699.45905 (91042604)	662.93988 (91102205)	565.07996 (91111419)
378.0	857.24792 (91040104)	769.88330 (91032121)	846.46021 (91082021)	696.08459 (91120219)	896.12885 (91011023)
353.0	1032.51660 (91040104)	1016.06439 (91091220)	915.50665 (91120219)	1103.53125 (91112719)	986.75586 (91040101)
328.0	1163.47314 (91040104)	1191.07849 (91082021)	1419.14917 (91112719)	1398.70044 (91040101)	1187.01868 (91123020)
303.0	1215.58423 (91011023)	1730.99170 (91040101)	1912.03320 (91123020)	1694.68445 (91040102)	1145.77686 (91040102)

**MODELOPTs:
PAGE 14
CONC RURAL FLAT FLGPOL DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): VOL1 , VOL2 ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NH3 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)				
	375.00	400.00	425.00	450.00	475.00
428.0	484.70410 (91111419)	615.37372 (91011023)	593.38269 (91112719)	423.18115 (91062905)	497.45160 (91040101)
403.0	737.99139 (91011023)	675.91644 (91112719)	553.07330 (91040101)	609.44849 (91040101)	406.30676 (91040101)
378.0	745.89606 (91112719)	792.76416 (91040101)	598.23438 (91040101)	572.82471 (91123019)	587.28949 (91123020)
353.0	911.48230 (91040101)	792.82935 (91123019)	801.59265 (91123020)	621.98303 (91040102)	641.53546 (91040102)
328.0	1078.96851 (91123020)	980.74414 (91040102)	760.37000 (91040102)	484.15195 (91040102)	490.22275 (91011523)
303.0	938.73950 (91011523)	763.43622 (91011523)	571.36896 (91011523)	484.71387 (91041102)	477.87961 (91041102)

CONC RURAL FLAT FLGPOL DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): VOL1 , VOL2 ,

*** NETWORK ID: UCART2 ; NETWORK TYPE: GRIDCART ***

** CONC OF NH3 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS)			
	330.00	355.00	380.00	405.00	430.00
300.0	1510.23315 (91040102)	1075.88696 (91011523)	884.56940 (91011523)	658.83386 (91011523)	569.69885 (91041102)
275.0	1526.35620 (91102719)	1250.75671 (91102719)	1033.21179 (91102719)	864.71863 (91102719)	734.01282 (91102719)
250.0	1211.28687 (91062824)	1096.21802 (91062824)	1000.19568 (91102919)	915.16681 (91102919)	808.70703 (91121120)
225.0	1005.61975 (91102305)	978.49451 (91102305)	806.38965 (91051001)	649.26868 (91051001)	643.04639 (91050924)

**MODELOPTs:

CONC RURAL FLAT FLGPOL DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): VOL1 , VOL2 ,

*** NETWORK ID: UCART2 ; NETWORK TYPE: GRIDCART ***

** CONC OF NH3 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 455.00	480.00
300.0	552.00745 (91041102)	524.54242 (91041102)
275.0	631.19629 (91102719)	549.18225 (91102719)
250.0	704.72241 (91121120)	602.94122 (91121120)
225.0	600.04590 (91062824)	546.98035 (91062824)

CONC RURAL FLAT FLGPOL DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): VOL1 , VOL2 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NH3 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
192.00	346.00	1000.20007	(91122919)	226.00	346.00	1053.22058	(91062802)
258.00	345.00	1083.62817	(91031422)	291.00	320.00	1511.77527	(91112719)
350.00	299.00	1116.70605	(91011523)	330.77	222.36	951.21912	(91102305)
318.06	214.27	938.13214	(91103119)	241.84	163.46	794.77386	(91062902)
206.04	179.63	927.84479	(91012819)	170.25	206.19	1125.92432	(91111506)
125.00	305.20	1242.40112	(91081921)	327.00	305.20	1659.33936	(91040102)

**MODELOPTs:

CONC RURAL FLAT FLGPOL DFAULT

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NH3 IN MICROGRAMS/M**3 **

NETWORK GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	
RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID	
ALL	HIGH 1ST HIGH VALUE IS	1912.03320	ON 91123020: AT (300.00, 303.00, 0.00, 1.50) GC UCART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

```
 *** ISCST3 - VERSION 02035 ***    *** C:\Documents and Settings\mba\My
Documents\misc ceqa projects\3337.0 ***        08/09/10
                                       ***
***        14:24:01
**MODELOPTs:
PAGE  19
CONC                    RURAL FLAT  FLGPOL DFAULT


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of           14 Informational Message(s)

A Total of           14 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ***********************************
   *** ISCST3 Finishes Successfully ***
   ***********************************
```

Appendix D:
Biological Resources Assessment

Michael Brandman Associates

February 13, 2008

Leonard Grado
GGV Missouri Flat LLC
4330 Golden Center Drive, Suite D
Placerville, CA 95667

Subject: Biological Resources Assessment for the Diamond Dorado Retail Center Project, El Dorado County, California

Mr. Grado,

A biological resources assessment has been conducted by Michael Brandman Associates (MBA) within the proposed Diamond Dorado Retail Center Project (Project). The location of the Project corresponds to Sections 24 and 25, Township 10N, Range 10E, and Sections 19 and 30, Township 30N, Range 11 E (Mount Diablo Baseline Meridian [MDBM]) of the *Placerville, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle just northwest of Diamond Springs, Placer County, California.

Results of the assessment indicate that the Project site supports the following sensitive resources:

- Suitable habitat for five (5) special-status plant species;
- Suitable habitat for 12 special-status wildlife species;
- Riparian habitat and areas of potential seasonal wetland;
- Protected trees.

Introduction and Purpose

MBA conducted a biological resources assessment to document existing biological conditions within the proposed Diamond Dorado Retail Center Project site, located just north of Diamond Springs, California (Exhibit 1). The Applicant is proposing a General Plan Amendment (GPA) from Industrial to Commercial use, an associated rezoning to General Commercial (CG), and a Planned Development (PD) Overlay to allow for the development of the Project. The Project would include the development of up to approximately 435,000 square feet of commercial/retail space consisting of up to ten commercial/retail buildings and 1,895 parking spaces on approximately 43 acres. The Project would include up to three large retail stores (one-story) and seven small retail/office buildings (two-story). The buildings would be connected by pedestrian walkways and accessible from Diamond Road (SR 49), the proposed Diamond Springs Parkway, and the proposed El Dorado Multi-Use Trail.

This report assesses the biological resources within the Project site. The environmental policies and regulations pertinent to the Project also are discussed in this report.

The purpose of this biological resources assessment is to:

- Generally characterize all habitat types within the Project site;
- Determine the presence or absence of habitat suitable for special-status plant and wildlife species;
- Determine the presence or absence of waters of the U.S. and waters of the State, including wetlands, within the Project site; and
- Determine the presence or absence of other sensitive resources within the Project site.

Location and Environmental Setting

Elevation of the Project site is approximately 1,800 feet above mean sea level (msl). Average temperatures range from January lows of 32.4 ˚F to July highs of 92.6 ˚F. Average annual precipitation is approximately 32.5 inches; precipitation falls primarily as rain with most precipitation occurring between the months of October and April.

The Project site is located near State Route 49 to the east, Truck Street to the north, Lime Kiln Road to the south, and Chuckwagon Way to the west. The location of the Project site corresponds to Sections 24 and 25, Township 10N, Range 10E, and Sections 19 and 30, Township 30N, Range 11 E *Placerville, California* USGS 7.5-minute topographic quadrangle (Exhibit 1). The Project site encompasses approximately 43 acres and is bordered by several land use types including undeveloped land, industrial facilities, vacant lots, and scattered residences (Exhibit 2). Land uses within the Project site are primarily industrial, although there are several highly disturbed undeveloped areas as well as scattered undisturbed areas.

Methodology

Prior to conducting the field survey of the Project site, the following information sources were reviewed:

- The *Placerville, California* USGS 7.5-minute topographic quadrangle (1973);
- Aerial photography of the Project site (Google Earth 2007);
- A Natural Resource Conservation Service (NRCS) soils map of the Project site (Soil Survey Staff undated);
- California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDB) records for the *Placerville, California* 7.5-minute topographic quadrangle and the surrounding eight quandrangles (CNDDB 2007) (Attachment A);
- CDFG California Wildlife Habitat Relationship System (CWHR) (CDFG 2005);
- U.S. Fish and Wildlife Service (USFWS) list of endangered and threatened species that may occur, or be affected by the Project, in the Placerville, California quadrangle (USFWS 2007) (Attachment B);
- The California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2007) (Attachment C);
- Pertinent literature including: the *Jepson Manual, Higher Plants of California* (Hickman 1993); *Amphibian and Reptile Species of Special Concern in California* (Jennings and Hayes 1994);

California Birds: Their Status and Distribution (Small 1994); *Bird Species of Special Concern in California* (Remsen 1978); and *Mammalian Species of Special Concern in California* (Williams 1986)

For the purpose of this assessment, special-status species are those species:

- Listed as threatened or endangered under the Endangered Species Act (ESA) and those species formally proposed or candidates for listing;
- Listed as threatened or endangered under California ESA (CESA) or candidates for listing;
- Designated as endangered or rare pursuant to California Fish and Game Code (§1901);
- Designated as fully protected pursuant to California Fish and Game Code (§3511, §4700, §5050);
- Designated as a species of special concern by CDFG;
- Plants listed as rare under the California Native Plant Protection Act or considered by CNPS as List 1A, 1B, or 2 species.

MBA biologists Brian Hoffmann, Deborah Stout, and Eric Guzman conducted the field assessment on October 15 and 16, 2007. The Project site was surveyed by walking meandering transects. The assessment included describing the vegetation communities present (Mayer and Laudenslayer 1988); identifying common plant and wildlife species observed; determining the potential presence of any special habitat features, such as waters of the U.S. or state, including wetlands; and identifying any linkages within the Project site to important adjacent wildlife habitats. Habitat types were assessed and evaluated for their potential to support special-status plant and wildlife species and any other sensitive biological resources. Trails identified as potential wildlife movement corridors were documented.

An additional assessment of aquatic habitats was conducted by MBA biologists T'Shaka Touré and Deborah Stout concurrent with a wetland delineation on January 10 and 11, 2008. The purpose of this additional assessment was to determine whether aquatic habitats within the Project site were suitable for special-status amphibian species, particularly red-legged frog (*Rana aurora draytonii*). T'Shaka Touré has a Memorandum of Understanding (MOU) with CDFG that covers a variety of special-status amphibians, reptiles, fish, and small mammal species. His permit ID number is SC005444.

Results

Topography and Soils

The topography of the Project site is relatively flat to gently sloping, with the exception of one steep drainage to the west and a large spoils pile in the north. The NRCS Web Soil Survey (Soil Staff undated) shows three (3) soil types within the Project site. Placer diggings (PrD) occur over a majority of the area. These soils are classified as fine sandy loam with cobbles; the parent material is alluvium derived from mixed sources. Diamond Springs very fine sandy loam, 9 to 15 percent slopes (DfC) occurs in two small areas at the northern and southern edges of the Project site. The parent material is fine-grained, acidic residuum weathered from igneous rock. Diamond Springs very fine sandy loam, 3 to 9 percent slopes (DfB) is restricted to a single, small patch in the north-central portion of the Project site.

Vegetation Communities

The Project site encompasses five (5) habitat types: blue oak - foothill pine, valley foothill riparian, annual grassland, urban, and barren (Exhibit 3). Blue oak – foothill pine habitat (2.8 acres) within the Project site occurs in primarily linear areas that border urban and/or barren habitats. Overstory species observed within the Project site are foothill pine (*Pinus sabiniana*) and valley oak (*Q. lobata*). Shrub species include whiteleaf manzanita (*Arctostaphylos viscida*), greenleaf manzanita (*A. patula*), California coffeeberry (*Rhamnus californica*), coyotebrush (*Baccharis pilularis*), Scotch broom (*Cytisus scoparius*), and Himalayan blackberry (*Rubus discolor*).

Valley foothill riparian habitat (2.9 acres) within the Project site is associated with a drainage that borders the Project site to the west. Overstory species include Fremont cottonwood (*Populus fremontii*), valley oak, arroyo willow (*Salix lasiolepis*), and black willow (*S. gooddingii*). Shrub species observed include coyotebrush, Himalayan blackberry, giant reed (*Arundo donax*), coffeeberry, snowberry (*Symphorocarpos mollis*), poison oak (*Toxicodendron diversilobum*), and St. John's wort (*Hypericum perfoliatum*). Other species include rush (*Juncus* sp.), tall annual willowherb, and sheep sorrel (*Rumex acetosella*).

Annual grassland (5.72 acres) occurs mainly at the western edge of the Project site. This area is highly disturbed by past mining activities; the topography is uneven and native soils appear to have been removed. As a result of past disturbance, this habitat is sparsely vegetated by non-native, ruderal plant species. Species observed in these areas include clover (*Trifolium* sp.), vetch (*Vicia* sp.), narrowleaf plantain (*Plantago lanceolata*), curly dock (*Rumex crispus*), vinegar weed (*Trichostema lanceolatum*), Fitch's tarweed (*Hemizonia fitchii*), burr clover (*Medicago polymorpha*), woolly mullein (*Verbascum thlapsus*), canary grass (*Phalaris* sp.), dogtail grass (*Cynosurus echinatus*), white sweet clover (*Melilotus alba*), Spanish lotus (*Lotus purshianus*), bird's-foot trefoil (*Lotus corniculatus*), prickly lettuce (*Lactuca serriola*), and elegant madia (*Madia elegans*). Ponded inclusions within this habitat support narrowleaf cattail (*Typha angustifolia*), nut sedge (*Cyperus eragrostis*), hyssop loosestrife (*Lythrum hyssopifolium*), and barnyard grass (*Echinochloa crus-galli*)

Urban habitat (7.2 acres) includes those areas paved and developed for retail, industrial, or residential uses. Within the Project site, urban habitat includes the Materials Recovery Facility in the southwestern corner of the Project site. This area is highly developed and largely unvegetated.

Barren habitat (24.43 acres) includes rocky, gravelly, or sandy substrates that support little to no vegetation. There are several areas considered barren within the Project site. The largest area is the southeast and is bordered to the east by State Route 49 and to the south by Lime Kiln Road. Two additional areas occur in the west, one of which is a large, flat-topped spoils pile which is only sparsely vegetated.

Wildlife and Movement Corridors

The following wildlife species or their sign (i.e., scat, bones) were observed within the Project site during the October 15 and 16 field assessment: black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), scrub jay (*Aphelocoma coerulescens*), house finch (*Carpodacus mexicanus*), white-crowned sparrow (*Zonotrichia leucophrys*), ruby crowned kinglet (*Regulus calendula*), and mule deer (*Odocoileus hemionus*).

Wildlife trails were not observed within the Project site. However, it is anticipated that riparian corridors within the Project site provide movement corridors for a variety of mammal and bird species. There are no known wildlife corridors identified by the El Dorado County General Plan.

Special-Status Species

Special-Status Plant Species

The special-status plant species reviewed in this document are listed in a table provided in Attachment D. This list was compiled based upon query results from CNDDB and the CNPS on-line inventory, as well as a list obtained from USFWS. CNDDB-recorded occurrences of special-status species within five miles of the Project site are shown in Exhibit 4.

Several regionally occurring species were determined not to have potential to occur within the Project site either because the distribution of the species does not extend into the Project site vicinity, or because the habitat and/or microsite conditions (e.g., serpentine soils, mesic sites) required by the species are not present.

Based upon results of the species review, there are five (5) special-status plant species with potential to occur within the Project site. Table 1 lists these species, their regulatory status, general habitat requirements, and the period during which they are identifiable. Recorded occurrences of special-status plant species within five miles of the Project site are shown in Exhibit 4.

Table 1. Special-Status Plant Species With Potential to Occur in the Diamond Dorado Retail Center Project Site

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
PLANTS				
Allium jepsonii Jepson's onion	--/--/1B.2	Chaparral, cismontane woodland, and lower montane coniferous forest. Restricted to serpentinite or volcanic soils. 300-1,320 meters in elevation.	**Low.** DfC soils underlying blue oak-foothill pine habitat between Elisa Court and Throwita Way may be suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May - August

Table 1. Special-Status Plant Species With Potential to Occur in the Diamond Dorado Retail Center Project Site

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Presence	Period of Identification*
Balsamorhiza macrolepis var. macrolepis Big-scale balsamroot	--/--/1B.2	Valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1000 meters in elevation.	**Low.** Blue oak-foothill pine habitat throughout the Project site may be suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - June
Clarkia biloba ssp. *brandegeeae* Brandegee's clarkia	--/--/1B.1	Chaparral, cismontane woodland. Often in roadcuts. 295-885 meters in elevation.	**Low.** Blue oak-foothill pine habitat throughout the Project site may be suitable for this species. There is a CNDDB-recorded occurrence of this species approximately five miles northeast of the Project site (CNDDB 2007).	May - July
Horkelia parryi Parry's horkelia	--/--/1B.2	Chaparral and cismontane woodlands, especially on the Ione formation. 30 to 1,035 meters in elevation.	**Low.** Blue oak-foothill pine habitat within the Project site may be suitable for this species. There is a CNDDB-recorded occurrence of this species approximately two miles northwest of the Project site (CNDDB 2007).	April – September
Viburnum ellipticum Oval-leaved viburnum	--/--/2.3	Chaparral, cismontane woodland, and lower montane coniferous forest. 215-1,400 meters in elevation.	**Low.** Blue oak-foothill pine habitat within the Project site may be suitable for this species. There is a CNDDB-recorded occurrence of this species approximately two miles northwest of the Project site (CNDDB 2007).	May - June

*The period of identification assumes a normal rainfall and temperature year. Range in months reflects elevational differences in blooming periods.

Status Codes		
Federal	State	CNPS
FE = Federally Endangered FT = Federally Threatened FD = Federally Delisted	CE = State Endangered CT = State Threatened CSC = State Species of Special Concern	1A.X = Presumed extinct in CA 1B.X = Rare, Threatened, or Endangered in CA or elsewhere 2.X = Rare, Threatened, or Endangered in CA but more common elsewhere Extensions: X.1 = seriously threatened in CA, X.2 = Fairly threatened in CA

Special-Status Wildlife Species

The special-status wildlife species considered for review in this document are included in a table provided in Attachment D. This list was compiled based on the USFWS list and query results from CNDDB and CWHR. CWHR is a predictive model that lists species likely to occur in a given location under certain habitat conditions. It also predicts the suitability of those conditions for reproduction, cover, and feeding for each modeled species. Information fed into the model for this Project includes location (El Dorado County) and habitat type (blue oak-foothill pine). CWHR does not include any information on plants, fish, invertebrates, or rare natural communities.

Several regionally occurring species were determined not to have potential to occur within the Project site, either because the distribution of the species does not extend into the Project site vicinity, or because the habitat or habitat elements (e.g., caves, tall snags) required by the species are not present.

Based upon results of the species review, there are 12 special-status wildlife species with potential to occur within the Project. Table 2 lists these species, their regulatory status, general habitat requirements, and the period during which they are most identifiable. Recorded occurrences of special-status wildlife species within five miles of the Project site are shown in Exhibit 4.

Table 2. Special-Status Wildlife Species With Potential to Occur in the Diamond Dorado Retail Center Project Site

Scientific Name **Common name**	**Listing Status USFWS/ CDFG**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
INVERTEBRATES				
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--	Occurs only in the central valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	**Low** No elderberry shrubs were observed during the field assessment, although some may occur in riparian areas throughout the Project site. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - June
BIRDS				
Accipiter cooperii Coopers hawk	--/CSC	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood plains; also, live oaks.	**High.** Blue oak-foothill pine and riparian habitats throughout the Project site are suitable for nesting and foraging by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - August
Accipiter striatus Sharp-shinned hawk	--/CSC	Winter resident throughout much of the state; permanent at higher elevations. Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers but is not restricted to riparian habitats.	**High.** Blue oak-foothill pine and riparian habitats throughout the Project site are suitable for nesting and foraging by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round
Asio otus Long-eared owl	--/CSC	Breeding resident throughout much of the state. Found in dense riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats; also found in dense conifer stands at higher elevations.	**Moderate.** Dense riparian wetland habitat at the western edge of the Project site may be suitable for breeding by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round

Table 2. Special-Status Wildlife Species With Potential to Occur in the Diamond Dorado Retail Center Project Site

Scientific Name **Common name**	**Listing Status USFWS/ CDFG**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Dendroica petechia brewsteri Yellow warbler	--/CSC	Requires riparian thickets of willow and other brushy tangles near watercourses for cover. Nests in dense shrubs along a stream or river.	**Moderate.** Riparian habitat associated with the drainage at the western edge of the Project site may be suitable for foraging and nesting. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - September
Elanus leucurus White-tailed kite	--/CFP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**High.** Blue oak-foothill pine and riparian habitats throughout the Project site are suitable for nesting by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	January – August (breeding)
Falco columbarius Merlin	--/CSC	Uncommon winter migrant. Seldom found in heavily wooded areas or open deserts. Frequents open habitats at low elevations near water and tree stands. Favors coastlines, lakeshores, and wetlands. Ranges from annual grasslands to ponderosa pine and montane hardwood-conifer habitats.	**Moderate.** Blue oak-foothill pint habitat within the Project site is suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	September - May
Lanius ludovicianus Loggerhead shrike	--/CSC	Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting.	**Moderate.** The Project site provides suitable nesting and foraging habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - August
Progne subis Purple martin	--/CSC	An uncommon to rare, local summer resident in a variety of wooded, low-elevation habitats throughout the state; a rare migrant in spring and fall, absent in winter. Breeding habitat includes old-growth, multi-layered, open forest and woodland with snags; forages over riparian areas, forest, and woodlands	**Low.** Blue oak-foothill pine habitat in the eastern portion of the Project site may provide suitable nesting habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - September
MAMMALS				
Antrozous pallidus Pallid bat	--/CSC	Broadly distributed in California from sea level to over 6,000 feet. Roosts in caves, buildings, rock crevices, and tree hollows. Overwinters in summer habitats at lower elevations.	**Moderate.** Riparian and blue oak-foothill pine habitats within the Project site may provide suitable maternity roosts for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - October
Bassariscus astutus Ringtail	--/FP	Widely distributed, common to uncommon permanent resident. Occurs in various riparian habitats and in brush stands of most forest and shrub habitats at low to middle elevations. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests.	**Moderate.** Thick, riparian woodland habitat at the western edge of the Project site may be suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round

Table 2. Special-Status Wildlife Species With Potential to Occur in the Diamond Dorado Retail Center Project Site

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Presence	Period of Identification*
Lasionycteris noctivagans Silver-haired bat	--/CSC	Primarily a coastal and montane forest dweller feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water.	**Moderate.** Blue oak-foothill pine and riparian habitat within the Project site may provide suitable roosting habitat for this species. There is a CNDDB-recorded occurrence of this species approximately five miles north of the Project site.	April - October

Status Codes	
Federal	State
FE = Federally Endangered	CE = State Endangered
FT = Federally Threatened	CT = State Threatened
FD = Federally Delisted	CSC = State Species of Special Concern

Wetlands and Other Waters

The Project site encompasses riparian habitat and areas of potential seasonal wetland. Some of these features may be federally jurisdictional. A formal delineation will be conducted and the results will be incorporated into the Environmental Impact Report (EIR) being prepared for the Project.

Protected Trees

El Dorado County has in place Interim Interpretive Guidelines for El Dorado County General Plan Policy 7.4.4.4 (Option A) (El Dorado County 2007), which addresses oak canopy retention standards. The Guidelines are intended to clarify the scope and implementation of Option A and provide a process to consider limited modifications to oak canopy replacement and retention requirements for existing legal parcels. Option A applies to all new development projects that would result in soil disturbance on parcels that: 1) are over an acre and have at least 1 percent total canopy cover, or 2) are less than an acre and have at least 10 percent total canopy cover. For these developments, the Guidelines provide a canopy retention schedule that is based percent existing canopy cover. For example, for projects with 20 to 39 percent existing canopy cover, 85 percent of the existing canopy shall be retained. In addition to the canopy retention schedule, the Guidelines also require that the oak woodland canopy that is removed shall be replaced at a one-to-one ratio, or a three-to-one ratio if acorns are used. The complete Guidelines can be accessed at http://www.co.el-dorado.ca.us/planning/AdoptedGeneralPlan/7_conservation.pdf.

Regulatory Setting

Regulation of Special-Status Species

Federal Regulations

Federal Endangered Species Act

The USFWS administers the federal ESA, which provides a process for listing species as either threatened or endangered, and methods of protecting listed species. The ESA defines as "endangered" any plant or

animal species that is in danger of extinction throughout all or a significant portion of its known geographic range. A "threatened" species is a species that is likely to become endangered. A "proposed" species is one that has been officially proposed by USFWS for addition to the federal threatened and endangered species list.

Under Section 9 of the ESA, "take" of threatened or endangered species is prohibited. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Take can include disturbance to habitats used by a threatened or endangered species during any portion of its life history. The presence of any federally threatened or endangered species in a Project sitearea generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under ESA regulations, USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

State Regulations

CEQA Guidelines Section 15380

Threatened and endangered species are protected by specific federal and state statutes. In addition, CEQA Guidelines section 15380 provides that a species not listed on the federal or state lists of threatened or endangered species may be considered rare or endangered under CEQA review if the species can be shown to meet certain specified criteria. This section was included in the CEQA Guidelines primarily to deal with situations in which a public agency is reviewing a Project sitethat may have a significant impact on for example, a "candidate species" that has not yet been listed under FESA or CESA. Therefore, CEQA provides an agency with the ability to protect a species from a Project's potential impacts until the respective government agency has an opportunity to formally designate the species as protected, if warranted.

Sensitive plant species are afforded protection under CEQA through the CNPS inventory of rare, threatened, and endangered plants of California. CNPS is a California resource conservation organization that has developed an inventory of California's sensitive plant species. This inventory summarizes information on the distribution, rarity, and endangerment of California's vascular plants. The inventory is divided into four lists based on the rarity of the species. In addition, CNPS provides an inventory of plant communities that are considered sensitive by state and federal resource agencies, academic institutions, and various conservation groups. The level of sensitivity is determined by the number and size of remaining occurrences as well as recognized threats.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects all common wild birds found in the U.S. except the house sparrow, starling, pigeon, and resident game birds such as pheasant, grouse, quail, and wild turkey. Resident game birds are managed separately by each state. The MBTA makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird including

feathers, parts, nests, or eggs. In addition, disturbance to an occupied nest is considered "take" under this act.

California Fish and Game Code - § 3503 and § 3511

CDFG administers the California Fish and Game Code. Under § 3503 of the Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird that is protected under MBTA. The Code § 3503.5 further protects all birds in the orders Falconiformes and Strigiformes, birds of prey such as hawks and owls, and their eggs and nests from any form of take. Code § 3511 lists fully protected bird species for which CDFG is unable to authorize the issuance of permits or licenses to take these species.

Regulation of Waters and Wetlands

Federal Regulation - U.S. Army Corps of Engineers

The USACE regulates the discharge of dredge or fill material including, but not limited to, grading, placing of rip-rap for erosion control, pouring concrete, laying sod, and stockpiling excavated material. Activities that generally do not involve a regulated discharge, if performed specifically in a manner to avoid discharges, include driving pilings, drainage channel maintenance, temporary mining and farm/forest roads, and excavating without stockpiling.

Federal Clean Water Act - § 404

USACE administers § 404 of the federal Clean Water Act (CWA). This section regulates the discharge of dredge and fill material into waters of the U.S. USACE has established a series of nationwide permits that authorize certain activities in waters of the U.S., if a proposed activity can demonstrate compliance with standard conditions. Normally, USACE requires an individual permit for an activity that will affect an area equal to or in excess of 0.5 acre of waters of the U.S. Projects that result in impacts to less than 0.5 acre or 300 feet of stream channel can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions. Use of any nationwide permit is contingent on the activities having no impacts to endangered species.

Waters of the United States

Waters of the U.S., as defined in the Code of Federal Regulations (CFR) § 328.3, include all waters or tributaries to waters such as lakes, rivers, intermittent and perennial streams, mudflats, sand-flats, natural ponds, wetlands, wet meadows, and other aquatic habitats. Frequently, waters of the U.S., with at least intermittently flowing water or tidal influences, are demarcated by an ordinary high water mark (OHWM). The OHWM is defined in CFR § 328.3(e) as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. In this region, the OHWM is typically indicated by the presence of an incised streambed with defined bank shelving.

Wetlands

According to the USACE Wetlands Delineation Manual, Technical Report, three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation)
2. Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils)
3. Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology)

Wetland vegetation is characterized by vegetation in which more than 50 percent of the composition of dominant plant species are obligate wetland, facultative wetland, and/or facultative species that occur in wetlands. As a result of the 2001 Solid Waste Agency of North Cook County (SWANCC) case, a wetland must show connectivity to a stream course in order for such a feature to be considered jurisdictional. More recently, subsequent to the U.S. Supreme Court decision in *Rapanos, et al. v. United States* (2006) the Environmental Protection Agency (EPA) and USACE issued a joint memorandum (*Clean Water Act Jurisdiction Following Rapanos v. United States*, June 5, 2007), which determined that a jurisdictionally significant nexus exists if a tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a navigable water.

Resulting from this decision, EPA and USACE will not assert jurisdiction over the following geomorphic features:

- "Swales or erosional features (e.g., gullies small washes characterized by low volume, infrequent or short duration flows)," and
- "Ditches (including roadsides ditches) excavated wholly in and draining only uplands that do not carry relatively permanent water flows."

Regional Regulations – Regional Water Quality Control Boards

Under § 401 of the CWA, RWQCBs also regulate all activities that require permits from USACE. Additionally, under the Porter-Cologne Water Quality Act, RWQCBs regulate all activities, including dredging, filling, or discharge of materials into waters of the state that are not regulated by USACE due to a lack of connectivity with a navigable water body and/or lack of an OHWM.

Clean Water Act - § 401

Per § 401 of the CWA, "any applicant for a Federal permit for activities that involve a discharge to waters of the State, shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the

Federal Clean Water Act." Therefore, before USACE will issue a § 404 permit, applicants must apply for and receive a § 401 water quality certification from their RWQCB.

Porter-Cologne Water Quality Act

RWQCBs regulate actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state" (water code § 13260(a)), pursuant to provisions of the Porter-Cologne Water Quality Act. "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (water code § 13050 (e)).

State Regulations - California Department of Fish and Game Regulations

California Fish and Game Code - § 1600 to § 1603

The CDFG Code mandates that "it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity." CDFG jurisdiction includes ephemeral, intermittent, and perennial watercourses, including dry washes, characterized by the presence of hydrophytic vegetation, a definable bed and bank, and the presence of existing fish or wildlife resources.

Furthermore, CDFG jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function as part of the riparian system. Historic court cases have further extended CDFG jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFG definition, a watercourse need not exhibit evidence of an OHWM to be considered jurisdictional. However, CDFG does not regulate isolated wetlands; that is, those that are not associated with a river, stream, or lake.

Recommendations

Special-Status Plant Species

There are five (5) special-status plant species with potential to occur within the Project site. These species may be impacted by construction-related activities should they be present. Protocol-level, pre-construction surveys for these species shall be conducted by a qualified biologist during their identifiable periods. A single survey conducted in early June would capture the blooming periods of all species identified in Table 1. However, timing of the surveys should be determined based on climate conditions for the growing year in which the surveys are scheduled; unusual weather patterns will influence the blooming period. Should any of these species be identified and direct and indirect impacts cannot be avoided, CDFG shall be contacted to determine whether mitigation would be required.

Special-Status / Protected Wildlife Species

Construction of the Project site may impact special-status bird species, other migratory songbirds, and raptor species. Any woody vegetation removed for construction should occur outside of the nesting season, which typically runs from March 1 through October 1. If removal of vegetation must occur

during the nesting season (March 1 – October 1), pre-construction surveys for active raptor nests shall be conducted with 250 feet of the Project site. If an active nest is located, CDFG shall be consulted to determine if Project site construction may proceed during the nesting season.

Wetlands

Several drainages and potential wetland areas were observed during the field assessment. A jurisdictional wetland delineation currently is being conducted, and a wetland delineation report will be prepared upon completion and submitted to the USACE for verification.

Protected Trees

In accordance with Guidelines discussed above, the County likely will require preparation of a Biological Resources Study and Important Habitat Mitigation Program. The Biological Resources Study portion of this document includes a discussion of oak woodland habitat resources and how habitat and individual trees would be impacted by the Project. The Important Habitat Mitigation Program portion of the document includes recommended mitigation; a tree survey, preservation, and replacement plan; a monitoring and reporting plan; and discussion of a funding mechanism. MBA recommends that a tree survey be conducted as soon as possible so that the report can be used as a supporting document in the Project site EIR, along with a presentation of specific mitigation measures.

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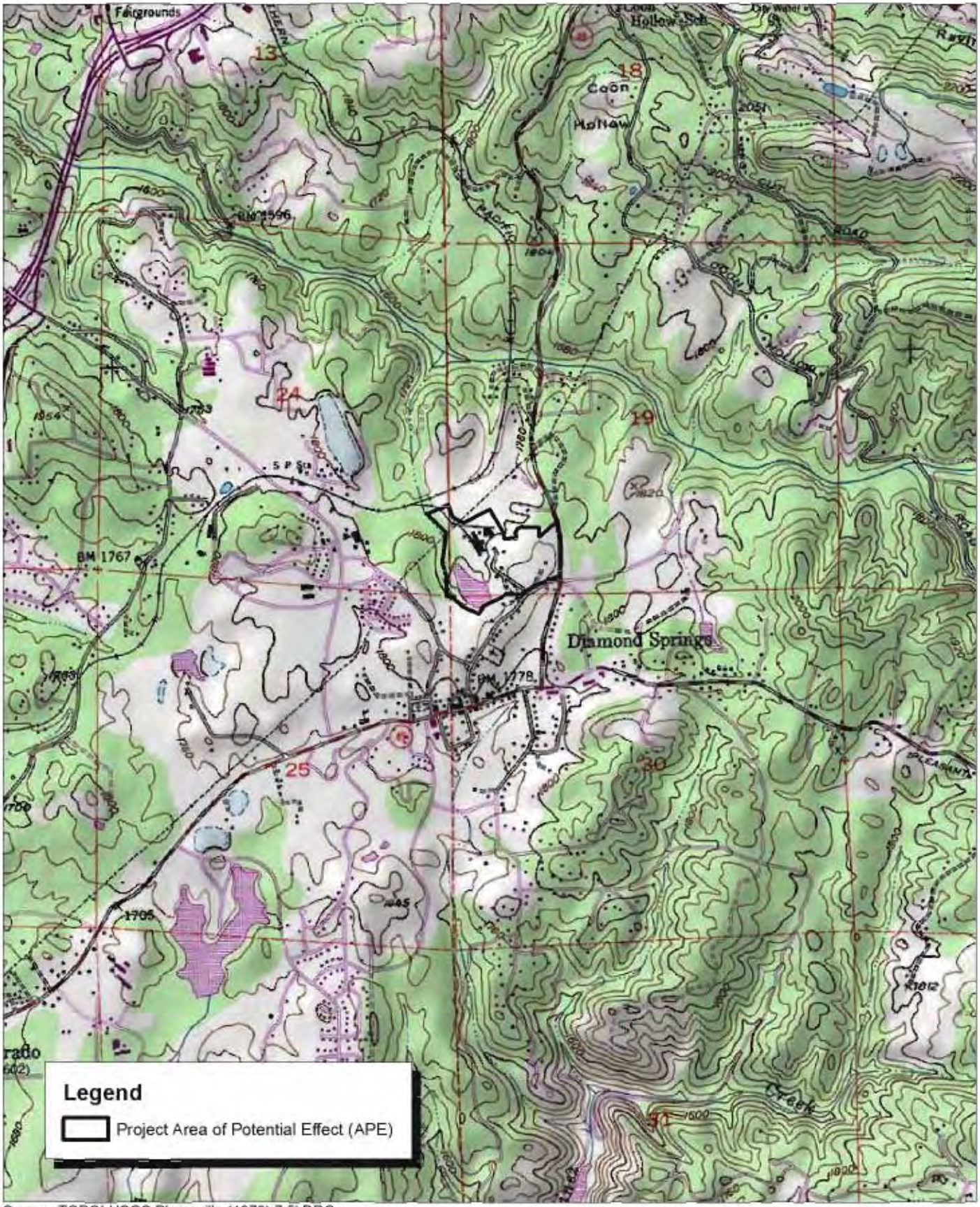
Thank you for the opportunity to assist you with your project needs. Please contact me if you have any questions or require additional information about this report. I can be reached at the contact information provided below.

Sincerely,

MICHAEL BRANDMAN ASSOCIATES

Deborah Stout

Deborah Stout
Ecologist/Botanist/ISA Certified Arborist
916.447.1100
dstout@brandman.com



Source: TOPO! USGS Placerville (1973) 7.5' DRG.

Exhibit 1
Local Vicinity Map
Topographic Base

NORTH

2,000 1,000 0 2,000
Feet

Michael Brandman Associates

33370001 • 01/2008 | 1_local_topo.mxd

DIAMOND DORADO RETAIL CENTER PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

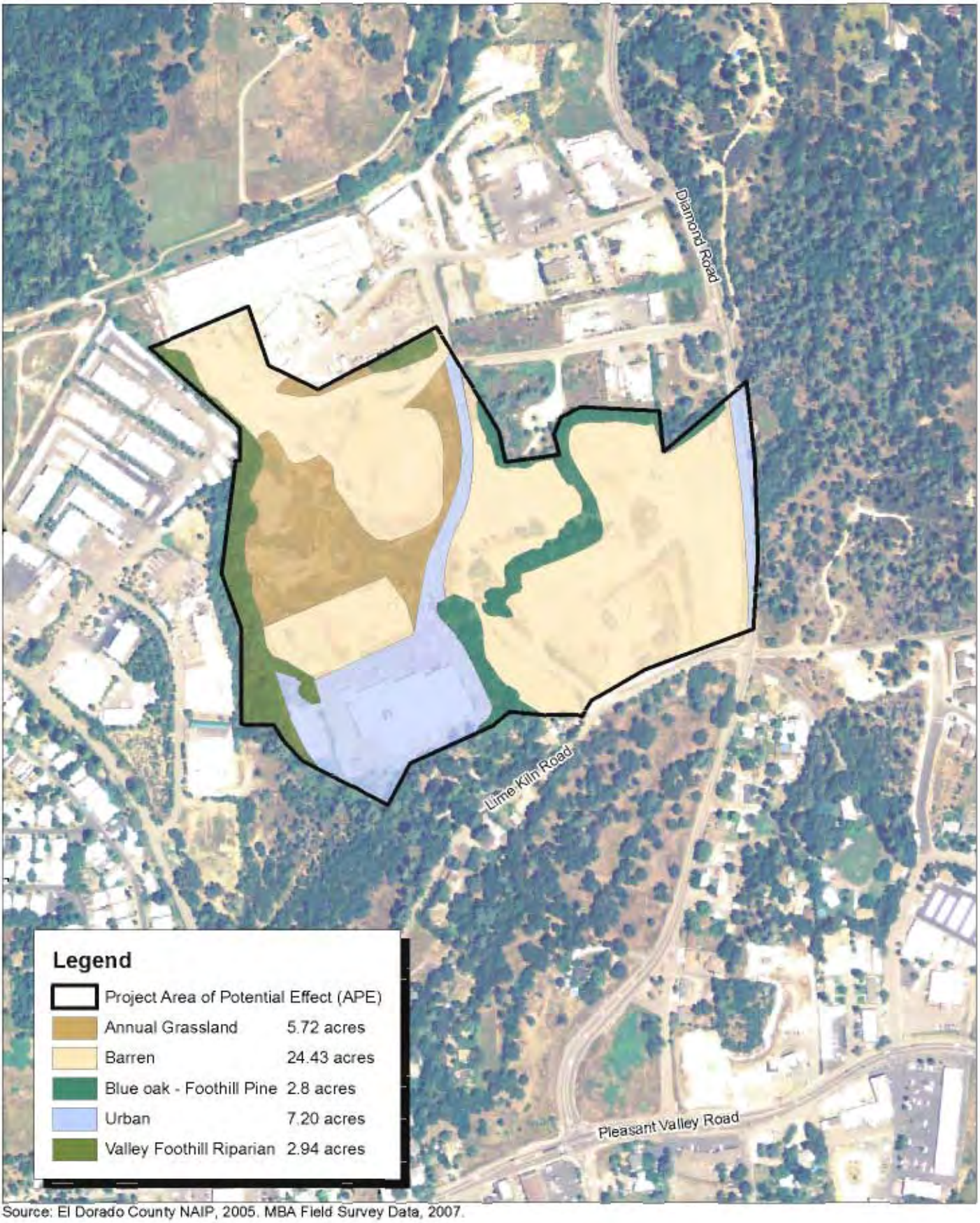
Source: El Dorado County NAIP, 2005.

Exhibit 2
Project Area of Potential Effect (APE)
Aerial Base

NORTH
760 380 0 760
Feet

Michael Brandman Associates

33370001 • 01/2008 | 2_local_aerial.mxd



Source: El Dorado County NAIP, 2005. MBA Field Survey Data, 2007.

NORTH

440 220 0 440

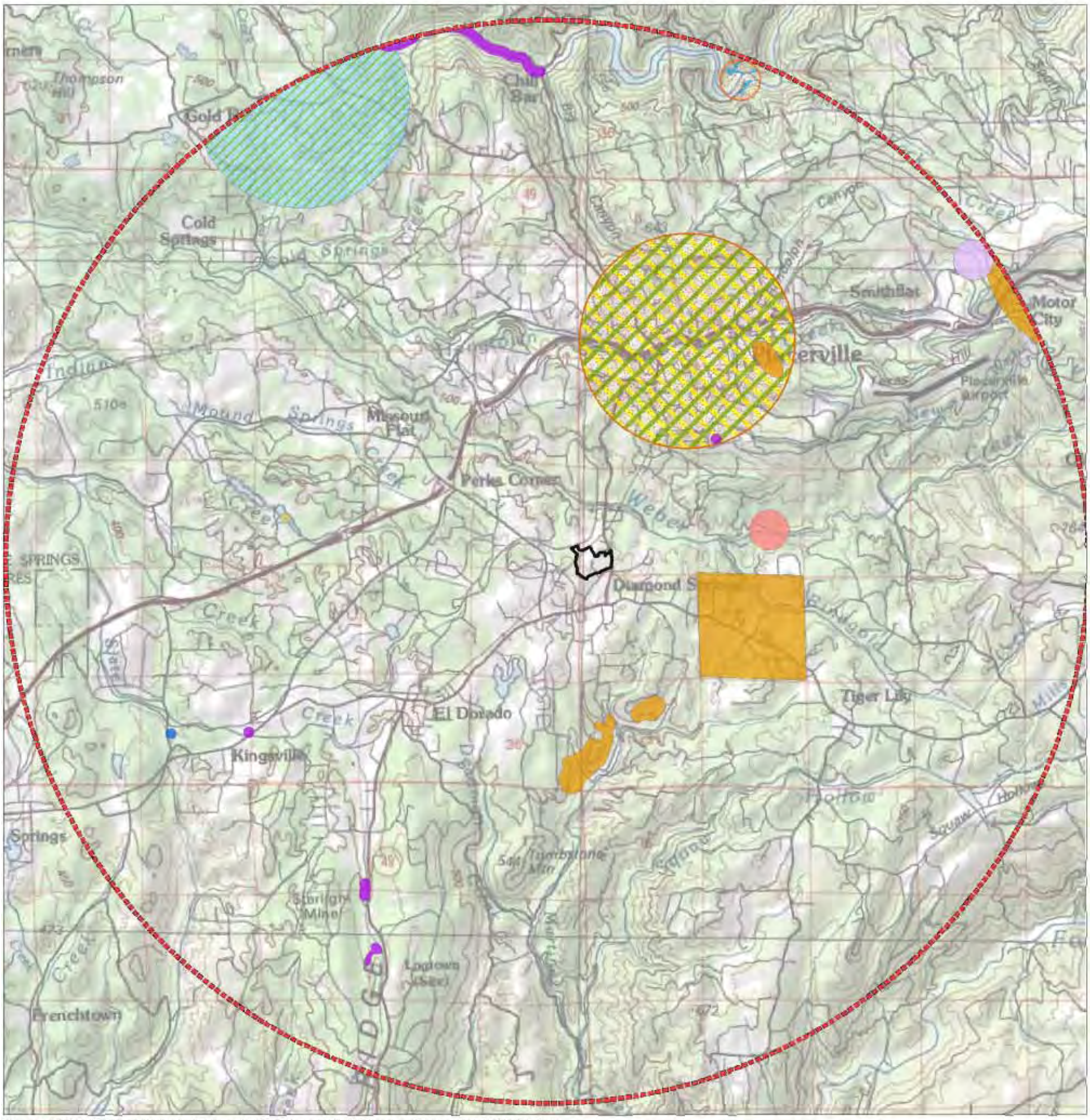
Feet

Michael Brandman Associates

33370001 • 01/2008 | 3_veg.mxd

Exhibit 3
Plant Communities Map

DIAMOND DORADO RETAIL CENTER PROJECT
BIOLOGICAL RESOURCES ASSESSMENT



Source: TOPO! USGS 100K Scale DRG, and U.S. Fish and Wildlife Service, October 2007 CNDDB Data.

Legend

- Project Area of Potential Effect (APE)
- 5-Mile Radius from Project Site

CNDDB - Plants

- Brandegee's clarkia (Clarkia biloba ssp. brandegeeae)
- Layne's ragwort (Packera layneae)
- Nissenan manzanita (Arctostaphylos nissenana)
- Parry's horkelia (Horkelia parryi)
- Red Hills soaproot (Chlorogalum grandiflorum)
- Oval-leaved viburnum (Viburnum ellipticum)

CNDDB - Wildlife

- Yuma myotis (Myotis yumanensis)
- Great egret (Ardea alba)
- Northwestern pond turtle (Actinemys marmorata marmorata)
- Silver-haired bat (Lasionycteris noctivagans)
- Tricolored blackbird (Agelaius tricolor)

NORTH

1 0.5 0 1 Miles

Michael Brandman Associates

33370001 • 01/2008 | 4_cnddb.mxd

Exhibit 4
CNDDB-Recorded Occurrences
of Special-Status Species
within Five Miles of the Project APE

Attachment A

CNDDB Query Results

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait
Missouri Flat
9-Quad Query Results

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Accipiter gentilis northern goshawk	ABNKC12060			G5	S3	SC
2	Actinemys marmorata marmorata northwestern pond turtle	ARAAD02031			G3G4T3	S3	SC
3	Agelaius tricolor tricolored blackbird	ABPBXB0020			G2G3	S2	SC
4	Allium jepsonii Jepson's onion	PMLIL022V0			G1	S1.2	1B.2
5	Arctostaphylos nissenana Nissenan manzanita	PDERI040V0			G2	S2.2	1B.2
6	Ardea alba great egret	ABNGA04040			G5	S4	
7	Calochortus clavatus var. avius Pleasant Valley mariposa lily	PMLIL0D095			G4T3	S3.2	1B.2
8	Calystegia stebbinsii Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1.1	1B.1
9	Ceanothus roderickii Pine Hill ceanothus	PDRHA04190	Endangered	Rare	G2	S2.1	1B.2
10	Central Valley Drainage Hardhead/Squawfish Stream	CARA2443CA			G?	SNR	
11	Central Valley Drainage Resident Rainbow Trout Stream	CARA2421CA			G?	SNR	
12	Chlorogalum grandiflorum Red Hills soaproot	PMLIL0G020			G2	S2.2	1B.2
13	Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053			G4G5T2	S2.2	1B.2
14	Cosumnoperla hypocrena A Spring Stonefly	IIPLE23020			G1	S1	
15	Fremontodendron decumbens Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1.2	1B.2
16	Galium californicum ssp. sierrae El Dorado bedstraw	PDRUB0N0E7	Endangered	Rare	G5T1	S1.2	1B.2
17	Helianthemum suffrutescens Bisbee Peak rush-rose	PDCIS020F0			G2Q	S2.2	3.2
18	Horkelia parryi Parry's horkelia	PDROS0W0C0			G2	S2.2	1B.2
19	Lasionycteris noctivagans silver-haired bat	AMACC02010			G5	S3S4	SC
20	Myotis yumanensis Yuma myotis	AMACC01020			G5	S4?	
21	Packera layneae Layne's ragwort	PDAST8H1V0	Threatened	Rare	G2	S2.1	1B.2
22	Phrynosoma coronatum (frontale population) Coast (California) horned lizard	ARACF12022			G4G5	S3S4	SC

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	Rana boylii foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
24	Sacramento-San Joaquin Foothill/Valley Ephemeral Stream	CARA2130CA			G?	SNR	
25	Viburnum ellipticum oval-leaved viburnum	PDCPR07080			G5	S2.3	2.3
26	Wyethia reticulata El Dorado County mule ears	PDAST9X0D0			G2	S2.2	1B.2

Attachment B

Official List, U.S. Fish and Wildlife Service

These buttons will not appear on your list.

<- Revise Selection

Print this page

Make Official Letter ->

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 070907043638

Database Last Updated: August 16, 2007

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
  - Conservancy fairy shrimp (E)
- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Lepidurus packardi
  - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
  - delta smelt (T)
- Oncorhynchus mykiss
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)

- Rana aurora draytonii
  - California red-legged frog (T)

Reptiles

- Thamnophis gigas
  - giant garter snake (T)

Plants

- Orcuttia viscida
  - Critical habitat, Sacramento Orcutt grass (X)
  - Sacramento Orcutt grass (E)

Quads Containing Listed, Proposed or Candidate Species:

FOLSOM (511B)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county

list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air,

light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be December 06, 2007.

Attachment C

California Native Plant Society Online Inventory Query Results

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 22 items - Fri, Sep. 7, 2007, 15:33 b

Reformat list as: Standard List - with Plant Press controls

ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
Balsamorhiza macrolepis var. macrolepis	Asteraceae	perennial herb	Mar-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/sometimes serpentinite	90 - 1400 meters	List 1B.2
Calystegia stebbinsii	Convolvulaceae	perennial rhizomatous herb	Apr-Jul	•Chaparral (Chprl)(openings) •Cismontane woodland (CmWld)/gabbroic	185 - 730 meters	List 1B.1
Ceanothus roderickii	Rhamnaceae	perennial evergreen shrub	Apr-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld)/serpentinite or gabbroic	260 - 630 meters	List 1B.2
Chlorogalum grandiflorum	Liliaceae	perennial bulbiferous herb	May-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Lower montane coniferous forest (LCFrs)/serpentinite or gabbroic	245 - 1170 meters	List 1B.2
Clarkia biloba ssp. brandegeeae	Onagraceae	annual herb	May-Jul	•Chaparral (Chprl) •Cismontane woodland (CmWld)/often roadcuts	73 - 915 meters	List 1B.2
Cordylanthus mollis ssp. hispidus	Scrophulariaceae	annual herb hemiparasitic	Jun-Sep	•Meadows and seeps (Medws) •Playas (Plyas) •Valley and foothill grassland (VFGrs)/alkaline	1 - 155 meters	List 1B.1
Downingia pusilla	Campanulaceae	annual herb	Mar-May	•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)	1 - 445 meters	List 2.2
				•Cismontane woodland		

Eryngium pinnatisectum	Apiaceae	annual/perennial herb	Jun-Aug	(CmWld) •Lower montane coniferous forest (LCFrs) •Vernal pools (VnPls)/mesic	70 - 915 meters	List 1B.2
Fremontodendron decumbens	Sterculiaceae	perennial evergreen shrub	Apr-Jul	•Chaparral (Chprl) •Cismontane woodland (CmWld)/gabbroic or serpentinite, rocky	425 - 760 meters	List 1B.2
Galium californicum ssp. sierrae	Rubiaceae	perennial herb	May-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Lower montane coniferous forest (LCFrs)/gabbroic	100 - 585 meters	List 1B.2
Gratiola heterosepala	Scrophulariaceae	annual herb	Apr-Aug	•Marshes and swamps (MshSw)(lake margins) •Vernal pools (VnPls)/clay	10 - 2375 meters	List 1B.2
Helianthemum suffrutescens	Cistaceae	perennial evergreen shrub	Apr-Jun	•Chaparral (Chprl)(often serpentinite, gabbroic, or Ione soil)	45 - 840 meters	List 3.2
Juncus leiospermus var. ahartii	Juncaceae	annual herb	Mar-May	•Valley and foothill grassland (VFGrs)(mesic)	30 - 100 meters	List 1B.2
Juncus leiospermus var. leiospermus	Juncaceae	annual herb	Mar-May	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)/vernally mesic	35 - 1020 meters	List 1B.1
Legenere limosa	Campanulaceae	annual herb	Apr-Jun	•Vernal pools (VnPls)	1 - 880 meters	List 1B.1
Navarretia myersii ssp. myersii	Polemoniaceae	annual herb	May	•Vernal pools (VnPls)/often acidic	20 - 330 meters	List 1B.1
Orcuttia tenuis	Poaceae	annual herb	May-Sep(Oct) Months in parentheses are uncommon.	•Vernal pools (VnPls)	35 - 1760 meters	List 1B.1
Orcuttia viscida	Poaceae	annual herb	Apr-Jul	•Vernal pools (VnPls)	30 - 100 meters	List 1B.1
Packera layneae	Asteraceae	perennial herb	Apr-Aug	•Chaparral (Chprl) •Cismontane woodland	200 - 1000	List

				(CmWld)/serpentinite or gabbroic, rocky	meters	1B.2
Pseudobahia bahiifolia	Asteraceae	annual shrub	Mar-Apr	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/clay, often acidic	15 - 150 meters	List 1B.1
Sagittaria sanfordii	Alismataceae	perennial rhizomatous herb emergent	May-Oct	•Marshes and swamps (MshSw)(assorted shallow freshwater)	0 - 650 meters	List 1B.2
Wyethia reticulata	Asteraceae	perennial herb	Apr-Jul	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Lower montane coniferous forest (LCFrs)/clay or gabbroic	185 - 630 meters	List 1B.2

Attachment D

Summary of Special-Status Species Review

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
PLANTS				
Allium jepsonii Jepson's onion	--/--/1B.2	Chaparral, cismontane woodland, and lower montane coniferous forest. Restricted to serpentinite or volcanic soils. 300-1,320 meters in elevation.	**Low.** DfC soils underlying blue oak-foothill pine habitat between Elisa Court and Throwita Way may be suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May - August
Arctostaphylos nissenana Nissenan manzanita	--/--/1B.2	Rocky areas in closed-cone coniferous forest and chaparral. 450-1,100 meters in elevation.	**None.** There are no closed-cone coniferous forest or chaparral habitats within the Project site. There are CNDDB-recorded occurrences of this species one mile east and two miles southeast of the Project site (CNDDB 2007).	February - March
Balsamorhiza macrolepis var. macrolepis Big-scale balsamroot	--/--/1B.2	Valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1000 meters in elevation.	**Low.** Blue oak-foothill pine habitat throughout the Project site may be suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - June
Calochortus clavatus var. *clavatus* Pleasant Valley mariposa lily	--/--/1B.2	Lower montane coniferous forest in Josephine silt loam and volcanic soils. 305-1,800 meters in elevation.	**None.** The Project site does not contain lower montane coniferous forest. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May - July
Calystegia stebbinsii Stebbins morning glory	FE/CE/1B.1	Chaparral, cismontane woodland. On red clay soils of the pine hill formation; gabbro or serpentine, open areas. 180-725 meters in elevation.	**None.** The Project site does not contain gabbroic or serpentine soils. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April – July
Ceanothus roderickii Pine Hill ceanothus	FE/CR/1B.2	Chaparral, cismontane woodland. Gabbroic soils; often-in "historically disturbed" areas with an ensemble of other rare plants. 260-630 m meters in elevation.	**None.** The Project site does not contain gabbroic soils. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - June
Chlorogalum grandiflorum Red Hills soaproot	--/--/1B.2	Cismontane woodland, chaparral, lower montane coniferous forest. Occurs on both serpentine and gabbro substrates; often on "historically disturbed" sites. 240-760 meters in elevation.	**None.** The Project site does not contain gabbroic or serpentine soils. There is a CNDDB-recorded occurrence of this species approximately four miles southwest of the Project site (CNDDB 2007).	May - June
Clarkia biloba ssp. *brandegeeae* Brandegee's clarkia	--/--/1B.1	Chaparral, cismontane woodland. Often in roadcuts. 295-885 meters in elevation.	**Low.** Blue oak-foothill pine habitat throughout the Project site may be suitable for this species. There is a CNDDB-recorded occurrence of this species approximately five miles northeast of the Project site (CNDDB 2007).	May - July

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Cordylanthus mollis ssp. *hispidus* Hispid birds-beak	--/--/1B.1	Meadows, playas, valley and foothill grassland. In damp alkaline soils, especially in alkaline meadows and alkali sinks with *Distichlis*. 10-155 meters in elevation.	**None.** The Project site does not contain alkaline soils. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	June - September
Downingia pusilla Dwarf downingia	--/--/2.2	Valley and foothill grassland (mesic sites), vernal pools, vernal lakes, and pool margins. Most common in smaller, shallower pools. 1-485 meters in elevation.	**None.** The Project site does not contain vernal pool habitat. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - May
Eryngium pinnatisectum Tuolumne button-celery	--/--/1B.2	Vernal pools and mesic sites within cismontane woodland and lower montane coniferous forest. 250-450 meters in elevation.	**None.** The Project site does not contain vernal pools or mesic sites suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	June - August
Fremontodendron decumbens Pine hill flannelbush	FE/CR/1B.2	Chaparral, cismontane woodland. Rocky ridges; gabbro or serpentine endemic; often among rocks and boulders. 420-685 meters in elevation.	**None.** The Project site does not contain gabbroic or serpentine soils. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - July
Galium californicum ssp. *sierrae* El Dorado bedstraw	FE/CR/1B.2	Cismontane woodland, chaparral, lower montane coniferous forest. More often in pine-oak woodland than in chaparral; restricted to gabbroic soils. 100-585 meters in elevation.	**None.** The Project site does not contain gabbroic soils. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May - June
Gratiola heterosepala Boggs Lake hedge-hyssop	--/CE/1B.2	Marshes and swamps (freshwater), and large, deep, well-developed vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 5-2400 meters in elevation.	**None.** The Project site does not contain marshes and swamps or well-developed vernal pools. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - August
Helianthemum suffrutescens Bisbee Peak rush-rose	--/--/3.2	Chaparral. Often on serpentine, gabbroic, or ione formation soils; in openings in chaparral. 45-610 meters in elevation.	**None.** The Project site does not contain chaparral habitat. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - June
Horkelia parryi Parry's horkelia	--/--/1B.2	Chaparral and cismontane woodlands, especially on the Ione formation. 30 to 1,035 meters in elevation.	**Low.** Blue oak-foothill pine habitat within the Project site may be suitable for this species. There is a CNDDB-recorded occurrence of this species approximately two miles northwest of the Project site (CNDDB 2007).	April – September
Juncus leiospermus var. *ahartii* Ahart's dwarf rush	--/--/1B.2	Vernal pools. Restricted to the edges of vernal pools. 30-100 meters in elevation.	**None.** The Project site does not contain vernal pools. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - May

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Juncus leiospermus var. *leiospermus* Red Bluff dwarf rush	--/--/1B.1	Chaparral, valley and foothill grassland, cismontane woodlands, vernal pools. Vernally mesic sites. Sometimes on edges of vernal pools. 30-1020 meters in elevation.	**None.** The Project site does not contain vernal pools or mesic sites that are suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - May
Legenere limosa Legenere	--/--/1B.1	Vernal pools. Many historical occurrences are extirpated. In beds of vernal pools. 1-880m.	**None.** The Project site does not contain vernal pools. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - June
Navarretia mysersii ssp. *myersii* Pincushion navarretia	--/--/1B.1	Vernal pools, valley and foothill grassland. Clay soils within nonnative grassland. Most common in shallower, smaller vernal pools. 20-330 meters in elevation .	**None.** The Project site does not contain vernal pools or mesic sites that are suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May
Orcuttia tenuis Slender orcutt grass	--/--/1B.1	Associated with large, deep vernal pools. 30-1735 meters in elevation .	**None.** The Project site does not contain vernal pools. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May - September
Orcuttia viscida Sacramento orcutt grass	FE/SE/1B.1	Associated with large, deep vernal pools. 30-100 meters in elevation .	**None.** The Project site does not contain vernal pools. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - July
Packera layneae Layne's ragwort	--/--/1B.1	Chaparral, cismontane woodland. Ultramafic soil; occasionally along streams. 200-1000 meters in elevation .	**None.** The Project site does not contain ultramafic soils. There is a CNDDB-recorded occurrence of this species approximately two miles east of the Project site (CNDDB 2007).	April - August
Pseudobahia bahiifolia Hartweg's golden sunburst	FE/CE/1B.1	Valley and foothill grassland, cismontane woodland. Clay, often acidic, soils. Predominantly on the northern slopes of knolls, but also along shady creeks or near vernal pools. 15-150 meters in elevation .	**None.** The Project site does not contain clay soils. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Mar - April
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2	Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. 0-610 meters in elevation .	**None.** There are no freshwater habitat within the Project site that are suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May - October
Viburnum ellipticum Oval-leaved viburnum	--/--/2.3	Chaparral, cismontane woodland, and lower montane coniferous forest. 215-1,400 meters in elevation.	**Low.** Blue oak-foothill pine habitat within the Project site may be suitable for this species. There is a CNDDB-recorded occurrence of this species approximately two miles northwest of the Project site (CNDDB 2007).	May - June

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Wyethia reticulata El Dorado County mule ears	--/--/1B.2	Chaparrals, cismontane woodland, lower montane coniferous forest. Stony red clay and gabbroic soils; often in openings in gabbro chaparral. 180-630 meters in elevation .	**None.** The Project site does not contain stony red clay or gabbroic soils. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - July
ANIMALS				
INVERTEBRATES				
Branchinecta conservatio Conservation fairy shrimp	FE/--	Vernal pools, swales, and ephemeral freshwater habitats.	**None.** The Project site does not contain vernal pools or other ephemeral freshwater habitats that are suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	November - May
Branchinecta lynchi Vernal pool fairy shrimp	FT/--	Vernal pools, swales, and ephemeral freshwater habitats.	**None.** The Project site does not contain vernal pools or other ephemeral freshwater habitats that are suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	November - May
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/--	Occurs only in the central valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	**Low** No elderberry shrubs were observed during the field assessment, although some may occur in riparian areas throughout the Project site. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - June
Lepidurus packardi Vernal pool tadpole shrimp	FE/--	Inhabits vernal pools and swales in the Sacramento valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**None.** The Project site does not contain vernal pools or other ephemeral freshwater habitats that are suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	November - May
FISH				
Hypomesus transpacificus Delta smelt	FT/CT	Restricted to the Sacramento-San Joaquin Delta.	**None.** The Project site is outside of the known range of this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Consult agency
Oncorhynchus mykiss Central Valley steelhead	FT/--	The Sacramento and San Joaquin rivers and their tributaries.	**None.** The Project site does not contain aquatic habitat suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Consult agency

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Oncorhynchus tshawytscha Central Valley spring-run Chinook salmon	FT/CT	The Sacramento and San Joaquin Rivers and their tributaries.	**None.** The Project site does not contain aquatic habitat suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Consult agency
AMPHIBIANS				
Ambystoma californiense California tiger salamander	FT/CT	Annual grassland habitat and grassy understory of valley-foothill hardwood habitats. Uncommon along streamcourses in valley-foothill riparian habitats. Adults spend most of the year in subterranean refugia, especially burrows of California ground squirrels. Migrate to vernal pools and other temporary rainwater ponds to breed and lay eggs.	**None.** The Project site is outside of the current range of this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	October - May
Rana aurora draytonii California red-legged frog	FT/CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to aestivation habitat.	**None.** There are no permanent sources of deep water within the Project site. The stream that runs through the Project site is ephemeral in nature and highly degraded; it receives runoff directly from the surrounding industrial developments. It does not support any backwater ponds or other deep water habitats. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	January – February (adult visual survey)
Rana boylii Foothill yellow-legged frog	--/CSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	**None.** There are no streams with rocky substrates within the Project site. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	January - February *(adult visual survey)*
REPTILES				
Actinemys marmorata marmorata Northwestern pond turtle	--/CSC	Associated with permanent or nearly permanent water in a wide variety of habitats. Requires basking sites. Nests sites may be found up to 0.5 km from water.	**None.** There is no permanent or nearly permanent water within the Project site. There are several CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round (for adults in aquatic environment)
Phrynosoma coronatum (frontale population) Coast horned lizard	--/CSC	Several habitat types including open shrublands, clearings in riparian woodlands, chamise chaparral, annual grassland; typically in sandy or gravelly soils.	**None.** The Project site does not contain open shrublands or clearings in riparian woodlands, chaparral, or annual grassland habitats. Open habitats within the alignment are barren and/or highly compacted resulting from soil removal during past mining operations. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Thamnophis gigas Giant garter snake	FT/CT	Marshes, sloughs, irrigation channels, and occasionally in slow-moving streams. Requires emergent vegetation for cover.	**None.** The Project site is outside of the current range of this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Mid-March - October
BIRDS				
Accipiter cooperii Coopers hawk	--/CSC	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood plains; also, live oaks.	**High.** Blue oak-foothill pine and riparian habitats throughout the Project site are suitable for nesting and foraging by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - August
Accipiter gentilis Northern goshawk	--/SC	Casual throughout most of the state; resident in portions of the Sierra Nevada, Cascade, and Klamath ranges and some southern mountains. Breeds in dense, mature conifer and deciduous forests, interspersed with meadows, other openings and riparian areas; nesting habitat includes north-facing slopes near water.	**None.** The Project site does not contain suitable nesting or foraging habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round
Accipiter striatus Sharp-shinned hawk	--/CSC	Winter resident throughout much of the state; permanent at higher elevations. Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers but is not restricted to riparian habitats.	**High.** Blue oak-foothill pine and riparian habitats throughout the Project site are suitable for nesting and foraging by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round
Agelaius tricolor Tricolored blackbird	--/CSC	Colonial species, most numerous in central valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area within 4 miles of nesting area. Breeding territory approximately is 3 square meters per pair; minimum colony size is approximately 50 pairs.	**None.** The Project site does not contain fresh emergent wetland habitat of sufficient size for this species. There is a CNDDB-recorded occurrence of this species approximately four miles northwest of the Project site (CNDDB 2007).	April - July
Aquila chrysaetos Golden eagle	--/CSC,CFP	Breeds on cliffs or in large trees or electrical towers, forages in open habitats.	**None.** The Project site does not contain suitable breeding or foraging habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round
Asio flammeus Short-eared owl	--/CSC	Widespread winter migrant. Breeding range includes coastal areas in Del Norte and Humboldt counties, the San Francisco Bay Delta, northeastern Modoc plateau, the east side of the Sierra from Lake Tahoe south to Inyo county, and the San Joaquin valley. Found in open, treeless areas with elevated sites for perching and dense vegetation for roosting and cover.	**None.** Open, treeless areas are not present within the Project site. The species does not breed within the region. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Asio otus Long-eared owl	--/CSC	Breeding resident throughout much of the state. Found in dense riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats; also found in dense conifer stands at higher elevations.	**Moderate.** Dense riparian wetland habitat at the western edge of the Project site may be suitable for breeding by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round
Athene cunicularia Burrowing owl	--/CSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester; dependent upon burrowing mammals (e.g., California ground squirrel).	**None.** Suitable habitat with burrows was not observed during the field assessment. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Feb 1 – Aug 31 And Dec 1 – Jan 31
Buteo regalis Ferruginous hawk	--/CSC	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Eats mostly lagomorphs (hares, rabbits, pikas), ground squirrels, and mice. Population trends may follow lagomorph's population cycles.	**None.** The Project site does not contain open grasslands, sagebrush flats, or other habitats suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	September - April
Buteo swainsoni Swainson's hawk	--/CT	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**None.** The Project site is outside of the known range of this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	January - July
Chaetura vauxi Vaux's swift	--/CSC	Common migrant throughout the state; summer resident in the north. Nests in large, hollow trees and snags in coniferous forest habitats. Often nests in flocks.	**None.** The Project site does not contain coniferous forest habitats. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	May - August
Circus cyaneus Northern harrier	--/CSC	Winter resident throughout most of the state; year-round in the Central Valley and Coast Range. Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields or grasslands.	**None.** There are no extensive open habitats for foraging, or wetland habitats for nesting. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - September (breeding)
Cypseloides niger Black swift	--/CSC	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above surf.	**None.** The Project site does not contain and is not adjacent to any cliffs or deep canyons. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	June - August
Dendroica petechia brewsteri Yellow warbler	--/CSC	Requires riparian thickets of willow and other brushy tangles near watercourses for cover. Nests in dense shrubs along a stream or river.	**Moderate.** Riparian habitat associated with the drainage at the western edge of the Project site may be suitable for foraging and nesting. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - September

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Elanus leucurus White-tailed kite	--/CFP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**High.** Blue oak-foothill pine and riparian habitats throughout the Project site are suitable for nesting by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	January – August (breeding)
Falco columbarius Merlin	--/CSC	Uncommon winter migrant. Seldom found in heavily wooded areas or open deserts. Frequents open habitats at low elevations near water and tree stands. Favors coastlines, lakeshores, and wetlands. Ranges from annual grasslands to ponderosa pine and montane hardwood-conifer habitats.	**Moderate.** Blue oak-foothill pint habitat within the Project site is suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	September - May
Falco mexicanus Prairie falcon	--/CSC/	Year-round resident throughout much of the state; winters in the Central Valley and along the coast. Occurs in open habitats such as grasslands, desert scrub, rangelands and croplands. Nests in a scrape on a sheltered ledge of a cliff overlooking a large, open area.	**None.** The Project site does not provide suitable nesting or foraging habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round
Haliaeetus leucocephalus Bald eagle	FD/CFP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mi of water. Nests in large, old growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.	**None.** The Project site does not contain suitable nesting or foraging habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year Round
Icteria virens Yellow-breasted chat	--/CSC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.	**None.** The Project site does not contain riparian habitat with dense understory vegetation. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - July
Lanius ludovicianus Loggerhead shrike	--/CSC	Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting.	**Moderate.** The Project site provides suitable nesting and foraging habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	March - August
Phalacrocorax auritus Double-crested cormorant	--/CSC	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	**None.** The Project site does not contain suitable nesting or foraging habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April – August (breeding)

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Progne subis Purple martin	--/CSC	An uncommon to rare, local summer resident in a variety of wooded, low-elevation habitats throughout the state; a rare migrant in spring and fall, absent in winter. Breeding habitat includes old-growth, multi-layered, open forest and woodland with snags; forages over riparian areas, forest, and woodlands	**Low.** Blue oak-foothill pine habitat in the eastern portion of the Project site may provide suitable nesting habitat for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - September
MAMMALS				
Antrozous pallidus Pallid bat	--/CSC	Broadly distributed in California from sea level to over 6,000 feet. Roosts in caves, buildings, rock crevices, and tree hollows. Overwinters in summer habitats at lower elevations.	**Moderate.** Riparian and blue oak-foothill pine habitats within the Project site may provide suitable maternity roosts for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - October
Bassariscus astutus Ringtail	--/FP	Widely distributed, common to uncommon permanent resident. Occurs in various riparian habitats and in brush stands of most forest and shrub habitats at low to middle elevations. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests.	**Moderate.** Thick, riparian woodland habitat at the western edge of the Project site may be suitable for this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round
Corynorhinus townsendii Townsend's big-eared bat	--/CSC	Roosts in colonies in caves, mines, tunnels, or buildings in mesic habitats. The species forages along habitat edges, gleaning insects from bushes and trees. Habitat must include appropriate roosting or hibernacula sites free from disturbance by humans.	**None.** The Project site does not contain caves, mines, tunnels, or undisturbed buildings suitable for roosting by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Consult agency
Euderma maculatum Spotted bat	--/CSC	In north and central California from the low Sierra Nevada foothills east. From Ventura Co. south occurs throughout. Prominent rock features required for roosting. It is unknown whether species migrates or hibernates locally.	**None.** The Project site does not contain prominent rock features suitable for roosting by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - October
Eumops perotis californicus Greater western mastiff-bat	--/CSC	From central to southern California. Low elevations in the coastal basins of southern California. Rugged, rocky areas with suitable crevices for roosting, or human-made structure.	**None.** The Project site does not contain rugged, rocky areas or undisturbed buildings suitable for roosting by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	April - October
Lasionycteris noctivagans Silver-haired bat	--/CSC	Primarily a coastal and montane forest dweller feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Needs drinking water.	**Moderate.** Blue oak-foothill pine and riparian habitat within the Project site may provide suitable roosting habitat for this species. There is a CNDDB-recorded occurrence of this species approximately five miles north of the Project site.	April - October

Scientific Name **Common name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat Description**	**Potential for Presence**	**Period of Identification***
Taxidea taxus American badger	--/CSC	Herbaceous, shrub, and open stages of most habitats with dry, friable soils. Minimum reported home range size is approximately 350 acres.	**None.** The Project site does not contain open habitat of the areal extent required by this species. There are no CNDDB-recorded occurrences of this species within five miles of the Project site (CNDDB 2007).	Year-round

Appendix E:
Delineation of Jurisdictional Waters and Wetlands

Delineation of Jurisdictional Waters of the U.S., Including Wetlands
Diamond Dorado Retail Center Project

Missouri Flat Area of Unincorporated El Dorado County, California

Placerville, California, USGS 7.5-Minute Topographic Quadrangle Map
Sections 24 and 25, Township 10N, Range 10E
Sections 19 and 30, Township 30N, Range 11E

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April 16, 2008

Michael Brandman Associates

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SECTION 1: SUMMARY

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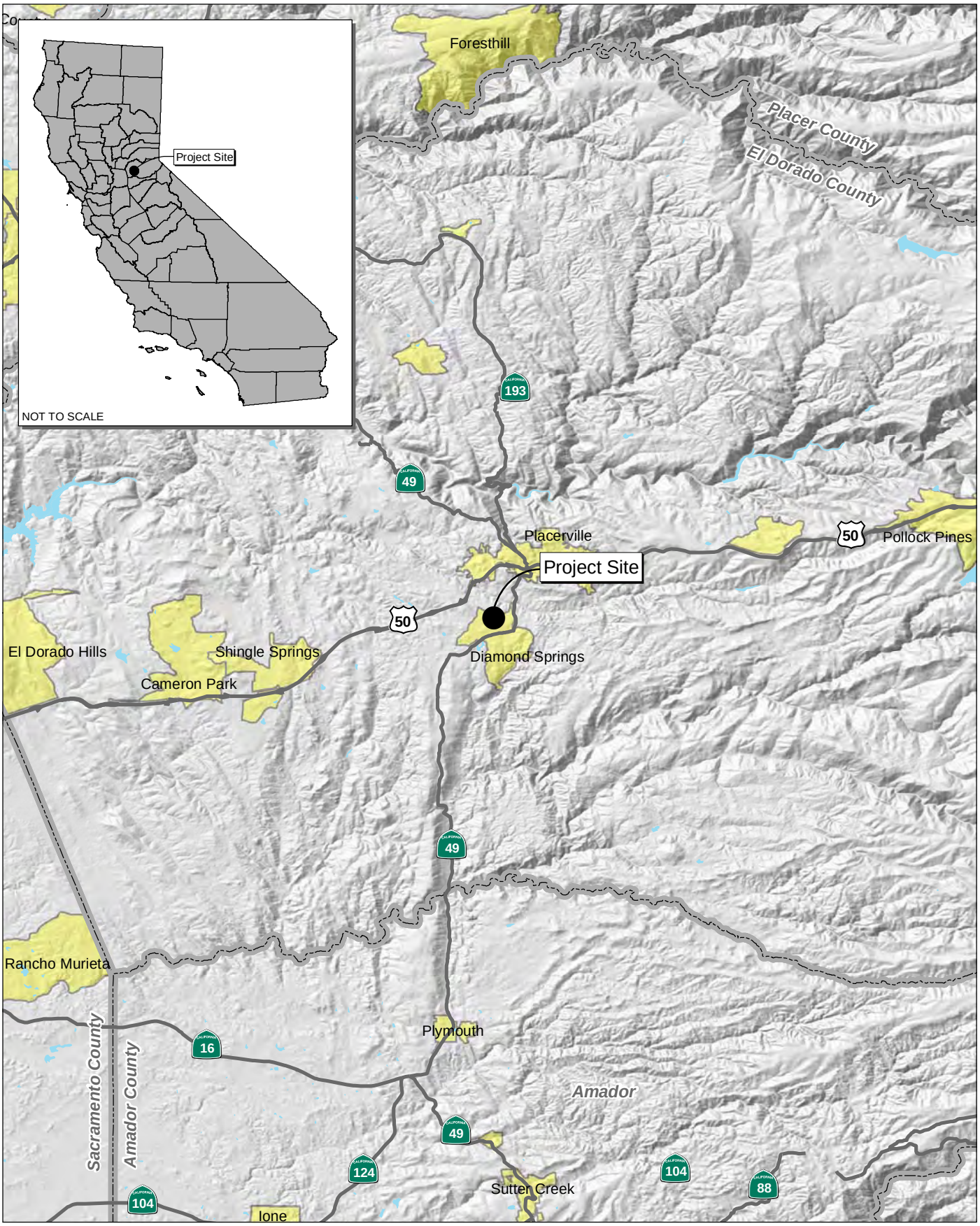
1.1 - Introduction

At the request of GGV Missouri Flat, LLC, Michael Brandman Associates (MBA) conducted a jurisdictional delineation of waters of the United States, including wetlands, for the approximately 43-acre Diamond Dorado Retail Center Project Site ("Project Site" or "Site") located in the Missouri Flat area of unincorporated El Dorado County, just north of Diamond Springs, California (Exhibit 1). The location of the Project Site corresponds to Sections 24 and 25, Township 10N, Range 10E, and Sections 19 and 30, Township 30N, Range 11 E (Mount Diablo Baseline Meridian [MDBM]) of the *Placerville, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle just northwest of Diamond Springs, El Dorado County, California.

1.2 - Results Summary

The Project Site is highly altered by historical industrial mining activities, and much of the Site is unvegetated. Native habitat occurs only in very small, linear patches that separate existing developments. The Western El Dorado County Materials Recovery Facility (MRF) is located in the southwestern corner of the Project Site. In the west-central portion of the Site is a large spoils pile left from past mining activities; currently there are piles of asphalt and concrete stored near the base of this feature. The remainder of the Project Site to the east was graded and compacted during past mining activities. This area is largely unvegetated and currently is used to park and store vehicles and containers.

Historical industrial mining has altered completely the vegetation, soils, and hydrology of the Project Site. Native soils were removed and remaining substrates are highly compacted, making characterization of the Site difficult. In several areas, there is old asphalt underlying a thin layer of soil transferred during storm events from adjacent unvegetated uplands. In these areas, the asphalt creates an impermeable layer that results in ponding, but only very sparse growth of vegetation. This high degree of disturbance required coordination with Project engineers to characterize accurately the hydrology of the Project Site. There is one natural drainage feature that borders the Project Site to the west. This feature is visible on historical topographic maps and aerial photographs.



Source: Census 2000 Data, The CaSIL, MBA GIS 2007.

Michael Brandman Associates

NORTH

0 1 2 4 6 8 Miles

Exhibit 1
Regional Location Map

The delineation of waters of the U.S. identified four (4) features that are U.S. Army Corps of Engineers (USACE) jurisdictional. These include two (2) ephemeral drainages, one (1) riparian wetland, and one (1) seasonal wetland. These features together exhibit a "significant nexus" to Weber Creek, a Traditionally Navigable Water (TNW). As such, these features are subject to regulation by the USACE. Total acreage of USACE jurisdictional features is 0.400 acres (1,444 linear feet).

The Project Site contains two (2) features considered non-federally jurisdictional. They include two roadside ditches. These features do not enter, intersect, or otherwise capture flows from any TNW, Relatively Permanent Water (RPW), or seasonal wetland; therefore, this feature does not contain any federally jurisdictional waters. Total acreage of non-federally jurisdictional features is 0.019 acre (836 linear feet).

SECTION 2: JURISDICTIONAL METHODOLOGY

2.1 - Methodology Statement

This Jurisdictional Delineation was conducted in accordance with regulations set forth in 33 CFR part 328 and the USACE guidance documents referenced below:

- USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), *Wetlands Delineation Manual*, Environmental Laboratory, 1987 (Wetland Manual).
- USACE *Minimum Standards for Acceptance of Preliminary Wetlands Delineations*, November 30, 2001 (Minimum Standards).
- USACE *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*, December 2006 (Arid West Supplement).
- USACE *Jurisdictional Determination Form Instructional Guidebook*, May 30, 2007 (JD Form Guidebook).
- *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* (June 5, 2007) (Rapanos Guidance).

2.2 - Pre-Survey Investigation

Prior to the field visit, an aerial photograph of the Site was procured and compared with the *Placerville, California*, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map to identify drainage features within the Site, as indicated from topographic changes or visible drainage patterns. The United States Department of Agriculture (USDA) Soil Survey Map was reviewed to identify all soil series that occur on the Site.

2.3 - Field Investigation

Delineations were conducted by qualified MBA regulatory specialists on December 13, 2007 and January 10 and 11, 2008. Data was collected using a Trimble ProXH (GPS) unit capable of sub-foot accuracy. Drainage features also were mapped onto an aerial photograph and onto paper. Other tools used included a 30-meter tape measure, shovel, Munsell color chart, digital camera, and pin flags.

All surveys were conducted on foot. Potential jurisdictional features were systematically inspected to record existing conditions and to determine the jurisdictional limits. The site was carefully assessed for surface flow indicators (presence of hydrophytic vegetation, staining, cracked soil, ponding, etc). The apparent flow regimes and corresponding hydrogeomorphic features were subsequently identified. In non-wetland areas, the lateral extent of USACE jurisdiction was measured at the

Ordinary High Water Mark (OHWM). Where appropriate, multiple measurements were recorded at various representative locations along the length of the feature.

Potential wetland areas were assessed to the outer reach of the applicable (hydrophytic) vegetative community or (where vegetation was absent/disturbed) to the natural topographical rim of the depressional feature (whichever was greater). Features previously indicated on aerial photographs (dark/saturated areas, associated riparian vegetation, etc) were field verified during the site visit. Plant species for each vegetative community were identified and given an indicator status as prescribed in the *National List of Plant Species That Occur in Wetlands: 1988 National Summary* (Reed 1988). All collected data was recorded on wetland data forms and evaluated using the 2006 USACE Arid West Regional Guidance.

Width and length measurements were entered into Geographical Information System (GIS) Arcview software to identify the location and dimensions of jurisdictional areas. The Arcview application was then used to compute federal jurisdiction in acres. Acreage computations were verified using a 200-scale aerial photograph and field data.

SECTION 3: ENVIRONMENTAL SETTING

3.1 - Location of the Property

The Project Site is located approximately 0.4 mile north of Diamond Springs and 1.5 miles east of Highway 50. It is near State Route (SR) 49 to the east, Truck Street to the north, Lime Kiln Road to the south, and Chuckwagon Way to the west. The location of the Project Site corresponds to Sections 24 and 25, Township 10N, Range 10E, and Sections 19 and 30, Township 30N, Range 11E *Placerville, California* USGS 7.5-minute topographic quadrangle (Exhibit 2). The approximate center of the Project Site has a latitude/longitude corresponding to 38°42'2.48"N and 120°48'56.76"W.

3.1.1 - Directions to the Property

From eastbound Highway 50, exit at the Missouri Flat Road exit and travel east (this road turns south after approximately one mile) on Missouri Flat Road for 1.5 miles. Turn left (east) onto Diamond Springs Road / State Highway 49 and continue for 0.5 mile and turn left (north) to continue on State Highway 49. Continue north on SR 49 for 0.5 mile to Bradley Drive. Turn left (west) on Bradley Drive and proceed to where the road ends at Dimetrics Way. Continue across Dimetrics Way to enter the Project Site at the northeast corner.

3.1.2 - Acreage and Assessor Parcel Numbers (APNs)

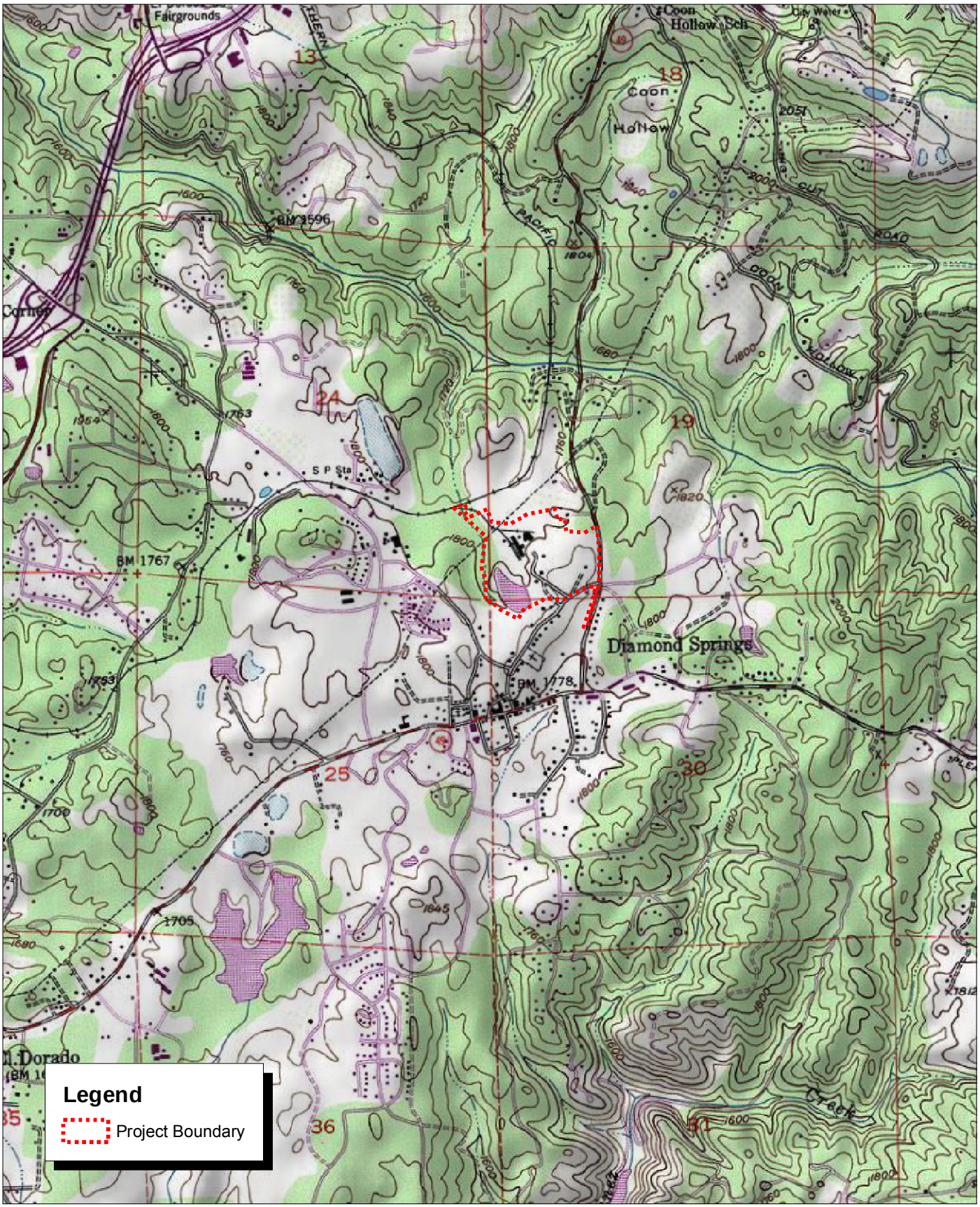
The Project Site encompasses approximately 43 acres; consisting of Assessor's Parcel Numbers (APNs) 051-250-12, -46, -47, -51, -54, and -55.

3.2 - Land Uses

The northern portion of the Project Site historically supported an active lime mine prior to 1935, the earliest date for which an aerial photograph was obtained (Appendix A). The remainder of the Project Site contained undisturbed native blue oak-foothill pine habitat. The lime mine was expanded southward sometime between 1952 and 1962. However, it was not until between 1962 and 1984 that significant development occurred. During this time, the existing Materials Recovery Facility (MRF) was constructed and remaining undisturbed areas were cleared.

3.3 - Topography

The Project Site was altered significantly by past mining activities and little native topography remains. In general, the Project Site is level to gently sloping, with the exception of one steep drainage to the west and a large spoils pile in the north. Average elevation is approximately 1,800 feet above mean sea level (msl).



Source: TOPO! USGS Placerville (1973) 7.5' DRG.
Township 10N, Range 10E, Sections 24, 25; Township 10N, Range 11E, Sections 19, 30

Exhibit 2
Vicinity Map
USGS Topographic Base

Michael Brandman Associates

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3.4 - Hydrology

3.4.1 - Pertinent Hydrogeomorphic Features

The Project Site contains one major drainage feature that borders the site on the west. This feature is considered a Relatively Permanent Water (RPW); during the December 21, 2007, delineation there were areas of ponding, but the majority of the channel was dry. Flow was first observed on January 10, 2008, four days after a major storm event.

3.4.2 - Watershed Description

The Project Site is located within the west-central portion of the +7,950-acre Ringold Creek watershed-planning unit (Calwater ID 5144.310203), which is part of the larger Weber Creek Sub-Hydrologic Area (Calwater, 2004). Weber Creek is the principle drainage feature within the Project vicinity. Weber Creek flows west-northwest appropriately 12 miles prior to discharging into the South Fork of the American River Watershed (Hydrologic Unit 18020129). Weber Creek is a combination of step-pool and cascade alluvial-channel morphologies (Montgomery and Buffington 1998) and drains a total watershed area of approximately 97 square miles.

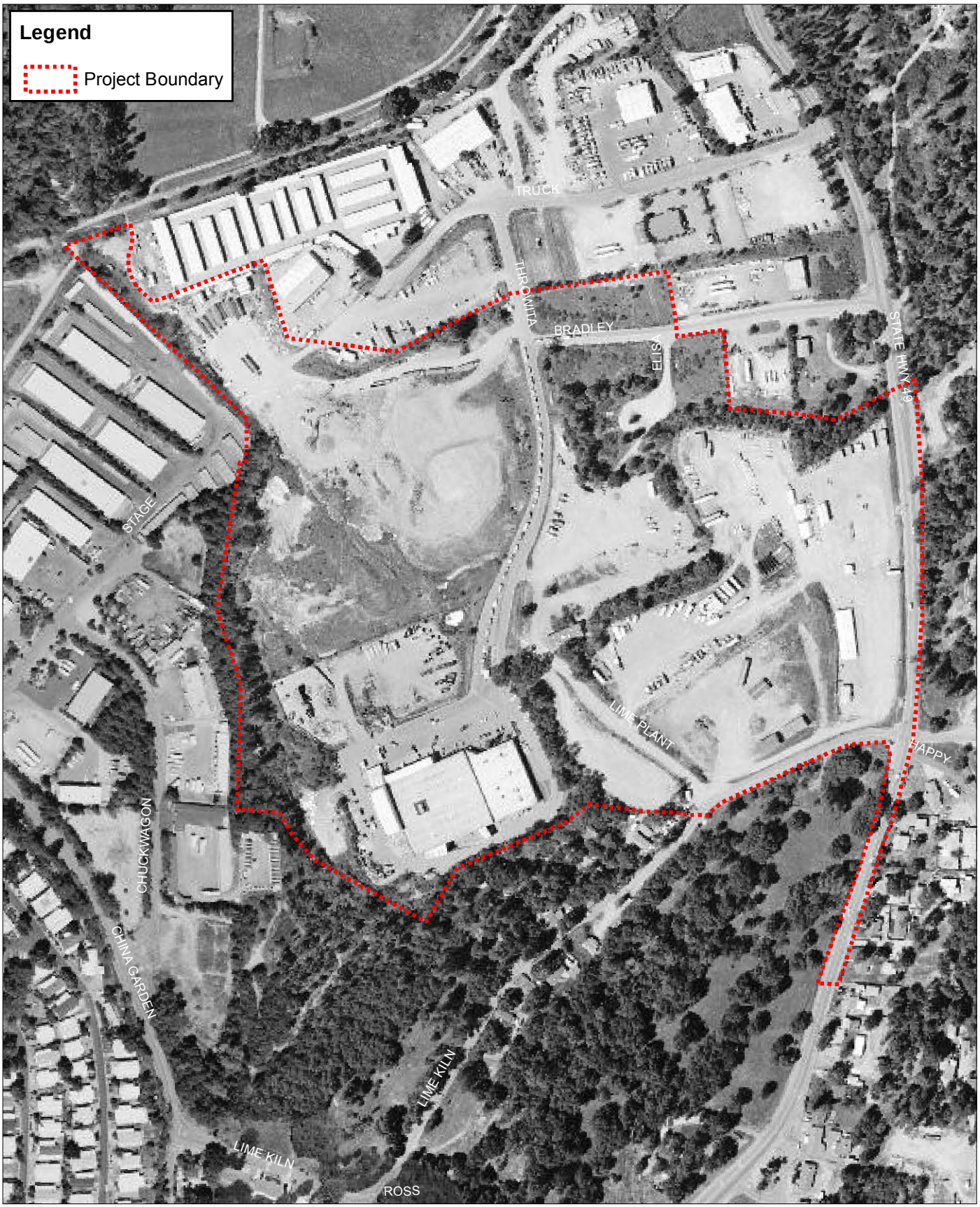
3.4.3 - Drainage Pattern

Drainage patterns within the Project vicinity have been altered completely by historical industrial mining activity and by adjacent development (Exhibit 3). Storm water runoff from the western portion of the Project site ultimately enters an ephemeral drainage at the western boundary (ED1). ED1 is depicted as a dashed blue line on the USGS *Placerville, CA* 7.5-minute topographic quadrangle and ultimately discharges into Weber Creek. The drainage feature appears to receive and convey runoff from a majority of the Project Site, and from properties adjacent to the west. The drainage feature continues to the north of the Project Site where it is diverted to the east for approximately 50 feet before entering a 36-inch culvert where flows are conveyed back to the north, underneath existing railroad tracks (no longer in use), and outfalls into a low-gradient meadow.

Runoff on the eastern portion of the Project Site is conveyed to the existing roadway culvert system, which diverts flows to the east and into a roadside ditch along Diamond Road (SR 49). The roadside ditch conveys water to the south where it enters the existing storm drainage system at the intersection of SR 49 and Pleasant Valley Road..

3.4.4 - Water Source

The Project Site is located within the headwaters of a localized drainage (ED1) and does not receive flows from up-slope locations. As a result, surface water within the ED1 is supplied exclusively through runoff from precipitation during the winter and spring months. The channel generally goes dry early in the summer with isolated pools forming in locations that receive irrigation return flows.



Source: CTA, 2007; El Dorado County, 2005; and MBA, 2008

NORTH

0 125 250 500 Feet

Michael Brandman Associates

Exhibit 3
Aerial Photograph

3.5 - Field Conditions

3.5.1 - Seasonal Climate Variation

The Missouri Flat area is subject to relatively strong seasonal and annual variation in temperature and precipitation. Elevation of the Project Site is approximately 1,800 feet above mean sea level (msl). Average temperatures range from January lows of 32.4 ˚F to July highs of 92.6 ˚F.

Average annual precipitation is approximately 38.5 inches. Precipitation falls primarily as rain with most precipitation occurring between the months of October and April and peaking in January at 6.98 inches. Average total annual snowfall is 2.7 inches, occurring from December through April and peaking in January at 1.2 inches.

3.5.2 - Field Conditions at time of Field Investigation

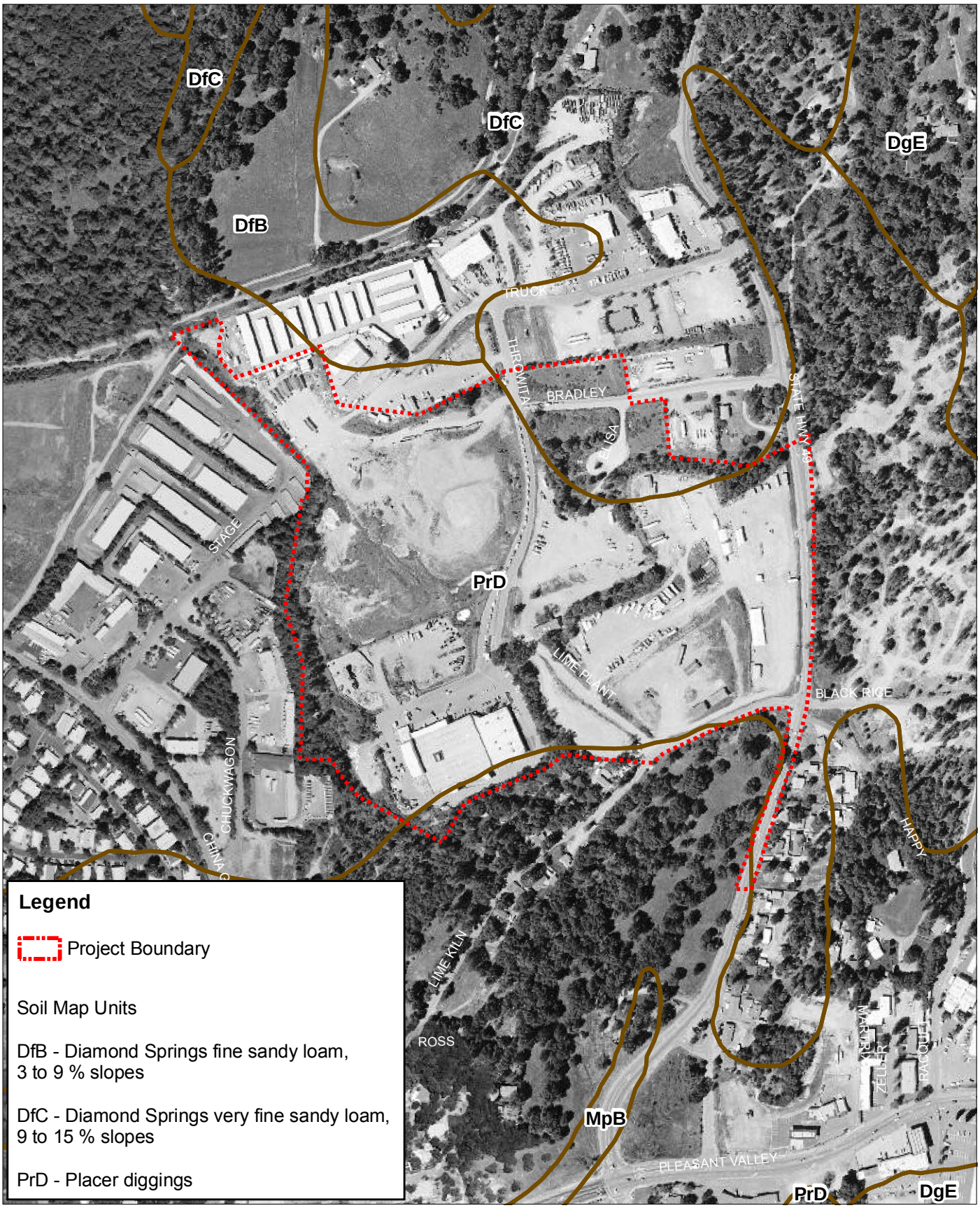
Northern California was experiencing normal conditions and moderate drought in 2007 during the months preceding the delineations. Table 1 provides weather information for the 2007 calendar year; delineations were conducted in December 2007 and January 2008. Local weather varied among delineation dates. During the December 13, 2007, delineation the weather was clear and sunny. On January 10, 2008, it was cold, overcast, and raining throughout the day; on January 11, 2008, it was cold and overcast with no rain.

Table 1: Weather Data for 2007

Date	Palmer Severity Index
January 2007	Moderate Drought
May 2007	Severe Drought
September 2007	Moderate Drought
December 2007	Moderate Drought

3.6 - Soils

Native soils on the Project Site were removed during historical industrial mining, resulting in a highly altered and disturbed landscape. The NRCS Web Soil Survey (Soil Staff undated) shows two (2) soil types mapped within the Project Site (Exhibit 4); detailed information about each soil and its location is summarized in Table 2. Placer diggings (PrD) occur over a majority of the area. These soils are classified as fine sandy loam with cobbles; the parent material is alluvium derived from mixed sources. Diamond Springs very fine sandy loam, 3 to 9 percent slopes (DfB) occurs in a very small patch at the extreme north-central boundary of the Project Site. Diamond Springs very fine sandy loam, 9 to 15 percent slopes (DfC) occurs in two small areas at the northern and southern edges of the Project site. The parent material is fine-grained, acidic residuum weathered from igneous rock.



Source: CTA, 2007; El Dorado County, 2005; and MBA, 2008

NORTH

0 250 500 1,000 Feet

Michael Brandman Associates

Exhibit 4
Soils Map

Table 2: Summary of USDA / NRCS Soil Descriptions

Code	Soil Series	Mapping Unit	Feature Containing Soil	NRCS Hydric/ Landform	Drainage Class	Parent Material
DfB	Diamond Springs	Very fine sandy loam, 3-9% slopes	n/a	No	well drained	fine-grained, acidic residuum weathered from igneous rock
DfC	Diamond Springs	Very fine sandy loam, 9-15% slopes	n/a	No	well drained	fine-grained, acidic residuum weathered from igneous rock
PrD	Placer Diggings		All	Yes, drainage channels	n/a	weathered from granodiorite or tonalite

3.7 - Vegetation

Vegetation communities within the Project Site are classified according to *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 2000). This system classifies communities based upon floristic components, which are the plant taxa making up the vegetation of a given area. The floristically-based system classifies communities at the lower units of the series or association, thereby allowing for a finer-scale description of the community and a better understanding of community function. Vegetation communities identified within the Project Site, the dominant species, and their wetland indicator status (Reed 1988) are described below.

A majority of the Project Site is highly compacted and unvegetated as a result of past industrial mining activities that stripped native soils. Vegetated areas are restricted to the northeastern portion of the Project Site and narrow, linear areas that border ED1 to the west and that divide neighboring industrial developments.

Vegetated portions of the Project Site support three plant communities: mixed willow series, mixed oak series, and California annual grassland series. Mixed willow series (2.9 acres) is associated with Ephemeral Drainage 1 (ED1, Exhibit 5), which borders the Project Site to the west. Overstory species include Fremont cottonwood (*Populus fremontii*, FACW), valley oak (*Quercus lobata*, FAC), arroyo willow (*Salix lasiolepis*, FACW), and black willow (*S. gooddingii;* OBL). Shrub species observed include coyotebrush (*Baccharis pilularis*, NI), Himalayan blackberry (*Rubus discolor*, FACW), giant reed (*Arundo donax*, FACW), California coffeeberry (*Rhamnus californica*, NI), snowberry (*Symphorocarpos mollis*, NI), and poison oak (*Toxicodendron diversilobum*, NI). Other species include rush (*Juncus* sp.), St. John's wort (*Hypericum perfoliatum*, NI), tall annual willowherb (*Epilobium brachycarpum*, UPL), and sheep sorrel (*Rumex acetosella*, FAC).

Mixed oak series (2.8 acres) occurs on the slopes and uplands of Ephemeral Drainage 1 (ED1, Exhibit 5) and in linear areas that border urban and/or barren habitats throughout the Project Site. Overstory

species observed within the Project Site are foothill pine (*Pinus sabiniana,* NI) interior live oak (*Quercus wislizenii*, NI), and valley oak (FAC). Shrub species include whiteleaf manzanita (*Arctostaphylos viscida*, NI), greenleaf manzanita (*A. patula*, NI), California coffeeberry (NI), coyotebrush (NI), toyon (*Heteromeles arbutifolia,* NI), Scotch broom (*Cytisus scoparius*, NI), and Himalayan blackberry (FACW).

California annual grassland series is restricted to the western portion of the Project Site surrounding Seasonal Wetland 1 (SW1, Exhibit 5) and the surrounding upland swale. This area is highly disturbed by past mining activities; the topography is uneven and native soils appear to have been removed. As a result of past disturbance, much of this habitat is sparsely vegetated by non-native, ruderal plant species. Species observed include clover (*Trifolium* sp.), vetch (*Vicia* sp.), narrowleaf plantain (*Plantago lanceolata*, FAC), curly dock (*Rumex crispus*, FACW), vinegar weed (*Trichostema lanceolatum*, NI), Fitch's tarweed (*Hemizonia fitchii*, NI), burr clover (*Medicago polymorpha*, NI), woolly mullein (*Verbascum thlapsus*, NI), canary grass (*Phalaris* sp.), dogtail grass (*Cynosurus echinatus*, NI), white sweet clover (*Melilotus alba*, FACU), Spanish lotus (*Lotus purshianus*, NI), bird's-foot trefoil (*Lotus corniculatus*, FAC), prickly lettuce (*Lactuca serriola*, FAC), and elegant madia (*Madia elegans*, NI). Ponded inclusions within this habitat support narrowleaf cattail (*Typha angustifolia*, OBL), nut sedge (*Cyperus eragrostis*, OBL), hyssop loosestrife (*Lythrum hyssopifolium*, FACW), and barnyard grass (*Echinochloa crus-galli*, FACW).

SECTION 4: RATIONALE FOR JURISDICTIONAL DETERMINATION

The following section provides a summary of features delineated within the Project Site. These features are mapped in Exhibit 5. Wetland data forms are provided in Appendix B. Table 3, below, summarizes all delineated features within the Project Site; see the attached Delineation Map for location and acreage detail.

Table 3: Summary of Delineated Features

Federally Jurisdictional Features	Total Acreage
Drainages	
Ephemeral Drainage 1(ED1)	0.098 acre (1,275 linear feet)
Ephemeral Drainage 1A (ED1A)	0.004 acre (169 linear feet)
Total Acreage of Drainages	**0.102 acre (1,444 linear feet)**
Wetlands	
Riparian Wetlands 1 (RW1)	0.262 acre
Seasonal Wetland 1 (SW1)	0.036 acre
Total Acreage of Wetlands	**0.298 acre**
Total Acreage, Federally Jurisdictional Features	**0.400 acre (1,444 linear feet)**
Non-Federally Jurisdictional Features	**Total Acreage**
Roadside Ditch 1 (RD1)	0.002 acre (82 linear feet)
Roadside Ditch 2 (RD2)	0.017 acre (754 linear feet)
Total Acreage of Roadside Ditch	**0.019 acre (836 linear feet)**
Total Acreage, Non-Federally Jurisdictional Features	**0.019 acre (836 linear feet)**

4.1 - Potentially Federally Jurisdictional Features

4.1.1 - Ephemeral Drainage 1

Ephemeral Drainage 1 (ED1) is a Relatively Permanent Water (RPW) that originates just south of the southwestern corner of the Project Site (Exhibit 5). The majority of flows enter ED1 through storm water drainage systems that initiate at neighboring industrial and commercial developments. Storm water and nuisance flows from these developments are channeled into on-site systems that discharge into ED1 via PVC pipes extending into the bank several feet above the OHWM. In addition to these channeled sources of storm water, ED1 also receives surface flows from the western half of the Project Site, which is drained by ED1A, tributary to ED1. Surface flows enter ED1A via an upland swale that flows from southeast to northwest through a small seasonal wetlands (SW1) and captures surface flows from the surrounding uplands. A photograph of this feature is in Appendix C, Photograph 1.

Legend

- Project Study Area
- X 3-Parameter Data Point
- XN Non-wetland Data Point
- Channel Widths
- Roadside Ditches
- Ephemeral Drainages
- Topographic Contours (1-foot)
- Riparian Wetland
- Seasonal Wetland

Report Date - 4/15/2008

Survey Dates:

12/13/07
1/10/08
1/29/08

Surveyed By:

T' Shaka Toure
Deborah Stout

Label	Jurisidictional Features	Acres	Length (ft)
ED 1	Ephemeral Drainage	0.098	1275
ED 1A	Ephemeral Drainage	0.004	169
	Sub-Total	*0.102*	
RW 1	Riparian Wetland	0.262	
SW 1	Seasonal Wetland	0.036	
	Sub-Total	*0.298*	
	Total (All Features)	**0.400**	**1444**

Label	Non-Jurisdictional Features	Acres	Length (ft)
RD 1	Roadside Drainage	0.002	82
RD 2	Roadside Drainage	0.017	754
	Total	**0.019**	**836**

Source: CTA, 2008; MBA, 2008

NORTH

200 100 0 200 Feet

Michael Brandman Associates

3337.0001 • 04/2008

Exhibit 5
Delineation of Jurisdictional Waters and Wetlands

GGV MISSOURI FLAT LLC • DIAMOND DORADO RETAIL CENTER PROJECT
WETLAND DELINEATION

In the very recent past additional water entered ED1 each month as the result of a leaking underground water main servicing Gold Key Storage, which borders the Project Site on the northwest. According to Rick Siegel, Maintenance Supervisor at Gold Key Storage, the leak likely occurred over several months until approximately December 2007, when the leak was discovered and repaired (Siegel, pers comm. 2008). Water exiting the broken water main traveled approximately 500 feet and entered ED1 beneath tree roots.

ED1 flows northward to the north-central portion of the Project Site, where tributary ED1A enters from the east. At this confluence, ED1 bends and continues northwest. ED1 exits the Project Site at the extreme northwestern corner, where it enters a 36-inch culvert under a raised dirt road and spills into a forested area to the north. The total length of ED1 within the Project Site is 1,275 linear feet (Table 4). Based upon the USGS topographic map, ED1 continues north for approximately 0.4 mile and enters Weber Creek, a TNW. During storm events, some flows bypass the culvert at the northern edge of the Project Site and are channeled east along the southern base of the raised dirt road. An investigation to the area east of where ED1 leaves the Project Site indicates flows that bypass the culvert during storm events follow a bed-and-bank feature for several meters before dissipating into sheet flow.

Where ED1 originates it is a deeply incised, broad, silt-lined basin with very steep, well-vegetated banks. Just downstream from the confluence with ED1A, the channel narrows considerably and remains approximately two feet in width to where it exits the Project Site. ED1 contained standing and flowing water during all field visits. In addition to the presence of water, OHWM indicators included shelving, litter, debris, watermarks, and aerial adventitious roots on tree trunks. ED1 is disturbed; it is lined with relatively barren post-industrial land and industrial and commercial development. During the field visits, trash was observed throughout the length of ED1, including discarded oil containers, household refuse, and 50-gallon drums. ED1A is a narrow, deeply incised channel that exhibits signs of head cutting where it originates within the Project Site. Although the channel exhibits scour, it also supports willow and cottonwood saplings. A photograph of ED1A is provided in Appendix C (Photograph 2).

ED1 is visible on historic topographic maps dating back to 1893 (EDR 2007). In 1893, ED1 is shown as a solid-line feature suggesting it may have been a perennial feature. In subsequent maps (1949, 1950, 1973) it is shown as a dashed-line feature, suggesting that between 1893 and 1949 it became more ephemeral in nature. ED1 is also visible on aerial photographs dating back to 1935, at which time it was flanked by oak woodland habitat (EDR 2007). By 1952, a lime plant had been developed up to the eastern bank. By 1984, ED1 was flanked by development and mining activities and ED1A appears well developed.

Jurisdictional Determination

ED1 is an RPW that exhibits a "significant nexus" to Weber Creek, a TNW, and is, therefore, under the jurisdiction of the USACE and not subject to significant nexus evaluation under the Rapanos Guidance. USACE jurisdictional area within ED1, including ED1A, is 0.102 acre (1,444 linear feet).

4.1.2 - Riparian Wetland 1

Riparian Wetland 1 (RW1) occurs in the southern end of ED1 (Exhibit 5). The location of RW1 within ED1 is a deeply incised, very broad, silt-lined basin with steep, well-vegetated banks. RW1 supports an open canopy of willows (*Salix* sp.). Water entering the southern portion of ED1 ponds within RW1 for a considerable portion of the year. It appears that RW1 contributes flows to ED1 primarily during heavy rain events, when ponding depth is sufficient to cause overflow into ED1. A photograph of this feature is provided in Appendix C, Photograph 3.

Jurisdictional Determination

RW1 is contiguous with ED1, which exhibits a "significant nexus" to Weber Creek, a TNW. Therefore, ED1 and RW1 are under the jurisdiction of the USACE. RW1 meets all three wetland parameters. RW1 was ponded during the field evaluation, and hydrogen sulfide was present within soils. In addition, RW1 supports hydrophytic vegetation including Fremont cottonwood (FACW), arroyo willow (FACW), and black willow (OBL). USACE jurisdictional area within RW1 is 0.262 acre.

4.1.3 - Seasonal Wetland 1

Seasonal Wetland 1 (SW1) is in the central portion of the Project Site (Exhibit 5). Water enters SW1 from the southwest via and upland swale, and continues north through upland swale. It is located approximately 215 feet upslope of ED1A, tributary to ED1. SW1 was dry during the December 13, 2007, field assessment, but was ponded during the second field assessment on January 11, 2008. Dominant plants in this feature include Fremont cottonwood (*Populus fremontii*) saplings, cattail (*Typha latifolia*), nutsedge (*Cyperus eragrostis*), and sheep sorrel (*Rumex acetosella*). USACE jurisdictional area within SW1 is 0.036 acre. A photograph of this feature is in Appendix C, Photograph 4.

Jurisdictional Determination

SW1 is hydrologically connected via an upland swale to ED1, an RPW. SW1 meets hydrophytic vegetation criteria; hydrology indicators include surface water (A1). However, soils in this area are highly problematic; approximately three inches below the soil surface is an abandoned asphalt road that was associated with an active lime plant. Despite this, SW1 appears to provide localized wetland functions by capturing surface flows prior to releasing them to ED1. Therefore, this feature is considered federally jurisdictional. USACE jurisdiction within SW1 is 0.036 acre.

4.2 - Non-Federally Jurisdictional Features

4.2.1 - Roadside Ditch 1

Roadside Ditch 1 (RD1) borders the Project Site on the east and is located along the western edge of SR 49 (Exhibit 5). Water enters RD1 directly from SR 49 and flows south for 754 linear feet. At this point, the feature no longer exhibits a characteristic bed and bank and becomes an upland swale. Water continues flowing south along SR 49 and enters the existing storm drain system at the intersection with Pleasant Valley Road. This feature is dry except during rain events.

Jurisdictional Determination

RD1 does not enter, intersect, or otherwise capture flows from any TNW, RPW, or seasonal wetland; therefore, this feature does not contain any federally jurisdictional waters. In addition, post-Rapanos guidance provided by USACE (June 5, 2007) indicates that USACE generally will not assert jurisdiction over roadside ditches excavated wholly in and draining only uplands, and that do not carry relatively permanent flows. Therefore, this feature is considered non-federally jurisdictional.

4.2.2 - Roadside Ditch 2

Roadside Ditch 2 (RD2) is located in the north-central portion of the Project Site on the southwestern corner of the intersection of Bradley Drive and Throwita Way (Exhibit 5). Water enters this feature from the adjacent uplands and from the south. It flows north and exhibits a characteristic bed and bank for approximately 82 feet before crossing under Bradley Drive and entering the existing storm drain system. This feature is dry except during rain events

Jurisdictional Determination

RD2 does not enter, intersect, or otherwise capture flows from any TNW, RPW, or seasonal wetland; therefore, this feature does not contain any federally jurisdictional waters. In addition, post-Rapanos guidance provided by USACE (June 5, 2007) indicates that USACE generally will not assert jurisdiction over roadside ditches excavated wholly in and draining only uplands, and that do not carry relatively permanent flows. Therefore, this feature is considered non-federally jurisdictional.

SECTION 5: SUMMARY OF FINDINGS

The Project Site contains four (4) features that are USACE jurisdictional. These include two (2) ephemeral drainages, one (1) riparian wetland, and one (1) seasonal wetland. These features together exhibit a "significant nexus" to Weber Creek, a Traditionally Navigable Water (TNW). As such, these features are subject to regulation by the USACE. Total acreage of USACE jurisdictional features is 0.400 acre (1,444 linear feet).

The Project Site contains two (2) features considered non-federally jurisdictional. They include two roadside ditches. These features do not enter, intersect, or otherwise capture flows from any TNW, RPW, or seasonal wetland; therefore, this feature does not contain any federally jurisdictional waters. Total acreage of non-federally jurisdictional features is 0.019 acre (836 linear feet).

SECTION 6: REFERENCES

Department of Army. 1986 (Nov 13). 33 CFR Parts 320 Through 330, Regulatory Programs of the Corps of Engineers; Final Rule. Federal Register. 51(219): 41206-260.

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Appendix A:
Historic Aerial Photographs and Topographic Maps

The EDR Aerial Photo Decade Package

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.5

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography August 30, 2007

Target Property:

Throwita Way

Placerville, CA 95667

Year	***Scale***	***Details***	***Source***
1935	Aerial Photograph. Scale: 1"=166'	Flight Year: 1935 Best Copy Available from original source	Wallace
1952	Aerial Photograph. Scale: 1"=555'	Flight Year: 1952	Robinson
1962	Aerial Photograph. Scale: 1"=555'	Flight Year: 1962	Cartwright
1984	Aerial Photograph. Scale: 1"=690'	Flight Year: 1984	WSA
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS


INQUIRY #: 2018466.5
YEAR: 1935
= 166'
N


INQUIRY #: 2018466.5
YEAR: 1952
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1962
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1984
= 690'
N


INQUIRY #: 2018466.5
YEAR: 1993
= 666'
N


INQUIRY #: 2018466.5
YEAR: 1998
= 666'
N

EDR Historical Topographic Map Report

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.4

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
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Internet: www.edrnet.com

EDR Historical Topographic Map Report

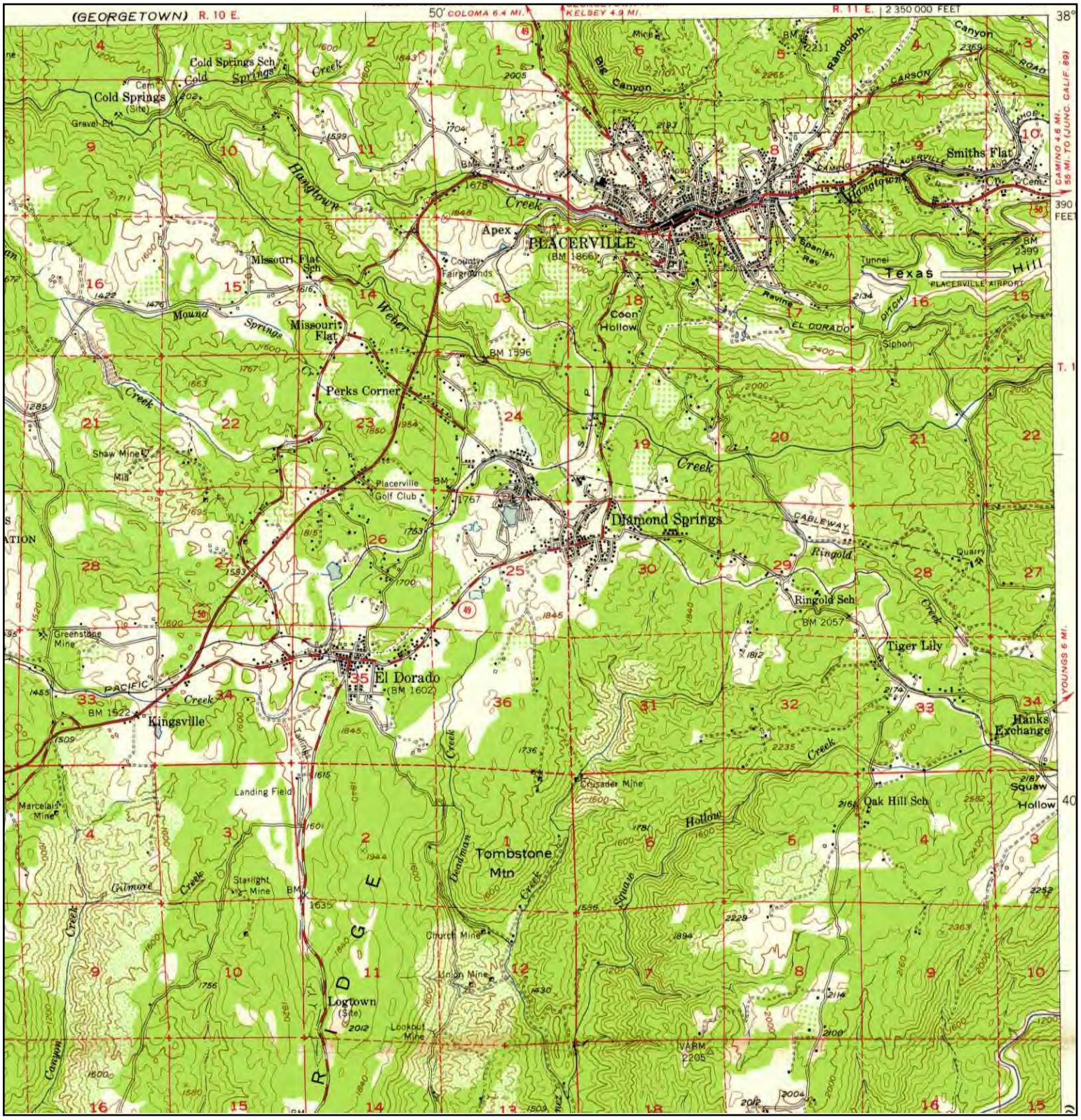
Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map

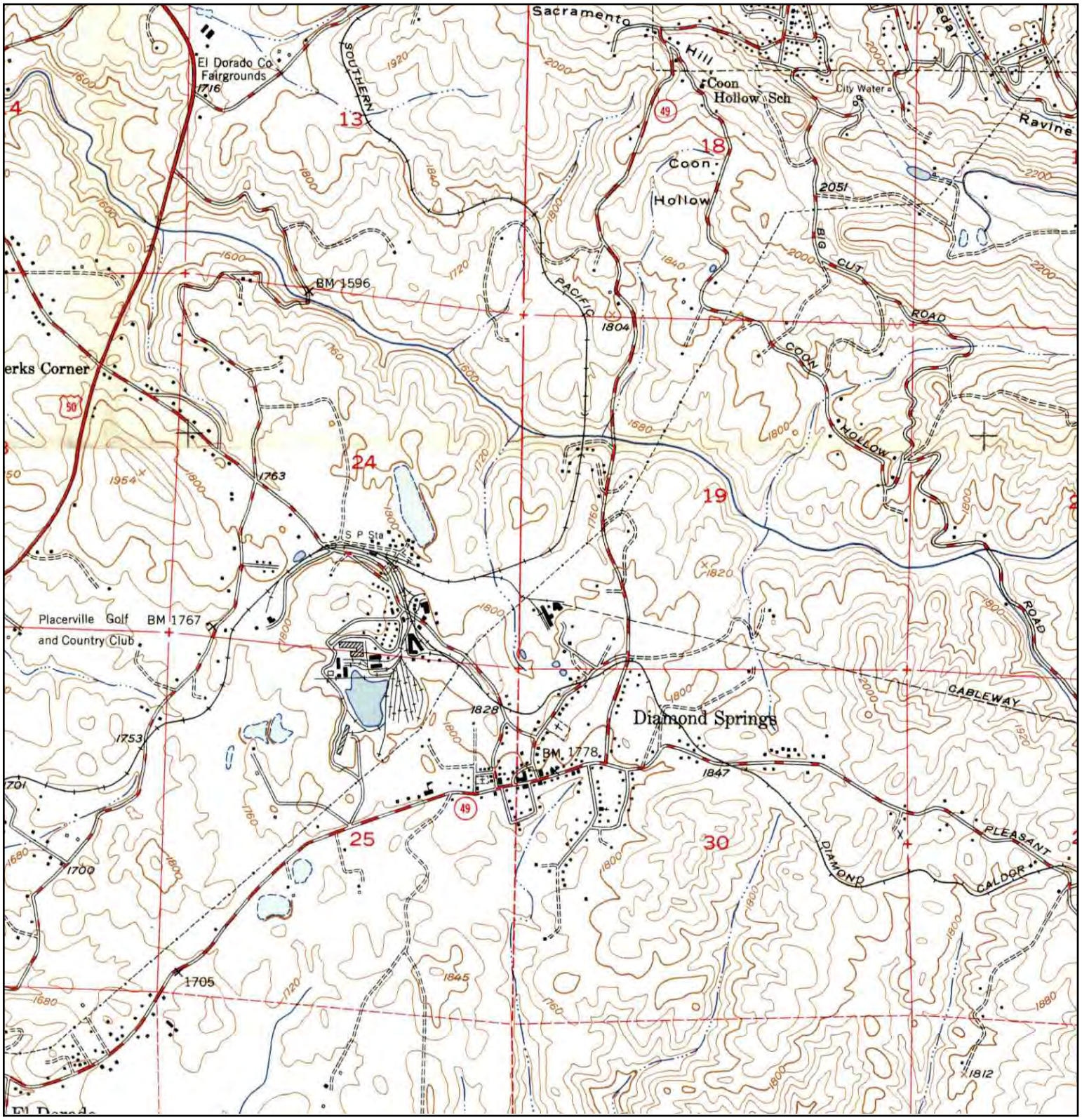
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1893 SERIES: 30 SCALE: 1:125000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



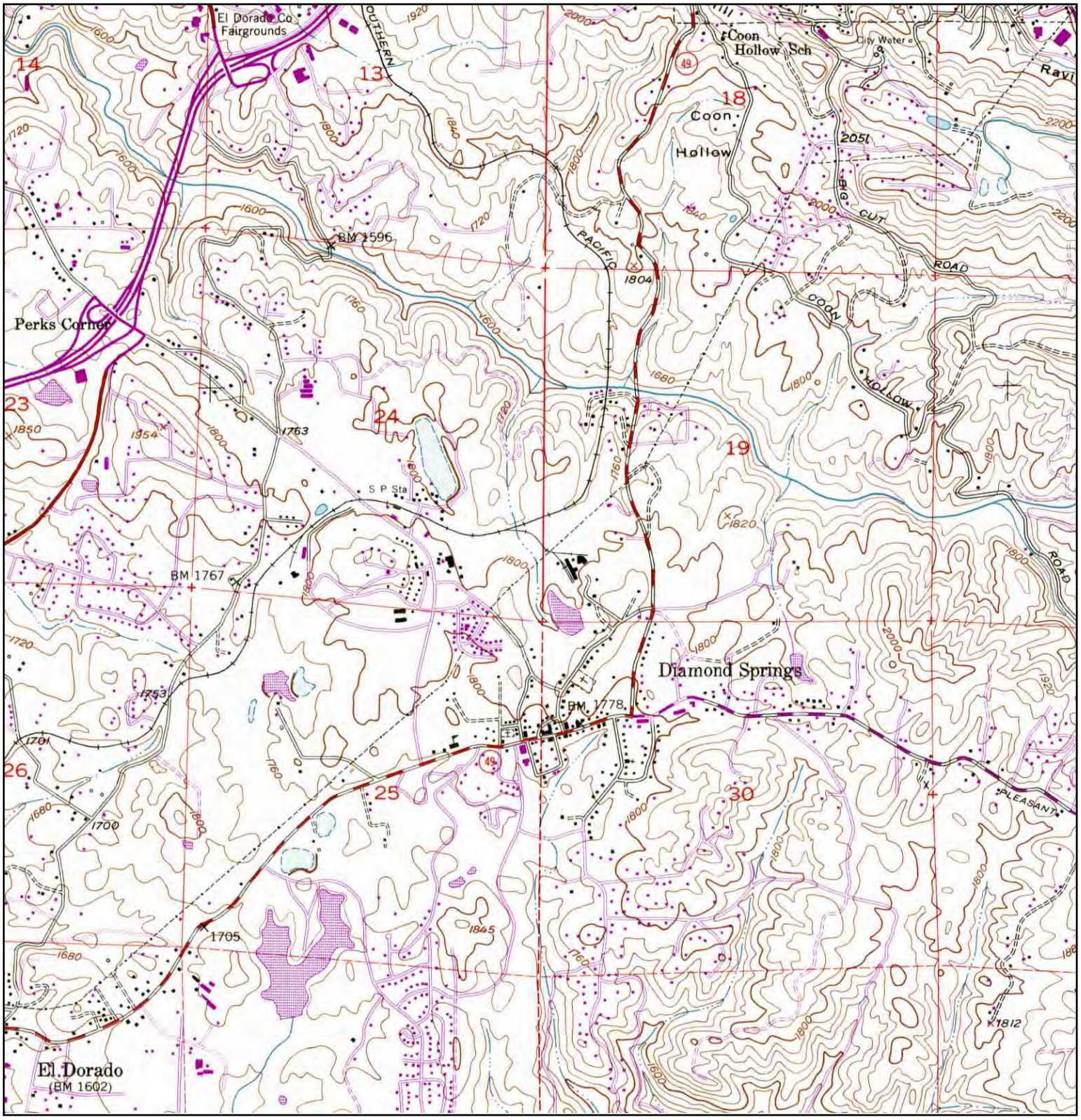
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1949 SERIES: 15 SCALE: 1:62500	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1973 PHOTOREVISED FROM:1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Appendix B:
Wetland Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Diamond Dorado Retail Center** City/County: **El Dorado** Sampling Date: **1/11/2008**

Applicant/Owner: **GGV Missouri Flat, LLC** State: **CA** Sampling Point: **5N**

Investigator(s): **T. Toure, D. Stout** Section, Township, Range: **30N 11E 19 (Placerville, CA)**

Landform (hillslope, terrace,etc): **depression** Local relief (concave, conves, none): **concave** Slope (%) **Jan-00**

Subregion (LRR): **C** Lat: **38 42 0.24N** Long: **120 48 54.82W** Datum:

Soil Map Unit Name: **Placer Diggings (PrD)** NWI Classification: **none**

Are Climatic / hydrological conditions on the site typical this time of Year? Yes: ☑ No: ☐ (If no, explain in Remarks.)

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	**Yes** ☑	**No** ☐	**Is the Sampled Area within a Wetland?**	**Yes** ☐ **No** ☑
Hydric Soil Present?	**Yes** ☐	**No** ☑		
Wetland Hydrology Present?	**Yes** ☑	**No** ☐		

Remarks:

Feature is a small depression that is largely unvegetated. Located in the southern edge of the Project Site. Meets vegetation and hydrology criteria; does not meet soils criteria. Feature is not a wetland.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. **Cyperus eragrostis**	5	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: 0 % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100.0%** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	5 (A)		5 (B)

Prevalence Index = B/A = **1.00**

Hydrophytic Vegetation Indicatore:

- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☑ **No** ☐

Remarks:

Feature dominated by OBL plant species. Meets vegetation criteria.

SOIL

Sampling Point: **5N**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks
0-1								Sandy clay	
1								asphalt	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks

Soils only 1 inch deep and underlain by old asphalt road. Does not meet soils criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☑ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☑ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☑ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? **Yes** ☐ **No** ☑ **Depth (inches):** _____

Water Table Present? **Yes** ☐ **No** ☑ **Depth (inches):** _____

Saturation Present? (includes capillary fringe) **Yes** ☐ **No** ☑ **Depth (inches):** _____

Wetland Hydrology Present? **Yes** ☑ **No** ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location exhibits drift deposits and old algal matting. Meets hydrology criteria.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Diamond Dorado Retail Center** City/County: **El Dorado** Sampling Date: **1/11/2008**

Applicant/Owner: **GGV Missouri Flat, LLC** State: **CA** Sampling Point: **4N**

Investigator(s): **T. Toure, D. Stout** Section, Township, Range: **30N 11E 19 (Placerville, CA)**

Landform (hillslope, terrace,etc): **depression** Local relief (concave, conves, none): **concave** Slope (%) **Jan-00**

Subregion (LRR): **C** Lat: **38 42 1.50 N** Long: **120 48 56.92 W** Datum:

Soil Map Unit Name: **Placer Diggings (PrD)** NWI Classification: **none**

Are Climatic / hydrological conditions on the site typical this time of Year? Yes: ☑ No: ☐ (If no, explain in Remarks.)

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	**Yes** ☑	**No** ☐	**Is the Sampled Area within a Wetland?**	**Yes** ☐ **No** ☑
Hydric Soil Present?	**Yes** ☐	**No** ☑		
Wetland Hydrology Present?	**Yes** ☑	**No** ☐		

Remarks:

Upland to DP3. Upland to seasonal wetland located in broad swale between two spoils piles left from historical industrial mining activities. Area highly disturbed; native soils removed and topography is unnatural. Meets vegetation and hydrology criteri

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. **Lolium multiflorum**	80	Yes	FAC
2. **Centaurea solstitialis**	8	No	UPL
3. **Daucus carota**	2	No	UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: 0 % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100.0%** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	90 (A)		290 (B)

Prevalence Index = B/A = **3.22**

Hydrophytic Vegetation Indicatore:

☑ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☑ **No** ☐

Remarks:

Data point taken at southeastern (upstream) end of feature. Dominated by FAC species; meets vegetation criteria.

SOIL

Sampling Point: **4N**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks
0-18	10YR 4/3	90	Gley1 4N	2	D	M		Sandy clay	
			5YR 4/3	3	C	M			

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks

Soils high chroma with some areas of depletion and redox concentrations. Does not meet soils criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☐ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☑ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):	
Water Table Present?	Yes ☑	No ☐	Depth (inches):	11
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	7

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location exhibits saturation at 7 inches and water table at 11 inches. Meets hydrology criteria.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Diamond Dorado Retail Center** City/County: **El Dorado** Sampling Date: **1/11/2008**

Applicant/Owner: **GGV Missouri Flat, LLC** State: **CA** Sampling Point: **3**

Investigator(s): **T. Toure, D. Stout** Section, Township, Range: **30N 11E 19 (Placerville, CA)**

Landform (hillslope, terrace,etc): **depression** Local relief (concave, conves, none): **concave** Slope (%) **Jan-00**

Subregion (LRR): **C** Lat: **38 42 1.50 N** Long: **120 48 56.92 W** Datum:

Soil Map Unit Name: **Placer Diggings (PrD)** NWI Classification: **none**

Are Climatic / hydrological conditions on the site typical this time of Year? Yes: ☑ No: ☐ (If no, explain in Remarks.)

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	**Yes** ☑	**No** ☐	**Is the Sampled Area within a Wetland?**	**Yes** ☑ **No** ☐
Hydric Soil Present?	**Yes** ☑	**No** ☐		
Wetland Hydrology Present?	**Yes** ☑	**No** ☐		

Remarks:

Feature is a seasonal wetland located in broad swale between two spoils piles left from historical industrial mining activities. Area highly disturbed; native soils removed and topography is unnatural. Meets vegetation, soils, and hydrology criteria; fe

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. **Lolium multiflorum**	90	Yes	FAC
2. **Centaurea solstitialis**	2	No	UPL
3. **Daucus carota**	1	No	UPL
4.			
5.			
6.			
7.			
8.			
Total Cover:	93		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: 0 % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100.0%** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	3	x 5 =	15
Column Totals:	93 (A)		285 (B)

Prevalence Index = B/A = **3.06**

Hydrophytic Vegetation Indicatore:

☑ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☑ **No** ☐

Remarks:

Data point taken at southeastern (upstream) end of feature. Dominated by FAC species; meets vegetation criteria.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks
0-10	Gley1 5N	40	5YR 5/6	60	C	M		Sandy clay	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks

Soils gleyed with many redox concentrations. Meets hydric criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☐ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☑ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 6

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location exhibits saturation at 6 inches; drainage patterns also visible. Meets hydrology criteria.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Diamond Dorado Retail Center** City/County: **El Dorado** Sampling Date: **1/11/2008**

Applicant/Owner: **GGV Missouri Flat, LLC** State: **CA** Sampling Point: **1**

Investigator(s): **T. Toure, D. Stout** Section, Township, Range: **30N 11E 19 (Placerville, CA)**

Landform (hillslope, terrace,etc): **depression** Local relief (concave, conves, none): **concave** Slope (%) **Jan-00**

Subregion (LRR): **C** Lat: **38 42 1.74 N** Long: **120 48 57.14 W** Datum:

Soil Map Unit Name: **Placer Diggings (PrD)** NWI Classification: **none**

Are Climatic / hydrological conditions on the site typical this time of Year? Yes: ☑ No: ☐ (If no, explain in Remarks.)

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	**Yes** ☑	**No** ☐	**Is the Sampled Area within a Wetland?**	**Yes** ☑ **No** ☐
Hydric Soil Present?	**Yes** ☐	**No** ☐		
Wetland Hydrology Present?	**Yes** ☑	**No** ☐		

Remarks:

Feature is a seasonal wetland ocated in broad swale between two spoils piles left from historical industrial mining activities. Area highly disturbed; native soils removed and topography is unnatural. Much of feature underlain by a layer of asphalt / old mining road. Meets vegetation, soils, and hydrology criteria. Feature is a wetland.

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. **Populus fremontii**	10	Yes	FACW
2. **Typha angustifolia**	10	Yes	OBL
3. **Cyperus eragrostis**	3	No	OBL
4. **Rumex acetosella**	2	No	FAC
5. **Glyceria declinata**	1	No	none
6.			
7.			
8.			
Total Cover:	26		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: 0 % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100.0%** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	13	x 1 =	13
FACW species	10	x 2 =	20
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	25 (A)		39 (B)

Prevalence Index = B/A = **1.56**

Hydrophytic Vegetation Indicatore:

- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☑ **No** ☐

Remarks:

Data point taken at northwestern end of feature. Feature largely unvegetated although some unidentifiable seedlings present. Feature dominated by hydrophytes; meets vegetation criteria.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks
1-3									fill and gravel
3									layer of asphalt

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☐

Remarks

Soils extremely problematic. Soils in the southeastern (upstream) end of feature are 3 inches of fill underlain by a layer of asphalt / old mining road. Soils in the northwestern (downstream) end are deeper.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☑ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☑ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☑	Depth (inches):	
Water Table Present?	Yes	☐	No	☑	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location exhibits saturation to surface and sediment deposits. Meets hydrology criteria.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Diamond Dorado Retail Center** City/County: **El Dorado** Sampling Date: **1/11/2008**

Applicant/Owner: **GGV Missouri Flat, LLC** State: **CA** Sampling Point: **2N**

Investigator(s): **T. Toure, D. Stout** Section, Township, Range: **30N 11E 19 (Placerville, CA)**

Landform (hillslope, terrace,etc): **depression** Local relief (concave, conves, none): **concave** Slope (%) **Jan-00**

Subregion (LRR): **C** Lat: **38 42 2.34 N** Long: **120 48 58.05 W** Datum:

Soil Map Unit Name: **Placer Diggings (PrD)** NWI Classification: **none**

Are Climatic / hydrological conditions on the site typical this time of Year? Yes: ☑ No: ☐ (If no, explain in Remarks.)

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☑

Are: Vegetation: ☑ Soil: ☑ or Hydrology ☑ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐
Hydric Soil Present?	Yes ☑	No ☐
Wetland Hydrology Present?	Yes ☑	No ☐

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

Upland to DP2. Data point taken at northern (upstream) end of seasonal wetland 1 (SW1). Located in broad swale between two spoils piles left from historical industrial mining activities. Area highly disturbed; native soils removed and topography is unnatural. Meets vegetation and hydrology criteria; does not meet soils crite

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. **Lolium multiflorum**	80	Yes	FAC
2. **Rumex crispus**	2	No	FACW
3. **Eleocharis macrystachya**	1	No	OBL
4.			
5.			
6.			
7.			
8.			
Total Cover:	83		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: 0 % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100.0%** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	1	x 1 =	1
FACW species	2	x 2 =	4
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	83 (A)		245 (B)

Prevalence Index = B/A = **2.95**

Hydrophytic Vegetation Indicatore:

- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

Data point taken at downstream end of seasonal wetland (SW 1). Dominated by FAC species; meets vegetation criteria

SOIL

Sampling Point: **1N**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks
0-18	10YR4/4	90	Gley1 4N	10	D	M		sandy clay	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks

Soils are high chroma with areas of depletion Does not meet hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☑ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☑ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches):		
Water Table Present?	Yes ☑	No ☐	Depth (inches):	13	
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	0	

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location exhibits saturation to surface and fresh algal meeting. Meets hydrology criteria.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project Site: **Diamond Dorado Retail Center** City/County: **El Dorado** Sampling Date: **1/11/2008**

Applicant/Owner: **GGV Missouri Flat, LLC** State: **CA** Sampling Point: **6**

Investigator(s): **T. Toure, D. Stout** Section, Township, Range: **10N 10E 24 (Placerville, CA)**

Landform (hillslope, terrace,etc): **channel** Local relief (concave, conves, none): **concave** Slope (%) **Mar-00**

Subregion (LRR): **C** Lat: **38 41 55.33 N** Long: **120 49 0.89 W** Datum:

Soil Map Unit Name: **Placer Diggings (PrD)** NWI Classification: **none**

Are Climatic / hydrological conditions on the site typical this time of Year? Yes: ☑ No: ☐ (If no, explain in Remarks.)

Are: Vegetation: ☐ Soil: ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
(If needed, explain any answers in remarks)

Are: Vegetation: ☐ Soil: ☐ or Hydrology ☐ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	**Yes**	☑	**No**	☐
Hydric Soil Present?	**Yes**	☑	**No**	☐
Wetland Hydrology Present?	**Yes**	☑	**No**	☐

Is the Sampled Area within a Wetland? **Yes** ☑ **No** ☐

Remarks:

Feature is a riparian wetland located located in the upper reached of an ephemeral drainage (ED1). Feature is in a very deep channel with steep, vegetated slopes. Hydrology from precipitation and channeled storm water runoff from adjacent uplands and de

VEGETATION

Tree Stratum (Use scientific names)	Absolute % Cover	Dominant Species?	Indicator Status
1. **Populus fremontii**	35	Yes	FACW
2. **Salix lasiolepis**	30	Yes	FACW
3. **Salix gooddingii**	20	Yes	OBL
4.			
Total Cover:	85		
Sapling/Shrub Stratum			
1. **Rubus discolor**	10	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	10		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum: 0 % Cover of Biotic Crust:

Dominance Test worksheet:

Number of Dominant Species That are OBL FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100.0%** (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by	
OBL species	20	x 1 =	20
FACW species	75	x 2 =	150
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		170 (B)

Prevalence Index = B/A = **1.79**

Hydrophytic Vegetation Indicatore:

- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicator if hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☑ **No** ☐

Remarks:

Feature is a riparian wetland located in a deep channel in the upstream portion of an ephemeral drainage. Feature is dominated by hydrophytes; meets vegetation criteria.

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type	Redox Features Loc	Redox Features %	Texture	Remarks

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix [2] Location: PL=Pore Lining, RC=Root Channel, M=Matrixc

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks

Soil pit not dug. Feature ponded to approximately 12 inches. Soils near the edge exhibit strong hydrogen sulfide odors. Meets soils criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☑ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation on Aerial Imagery (B7)
- ☐ Water-stained Leaves (B8)
- ☐ Biotic Crust (B10)
- ☐ Aquatic Invertebrates (B11)
- ☐ Crayfish Burows (B12)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C2)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soil (C6)
- ☐ Muck Surface (C7)
- ☐ Saturation on Aerial Imagery (C8)
- ☐ Shallow Aquitard (D4)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more is required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B9)
- ☐ Dry Season Water Table (C3)
- ☐ Salt Depostis (C5)
- ☐ Mud Casts (C9)
- ☐ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present?	Yes	☑	No	☐	Depth (inches):	12
Water Table Present?	Yes	☑	No	☐	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	☑	No	☐	Depth (inches):	0

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Feature is ponded to approximately 12 inches. Meets hydrology criteria.

Appendix C:
Photographs of Delineated Features

Photograph 1. View of Ephemeral Drainage 1 (ED1) looking north-northwest from the center of the feature. Photograph taken January 8, 2008.

Photograph 2. View of vegetation in Ephemeral Drainage 1A (ED1A) taken from the northern bank looking south. Photograph taken December 7, 2007.

Photograph 3. View of Riparian Wetland (RW1) looking north- from the center of the feature. Photograph taken January 8, 2008.

Photograph 4. View of Seasonal Wetland 1 (SW1) looking north-northwest from just south of the feature. Photograph taken March 20, 2008.

Appendix F:
Cultural Resources Assessment

Phase I Cultural Resources Assessment
Diamond Dorado Retail Center Project
Diamond Springs, County of El Dorado, California

Township 10 North, Range 10 East, Sections 24 and 25
Township 10 North, Range 11 East, Section 30
U.S. Geological Survey (USGS) Placerville 7.5-minute Quadrangle Map

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September 15, 2009

Keywords: Diamond Springs California, USGS topographic quadrangle map, Pleasant Valley Road

TABLE OF CONTENTS

LIST OF EXHIBITS

MANAGEMENT SUMMARY

At the request of GGV Missouri Flat, LLC, Michael Brandman Associates (MBA) conducted a cultural resource evaluation for the Diamond Dorado Retail Center Project (Project) Area of Potential Effect (APE) that included review of record searches at the North Central Information Center (NCIC), the Native American Heritage Commission (NAHC), and the University of California Museum of Paleontology (UCMP). In addition, a field survey was conducted within the boundaries of the APE.

The purpose of the survey was to identify the presence or absence of potentially significant cultural resources within the Project APE, and, if affected by the proposed development, propose recommendations protecting the resources, which might include a Memorandum of Agreement (MOA) or other protective measures. Completion of this investigation fulfills the requirements associated with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA). This report closely follows the California Office of Historic Preservation (OHP) procedures for cultural resource surveys and the OHP's Archaeological Resource Management Report (ARMR) reporting format for archaeological reports. This report is organized into sections and appendices, which are summarized as follows:

- Section 1 introduces the Project, the location, and the cultural resources team.
- Section 2 summarizes the cultural setting.
- Section 3 presents the research design and investigative methods.
- Section 4 provides cultural resource survey search results.
- Section 5 provides recommendations.
- Section 6 presents a reference list.
- Appendix A provides required cultural resource compliance documents.
- Appendix B provides personnel qualifications.
- Appendix C presents the regulatory framework.
- Appendix D provides recent photographs of the Project.

On September 21, 2007, staff at the North Central Information Center (NCIC) in Sacramento conducted a records search for the Project and a 0.25-mile radius. To identify any historic properties or resources, the current inventories of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CR), the California Historical Landmarks (CHL) list, the California Points of Historical Interest (CPHI) list, and the California State Historic Resources Inventory (HRI) were reviewed to determine the existence of previously documented local historical resources. Results of the NCIC records review indicated that two historical resource sites have been previously recorded within the Project APE.

On November 5, 2007, a request was sent to the Native American Heritage Committee (NAHC) requesting a search of its Sacred Lands File. Results were received on November 20, 2007, which

indicated that the search failed to indicate the presence of Native American cultural resources in the immediate Project area. Included with the response letter was a list of Native American representatives who may have additional knowledge of resources within the Project APE. To ensure protection of prehistoric resources, letters were sent on December 12, 2007, to all 13 of the representatives on the list. As of January 29, 2008, no responses had been received. To further encourage responses from the Native American representatives, a second letter was sent via e-mail or regular mail, depending on the addresses provided, on January 30, 2008. As of this date, no responses have been received from any of the representatives.

On December 14, 2007, MBA requested a paleontological record search of the UCMP to determine if paleontological resources were present within the Project APE. The response, received on December 17, 2007, from Dr. Kenneth Finger, Ph.D., stated that the Project area was very unlikely to have significant paleontological resources, and, therefore, paleontological monitoring was not recommended.

On November 15, 2007, Senior Project Archaeologist, Carrie D. Wills, conducted a pedestrian survey of the Project APE to determine the presence or absence of historic properties that could be considered eligible for listing on the NRHP or the CR. In addition, one of the primary goals of the field survey was to relocate previously recorded sites within the Project APE that had the potential to be adversely affected by Project development. Approximately 60 to 65 percent of the parcel was surveyed using 15-meter transects walked in a zigzag pattern. The remaining 35 to 40 percent was surveyed using random transect distances because of dense vegetation, structures, paved parking areas, roads, and other obstructions.

To ensure protection of previously recorded sites, a field investigation was conducted on February 8, 2008, by Ms. Wills and Ms. Florance, MBA Environmental Analyst, to relocate two sites previously recorded within the Project APE. The field survey indicated that the two previously recorded sites no longer exist. Therefore, the sites will not be affected by Project development.

During both field surveys, no historic or prehistoric resources were discovered within the Project APE; therefore, archaeological monitoring is not recommended.

SECTION 1: INTRODUCTION

At the request of El Dorado County, MBA conducted a cultural resource assessment of the Project APE. The purpose of the assessment was to identify the presence or absence of potentially significant cultural and paleontological resources within the Project APE. Additionally, the assessment included relocating previously recorded sites to determine if they were still extant, if they met any of the criteria for listing on the NRHP or the CR, and if they would be affected by Project development.

Numerous federal laws and regulations have been developed to protect cultural resources. The most important is the National Historic Preservation Act (NHPA) of 1966 (as amended). The Act established the Advisory Council on Historic Preservation and the National Register of Historic Places (NRHP). Section 106 of the NHPA requires that any undertaking located on federal land, or that involves federal funds, or that requires federal permits, take into account the effect of the undertaking on all potentially historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment with regard to the undertaking. An inventory must be conducted of all potentially historic properties within the undertaking's APE. Properties judged significant in the context of the criteria in the NRHP must be avoided or subject to programs that mitigate adverse effects. The Federal Lead Agency would initiate consultation with the State Historic Preservation Officer (SHPO) if the undertaking affects a historical property.

As implementation of the Project may include permitting (Section 404 Permits) required by the Army Corps of Engineers (USACE), it would be necessary to comply with Section 106 of the NHPA. As the lead federal agency for compliance with the NHPA, it is USACE's responsibility to consult with the SHPO before granting permits, funding, or other authorization of the undertaking. The Section 106 review process normally involves a four-step procedure described in detail in the regulations implementing Section 106 of the NHPA (36 CFR Part 800). Following is a brief summary of the basic tenets of the process:

- Identify and evaluate historic properties in consultation with the SHPO and interested parties.
- Assess the effects of the undertaking on properties that are eligible for inclusion in the NRHP.
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation.
- Proceed with the Project according to the conditions of the agreement.

1.1 - Project Location

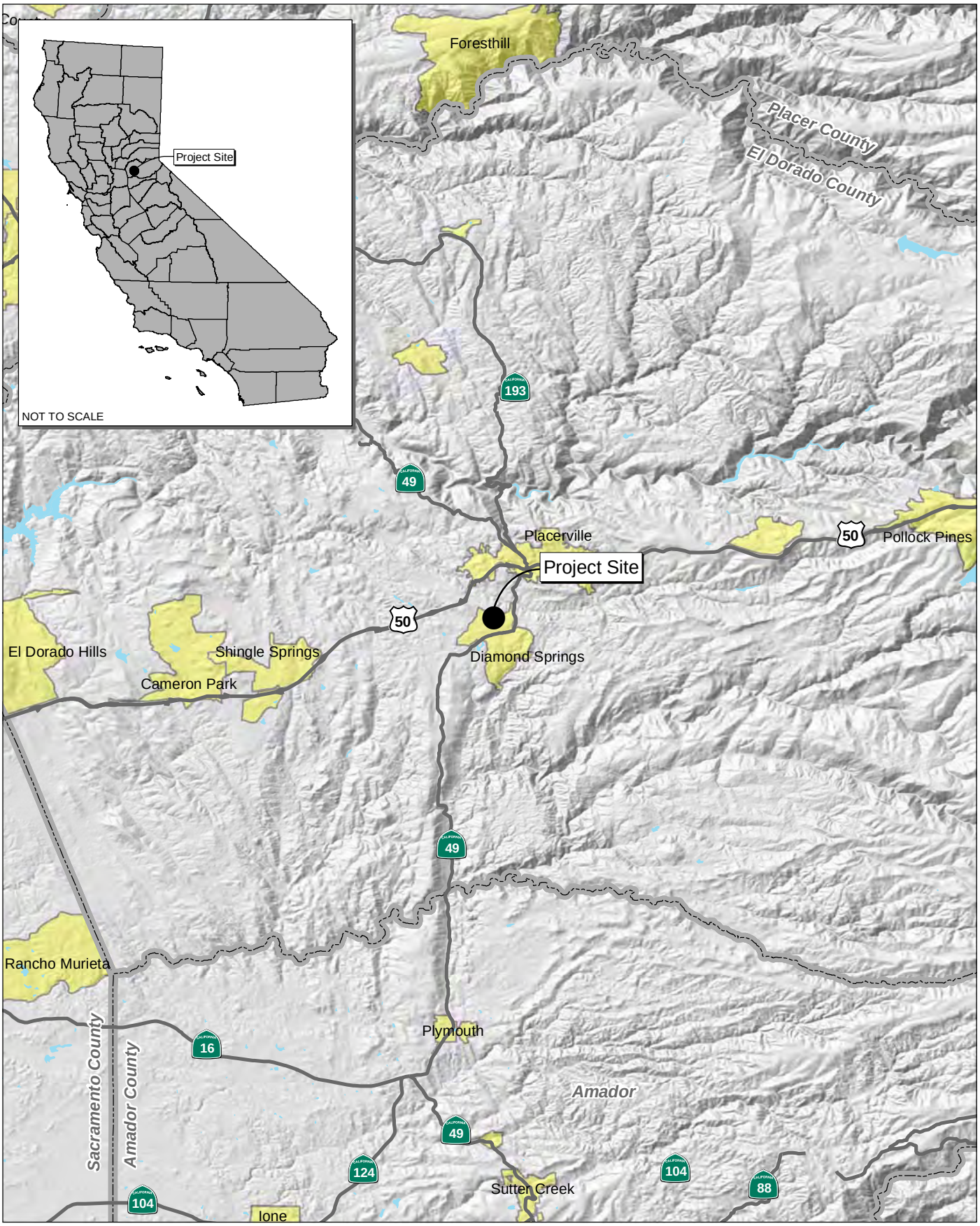
The Diamond Dorado Retail Center Project is located within unincorporated El Dorado County, California, south of the Missouri Flat Road/U.S. 50 Interchange, west of the City of Placerville, and

north of the town of Diamond Springs (Exhibit 1). As illustrated in (Exhibit 2) the Project is situated close to Diamond Road (State Route 49 [SR-49]), Pleasant Valley Road (SR-49), and Lime Kiln Road, which serve as the principle roadway network. Land use within the Project area is primarily industrial in nature but contains pockets of residential development, manufacturing and storage areas, and vacant industrial lots (Exhibit 3). The existing Materials Recovery Facility (MRF) is located on the southwestern portion of the Project site.

The Project area roughly corresponds with the southeastern corner of Section 24 and the northeastern corner of Section 25, Township 10 North, Range 10 East, and the northwestern corner of Section 30, Township 10 North, Range 11 East (Mount Diablo Baseline and Principal Meridian) on the U.S. Geological Survey (USGS) Placerville 7.5-minute quadrangle. The Diamond Dorado Retail Center Project includes all or portions of multiple assessor's parcel numbers (APNs) 051-250-12, -46, -47, -51, -54, and -55. Exhibit 3 illustrates the existing subject parcels that comprise the Project site.

1.2 - Project Description

Granite Land Company, Palos Verdes Properties, and Waste Connections, Inc., herein referred to collectively as the Partnership, propose the relocation of the County's existing MRF to facilitate a General Plan Amendment (GPA) and Rezone to General Commercial (CG) use on properties within unincorporated El Dorado County. The GPA and Rezone would facilitate the development of the Project, which would include the construction of up to 425,000 square feet of retail space under the auspices of a Planned Development (PD) Overlay. The existing MRF would be relocated to an alternate, industrially zoned site to allow for the construction of a new, state-of-the-art facility under a special use permit (SUP).



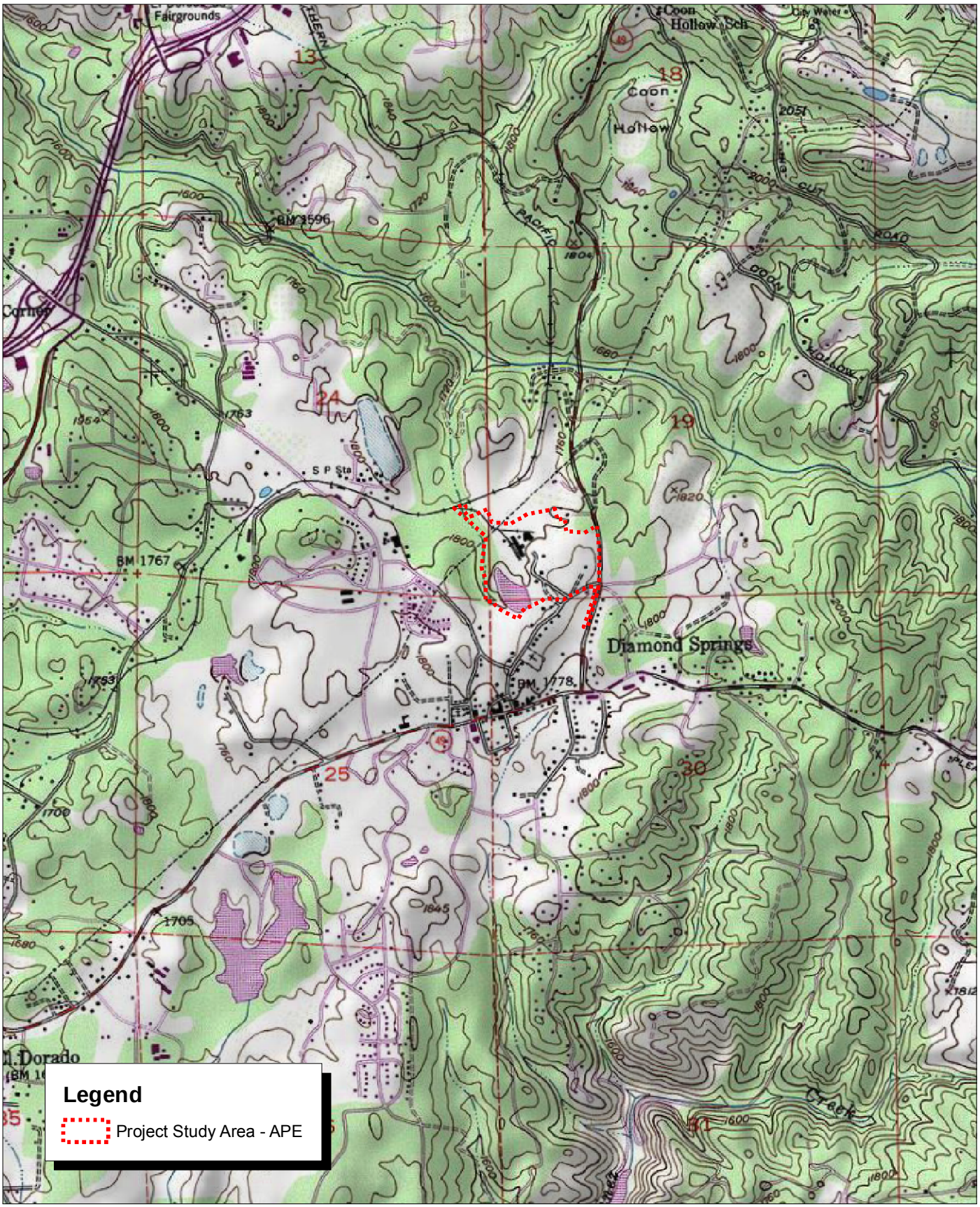
Source: Census 2000 Data, The CaSIL, MBA GIS 2007.

NORTH

0 1 2 4 6 8 Miles

Michael Brandman Associates

Exhibit 1
Regional Location Map



Source: TOPO! USGS Placerville (1973) 7.5' DRG.

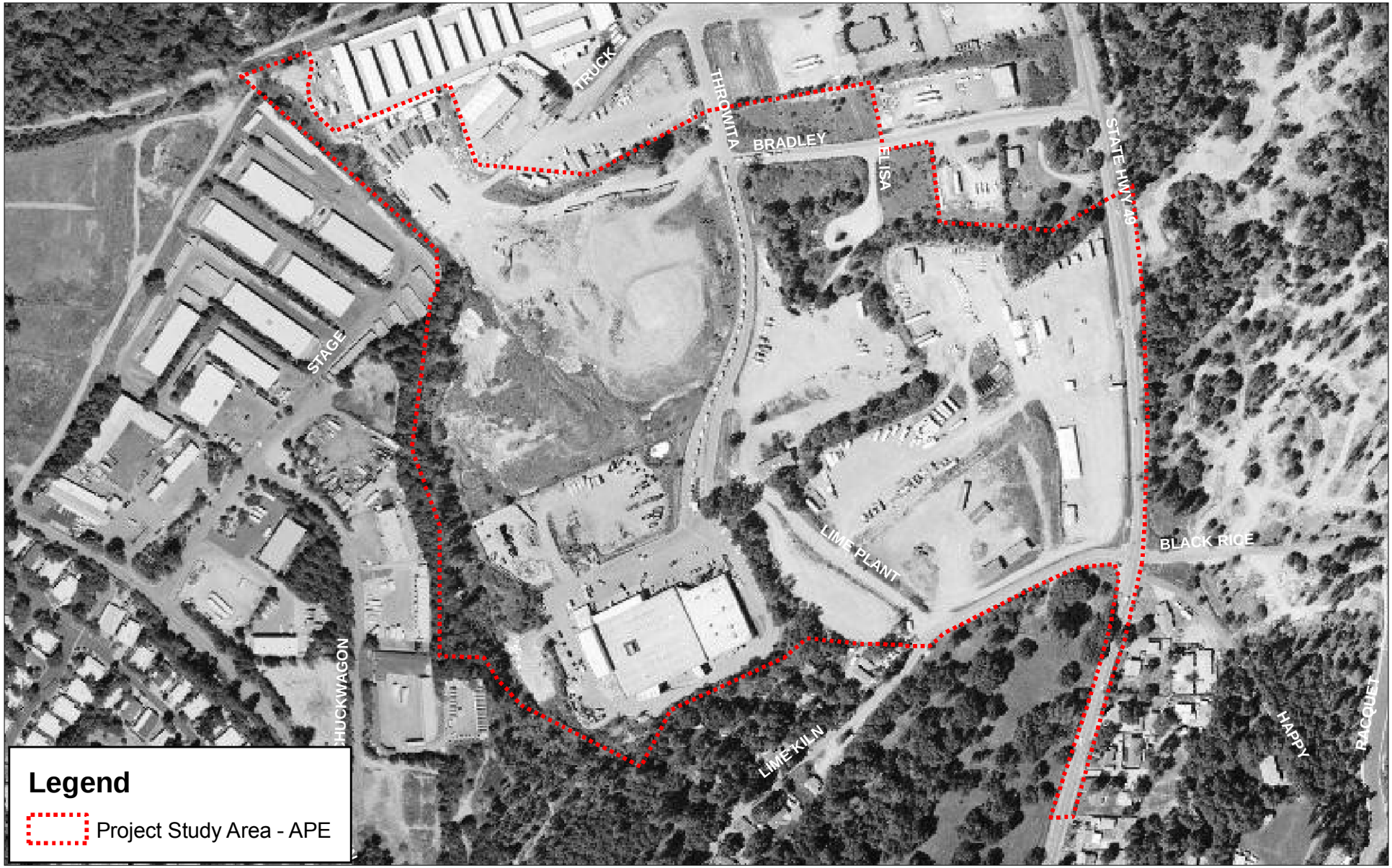
Exhibit 2
Vicinity Map and USGS Topographic Base

NORTH

0 500 1,000 2,000 3,000 4,000 Feet

Michael Brandman Associates

3337.0001 • 3/2008



Source: El Dorado County, 2007; CTA Engineers, 2007; MBA, 2007

Michael Brandman Associates

NORTH

0 90 180 360 540 720 Feet

3337.0001 • 3/2008

Exhibit 3

Project Area of Potential Effect (APE) - Aerial Base

1.3 - Environmental Setting

1.3.1 - Existing Land Form

The community of Diamond Springs is located in the lower reaches of the Sierra Nevada foothills, approximately midway between Sacramento and Lake Tahoe, south of the Interstate 50 corridor. Diamond Springs has an elevation that ranges between 1600 and 1800 feet, and the typical vegetation consists of digger pines, interior live oak, blue oak, manzanita, redbud, and California buckeye.

Soils consist of alluvial deposits of granitic and/or mixed rock sources with pale brown and very pale brown, medium, and very strongly acid horizons and very pale brown, very strongly acid, clay loam horizons that grade to weathered fine-grained acid igneous rock.

1.3.2 - Wildlife and Vegetation

Diamond Springs' proximity to numerous water sources was instrumental during the Gold Rush, but the many streams and waterways also provide diverse environmental conditions that support a variety of plant and animal life. Vegetative communities include annual grasslands, vernal pools, cropland, irrigated rangeland, lacustrine, orchard, riverine, urban, and valley foothill riparian. This diversity provides habitat for numerous species of birds, mammals, reptiles, amphibians, fish, and invertebrates. For example, rodents, lizards, snakes, coyote, fox, and several bird species are common to the annual grassland.

1.4 - Assessment Team

MBA Senior Project Archaeologist, Carrie D. Wills, conducted the pedestrian survey and authored this report. Ms. Florance assisted Ms. Wills in the relocation process. Professional qualifications for Ms. Wills and Ms. Florance can be found in Appendix B, Personnel Qualifications.

SECTION 2: CULTURAL SETTING

The following is a brief overview of the prehistoric and historic background that provides a context in which to understand the background and relevance of sites found in the general vicinity of the Project APE. This section is not intended to be a comprehensive review of the current resources available but, rather, serves as a generalized overview. Descriptions that are more detailed can be found in ethnographic studies, mission records, and major published sources, including Kroeber (1925), Wallace (1955), Warren (1968), Heizer (1978), Moratto (1984), and Chartkoff and Chartkoff (1984).

2.1 - Prehistoric Background

Early archaeological investigations in central California were conducted at sites located in the Sacramento-San Joaquin Delta region. The first published account documents investigations in the Lodi and Stockton area (Schenck and Dawson 1929). The initial archaeological reports typically contained descriptive narratives, with more systematic approaches sponsored by Sacramento Junior College in the 1930s. At the same time, University of California at Berkeley excavated several sites in the lower Sacramento Valley and Delta region that resulted in recognizing archaeological site patterns based on variations of inter-site assemblages. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence (Lillard and Purves 1936; Lillard et al. 1939). In 1939, Lillard noted that each cultural period led directly to the next and that influences spread from the Delta region to other regions in central California (Lillard et al. 1939). In the late 1940s and early 1950s, Beardsley documented similarities in artifacts between sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became know as the Central California Taxonomic System (CCTS). This system proposed a uniform, linear sequence of cultural succession (Beardsley 1948 and 1954). The CCTS system was challenged by Gerow, whose work looked at radiocarbon dating to show that Early and Middle Horizon sites were not subsequent developments but, at least partially, contemporaneous (1954; 1974; Gerow with Force 1968).

To address some of the flaws in the CCTS system, Fredrickson (1973) introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: Paleo-Indian (10000 to 6000 B.C.); Lower, Middle and Upper Archaic (6000 B.C. to A.D. 500); and Lower and Upper Emergent (A.D. 500 to 1800). The suggested temporal ranges are similar to earlier horizons, which are broad cultural units that can be arranged in a temporal sequence (Moratto 1984). In addition, Fredrickson defined several patterns, which are a general way of life shared within a specific geographical region. These patterns include:

- Windmiller Pattern or Early Horizon (3000 to 1000 B.C.)
- Berkeley Pattern or Middle Horizon (1000 B.C. to A.D. 500)
- Augustine Pattern or Late Horizon (A.D. 500 to historic period)

Brief descriptions of these temporal ranges and their unique characteristics follow.

2.1.1 - Windmiller Pattern or Early Horizon (3000 to 1000 B.C.)

Characterized by the Windmiller Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but minimal obsidian. The large variety of projectile point types and faunal remains suggests exploitation of numerous types of terrestrial and aquatic species (Bennyhoff 1950; Ragir 1972). Burials occurred in cemeteries and intra-village graves. These burials were typically ventrally extended, although some dorsal extensions are known with a westerly orientation and a high number of grave goods. Trade networks focused on acquisition of ornamental and ceremonial objects in finished form rather than on raw material. The presence of artifacts made of exotic materials such as quartz, obsidian, and shell indicates an extensive trade network that may represent the arrival of Utian populations into central California. Also indicative of this period are rectangular Haliotis and Olivella shell beads, and charmstones that usually were perforated.

2.1.2 - Berkeley Pattern or Middle Horizon (1000 B.C. to A.D. 500)

The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson (1973) suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay Area. Compared with the Early Horizon, there is a higher proportion of grinding implements at this time, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. As noted by Lillard, the practice of spreading ground ochre over the burial was common at this time (Lillard et al. 1939). Grave goods during this period are generally sparse and typically include only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally were present, which suggest the religious or ceremonial significance of the individual (Hughes 1994). During this period, larger populations are suggested by the number and depth of sites compared with the Windmiller Pattern. According to Fredrickson (1973), the Berkeley Pattern reflects gradual expansion or assimilation of different populations rather than sudden population replacement and a gradual shift in economic emphasis.

2.1.3 - Augustine Pattern or Late Horizon (A.D. 500 to Historic Period)

The Late Horizon is characterized by the Augustine Pattern, which represents a shift in the general subsistence pattern. Changes include the introduction of bow and arrow technology; and most importantly, acorns become the predominant food resource. Trade systems expanded to include raw resources as well as finished products. There are more baked clay artifacts and extensive use of Haliotis ornaments of many elaborate shapes and forms. Burial patterns retained the use of flexed burials with variable orientation, but there was a reduction in the use of ochre and widespread evidence of cremation (Moratto 1984). Judging from the number and types of grave goods associated with the two types of burials, cremation seems to have been reserved for individuals of higher status, whereas other individuals were buried in flexed positions. Johnson (1976) suggests that the Augustine Pattern represents expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Berkeley Pattern.

Central California research has expanded from an emphasis on defining chronological and cultural units to a more comprehensive look at settlement and subsistence systems. This shift is illustrated by the early use of burials to identify mortuary assemblages and more recent research using osteological data to determine the health of prehistoric populations (Dickel et al. 1984). Although debate continues over a single model or sequence for central California, the general framework consisting of three temporal/cultural units is generally accepted, although the identification of regional and local variation is a major goal of current archaeological research.

2.2 - Native American Background

At the time of European contact, the project vicinity was occupied by the Southern Maidu (formerly known as Nisenan) who were identified by their language, which is a subgroup of the California Penutian linguistic family. The Maidu are divided, mainly on dialectic grounds, into the Southern Maidu (living within the American River drainage plus parts of the Bear, Cosumnes, and Yuba rivers), the Northeastern Maidu (on the upper reaches of the North and Middle Forks of Feather River), and the Northwestern Maidu (below the foothills of the Sierra Nevadas, where the south, middle, north, and west branches of Feather River converge and on upper Butte and Chico creeks as well as parts of the Sacramento Valley). The Southern Maidu villages ranged in population from 15 to 25 people, with the tribal centers averaging more than 500 people. Large settlements consisted of one major village with associated smaller, seasonal camps. Villages were typically located on ridges above major streams and rivers and were inhabited mainly in the winter months. During the hot summer months, the Southern Maidu moved to cooler temporary camps in higher elevations.

The local environment provided abundant food sources with seasonal gathering conducted mainly by women and children. Hunting and fishing, primarily conducted by the men, were year round pursuits but were most successful in the late summer and early fall. The Southern Maidu had few contacts outside their immediate tribal territory and those contacts were limited to warfare, trade, and ceremonial gatherings. Villages were led by a headman or advisor, but each extended family had a

leader who assisted the village headman. Some of the headsman's duties included advising the people in general, preventing them from trespassing, directing ceremonies and festivities, arbitrating disputes, and leading the village in times of warfare. Typically, the dead were cremated along with their property, and their dwelling was either moved or destroyed.

The Maidu practiced a religion called the Kuksu, which was widespread among California Native Americans and appeared in various forms. Ceremonies were typically conducted in the semi-subterranean dance houses that were centrally located within each village. A ceremony celebrated annually in the fall was the mourning ceremony that honored the individuals that had died during the year as well as ancient ancestors.

Early contact with the Spanish was limited to the southern edge of the Southern Maidu territory and most knowledge came from early penetrations of Spanish into Plains Miwok territory and minor explorations across their land. During the late 18th century, systematic removal to the missions and resistance by the Miwok occurred along the southern border of Maidu territory. No records exist of the Maidu being removed to the missions. However, the Maidu did receive missionized Native Americans into their territory, as well as displaced Miwok villagers on their southern borders (Wilson and Towne 1978:387-97).

In 1833, a massive epidemic, believed to have been malaria, swept through the Sacramento Valley (Cook 1955). The exact number of casualties is unknown, but it is estimated that 75 percent of the Maidu population were killed, leaving only a fraction of the original number to face the intruding miners and settlers that arrived when gold was discovered in Coloma in 1848.

2.3 - Historic Background

The history of the Central Valley and western Sierra Nevada foothills can be divided into several periods of influence; pertinent historic periods are briefly summarized below.

2.3.1 - Spanish Period

The most drastic and permanent change came to the Native American's way of life with the establishment of the Spanish Mission system. By the early 1800s, the mission fathers began a process of cultural change that brought the majority of the local Native Americans into the missions, although the Maidu, especially the ones living in the mountain regions, were not as affected as the Native Americans living in the coastal regions near the missions. At the expense of traditional skills, the neophytes were taught the pastoral and horticultural skills of the Hispanic tradition. Spanish missionaries traveled into the Valley to recapture escaped neophytes and recruit inland Native Americans for the coastal missions. In 1834, the Mission system was officially secularized, and the majority of the mission Native American population dispersed to local ranches, villages, or nearby pueblos (Kroeber 1925).

Soon after establishment of the mission system, a process of granting large parcels of land to prominent individuals began. Within a few years, ranchos occupied large tracts in the vicinity of the missions, and a pastoral economy involving the missions, the ranchos, and native inhabitants was established (Kyle et al. 1990).

2.3.2 - Mexican Period

With the declaration of Mexican independence in 1821, Spanish control of Alta California ended, although little change actually occurred. Political change did not take place until mission secularization in 1834 when Native Americans were released from missionary control and the mission lands were granted to private individuals. Shoup and Milliken (1999) state that mission secularization removed the social protection and support on which Native Americans had come to rely. It exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following mission secularization, the Mexican population grew as the native population continued to decline. European-American settlers began to arrive in Alta California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive land grants. In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of Alta California was 8,000 non-natives and 10,000 natives. However, these estimates have been debated. Cook (1976) suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385.

2.4 - History of El Dorado County

In 1848, James W. Marshall discovered gold at Coloma in modern-day El Dorado County, which started a gold rush into the region that forever altered the course of California's history. The arrival of thousands of gold seekers in the territory contributed to the exploration and settlement of the entire state. By late 1848, approximately four out of five men in California were gold miners (Robinson 1948).

The gold rush originated along the reaches of the American River and other tributaries to the Sacramento River. Hangtown, present day Placerville, became one of the closest towns offering mining supplies and other necessities for the miners in Coloma. Subsequent gold was found in the tributaries to the San Joaquin, which flowed north to join the Sacramento River in the great delta east of San Francisco Bay. The Mokelumne River formed the boundary between two areas, the upper gold fields known as the Northern Mines and those below the Mokelumne known as the Southern Mines. Other strikes occurred in the northwest regions of California around the Trinity, Klamath, and Salmon Rivers.

As mining spread, mining techniques changed. Initially, miners relied on gold panning in a shallow pan until the heavier, gold-bearing materials fell to the bottom while the water and lighter sand spilled out over the rim. This technique was displaced by simple mining machines like the wooden "rocker" into which pails of water were emptied and processed one at a time. The gold in and around stream

beds was soon exhausted, and hard-rock mining took over, digging shafts up to 40 feet deep with horizontal tunnels radiating from these shafts in search of subterranean veins of gold-bearing quartz.

Hydraulic mining was used on local hillsides with gold-bearing gravel left from now-vanished streambeds. Streams and rivers were diverted from their original courses to provide water for primitive high-pressure hoses that washed down the gravel from a hillside. However, in a short time, the bed of the Sacramento River was raised several feet by tons of debris coming down from the hills, drinking water was polluted, and the danger of flooding was imminent; the Sacramento courts banned hydraulic mining, thus saving the city.

By 1864, California's gold rush had essentially ended. The rich surface and river placers were largely exhausted, and the miners either returned to their homelands or stayed to start new lives in California. Once the gold rush was over, people in towns such as Jackson, Placerville, and Diamond Springs turned to other means of commerce such as ranching, agriculture, and timber production (Beck and Haase 1974). Specifically, the Placerville region turned to, among the other trades, viticulture, thereby setting off the lucrative California wine industry. In 1869, the transcontinental railroad linked Sacramento more directly to the central and eastern United States enabling California's agricultural products to quickly find markets throughout the country. Ranching, transportation, logging, and subsequent water diversion projects represent major historic themes for the Diamond Springs and Shingle Springs area. In addition, El Dorado County has continued to grow in importance as a residential community, with Placerville as its center of government, industry, transportation, and commerce.

2.5 - City of Diamond Springs History

As with many cities in California, the promise of gold brought the first settlers to Diamond Springs, which was named for a group of natural springs located on the north side of what became Main Street. Although the area had much to offer new settlers, it was not until the late summer of 1850 that a group of settlers from Missouri realized that the abundant water sources and rich pastureland were suitable for farming and livestock and decided to settle. Once they started making a good living by gold mining, they decided to make this area their permanent place of residence and built clapboard houses, stores, churches, hotels, etc. In 1850, one of the Missouri pioneers unearthed a 25-pound gold nugget, which solidified Diamond Springs as one of the richest placer mining areas in El Dorado County.

By November of 1850, Diamond Springs was becoming a town to rival Coloma in size, and it was reported in the Alta California paper that more than 100 new homes had been built in just a few weeks in Diamond Springs. The following year saw the construction of 3 hotels, 13 mercantile stores, a blacksmith shop, and 2 butcher shops, with 5 permanent carpenters building homes and other structures for the burgeoning population. Throughout the 1850s and 1860s, Diamond Springs continued to grow and was considered the best stopping place between Folsom and Placerville, owing

to its fine hotels and inns. In 1856, disaster struck the downtown area when a fire destroyed all but two buildings: the Wells Fargo Office and the Eureka Canal Company. It is believed that the fire was caused by arson, and that there was a connection with three other fires in the County that took place in Placerville, Georgetown, and Diamond Springs, all within about a month of each other.

The City starting rebuilding the downtown area with stone blocks from a nearby quarry, but a second fire in 1859 caused permanent damage to the town's prominence within the County (Sioli 1883). Diamond Springs lost its prominence as a mining town; however, the abundant water, rich soil, and relatively mild climate proved ideal for raising crops, and soon there were numerous orchards and crops being grown in the area.

One of the major drawbacks to the agricultural industry in Diamond Springs was transportation. The Sacramento and Placerville railroad line was completed from Sacramento to Folsom in 1856, but it was not until 1864 that the railroad lines reached Shingle Springs, which is approximately 6 miles northwest of Diamond Springs (Sioli 1883).

Two key businesses, the Stockton Box Factory and the Caldor sawmill, added to the town's prosperity. The town continued to grow from its agricultural base, and, in 1926, the California Door Company began operating its electric sawmill near Missouri Flat, which prospered for over 30 years.

Diamond Springs continued to grow throughout the 1900s with vineyards, farms, and various hotels and restaurants, although it never grew as rapidly as it did during the Gold Rush era. Recently, there has been a population resurgence in Diamond Springs as a bedroom community for people working in Sacramento. In addition, many local businesses have moved into the area to provide services and goods for the new residents. In the general vicinity, local wineries have opened tasting rooms and provide unique locations for weddings, parties, and business celebrations. Today, Diamond Springs is typified by a population that wants the conveniences of city living with the small-town feel of a local, more rural community.

SECTION 3: METHODOLOGY AND RESEARCH GOALS

The cultural resource assessment for the Project included record searches at the NCIC, the NAHC, the UCMP, and a pedestrian survey to relocate and document the existence and condition of previously recorded or new cultural resource sites within the Project, and to determine whether such resources will be affected by Project development.

3.1 - Research Goals

The goals of this study are to determine whether cultural resources are located within the Project APE, determine whether any previously recorded or newly discovered cultural resources should be considered significant resources, and develop specific measures that will address potential effects to existing or potential resources. The major components include:

1. An NAHC Sacred Lands File record search review and subsequent letters to appropriate tribal groups and individuals
2. Review of previous cultural resource site records and studies in the Project APE
3. Evaluation of cultural resource sensitivity using historic maps
4. Pedestrian survey of the Project APE and a site relocation survey
5. Development of recommendations for adversely affected historic resources, if applicable

3.2 - Sites and Isolates

Prehistoric and historic cultural resources can vary from area to area. Prehistoric and historic cultural resources are defined as three or more items that are not from a single source or material found within a 10-square-meter area. Historic items must be more than 45 years old to be considered for listing on the NRHP or the CR or be of exceptional importance. This definition assumes that items found in an area with a diversity of materials represent more than a single activity at a location. Sites could also be loci if they presumably represent repeated, discrete activity, such as a milling station, hearth, or isolated structures.

SECTION 4: RESULTS

4.1 - Records Search

4.1.1 - North Central Information Center (NCIC) Record Search

On September 21, 2007, an archival records search was conducted by staff at the NCIC, California State University, Sacramento, Sacramento, California (NCIC File No. ELD-07-159; Appendix A, Cultural Resources Correspondence). The record search included the Project APE and a 0.25-mile radius outside the Project boundaries. The NCIC record search included current inventories of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Inventory of Historical Resources, the Caltrans Bridge Inventory (1987 and 2000), California State Historic Landmarks, and the California Points of Historical Interest. Three historic maps—the 1870 GLO Plat map, the 1887 Placerville Sheet, and the 1949 15' USGS Placerville quadrangle map—and the Historic Ditch Alignments for El Dorado County (1993) were examined to help locate any historic resources in the area. In addition, the Historic Ditch Alignments for El Dorado County (1987-1993) was reviewed to determine which of the ditches or portions of the ditches would be affected by Project development.

The record search indicated that four surveys (NCIC # 4258, 4322, 4324, and 6874) were conducted that included some portion of the Project area. In addition, nine surveys (NCIC # 4329, 4310, 4326, 4328, 7257, 4266, 4298, 7014, and 4269) have been conducted within a 0.25-mile radius of the Project area.

From these 13 surveys, 26 cultural resource sites have been recorded within a 0.25-mile radius of the Project. For the proposed Project, only two of the 26 sites have the potential to be impacted by Project development: P-9-1900 CA-ELD-1376-H and P-9-1889 CA-ELD-1371-H.

Section 4.2, Pedestrian Survey, provides brief descriptions of the two sites and their current condition.

4.1.2 - Native American Heritage Commission Record Search

On November 5, 2007, MBA sent a letter to the Native American Heritage Commission (NAHC) in Sacramento in an effort to determine whether any sacred sites listed on its Sacred Lands File are included in the current Project APE. The response from the NAHC was received on November 20, 2007, stating that a search of its Sacred Land File failed to indicate the presence of Native American cultural resources in the immediate Project APE.

Included with the response was a list of 13 Native American representatives who may have further knowledge of the Project APE. To ensure that all Native American concerns are adequately addressed, letters to each of the 13 listed tribal contacts were sent on December 12, 2007, requesting any input about the Project that these individuals may have. Because no responses were received by MBA, second letters were sent to the 13 representatives via email or the U.S. Postal Service on

January 29, 2008, requesting any additional information or comments. As of this date, no responses to either of the letter requests have been received (Appendix A, Cultural Resources Correspondence).

SB 18 Tribal Consultation

As this Project will include a General Plan Amendment, the tenets of SB 18 must be followed. To initiate the SB 18 process, El Dorado County Project Planner Jason R. Hade, AICP, sent a letter on December 11, 2007 to the chairperson of the El Dorado Miwok Tribe, Jeri Scrambler, requesting consultation. A response was received from Ms. Scrambler on December 26, 2007, asking that she be consulted about this Project and specifically requesting to know when the Cultural Resource Report would be available for review (Appendix A, Cultural Resources Correspondence).

4.1.3 - Paleontological Record Search

On December 14, 2007, MBA requested a paleontological record search of the UCMP to determine if paleontological resources were present within the Project APE. On December 17, 2007, a response was received from Dr. Kenneth Finger, Ph.D., stating that because of the unlikelihood of the presence of significant paleontological resources within the Project APE, no paleontological surveys or construction monitoring were required (Appendix A, Cultural Resources Correspondence).

4.2 - Pedestrian Survey

MBA's Senior Project Archaeologist Carrie D. Wills surveyed the Project APE on November 15, 2007, using 15-meter transects to ensure proper coverage, when possible. On February 8, 2008, Ms. Wills and Ms. Florance conducted a focused survey to relocate previously recorded sites and note their location in relation to the Project APE and their condition/existence.

In general, the Project terrain varied from grassy areas to built environments with existing structures to highly disturbed areas that included the former location of the Diamond Springs Lime Plant (Appendix D, Photograph 1). In some areas, dense vegetation (Appendix D, Project Area Photographs, Photograph 2), areas covered with asphalt and structures, the steep sides of hills (Appendix D, Photograph 3), and highly vegetated areas could not be surveyed using uniformly spaced transects. In highly vegetated areas, transect intervals were kept as close as possible, ensuring the best coverage while maintaining personal safety. However, in areas covered with asphalt and structures, the only feasible approach was to closely examine the areas immediately adjacent to the asphalt or the structures. Survey areas along existing roadways, such as Lime Kiln Road and SR-49, were particularly difficult to survey, as traffic was relatively constant and the road shoulders were narrow (Appendix D, Photograph 4).

Approximately 60 to 65 percent of the APE could be surveyed; the remaining areas were either covered with structures, commercial areas, dense vegetation, and/or was within paved roads or parking areas. During the course of the survey, no historic or prehistoric resources were observed.

A focused search was conducted to relocate the two previously recorded resources within the APE. Site number P-9-1889 CA-ELD-1371-H is a portion of the Diamond Ditch System, which includes the Old Diamond Ridge Ditch, the East Diamond Ditch Missouri, and the Diamond Ditch. The map titled Historic Ditch Alignments for El Dorado County (McCurry 1987-1993) depicts a portion of the Diamond Ditch traversing through the southeastern portion of the Project. Originally recorded in 1996, this portion of the Diamond Ditch was not relocated during the field survey. The area where the Ditch was located in 1996 has been highly disturbed with roads, buildings, and graded areas. As the portion of the Diamond Ditch within the Project was not relocated and was possibly filled in by erosion or grading, there will be no adverse effect from Project development.

Site number P-9-1900 CA-ELD-1376-H was recorded in 1995 as being the "remains of the former Diamond Springs Lime Plant in Diamond Springs, CA." At that time, a number of structures were extant, including a redwood water tank, remains of a kiln, a marble or limestone structure, and a concrete block building. However, the site record states that the structures are "…currently in ruins…condition is very poor…the buildings are all in ruins and some vandalism has taken place." During the February 8, 2008 relocation survey, no evidence of any of the structures was found. Some small pieces of brick, stone, glass fragments, and one nail were scattered across the top of the hill and are considered the only evidence possibly related to the former Lime Plant. In random areas, patches of dirt were scraped away to determine if there were subsurface remains from the Lime Plant. None of the scrapings resulted in the discovery of subsurface remains. It appears that after the buildings were demolished, equipment was used to grade the area where the Lime Plant stood, thus removing any remnants except very fragmented pieces of glass and brick. As no buildings, structures, foundation pads, or historic refuse were observed during the survey, there would be no adverse effect to this site from Project development.

4.2.1 - Survey Results

During the course of both the original pedestrian survey conducted on November 15, 2007 and the site relocation survey on February 8, 2008, no prehistoric or historic resources were observed or relocated within the Project APE.

Therefore, Project development will not affect any historic resources within the Project APE.

SECTION 5: SUMMARY AND RECOMMENDATIONS

5.1 - Summary

In accordance with the NHPA and CEQA, MBA assessed the effects of development of the Project within the Project APE.

Results from the NCIC indicate that 13 surveys and 2 cultural resource sites have been recorded within a 0.25-mile radius of the Project. For the proposed Project, the two previously recorded sites were determined not to be extant within the Project APE.

On November 5, 2007, a request was sent to the Native American Heritage Committee (NAHC) requesting a search of their Sacred Lands File. Results indicated that the search failed to indicate the presence of Native American cultural resources in the immediate Project area. Included with the response letter was a list of Native American representatives who were sent letters on December 12, 2007 and January 30, 2008 to request their input about the Project. As of this date, no responses have been received from any of the representatives.

The results of the vertebrate paleontology database search at the UCMP indicated that it is highly unlikely that significant paleontological resources would be unearthed during Project development. Therefore, a paleontological survey and construction monitoring is not recommended.

On November 15, 2007 and February 8, 2008, Senior Project Archaeologist, Carrie D. Wills, conducted pedestrian surveys of the Project APE to determine the presence or absence of historic properties that could be considered eligible for listing on the NRHP or the CR and to relocate previously recorded sites within or immediately adjacent to the Project APE. During the course of the pedestrian surveys, no prehistoric or historic resources were observed within the Project APE. In addition, during the site relocation effort, the two previously recorded sites were not relocated within the Project APE and are believed no longer to exist within the APE.

5.2 - Recommendations

If the current Project boundaries remain the same, no historic or prehistoric resources will be affected by Project development. Therefore, no archaeological monitoring is recommended.

5.2.1 - Accidental Discovery of Human Remains

There is always the possibility that ground-disturbing activities may uncover previously unknown human remains. Should this occur, Section (§) 7050.5 of the California Health and Safety Code applies, and the following procedures shall be followed.

In the event of an accidental discovery or recognition of any human remains, Public Resource Code (PRC) § 5097.98 must be followed. In this instance, once Project-related earthmoving begins and if there is accidental discovery or recognition of any human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the El Dorado County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains to be Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC § 5097.98, or
2. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendent or on the Project in a location not subject to further subsurface disturbance:
    - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;
    - The descendent identified fails to make a recommendation; or
    - The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

5.2.2 - Accidental Discovery of Cultural Resources

As mandated by Section 106 of the NHPA, federal agencies must take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate adverse effects on such properties (36 CFR 800.1(a)). Likewise, CEQA regulations state, "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment." (PRC Section 21084.1) "Substantial adverse change" means "demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired." (PRC Section 5020.1(q))

If an archaeological site qualifies for listing on the NRHP or CR, the provisions of Section 106 and CEQA mandate that the lead agencies further determine whether the proposed undertaking will have an "effect" and "adverse effect" upon the site (36 CFR 800.4(d)(1)). According to federal regulations, "Effect means alteration to the characteristics of a historic property qualifying it for

inclusion in or eligibility for the National Register." (36 CFR 800.16(i)) The criteria of adverse effect are:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative (36 CFR 800.5(a)(1)).

In accordance with PRC § 21082 and § 15064.5 of the CEQA Guidelines and (36 CFR 800) of Section 106 of the NHPA, if buried cultural resources are discovered during construction, operations shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The archaeologist shall make recommendations to the lead agency concerning appropriate measures that will be implemented to protect the resources, including but not limited to excavation and evaluation of the finds, consistent with § 15064.5 of the CEQA Guidelines and 36 CFR 800. Cultural resources could consist of, but are not limited to, stone, bone, wood, or shell artifacts; or features including hearths, structural remains, or historic dumpsites. In accordance with PRC § 21082 and §15064.5 of the CEQA Guidelines, no further grading or construction activity shall occur within 50 feet of the discovery until the lead agency approves the measures to protect these resources.

In addition, reasonable efforts to avoid, minimize, or mitigate adverse effects to the property will be taken and the State Historic Preservation Officer (SHPO) and Indian tribes with concerns about the property, and the Advisory Council on Historic Preservation (Council) will be notified within 48 hours in compliance with 36 CFR 800.13 (b) (3).

5.2.3 - Paleontological Recommendations

The results of the vertebrate paleontology database search at the UCMP indicated that it is highly unlikely that significant paleontological resources would be unearthed during Project development. Therefore, no paleontological monitoring is recommended for the Project.

SECTION 6: REFERENCES

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Appendix A: Cultural Resources Correspondence

A-1: Information Center Records Search Response

NORTH CENTRAL INFORMATION CENTER

916-278-6217 ncic@csus.edu FAX 916-278-5162
CSU-SACRAMENTO - 6000 J STREET, ADAMS BLDG. SUITE #208 - SACRAMENTO, CA 95819-6100
Amador, El Dorado, Nevada, Placer, Sacramento, and Yuba Counties

RAPID Records Search Results Summary

September 21, 2007 **NCIC File No: ELD-07-159**

Carrie D. Wills
Michael Brandman Associates
Bishop Ranch 3
2633 Camino Ramon Suite 460
San Ramon, CA 94583

From: Ellen Bowden, Researcher

RE: Missouri Flat Road Cultural Resource Project

USGS 7.5-minute Placerville quad *(portions of following sections)*
T 10N/R10E **Sections 23 24 25**; T 10N/R 11E **Section 30**

- **Sites Within ¼-mile Search Radius or Project Area:** 26

CA-ELD-684-H
CA-ELD-854-H
CA-ELD-971-H

CA-ELD-941-H
CA-ELD-942-H
CA-ELD-943-H
CA-ELD-944-H

CA-ELD-1341/H
CA-ELD-1346-H
CA-ELD-1357-H
CA-ELD-1360-H
CA-ELD-1361-H
CA-ELD-1371-H
CA-ELD-1375-H
CA-ELD-1376-H

CA-ELD-2301-H
CA-ELD-2302-H
CA-ELD-2303-H
CA-ELD-2304-H
CA-ELD-2305-H

P-9-1861
P-9-1903
P-9-1904
P-9-1905
P-9-1863
P-9-1855

- **NCIC Studies Within ¼-mile Search Radius or Project Area:** 13*

4258
4266
4269
4298
4310
4322
4324
4326
4328
4329
6874
7014
7257

199 b
137 b
389 b
2225 b
2266 b
2239 b
2254 b
4272 b
7256 b

*b indicates bibliographic listing only

- **NRHP and CRHR (2006):** Nothing listed
- **OHP Historic Property Directory (September 2006):** Nothing listed
- **Caltrans Bridge Inventory (1987 and 2000):** Nothing listed
- **California State Historical Landmarks (1996 and updates):** Diamond Springs #487
- **California Inventory of Historic Resources (1976 and updates):** Diamond Springs #51
- **Points of Historical Interest (1992 and updates):** Nothing listed
- **Historic GLO plats/Maps:**

  1870 GLO Plats for T 10N/R 10E & T 10N/R 11EUSGS 1887Placerville Sheet; USGS 1949 Placerville quadrangle; Historic Ditch Alignments for El Dorado County (McCurry 1993)

Entire site record copies and report title pages are enclosed. Thank you for using our services. A confidentiality agreement form is included. Please sign where indicated and return to our office with your payment. If you have any questions please do not hesitate to call 916/278-6217 or contact us at the above listed email address.

A-2: Native American Heritage Commission Response and Representative Letters

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

November 20, 2007

Carrie D. Wills
Senior Project Archaeologist
Michael Brandman Associates
2633 Camino Ramon, Ste. 460
San Ramon, CA 94583

Sent by Fax: ~~510-524-4419~~ 925-830-2715
Number of Pages: 5

Re: Proposed Oroville Project, Butte County. Missouri Flat Road Expansion, El Dorado County.

Dear Ms. Wills:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

For: Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
El Dorado County
November 16, 2007

Randy Yonemura
4305 - 39th Avenue Miwok
Sacramento , CA 95824
honortraditions@mail.com
(916) 421-1600

El Dorado Miwok Tribe
Wesly Yielding
3266 Cimmarron Road, Apt 38 Miwok
Cameron Park , CA 95682
530-672-9819

El Dorado County Indian Council
P.O. Box 564 Miwok
El Dorado , CA 95623 Maidu
(530) 647-0423

Ione Band of Miwok Indians
Matthew Franklin, Chairperson
PO Box 1190 Miwok
Ione , CA 95640
matt@ionemiwok.org
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(209) 274-6636 Fax

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Jeri Scambler, Chairperson
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miwoktribe@hotmail.com
530-363-3257
916-962-2179

Ione Band of Miwok Indians
Heritage Cultural Committee
PO Box 1190 Miwok
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billie@ionemiwok.org
(209) 274-6753
(209) 274-6636 Fax

El Dorado Miwok Tribe
Brian Padilla
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(916) 792-2829

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Cosme Valdez, Interim Chief Executive Officer
PO Box 580986 Miwok
Elk Grove , CA 95758
916-429-8047 voice
916-429-8047 fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Missouri Flat Road Expansion, El Dorado County.

Native American Contacts
El Dorado County
November 16, 2007

Shingle Springs Band of Miwok Indians
Jeff Murray, Cultural Resources Manager
P.O. Box 1340 Miwok
Shingle Springs , CA 95682 Maidu
jmurray@ssband.org
(530) 676-8010
(530) 676-8033 Fax

Shingle Springs Band of Miwok Indians
Nicholas Fonseca, Chairperson
P.O. Box 1340 Miwok
Shingle Springs , CA 95682 Maidu
nfonseca@ssband.org
(530) 676-8010
(530) 676-8033 Fax

Todd Valley Miwok-Maidu Cultural Foundation
Christopher Suehead, Cultural Representative
PO Box 1490 Miwok
Foresthill , CA 95631 Maidu
tvmmcf@foothill.net
(530) 367-3893 - Voice / Fax

United Auburn Indian Community of the Auburn Rancheria
Jessica Tavares, Chairperson
10720 Indian Hill Road Maidu
Auburn , CA 95603 Miwok
530-883-2390
530-883-2380 - Fax

United Auburn Indian Community of the Auburn
Tribal Preservation Committe
10720 Indian Hill Road Maidu
Auburn , CA 95603 Miwok
530-883-2390
530-883-2380 - Fax

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Michael Brandman Associates

Bakersfield
661.334.2755

Fresno
559.497.0310

Irvine
714.508.4100

Palm Springs
760.322.8847

Sacramento
916.383.0944

San Bernardino
909.884.2255

San Ramon
925.830.2733

December 12, 2007

El Dorado Miwok Tribe
Brian Padilla
P.O. Box 2437
Marysville, CA 95901

Subject: **Proposed Diamond Dorado Retail Center Project, El Dorado County**

Dear Brian Padilla:

Our client, Palos Verdes Properties, Inc., plans to develop a retail center in portions of Sections 24 and 25 of T10N/ R10E and portions of Sections 19 and 30 of T10N/R11E, on the Placerville USGS topographic map. MBA has been contracted to conduct an archaeological study for the project area which is depicted on the attached topographic map. A record search conducted at the North Central Information Center (NCIC File No: ELD-07-159) indicated that 13 surveys have been conducted within a 0.25-mile radius of the project area. In addition, 26 sites have been recorded within a 0.25-mile radius of the project area. The pedestrian field survey was negative for prehistoric resources although a remnant of the Sacramento-Placerville Railroad bed (tracks had been removed) was found within the project area.

Consultation

The California Environmental Quality Act (CEQA) requires the City to consider the effect this project may have on historic properties. The definition of "historic properties" includes, in some cases, properties of traditional religious and cultural significance to Native American tribes. To determine whether any historic properties may be affected by the project, MBA has reviewed archival maps and historic documents and consulted with the Native American Heritage Commission (NAHC). The NAHC response letter indicated that there may be additional information to be gained from individual tribal members and/or tribal organizations. MBA is sending this letter to give you the opportunity to provide any additional knowledge you may have about the Project Area. Because public involvement is a key ingredient in successful CEQA consultation, we are soliciting your input as part of this process.

Please review this letter and the enclosed map and indicate whether you have any information concerning historic properties that may be affected by the proposed Project, as indicated below:

____ No, I am not aware of any Native American resources or sacred sites located within or near the Project Area.

____ Yes, I am aware of Native American resources or sacred sites located within or near the Project Area.

Describe, if possible, the resources using additional sheets of paper, if required:

In addition, please indicate whether you would like a copy of the Final Cultural Resource Report sent to you for your review:

____ No, I do not need to have a copy of the report sent to me for review.

____ Yes, I would like a copy of the report sent to me for review.

MBA is contacting you to determine if you have any concerns regarding this project. Your response would be greatly appreciated. If we do not receive a response from you within 15 calendar days, we will assume that to your knowledge, the Project Area is not located within any Native American religious or sensitive sites. Please feel free to contact me at 925.830.2733 if you have any questions. Address and mail your response or any correspondence to my attention at the address below.

Sincerely,

Carrie D. Wills, MA, RPA
Senior Project Archaeologist

Michael Brandman Associates
Bishop Ranch 3
2633 Camino Ramon, Suite 460
San Ramon, CA 94583
925. 830. 2733 FAX 925.830.2715

Enclosures: USGS Placerville Map of Project Area

C:\Documents and Settings\CWills\Desktop\Missouri Flat 33370001\NA Consult Letters\Brian Padilla Consult Letter.doc

A-3: SB 18 Request Letter and Native American Response

DEVELOPMENT SERVICES DEPARTMENT

County of EL DORADO

http://www.co.el-dorado.ca.us/devservices

PLANNING SERVICES

PLACERVILLE OFFICE:
2850 FAIRLANE COURT
PLACERVILLE, CA 95667
(530) 621-5355
(530) 642-0508 Fax
Counter Hours: 8:00 AM to 4:00 PM
planning@co.el-dorado.ca.us

LAKE TAHOE OFFICE:
3368 LAKE TAHOE BLVD. SUITE 302
SOUTH LAKE TAHOE, CA 96150
(530) 573-3330
(530) 542-9082 Fax
Counter Hours: 8:00 AM to 4:00 PM
tahoebuild@co.el-dorado.ca.us

EL DORADO HILLS OFFICE:
4950 HILLSDALE CIRCLE, SUITE 100
EL DORADO HILLS, CA 95762
(916) 941-4967 and (530) 621-5582
(916) 941-0269 Fax
Counter Hours: 8:00 AM to 4:00 PM
planning@co.el-dorado.ca.us

December 11, 2007

El Dorado Miwok Tribe
Attn: Jeri Scrambler, Chairperson
P.O. Box 1284
El Dorado, CA 95623

RE: SB18 Tribal Consultation: General Plan Amendment A 07-0018, Z 07-0054, & PD 07-0034
El Dorado County
Assessor's Parcel Number (APN): 051-250-12; 46; 47; 51; and 54

Dear Ms. Scrambler:

El Dorado County requests your consideration regarding a General Plan Amendment pursuant to SB 18/Government Code §65352.

A project description and related maps are enclosed for your review. If a consultation is desired, cultural resource report documentation will be available during the preparation of the project's Environmental Impact Report (EIR) scheduled to begin early next year.

Please let us know within 90 days if you desire a consultation pursuant to the Government Code. I can be reached at (530) 621-5355 or jason.hade@co.el-dorado.ca.us.

Sincerely,

Jason R. Hade, AICP
Project Planner

Enclosures

S:\DISCRETIONARY\A\2007\A07-0018,Z07-0054,PD07-0034\Tribal Notification A 07-18 Scrambler.doc

MIWOK TRIBE OF THE EL DORADO RANCHERIA
P.O. Box 1284
El Dorado, CA 95623
(530) 368-3257
miwoktribe@hotmail.com

December 26, 2007

Jason Hade, AICP
Project Planner
2850 Fairlane Court
Placerville, CA 95667

RE: General Plan Amendment A 07-0018, Z07-0054, & PD 07-0034 El Dorado County

Mr Hade:

The information for an amendment to the General Plan to construct a "commercial-planned development" that will include up to 10 retail businesses near Hwy 49 has been received. We do wish to be consulted on this development and informed when the Cultural Resource Report will be available for review.

Thank you and we look forward to hearing from your department.

Sincerely,

Jeri Scambler, Chairperson
Miwok Tribe of the El Dorado Rancheria

Ltr1-C1-108

A-4: Paleontological Record Search Response

Kenneth L. Finger, Ph.D.
Consulting Paleontologist

18208 Judy St., Castro Valley, CA 94546-2306 510.885.1585 klfpaleo@comcast.net

December 15, 2007

Carrie Wills
Michael Brandman Associates
2633 Camino Ramon, Ste. 460
San Ramon, CA 94583

Re: Paleontological Records Search for MBA Project #33370001, Missouri Flat Road Expansion, El Dorado County, California

Dear Carrie:

As per your request, I have conducted a thorough search of the University of California Museum of Paleontology (UCMP) vertebrate paleontology database for the proposed Missouri Flat Road Expansion project located on the south side of the Southern Pacific Railroad in the vicinity of Diamond Springs, southeast of Placerville. The project is along the E-W boundary between Sec. 24 and 25, R10E, and between Sec. 19 and 30 of R11E, T10 N, Placerville Quadrangle (USGS 7.5-series topographic map (1949, photorevised 1973). This area is in the foothills of the Sierra Nevada. On a recent aerial photo, it is evident that the three areas designated for this project have been heavily disturbed, as two are mostly obscured by structures and the third appears to have been farmed or graded.

The project area is in the western metamorphic belt of the Sierra Nevada. The geology of the Placerville area was originally mapped by Lindgren in 1893 (in Lindgren and Turner, 1894). According to this map, the project properties include "Neocene" auriferous river gravels, the metasedimentary rocks of the Calaveras Formation (Carboniferous), and granitic rocks, as well as contact metamorphic zones between the latter units. Later biostratigraphic studies on ammonites revealed that those metasedimentary rocks are of Upper Jurassic marine origin, and they are now referred to the Salt Spring Formation, as mapped by Clark (1964) in the southernmost part of Eldorado County. Clark also mapped metavolcanic rocks of the Triassic-Jurassic Logtown Ridge Formation in that area. The Sacramento Sheet compiled by Strand and Koenig (1965) shows four lithostratigraphic units within the project area referred to as Tertiary nonmarine (the auriferous gravels), Upper Jurassic marine (Salt Spring Formation), Triassic-Jurassic metavolcanics (Logtown Ridge Formation), and Mesozoic granodiorite. Because plutonic rocks, including the granodiorite characteristic of the Sierra Nevada batholith, form from magma deep beneath the surface, they cannot be fossiliferous. Whereas volcanic rocks other than ashfall tuffs rarely preserve fossils, metavolcanic rocks are typically unfossiliferous. Fossils that were preserved in the original sedimentary rock (e.g., shale) may survive low-grade metamorphism and thus be retained in the resulting metasedimentary rock (e.g., slate). The Tertiary alluvium and the Salt Spring Formation are the only units in the project area that have greater paleontological potential.

The results of searching the UCMP database reveal five vertebrate fossil localities (UCMP localities 1069, 1073, V6951, V4805, and V91012) in Eldorado County, but all are late Pleistocene (Rancholabrean) in age. The vast majority of the 356 specimens recovered are from Hawver Cave, which is within the Auburn State Recreation Area approximately three miles northwest of Diamond Springs. Whereas no Pleistocene deposits have been mapped in the vicinity of the project site, none will be impacted by the proposed project. In the unlikely case that they were not disturbed by gold prospectors, the Tertiary gravel deposits have the potential to contain terrestrial vertebrates. In addition, the Salt Spring Formation has the potential to contain Jurassic vertebrates, primarily marine reptiles and fish, or terrestrial vertebrates transported offshore. No significant paleontological resources from either unit are in the UCMP collection, suggesting that it is highly unlikely that they will be encountered in any given area.

A paleontological walkover survey of the site prior to construction is not necessary because all of the land appears to have been heavily disturbed. I do not recommend paleontological monitoring during construction because significant paleontological resources are most unlikely to be unearthed. Should any vertebrate fossils or potentially significant finds (e.g., numerous well-preserved invertebrate or plant fossils) be encountered by the construction crew, all work in the immediate vicinity of the find is to cease until a paleontologist evaluates the find for its scientific value. Significant paleontological resources should be salvaged and deposited in an accredited and permanent scientific institution (e.g., UCMP) where they will be properly curated and preserved for the benefit of current and future generations.

If I can be of further assistance on this or any other project, please do not hesitate to contact me.

Sincerely,

Ken Finger

References Cited

Clark, L.D., 1964, Stratigraphy and Structure of Part of the Western Sierra Nevada Metamorphic Belt, California: U.S. Geological Survey Professional Paper 410, 70 p.

Lindgren, W., and Turner, H.W., 1894, Placerville, Calif. U.S. Geological Survey Geological Atlas, Folio 3, 3 p.

Strand, R.G., and Koenig, J.B., 1965, Geologic Map of California Sacramento Sheet (1:125,000). U.S. Geological Survey.

Appendix B: Personnel Qualifications

Carrie D. Wills
Senior Project Archaeologist

Education
M.A., Anthropology, California State University, Hayward, 1994

B.A., Anthropology, California State University, Hayward, 1989

Professional Affiliations
Member, Society for Historical Archaeology

Member, Society for California Archaeology

Member, Register of Professional Archaeologists

Experience Summary

Since 1991 Ms. Wills has worked in prehistoric and historic archaeology, including pre-field assessments, archival research, pedestrian field surveys, site evaluation and testing, and data recovery and analysis. She is currently a Senior Project Archaeologist with Michael Brandman Associates. She has extensive experience preparing documents that comply with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) and evaluating and assessing historic structures located on mining, ranching, and military facilities for inclusion on the National Register of Historic Places and California Register of Historical Resources.

Recent Project Experience

Historical, Archaeological, and Paleontological Resources

KB Home Monte Vista, Historic American Buildings Survey, San Jose. Served as Project Manager for the KB Home Monte Vista Project. Conducted Historic American Buildings Survey Level III documentation for a large multi-structure canning facility, Del Monte Plant #3, in San Jose. Tasks included producing over 200 large-format, black and white photographs of exterior and interior views of the existing structures. The MBA historic report augments the photographic documentation by placing the structures within the appropriate historic context and addressing both the architectural and historical aspects of the site's significance. Included in the historical report is a narrative of the origins and subsequent development of the No. 3 Plant and its role in local and regional population and industrial patterns. Specifically, the historical report focused on the Plant's contribution to the growth of the canning industry in San José. In addition, the plant was assessed for historic significance and found to meet the criteria for listing on the National Register of Historic Places as a District along with two other local Del Monte canneries. MBA coordinated with state, federal, and city agencies including, but not limited to, City of San Jose Department of Planning and the National Park Service HABS/Historic American Engineering Record coordinator. MBA prepared a written historical report according to the format found in HABS Historical Reports.

Costco's Warehouse Project, San Francisco. Served as Project Manager for Costco's Warehouse Project. Surveyed, excavated, and monitored the proposed site, located in downtown San Francisco, for a new Costco store. Supervised lab procedures and analysis of over 1,400 artifacts.

Montezuma Wetlands Project, Solano County. Served as Project Manager for Solano County's Montezuma Wetlands Project. Provided technical direction of a 4,700-acre archeological survey in Solano County, resulting in recording and subsurface testing of twelve sites. Co-authored the technical report which included extensive impacts and mitigation measures.

Lake Solano Regional Park Visitor's Center Project, Solano County. As Project Archaeologist Ms. Wills conducted a cultural resource investigation that included record search reviews and a pedestrian field survey. The record searches included records at the Northwest Information Center, Rohnert Park and at the Native American Heritage Commission in Sacramento. As no resources were discovered during the field survey, a negative report was prepared detailing the findings in compliance with the National Historic Preservation Act and the California Environmental Quality Act.

Off-road Vehicle Park, Bakersfield. Served as Senior Project Archaeologist for Bakersfield Off-road Vehicle Park Project. Conducted an intensive field survey of 2,500 acres outside the city of Bakersfield. The project area included rolling hills, large flat valleys, and steep ravines. The survey resulted in discovery of over 150 prehistoric resources including bedrock mortars, grinding slicks, and rock art. The resources were recorded and evaluated for eligibility for listing on the National Register of Historic Places and the California Register of Historical Resources. Following the evaluation, a comprehensive report detailing the findings was produced.

Bel Lago Project, Moreno Valley. Served as Senior Project Archaeologist for the Bel Lago Project in Moreno Valley. Conducted a site specific field assessment of the Kerr Ranch and recorded all extant buildings and structures on Department of Parks and Recreation forms; both Primary and Building, Structure and Object forms. Detailed descriptions and measurements were taken as part of the assessment process and each building and structure was evaluated individually for listing to the California Register of Historical Places or local registers or landmarks. Following the evaluation, a comprehensive report including the local setting and background of the Kerr Ranch was produced. It was determined that the Kerr Ranch did not meet the criteria for listing on any local registers or landmark lists.

Westlake Shopping Center, Daly City. Served as Senior Project Archaeologist for Daly City's Westlake Shopping Center Project, a major refurbishing effort for a shopping center located in Daly City. Assessed the shopping center for historic significance under CEQA Section 150.64 by reviewing historic maps and photos and record and archival search results obtained from the Northwest Information Center and the Daly City Planning Department, respectively; and conducting a visual appraisal of the existing buildings, structures, and signage. It was determined that the shopping center was not significant under CEQA due to extensive alterations and façade replacement made over the years that significantly reduced the center's integrity.

San Demas Project, Sacramento. Served as Senior Project Archaeologist for the San Demas Project in Sacramento. Conducted a record search and field investigation for a built environment covering one city block in downtown Sacramento. As this was a built environment, there was no native ground surface to be surveyed; therefore, the investigation consisted of comprehensive research to determine the possibility of historic structures. None of the extant buildings were considered significant in terms of CEQA criteria, however, there is a possibility of discovering subsurface resources, and therefore construction monitoring was recommended.

Cabrillo Corners Commercial Project, City of Half Moon Bay. Served as Cultural Resources Specialist for City of Half Moon Bay's Cabrillo Corners Commercial Project. Conducted a record search at the Northwest Information Center and a pedestrian field survey of the proposed project area that borders Pilarcitos Creek in Half Moon Bay to determine the presence or absence of cultural resources prior to project development. Discovered no cultural resources; however, because of the close proximity of the project area to Pilarcitos Creek, provided mitigation measures to protect previously undiscovered resources during project excavation activities.

Gustine Municipal Airport Project, Merced County. Served as Senior Project Archaeologist for Gustine Municipal Airport Project. Conducted a record search and pedestrian field survey of a 45-acre parcel located in Merced County to determine the presence or absence of cultural resources prior to improvements to the Airport. No resources were discovered during the survey and the record search results indicated that no cultural resources had previously been recorded within the project area. A negative survey report detailing the record search and survey results was prepared to meet the requirements of the National Environmental Policy Act and the National Historic Preservation Act as amended.

Scheiber/White Projects, El Dorado County. Served as Senior Project Archaeologist for Scheiber/White Projects. Conducted record searches and field investigations for two properties located in El Dorado County. Projects were 226 acres and 286 acres of undeveloped land with gentle to steep rolling hills and open valleys. The field survey resulted in discovery of a site that contained both historic and prehistoric elements; bedrock mortars and a stone residence with an associated barn and outbuildings. A recommendation was made for a Phase II evaluation prior to development.

Protzel Project, El Dorado County. Served as Senior Project Archaeologist for the Protzel Project. Conducted a record search and field investigation for a small, 35-acre parcel of land located in El Dorado County. The field survey resulted in discovery of a site that contained both prehistoric and historic components located adjacent to one another. One component was a dry-layed stone structure with numerous stone fences and surrounds. The prehistoric component consisted of a small obsidian projectile point. A recommendation was made for a Phase II evaluation prior to development.

Miller Ranch Property, City of Lincoln. Served as Senior Project Archaeologist for Miller Ranch Property Project, a 130-acre residential development in the City of Lincoln, Placer County. Reviewed record search results from the North Central Information Center, Sacramento, and conducted a pedestrian field survey. The record search results indicated no cultural resources had been previously recorded within a 0.25-mile radius of the project area nor were any discovered during the field survey. A negative survey report was prepared detailing the record search and survey results to meet CEQA requirements.

Fahren's Creek Development Project, Merced County. Served as Senior Project Archaeologist for Fahren's Creek Development Project. Conducted a record search and field investigation in Merced County. The parcel consisted of undeveloped land, a portion of which was immediately adjacent to Fahren's Creek. The field survey did not result in discovery of any prehistoric or historic resources, therefore, no further archaeological work was recommended.

McBride R.V. and Self Storage Project, City of Chino. Served as Senior Project Archaeologist for City of Chino's McBride R.V. and Self-Storage Project. Conducted a record search and pedestrian field survey of a 21.15-acre parcel located in San Bernardino County to determine the presence or absence of cultural resources prior to project development. Discovered no resources during the survey and determined that none had previously been recorded within the project area. Prepared a negative survey report detailing the record search and survey results to meet CEQA requirements.

Brehm Communities, City of Chino. Served as Senior Project Archaeologist for Brehm Communities' Mitigated Negative Declaration for a 35-acre Residential Development. Conducted a record search at the San Bernardino Archaeological Information Center and a modified field survey. Performed a visual assessment from various vantage points rather than a typical pedestrian survey. Discovered no cultural resources during the survey and determined that none had previously been recorded within the project area. Prepared a negative survey report detailing the record search and survey results to meet CEQA requirements.

Tract #16817, City of Hesperia. Served as Cultural Resources Specialist for the City of Hesperia's Tract #16817 Project. Conducted a record search and pedestrian field survey of a 21.6-acre parcel located in San Bernardino County to determine the presence or absence of cultural resources prior to project development. Discovered no resources during the survey and determined that none had previously been recorded within the project area. Prepared a negative survey report detailing the record search and survey results to meet CEQA requirements.

Palm Ranch Dairy Project, Kern County. Served as Senior Project Archaeologist for Albers Barnes & Kohler LLP's Palm Ranch Dairy Project. Responsible for CEQA compliance issues related to cultural resources on a 120-acre parcel located in Kern County. Conducted Phase I survey to determine the presence or absence of cultural resources within the project area, resulting in the discovery of artifactual material on the ground surface. Conducted a Phase II testing program to determine the presence or absence of subsurface cultural resources, resulting in inconclusive findings. Provided mitigation measures to protect any previously undiscovered resources during project excavation activities.

Bonanza Farm Dairy Project, Kern County. Served as Cultural Resources Specialist for Albers Barnes & Kohler LLP's Bonanza Farm Dairy Project. Conducted a record search and pedestrian field survey of two 200-acre parcels located in Kern County to determine the presence or absence of cultural resources prior to project development. Discovered no resources during the survey and determined that none had previously been recorded within the project area. Prepared a negative survey report detailing the record search and survey results to meet CEQA requirements.

Cypress Lakes Project, Contra Costa County. Served as Project Manager for Contra Costa County's Cypress Lakes Project. Performed archival and records review, subsurface testing, and technical direction of an 850-acre archeological survey in Contra Costa County which included two well known and significant prehistoric burial mounds.

Tassajara Valley Project, Solano County. Served as Project Manager for Mills Associates' Tassajara Valley Project. Provided technical direction of a 2,500-acre archeological survey in Solano County, resulting in recording and subsurface testing of fourteen historic and one prehistoric archeological site. Analyzed artifacts and prepared technical reports.

Future Urban Areas, Mundie and Associates, Contra Costa County. Served as Field Director for Mundie & Associates' Future Urban Areas One and Two Project. Conducted a 4,500-acre archeological survey in Contra Costa County, resulting in recording of eleven historic archeological sites, including the previously unrecorded historic town sites of West Hartley, Empire and Star Mine, associated with the Mount Diablo coalfield developments of 1850-1885. Recorded features including foundations, privies, cisterns, basements, and dumps; and examined hundreds of surface artifacts. Directed artifact analysis and prepared technical reports.

Energy, Utilities & Pipelines

Santa Cruz Water District's Pipeline Project, Santa Cruz County. Served as Resource Team Leader for Santa Cruz Water District's Pipeline Project, which proposed modifications to the current operation and maintenance of an existing pipeline through implementation of the Santa Cruz North Coast Pipeline Rehabilitation Project. Reviewed compliance issues related to cultural resources found along four major waterways in Santa Cruz County and prepared a CEQA Initial Study to determine environmental impact associated with project implementation. Also provided necessary details to aid in the decision-making process for the next phase of the project.

Federal Energy Regulatory Commission Relicensing Project, Kern County. Served as Resource Team Leader for Kern Canyon's Federal Energy Regulatory Commission (FERC) Relicensing Project. Reviewed cultural resources to meet the requirements of Section 106 of the National Historic Preservation Act in preparation of a new FERC license application. Directed the Section 106 review and prepared the preliminary draft of the license application, evaluated project impacts, and authored the Historic Properties Management Plan as well as a Programmatic Agreement.

Federal Energy Regulatory Commission Relicensing Project, Kilarc-Cow Creek. Served as Resource Team Leader for Kilarc-Cow Creek's Federal Energy Regulatory Commission (FERC) Relicensing Project. Provided NHPA Section 106 compliance review in preparation of a new FERC license application. Following the survey effort, prepared the preliminary draft of the license application, evaluated the project impacts, prepared a comprehensive report, and finalized the Historic Properties Management Plan as well as a Programmatic Agreement.

Calypso Project Environmental Impact Statement. Served as Resource Team Leader for Tractebel North America, Inc.'s Calypso Project Environmental Impact Statement (EIS) for a new natural gas pipeline extending from the Exclusive Economic Zone in the Atlantic Ocean to Port Everglades in Fort Lauderdale, Florida. Conducted the NHPA Section 106 review of both offshore and onshore cultural resources and prepared the preliminary drafts of the third-party EIS for the jurisdictional portion of the pipeline.

Rock Creek Hydroelectric Project. Served as Project Archaeologist for Oregon Trail Electric Consumer Cooperative's Rock Creek Hydroelectric Project. Conducted a reconnaissance survey and evaluation of archaeological and historic resources to meet the requirements of NHPA Section 106.

Patriot Natural Gas Pipeline Project, Tennessee, Virginia, and North Carolina. Served as Resource Team Leader for FERC's Patriot Natural Gas Pipeline Project, consisting of the Mainline Expansion and Patriot Extension through Tennessee, Virginia, and North Carolina. The Mainline Expansion involved improvement along East Tennessee Natural Gas Company's existing pipeline in Tennessee and Virginia, including approximately 187 miles of new pipeline, replacement of old pipeline, additional compression at existing facilities, and five new compressor stations. The Patriot Extension involves approximately 100 miles of new pipeline in Virginia and North Carolina, including three new meter stations. Provided third-party review of cultural resources reports and prepared third-party EIS.

Northwest Transmission Line Project, Oregon and Washington. Served as Project Archaeologist for Wallula Generation, LLC's Northwest Transmission Line Project. Conducted a 28-mile reconnaissance survey in Oregon and Washington along the Columbia River, evaluated and recorded archaeological sites, and completed appropriate forms for submittal to Washington

El Paso Energy's and Broadwing Communications' Fiber Optic Line, Texas and California. Served as Resource Team Leader for a proposed fiber-optic transmission line reaching from El Paso, Texas, to Los Angeles, California. Prepared a Proponent's Environmental Assessment demonstrating CEQA compliance that was submitted with an application to the California Public Utilities Commission.

Fiber Optic Project, San Jose, San Francisco and Los Angeles. Served as Project Manager for Level Three Communications Fiber Optic Project. Conducted cultural resources studies and supervised construction monitoring to address CPUC mitigation measures during the "city build" portions of the project in San Jose and San Francisco, and the Los Angeles Basin. Prepared workbooks for each construction spread in each city to address potential cultural resources impacts and necessary mitigation required to preclude significant impacts.

Fiber Network Project, Northern and Southern California. Served as Project Manager for 360 Networks' Fiber Network Project. Responsible for all aspects of project management for this linear project spanning the length of California, including coordination, budget, consultation, and compliance issues.

Santa Fe Pacific Pipeline. Served as Field Supervisor for Santa Fe Pacific Pipeline's Concord-to-Colton Project. Performed records search and intensive archaeological survey of a corridor stretching from Fresno, through Bakersfield and Mojave, to San Bernardino. Recorded and evaluated for eligibility for listing on National Register of Historic Places more than 150 historic properties.

Alturas Transmission Line Project, California and Nevada. Served as Archaeological Monitor for CPUC's Alturas Transmission Line Project. Documented compliance with mandated mitigation measures during the construction of this high-voltage power line reaching from Alturas, California, to Reno, Nevada.

Environmental Impact Reports for General Plan Updates

Monterey County General Plan Update. Served as Senior Project Archaeologist for Monterey County General Plan Update. Assisted the County of Monterey in updating their General Plan with new policies including archaeological, historical, and paleontological resources. Tasks included a review of existing policies and suggestions for alternatives and updates relevant to current trends. Worked closely with Monterey County staff, agency personnel, and sub-consultants to ensure a high quality, timely Plan Update.

Trails Specific Plan Project, City of Livermore. Served as Senior Project Archaeologist for the City of Livermore's Trails Specific Plan Project. Conducted archival and record searches, including review of the 2000 North Livermore Specific Plan Draft Environmental Impact Report and the 2003 City of Livermore General Plan Update Master Environmental Assessment which specifically focuses on cultural resources

within the proposed project area. Conducted a 235-acre pedestrian survey to determine the significance of previously recorded cultural resources and the presence or absence of previously unknown cultural resources, resulting in the recording of five historic resources using California Department of Parks and Recreation forms with context analysis and detailed maps. Prepared a comprehensive report including a detailed setting section with impacts and mitigation measures to ensure protection of significant cultural resources.

Educational Facility Environmental Analysis

Delta View and Kit Carson Schools Project, Kings County. Served as Senior Project Archaeologist for Kings County Office of Education's Delta View and Kit Carson Schools Project. Conducted archaeological and historical resource assessment at two proposed telecommunication tower sites located at two school sites in Kings County. Conducted a record search at the Southern San Joaquin Valley Information Center and pedestrian surveys at both schools to determine the presence or absence of cultural resources. Determined negative survey results, and prepared a report detailing the record search and survey results which was presented to the Kings County Office of Education.

Mine Reclamation Plans and Environmental Analysis

Abandoned Mine Inventory Project, Washington. Served as Project Manager for Washington Bureau of Land Management's Abandoned Mine Inventory Project. Managed a five-person survey crew that conducted an intensive archaeological survey of 1,700 acres of difficult terrain and conditions in Spokane, Washington. Recorded mining features and archaeological properties on appropriate State of Washington forms and prepared Determination of Eligibility forms for submittal to Washington's State Historic Preservation Officer.

High Desert Power Plant Project, San Bernardino County. Served as Project Manager for Constellation Energy's High Desert Power Plant Project. Conducted an approximately 2,000-acre field inventory of block and linear project areas located near Victorville, in San Bernardino County. Recorded and evaluated more than thirty historic and prehistoric sites.

Military Projects

Concord Naval Weapons Station Project, Port Hueneme. Served as Project Manager for Western Division Naval Facilities Engineering Command's Cultural Resources Overview. Conducted historic resource assessments of more than 500 World War II-era structures located at the Concord Naval Weapons Station, and more than 100 structures located at Construction Battalion Center Port Hueneme, California. Documented each structure with a written description and photographs for use in preparing Historic Resource Inventory forms for submittal. Prepared a preliminary Historic and Archeological Resource Protection Plan, evaluating known archeological site locations and preparing maps depicting areas of archaeological sensitivity.

Cultural Resources Overview Project, Concord Naval Weapons Station. Served as Project Manager for the Cultural Resource Overview Project at Concord Naval Weapons Station. Tasks included review of archival records and record search results for previously recorded sites within the Station. In addition, more than 500 World War II buildings and structures were evaluated for National Register of Historical Places eligibility and documented on appropriate Department of Parks and Recreation forms. An archaeological site prediction model was developed to determine the likelihood of the presence of cultural resources within specific areas of the Station. An extensive context document was prepared to facilitate a comprehensive understanding of the Naval Weapons Station in terms of its historic presence within Contra Costa County and the City of Concord. Following assessment of the Station and its historic components, a Cultural Resource Overview Report for the 13,000-acre facility was developed.

NAVFAC Centerville Beach and Point Sur Projects, Humboldt and Monterey County. Served as Project Archaeologist with responsibilities including a review of archival and site records prior to pedestrian field surveys at each of the locations. Following the surveys, documentation on Department of Parks and Recreation forms was prepared for each of the World War II buildings/structures located within

the Station boundaries. Subsequent efforts included development and submittal of a historic context report and structural assessments of the buildings to determine National Register of Historic Places eligibility status. Prepared a preliminary Historic and Archeological Resource Protection Plan evaluating known archeological site locations and preparing maps depicting areas of archaeological sensitivity. The results from each of these tasks were presented in a technical report detailing the findings.

Civil Engineering Laboratory Archaeological and Historic Resources Assessment Project, Port Hueneme. Served as Project Archaeologist for the CBC Port Hueneme Naval Civil Engineering Laboratory, Archaeological and Historic Resources Assessment Project. The cultural resource evaluation included review of archival records and historic Port Hueneme documents at the base, review of previously recorded sites records from the South Central Coastal Information Center, CSU, Fullerton, and research at Ventura Historical Society. Architectural documentation was prepared for nine World War II buildings on appropriate Department of Parks and Recreation forms and a single prehistoric site located within the base was assessed. A historic context report was developed and each of the buildings/structures was individually evaluated for National Register of Historic Places eligibility. Following assessment and documentation, an EIR/EIS technical report including a detailed historic setting, an overview of each of the types of buildings within the project area, an impacts assessment section, and appropriate mitigation for the impacts was prepared.

Navy Construction Battalion Center Historic and Archaeological Resources Protection Plan Project, Port Hueneme. Served as Project Manager/Archaeologist for the Port Hueneme Navy Construction Battalion Center Overview; Historic and Archaeological Resources Protection Plan Project. The project tasks included archival research of Battalion Center documents a record search review at the South Central Coastal Information Center, CSU, Fullerton, and a pedestrian field survey. Subsequent to the archival research, architectural documentation of 130 World War II buildings/structures was completed on appropriate Department of Parks and Recreation (DPR) forms. The forms typically included DPR Primary forms for each building or structure although in some instances, e.g., for large non-descript warehouse structures, a representative building was documented and identical buildings were listed on the form as having identical attributes. In addition to the Primary forms, a Building, Structure, Object (BSO) form providing additional descriptive and evaluative information was completed when appropriate. Following the archival research for previously recorded cultural resource sites and the field survey, an archaeological site prediction model was developed for the Battalion Center. Following documentation, a historic context for the Battalion Center was prepared. In addition, each building was assessed for National Register of Historic Places (NRHP) eligibility and a Historic and Archaeological Resources Protection (HARP) Plan was prepared.

H Street Extension Project, Lockheed Missiles and Space Company Property. Served as Project Archaeologist for the H Street Extension Project, Lockheed Missiles and Space Company Project. The project consisted of an extension of H Street within the western portion of the Lockheed Missiles and Space Company facilities. Archaeological efforts were part of mitigation for construction within a National Register listed prehistoric shell mound. The work included pre-construction site testing using various means including shovel and backhoe investigations, surface collection for the entire project area, and a Phase III data recovery program in coordination with the Most Likely Descendant (MLD). Disposition of human remains found within the site was decided upon in agreement with the MLD. A construction-monitoring program was conducted during initial grading activities at the site to ensure protection of previously unknown cultural resources and/or additional human remains. Multi-volume technical reports detailing the cultural resource findings were submitted to the client following the construction monitoring.

Point Molate Historic Resources Assessment Project, Rohnert Park. Served as Project Manager for Naval Fuel Depot Point Molate Historic Resources Assessment Project. Conducted an archival records review at various repositories as well as a record search at the Northwest Information Center in Rohnert Park for previously recorded cultural resource sites. Conducted a field survey and general site reconnaissance of the project area. Subsequent to the archival research and survey, documentation of ten World War II buildings/structures was completed on appropriate Department of Parks and Recreation forms. The buildings and structures were evaluated for eligibility for listing on the National Register of Historic Places. In addition, one prehistoric archaeological site was assessed within the project area. A preliminary Historic and Archeological Resource Protection Plan was prepared evaluating known archeological site locations with maps depicting areas of archaeological sensitivity. A historic context was

prepared for the project area and a technical report detailing all of the research, field survey, building and structure evaluations, and the assessment of the prehistoric site was provided to the client.

Maya Caves Project, Punta Gorda, Belize. Served as Excavation Team Member on the Maya Caves Project, Punta Gorda, Belize (Central America). Worked two field seasons examining prehistoric cave deposits. Conducted surveys and excavations, analyzed and cataloged artifacts, and prepared technical report sections.

Avé Florance
Environmental Analyst

Education
B.S., Environmental Science, California State University East Bay

Professional Registrations
N/A

Professional Affiliations
N/A

Experience Summary

As a recent graduate, Ms. Florance worked as an Intern with Michael Brandman Associates for approximately three months and has worked full time as an Environmental Analyst for one year. In her three months as an Intern, and since she has been hired, she has assisted the Environmental Planner on various projects by performing research, conducting informational interviews, and verifying information for several Environmental Impact Report topical sections. She has performed site visits and photo documentation. She has also worked with the Senior Archeologist conducting historical research for the cultural resources section of several projects. In addition, Ms. Florance has previous experience conducting research concerning bio-accumulation of mercury from the San Francisco Bay, and has over twenty five years of work experience.

Recent Project Experience

Heritage Oaks Subdivision, Aromas, California. Ms. Florance assisted the Environmental Planner in preparing the Draft Environmental Impact Report by conducting research, phone interviews, and verifying information for the Public Services and Utilities topical section.

Claybank Adult Detention Facility Expansion Project, Fairfield, Solano County, California. Ms. Florance assisted the Environmental Planner in preparing the Draft Environmental Impact Report by conducting research and phone interviews for the Public Services and Utilities topical section. She also toured the site, took photos, and documented land use in the surrounding area. In addition, she conducted informational interviews with correctional officers that were present the day of the tour. She also assisted in proof reading and verifying information for various topical sections of the report.

Merced Gateway Park, Merced, California. Assisted the Senior Archeologist with the Draft Environmental Impact Report by conducting research, phone interviews, and verifying information, for the Historical portion of the Cultural Resources topical section.

Commons at Madera Fair, Madera, California. Ms. Florance assisted the Environmental Planner in preparing the Draft Environmental Impact Report by conducting research, phone interviews, and verifying information for the Public Services and Utilities topical section. In addition, she conducted research and verified information for the Hydrology section.

Walters Road West Commercial Project, City of Suisun City, California. Ms. Florance assisted the Environmental Planner in preparing the Draft Environmental Impact Report by conducting research, and working on various sections of the report. She also toured the site, took photos, and documented land use in the surrounding area.

Santa Teresa Initial Study, San José, California. Ms. Florance assisted the Environmental Planner in preparing the Initial Study by conducting research, and writing various sections of the report.

Northpointe Project Tiered Initial Study, San José, California. Ms. Florance is currently assisting the Environmental Planner in preparing the Draft Tiered Initial Study by conducting research, corresponding with project engineers and City Departments, writing various sections of the report, and responding to comments.

Baypointe Parkway Project Tiered Initial Study, San José, California. Ms. Florance is currently assisting the Environmental Planner in preparing the Draft Tiered Initial Study by conducting research, and writing various sections of the report.

Santa Clara Valley Water District's Calero/Fellows Dike Utility Study. Ms. Florance is currently assisting the Senior Archeologist in preparing a Feasibility Study for the relocation of historic structures. Ms. Florance conducted the kick-off meeting for the project; she has also assisted in coordinating project details with sub-contractors, and the Santa Clara Valley Water District.

Appendix C: Regulatory Framework

REGULATORY FRAMEWORK

Government agencies, including federal, state, and local agencies, have developed laws and regulations designed to protect significant cultural resources that may be affected by projects regulated, funded, or undertaken by the agency. Federal and state laws that govern the preservation of historic and archaeological resources of national, state, regional, and local significance include the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and the California Environmental Quality Act (CEQA). In addition, laws specific to work conducted on federal lands includes the Archaeological Resources Protection Act (ARPA), the American Antiquities Act, and the Native American Graves Protection and Repatriation Act (NAGPRA).

The following federal or CEQA criteria were used to evaluate the significance of potential impacts on cultural resources for the proposed Project. An impact would be considered significant if it would affect a resource eligible for listing to the National Register of Historic Places (NRHP), the California Register of Historical Resources (CR), or if it is identified as a unique archaeological resource.

Federal-Level Evaluations

Federal agencies are required to consider the effects of their actions on historic properties and affords the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings under NEPA § 106. Federal agencies are responsible for initiating NEPA § 106 review and completing the steps in the process that are outlined in the regulations. They must determine if NHPA § 106 applies to a given Project and, if so, initiate review in consultation with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO). Federal agencies are also responsible for involving the public and other interested parties. Furthermore, NHPA S106 requires that any federal or federally assisted undertaking, or any undertaking requiring federal licensing or permitting, consider the effect of the action on historic properties listed in or eligible for the NRHP. Under the Code of Federal Regulations (CFR), 36 CFR Part 800.8, federal agencies are specifically encouraged to coordinate compliance with NEPA § 106 and the NEPA process. The implementing regulations "Protection of Historic Properties" are found in 36 CFR Part 800. Resource eligibility for listing on the NRHP is detailed in 36 CFR Part 63 and the criteria for resource evaluation are found in 36 CFR Part 60.4 [a-d].

The NHPA established the NRHP as the official federal list for cultural resources that are considered important for their historical significance at the local, state, or national level. To be determined eligible for listing in the NRHP, properties must meet specific criteria for historic significance and possess certain levels of integrity of form, location, and setting. The criteria for listing on the NRHP are significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting,

materials, workmanship, feeling, and association. In addition, a resource must meet one or all of these eligibility criteria:

A. Is associated with events that have made a significant contribution to the broad patterns of our history

B. Is associated with the lives of persons significant in our past

C. Embodies the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction

D. That have yielded, or may be likely to yield, information important in prehistory or history

Criterion D is usually reserved for archaeological resources. Eligible properties must meet at least one of the criteria and exhibit integrity, measured by the degree to which the resource retains its historical properties and conveys its historical character.

Criteria Considerations

Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, buildings that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the NRHP. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

A. A religious property deriving primary significance from architectural or artistic distinction or historical importance

B. A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event

C. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life

D. A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events

E. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived

F. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance

G. A property achieving significance within the past 50 years if it is of exceptional importance

Thresholds of Significance

In consultation with the SHPO/THPO and other entities that attach religious and cultural significance to identified historic properties, the Agency shall apply the criteria of adverse effect to historic properties within the Area of Potential Effect (APE). The Agency official shall consider the views of consulting parties and the public when considering adverse effects.

Federal Criteria of Adverse Effects

Under federal regulations, 36 Code of Federal Regulations (CFR) Part 800.5, an adverse effect is found when an undertaking alters, directly or indirectly, any of the characteristics of a historic property that qualifies the property for inclusion in the NRHP in a manner that diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration will be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for listing in the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

Pursuant to 36 CFR Part 800.5, adverse effects on historic properties include, but are not limited to, those listed below:

- Physical destruction of or damage to all or part of the property
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties in accordance with 36 CFR Part 68 and applicable guidelines
- Removal of the property from its historic location
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization

- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long term preservation of the property's historic significance

If Adverse Effects Are Found

If adverse effects are found, the agency official shall continue consultation as stipulated at 36 CFR Part 800.6. The agency official shall consult with the SHPO/THPO and other consulting parties to develop alternatives to the undertaking that could avoid, minimize, or mitigate adverse effects to historic resources. Pursuant to 36 CFR Part 800.14(d), if adverse effects cannot be avoided then standard treatments established by the ACHP maybe used as a basis for Memorandum of Agreement (MOA).

Pursuant to 36 CFR Part 800.11(e) the filing of an approved MOA, and appropriate documentation as specified at, concludes the § 106 process. The MOA must be signed by all consulting parties and approved by the ACHP prior to construction activities. If no adverse affects are found and the SHPO/THPO or the ACHP do not object within 30 days of receipt, the agencies responsibilities under § 106 will be satisfied upon completion of report and documentation as stipulated in 36 CFR Part 800.11. The information must be made available for public review upon request, excluding information covered by confidentiality provisions.

State-Level Evaluation Processes

An archaeological site may be considered a historical resource if it is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California in accordance with Public Resources Code PRC § 5020.1(j) or if it meets the criteria for listing on the CR that are consistent with California Code of Regulations (CCR) at Title 14 CCR § 4850.

The most recent amendments to the CEQA guidelines direct lead agencies to first evaluate an archaeological site to determine if it meets the criteria for listing in the CR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CR, potential adverse impacts to it must be considered, in accordance with PRC §§ 21084.1 and 21083.2(l). If an archaeological site is considered not to be a historical resource, but meets the definition of a "unique archeological resource" as defined in PRC § 21083.2, then it would be treated in accordance with the provisions of that section.

With reference to PRC § 21083.2, each site found within a Project will be evaluated to determine if it is a unique archaeological resource. A unique archaeological resource is described as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person

As used in this report, "non-unique archaeological resource" means an archaeological artifact, object, or site that does not meet the criteria for eligibility for listing on the CR, as noted in subdivision (g) of PRC § 21083.2. A non-unique archaeological resource requires no further consideration, other than simple recording of its components and features. Isolated artifacts are typically considered non-unique archaeological resources. Historic structures that have had their superstructures demolished or removed can be considered historic archaeological sites and are evaluated following the processes used for prehistoric sites. Finally, OHP recognizes an age threshold of 45 years. Cultural resources built less than 45 years ago may qualify for consideration, but only under the most extraordinary circumstances.

Title 14, CCR, Chapter 3 § 15064.5 is associated with determining the significance of impacts to archaeological and historical resources. Here, the term historical resource includes the following:

1. A resource listed in, or determined eligible by the State Historical Resources Commission, for listing in the CR (PRC § 5024.1; Title 14 CCR, § 4850, et seq.).
2. A resource included in a local register of historical resources, as defined in PRC § 5020.1(k) or identified as significant in an historical resource survey meeting the PRC § 5024.1(g) requirements, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript, which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be historically significant if the resource meets the criteria for listing on the California Register of Historical Resources (PRC § 5024.1; Title 14 CCR § 4852) including the following:
    A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
    B. Is associated with the lives of persons important in our past

C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

D. Has yielded, or may be likely to yield, information important in prehistory or history

Typically, archaeological sites exhibiting significant features qualify for the CR under Criterion D because such features have information important to the prehistory of California. A lead agency may determine that a resource may be a historical resource as defined in PRC §§ 5020.1(j) or 5024.1 even if it is:

- Not listed in or determined to be eligible for listing in the CR
- Not included in a local register of historical resources pursuant to PRC § 5020.1(k)
- Identified in an historical resources survey per PRC § 5024.1(g)

Threshold of Significance

If a Project will have a significant impact on a cultural resource, several steps must be taken to determine if the cultural resource is a "unique archaeological resource" under CEQA. If analysis and/or testing determine that the resource is a unique archaeological resource and therefore subject to mitigation prior to development, a threshold of significance should be developed. The threshold of significance is a point where the qualities of significance are defined and the resource is determined to be unique under CEQA. A significant impact is regarded as the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource will be reduced to a point that it no longer meets the significance criteria. Should analysis indicate that Project development will destroy the unique elements of a resource; the impacts to the resource must be mitigated for under CEQA regulations. The preferred form of mitigation is to preserve the resource in-place, in an undisturbed state. However, as that is not always possible or feasible, appropriate mitigation measures may include, but are not limited to:

1. Planning construction to avoid the resource
2. Deeding conservation easements
3. Capping the site prior to construction

If a resource is determined to be a "non-unique archaeological resource," no further consideration of the resource by the lead agency is necessary.

SB 18 TRIBAL CONSULTATION

The following serves as an overview of the procedures and timeframes for the Tribal Consultation process, for the complete Tribal Consultation Guidelines, please refer to the State of California Office of Planning and Research website.

Prior to the amendment or adoption of general or specific plans, local governments must notify the appropriate tribes of the opportunity to conduct consultation for the purpose of preserving or mitigating impacts to cultural places located on land within the local government's jurisdiction that is affected by the plan adoption or amendment. Tribal contacts for this list are maintained by the NAHC and is distinct from the Most Likely Descendent (MLD) list. It is suggested that local governments send written notice by certified mail with return receipt requested. The tribes have 90 days from the date they receive notification to request consultation. In addition, prior to adoption or amendment of a general or specific plan, local government must refer the proposed action to tribes on the NAHC list that have traditional lands located within the city or county's jurisdiction. Notice must be sent regardless of prior consultation. The referral must allow a 45-day comment period.

In brief, notices from government to the tribes should include:

- A clear statement of purpose
- A description of the proposed General or Specific Plan, or amendment, the reason for the proposal, and the specific geographic areas affected
- Detailed maps to accompany the description
- Deadline date for the tribes to respond
- Government representative(s) contact information
- Contact information for Project proponent/applicant, if applicable

The basic schedule for this process is:

- 30 days - time NAHC has to provide tribal contact information to the local government; this is recommended not mandatory.
- 90 days - time tribe has to respond indicating whether they want to consult. Tribes can agree to a shorter timeframe. In addition, consultation does not begin until/unless requested by the tribe within 90 days of receiving notice of the opportunity to consult. The consultation period, if requested, is open-ended. The tribes and local governments can discuss issues for as long as necessary, or productive, and need not result in agreement.
- 45 days - time local government has to refer proposed action, such as adoption or amendment to General Plan or Specific Plan, to agencies, including the tribes. Referral required even if there has been prior consultation. This opens the 45-day comment period.
- 10 days - time local government has to provide tribes of notice of public hearing.

Appendix D: Project Area Photographs

Photograph 1: Previous location of Diamond Springs Lime Plant. Facing northeast.

Photograph 2: Example of dense vegetation and trees. Facing southwest.

Photograph 3: View of steep hills within the Project. Facing northeast.

Photograph 4: Example of SR-49 roadway with steep bank. Facing east.

Source: Michael Brandman Associates, 2009.

Appendix G:
Geotechnical Engineering Study

GEOTECHNICAL ENGINEERING STUDY
for
DIAMOND DORADO COMMERCIAL CENTER
HWY 49 and (future) DIAMOND SPRINGS PKWY
Placerville, California

Project No. E08072.000
June 2008

YOUNGDAHL CONSULTING GROUP, INC.
EXPERIENCE & INTEGRITY YOU CAN BUILD ON
1234 Glenhaven Court, El Dorado Hills, CA 95762
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www.youngdahl.net

Project No. E08072.000
9 June 2008

GGV Missouri Flat, LLC
4330 Golden Center Drive, Suite D
Placerville, CA 95667

Attention: Mr. Leonard Grado

Subject: **DIAMOND DORADO COMMERCIAL CENTER**
HWY 49 and (future) DIAMOND SPRINGS PKWY
Placerville, California
GEOTECHNICAL ENGINEERING STUDY

References: (see page 24)

Dear Mr. Grado:

In accordance with your authorization, Youngdahl Consulting Group, Inc. has performed a geotechnical engineering study for the project site located on the northwest side of Highway 49 and Lime Kiln Road in Placerville, California. The purpose of this study was to explore and evaluate the surface and subsurface soil conditions at the site and to develop geotechnical information and design criteria for the proposed project. Our scope was limited to a subsurface investigation, laboratory testing, and preparation of this report per our proposal dated 13 March 2008.

Based upon our field study, subsurface exploration program, laboratory testing and engineering analysis, we believe the primary geotechnical issues to be addressed consist of overexcavation of existing unsuitable materials, non-engineered fills and fill stockpiles, the potential for perched groundwater conditions and/or seepage through bedrock fractures, and the potential for moderately corrosive soils. Other geotechnical issues may become more apparent during mass grading operations which are not listed above. The descriptions, findings, conclusions and recommendations provided in this report are formulated as a whole, and specific conclusions or recommendations should not be derived or used out of context. Please review the limitations and uniformity of conditions section of this report.

This report has been prepared for the exclusive use of GGV Missouri Flat, LLC and their consultants, for specific application to this project, in accordance with generally accepted geotechnical engineering practice. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

Reviewed by:

Brandon K. Shimizu, P.E., G.E.
Senior Engineer

John Youngdahl, P.E.
Principal Engineer

Distribution: (4) to Client

TABLE OF CONTENTS

GEOTECHNICAL ENGINEERING STUDY
for
DIAMOND DORADO COMMERCIAL CENTER

1.0 INTRODUCTION

This report presents the results of our Geotechnical Engineering Study performed for the proposed commercial center planned to be constructed on the northwest side of Highway 49 and Lime Kiln Road in Diamond Springs, California. Refer to Figure A-1 for a vicinity map for the project site.

Purpose and Scope

The purpose of this study was to explore and evaluate the surface and subsurface conditions at the site and to develop geotechnical information and design criteria for the proposed project. The scope of this study includes the following:

- A review of geotechnical and geologic data available to us at the time of our study.
- A field study consisting of a visual site reconnaissance, followed by an exploratory test pit and boring program to characterize the subsurface conditions.
- A laboratory testing program performed on representative samples collected during our field study.
- Engineering analysis of the data and information obtained from our field study, laboratory testing, and literature review. Development of recommendations for site preparation and grading, and geotechnical design criteria for foundations, slabs on grade, retaining structures, underground facilities, and pavements.
- Preparation of this report summarizing our findings, conclusions, and recommendations regarding the geotechnical aspects for the project.

2.0 PROJECT UNDERSTANDING

Based on the proposed layout plans provided by CTA Engineering – Surveying, dated March 2008, proposed construction is expected to include 11 one to two-story commercial/retail buildings ranging in size from 4,000 to 170,600 square feet and a fuel station, along with associated driveways, parking pavements and underground utilities. The structures are expected to be of wood or steel frame, concrete masonry unit (CMU) or concrete tilt-up panel construction, supported by conventional shallow foundations and concrete slab-on-grade floors.

Based on a review of the preliminary grading plans, cuts on the order of 40 feet or less and fills on the order of 25 feet or less are proposed. We understand that the excess materials will be exported for construction of the proposed Diamond Springs Parkway.

Background

Review of available information, including aerial photos, indicates that generally the western half of the project site was used as a lime production plant, with sludge settling ponds situated throughout the area. This activity began prior to 1935, and continued through at least 1977. Some elements of the facility were observed during our field investigation. Currently, the Western El Dorado County Materials Recovery Facility resides at the southwest corner of the project site. The eastern half of the project site was graded beginning in the 1970s to include approximately four large terraced lots which currently remain on the site.

A review of available documentation (Reference Nos. 6 and 7) indicate that the grading operations for the Materials Recycling Facility (MRF) occurred in the early 1980's. Grading operations included overexcavation of existing non-engineered fill materials and sludge, and restoration of grades with engineered fill.

If studies or plans exist that pertain to the site which are not cited as a reference in this report, we should be afforded the opportunity to review and modify our conclusions and recommendations as necessary.

3.0 FINDINGS

Surface Observations

The project site is located on the northwest corner of Highway 49 and Lime Kiln Road in Diamond Springs, California. Currently, the site is intersected by Throwita Way, Lime Plant Road and Dimetrics Way, and contains the Western El Dorado County Materials Recovery Facility, around which Dimetrics Way serves as an access road. The site covers approximately 33 acres and is roughly rectangular in shape. Highway 49 bounds the site to the east, with Lime Kiln Road to the southeast. Rural residential and undeveloped land exists beyond these boundaries. The west boundary runs along a natural drainage swale, with commercial development beyond. The southwestern site boundary is coincident with the southwestern boundary of the MRF site, separating it from undeveloped land. The northern boundary trends east-west, passing through the former lime plant property, then eastward across Throwita Way, continuing just to the south of Elisa Court, then across the aforementioned large terraced lots to Highway 49. This northern boundary will front the proposed Diamond Springs Parkway.

The high point on the property is the north corner of Lime Kiln and Lime Plant Roads. From there, the property generally slopes and drains northward and westward for a total relief of approximately 66 feet. The western half of the site drains into a swale leading northward through the former lime plant site and off the property at its low point. The eastern half of the property drains northwestward into a small drainage flowing northward along the east side of Throwita Way. Existing structures on the property are primarily those associated with the MRF in the southwestern portion of the site. Those include the main MRF building, its entrance gate kiosk and truck scale, and surrounding pavements and retaining walls. Another structure, a single story, wood frame, maintenance-type building, sits near the northern end of Lime Plant Road, on its east side. Vegetation is generally limited to the slopes between terraced lots, and the unmitigated, northern portion of the former lime plant site. Native slopes support a heavy growth of oak trees and native bushes and weeds. The former lime plant site contains lush grasses, weeds, willows and blackberry bushes in the lower drainage area, and sparse grasses and weeds on some slopes. Other portions of the lime plant site have no vegetation on debris piles and exposed lime areas.

Subsurface Conditions

Our field study included a site reconnaissance by a Youngdahl Consulting Group, Inc. representative followed by a subsurface exploration program conducted on 2 April 2008, which included the excavation of 9 test pits and advancing of 6 exploratory borings at the approximate locations shown on Figure A-2, Appendix A. A description of the field exploration is provided in Appendix A.

Excavation of the test pits encountered varying conditions. Test Pits TP-1 and TP-2 were excavated in the western half of the project site. Test Pit TP-1 encountered silty SAND FILL in a loose to medium dense and moist condition from the surface to depths approaching 6 feet. Underlying the fill materials, we encountered a "sludge" type material in a loose and saturated

condition to depths approaching 10 feet. Underlying the sludge, we encountered a bedrock contact (limestone?) which was completely immersed in the groundwater seepage. Test Pit TP-2 encountered a silty SAND FILL with aggregate and limestone in a loose and moist condition to depths approaching 2 feet. Underlying the surface fills in Test Pit TP-2, we encountered a highly weathered to moderately weathered bedrock. Test Pits TP-3 through TP-9 were excavated in the eastern half of the project site. Test Pits TP-3 through TP-5 encountered similar conditions; silty SAND with cobble in a medium dense to dense, variably cemented and moist condition was encountered for the entire depth explored. Test Pits TP-6 through TP-9 encountered relatively similar conditions. These test pits encountered clayey SAND FILL in a medium dense and moist condition from the surface to depths approaching 1 to 4 feet. Underlying the FILLS in TP-8, clayey SAND with cobble in a medium dense and moist condition was encountered to depths approaching 3 feet below the surface. Underlying the clayey SANDS in Test Pits TP-6 through TP-8, silty SAND with cobble in a medium dense, variably cemented and moist condition was encountered to depths approaching 14 feet below the surface. Moderately weathered bedrock was encountered below the SANDS in Test Pit TP-8. Test Pit TP-9 encountered conditions which may be associated with the historic lime quarry activities on the site. Test TP-9 encountered clayey SAND FILL in a medium dense and moist condition to depths approaching 2 feet. Underlying the clayey SANDS, a weak layer of concrete was encountered from 2 to 3 feet below the surface. Underlying the concrete layer, a white/grey brown “sludge” was encountered to approximately 11 feet below the surface. Below the sludge, highly weathered BEDROCK was encountered to the maximum depth of exploration.

Boring B-1 encountered surface FILL soils composed of silty SAND and sandy GRAVEL in a very loose to loose and slightly moist to saturated condition to a depth of 13.5 feet. Perched groundwater was noted at a depth of approximately 8 feet. Intensely weathered granitic BEDROCK was encountered at 13.5 feet and graded to moderately weathered at 18 feet where practical auger refusal was encountered. Boring B-2 encountered surface FILL soils composed of silty SAND with construction debris in a loose and dry condition to a depth of 3 feet. Completely weathered metamorphic BEDROCK was encountered at 3 feet and graded to highly to moderately weathered at 10.5 feet where the boring was terminated. Boring B-3 encountered surface FILL soils composed of silty SAND in a loose and slightly moist condition to a depth of 3 feet. From 3 feet to 7 feet, we encountered gray SILT in a very stiff to hard and slightly moist condition, believed to be lime “sludge”. Completely to intensely weathered metamorphic BEDROCK was encountered at 7 feet and graded to highly to moderately weathered at 11.5 feet where the boring was terminated. Borings B-4 and B-5 encountered moderately to completely weathered metamorphic BEDROCK immediately beneath the asphalt concrete and gravel surfacing materials. Boring B-4 was terminated at 10 feet, and B-5 encountered practical auger refusal at 4.5 feet. Boring B-6 encountered surface FILL soils composed of silty SAND in a loose and slightly moist condition to a depth of 4 feet. Highly weathered metamorphic BEDROCK was encountered at 4 feet and graded to moderately weathered at 6.5 feet where the boring was terminated due to practical auger refusal.

A more detailed description of the subsurface conditions encountered is presented graphically on the "Exploratory Boring and Test Pit Logs", Figures A-3 through A17, presented in Appendix A. These logs show a graphic interpretation of the subsurface profile and the location and depths at which samples were collected.

Groundwater Conditions

Groundwater was generally not encountered during our explorations except for a perched zone overlying the bedrock in Boring B-1 and the sludge in Test Pit TP-1. Subsurface water conditions typically vary in the foothill region. Our experience in the area shows that water may

be perched on less weathered rock, and present in the fractures of more weathered rock, such as that found beneath the site, at varying times of the year.

Laboratory Testing
The laboratory testing of collected samples was directed towards determining the physical and engineering properties of the soil underlying the site. A description of the tests performed and their results are presented in Appendix B. The following tests were performed:

- Dry Density and Soil Moisture (ASTM 2937);
- Maximum Dry Density (ASTM D1557);
- Direct Shear (ASTM D3080);
- R-Value tests (California Test Method 301 – F, ASTM D2844);
- Corrosivity Suite (CA DOT Test #'s 417, 422 and 643).

Soil Expansion Potential
The materials encountered in our explorations are non-plastic materials which are considered to be relatively non-expansive. We do not anticipate that special design considerations for expansive soils will need to be addressed for the design or construction of the proposed improvements. If expansive soils are encountered which were not disclosed during our study, recommendations can be made at that time based on our observations.

Soil Corrosivity
Soil pH, resistivity, sulfate and chloride content were performed on selected soil samples. We are not corrosion specialists and recommend that the results be evaluated by a qualified corrosion expert. The test results are attached in Appendix B. Laboratory results for the soils indicative of materials typically encountered near surface are as follows:

Corrosivity Summary

Location	*Depth (ft)*	*Soil pH*	*Minimum Resistivity ohm-cm (x1000)*	*Chloride (ppm)*	*Sulfate (ppm)*
BK1, TP-2	0-5	6.98	3.48	10.8	22.5
BK2, TP-3	0-5	6.89	1.18	12.2	19.3
BK3 (Lime), TP-9	0-5	11.89	0.32	72.4	424.5
B-3	5.5-6.0	6.58	1.61	6.6	4.0

According to CalTrans Corrosion Guidelines Version 1.0, September 2003, the test results appear to indicate a potentially corrosive environment (if the lime enriched soils are encountered). A certified corrosion engineer should be consulted for specific mitigation recommendations if metallic pipes or structural elements are designed to be in contact with or buried in soil. *According to the 2007 California Building Code Chapter 19 Section 1904.3 and ACI 318 Table 4.3.1, the test results indicate the onsite lime enriched soils have a moderate potential for sulfide attack of concrete. In accordance with ACI 318 Table 4.3.1, concrete constructed within these soils shall have a minimum water/cement ratio of 0.50 and minimum compressive strength of 4,000 psi. Selection of the appropriate concrete type within any lime enriched soils should account for the elevated sulfate levels and remains the purview of the project Structural Engineer.*

Geologic Conditions
The geologic portion of this report included a review of geologic data pertinent to the site, and an interpretation of our observations and the Logs of Exploratory Borings drilled and Test Pits excavated during the field study. The site is located in the Sierra Foothills region of the Sierra Nevada Mountain Range. According to the 1:48,000 scale General Geology of the Placerville 15 - Minute Quadrangle, the project site is underlain by Mesozoic granitic rocks and Jurassic volcanic and metavolcanic rocks (Loyd, 1982).

According to the Fault Activity Map of California and Adjacent Areas (Jennings, 1994) and the Peak Acceleration from Maximum Credible Earthquakes in California (CDMG, 1992), no active faults or Earthquake Fault Zones (Special Studies Zones) are located on the project site. No evidence of recent or active faulting was observed during our field study. The nearest mapped faults to the site are related to the Bear Mountains and Melones Fault Zones located about 3.5 miles (6 kilometers) and one mile (2 kilometers) to the west and east of the site, respectively. The nearest known active faults to the site are the North Tahoe fault located approximately 48 miles (77 kilometers) northeast of the site and the Dunnigan Hills fault located approximately 55 miles (88 kilometers) west-northwest.

Naturally Occurring Asbestos
Asbestos is classified by the EPA as a known human carcinogen. Naturally occurring asbestos (NOA) has been identified as a potential health hazard. The California Geological Survey published a map in 2000 (Open File Report 2000-02) that qualitatively indicates the likelihood for NOA in western El Dorado County. El Dorado County has adapted the map from Open File Report 2000-02 into an asbestos review map. All projects within asbestos management areas and their ¼-mile buffers, or in proximity to the new discoveries periodically added to the map, are subject to special dust control and asbestos mitigation requirements. This project is not in an asbestos review area.

Seismicity
Based on our literature review of shear-wave velocity characteristics of geologic units in California (Wills and Silva; August 1998: Earthquake Spectra, Volume 14, No. 3) and subsurface interpretations, we recommend that the project be designed in accordance with the 2007 California Building Code (CBC), Chapter 16. This site is classified as Site Class C in accordance with Table 1613.5.2.

Liquefaction, Slope Instability and Surface Rupture Potential
Liquefaction is the sudden loss of soil shear strength and sudden increase in porewater pressure caused by shear strains, as could result from an earthquake. Research has shown that saturated, loose to medium-dense sands with a silt content less than about 25 percent located within the top 40 feet are most susceptible to liquefaction and surface rupture/lateral spreading. Slope instability can occur as a result of seismic ground motions and/or in combination with weak soils and saturated conditions.

Due to the absence of a permanent elevated groundwater table, the relatively shallow depth to bedrock, and the relatively low seismicity of the area, the potential for damage due to site liquefaction, slope instability and surface rupture are considered negligible. For the above-mentioned reasons, mitigation for these potential hazards is not anticipated in the geographic region of the project site.

Seismic Refraction Survey
Seismic lines (see attached Seismic Rippability Survey prepared by Gasch & Associates, Inc.: Appendix C) and test pit excavations performed at the project site give an indication of the

amount of effort that may be required for excavation during construction in the deepest proposed cut location. A total of 2 seismic lines were conducted within the proposed location of the southeasternmost building, where cuts on the order of 40 feet are anticipated. A standard impact hammer/plate with trip sensor was employed to generate seismic signals within the proposed cut area.

The study compiled in the attached report was conducted with state-of-the-technology geophysical equipment operated by an experienced geophysical team, familiar with the local geology and the typical engineering characteristics of the local metavolcanic and granitic bedrock. While every attempt has been made to provide accuracy and reliability to the findings submitted, readers and users of the attached report must keep in mind that the profiles and estimated depths to non-rippable rock are professional interpretations based on experience and familiarity with the equipment and software used. As such, site-specific conditions may be encountered on a localized basis that differ from the professional interpretations expressed in this engineering geologic evaluation and the geophysicists' attached seismic refraction rippability report.

4.0 RECOMMENDATIONS

General
Based upon the results of our field explorations and analysis, it is our opinion that construction of the proposed improvements is feasible from a geotechnical standpoint, provided the recommendations contained in this report are incorporated into the design plans and implemented during construction. The native soils, rock, and/or engineered fills composed of like materials and processed and compacted as recommended below are considered suitable for support of the planned improvements. The existing non-engineered fills, fill stockpiles and lime sludge materials are relatively loose and are not considered suitable for support of the proposed improvements in their current condition. Recommendations are presented below for the overexcavation, processing and recompaction of the existing materials on the site.

4.1 SITE GRADING AND IMPROVEMENTS

Site Preparation
Preparation of the project site should involve demolition, site drainage controls, dust control, clearing, stripping, existing fills, and exposed grade compaction considerations. The following paragraphs state our geotechnical comments and recommendations concerning site preparation.

Demolition: As part of the demolition operation, all foundation and structural improvement elements should be exhumed and removed from the site. In addition, any underground storage tanks, abandoned wells or other utilities not intended for reuse should be removed or backfilled in accordance with the appropriate regulations.

Concrete and asphalt separated from the other debris, and adequately broken down in particle size, may be mixed thoroughly with native soils and placed as engineered fill as described below. If this option is exercised, a representative from our firm should be contacted to observe the adequacy of grading operations associated with the breaking and mixing of these elements.

Site Drainage Controls: We recommend that initial site preparation involve intercepting and diverting any potential sources of surface or near-surface water within the construction zones. Because the selection of an appropriate drainage system will depend on the water quantity, season, weather conditions, construction sequence, and contractor's methods, final decisions

regarding drainage systems are best made in the field at the time of construction. All drainage and/or water diversion performed for the site should be in accordance with the Clean Water Act and applicable Storm Water Pollution Prevention Plan.

Swales and natural hillside drainage proposed to receive engineered fill may require the installation of a canyon style drain. Close coordination between the design professionals for placement and discharge of canyon style drains should be performed.

Dust Control: Dust control provisions should be provided for as required by the local jurisdiction's grading ordinance (i.e. water truck or other adequate water supply during grading).

Clearing and Stripping: Clearing and stripping operations should remove all organic laden materials including trees, bushes, root balls, root systems, and any soft or loose material generated from removal operations. Surface grass stripping operations may be necessary in some areas depending upon the in-situ conditions at the time of mass grading. Short or mowed dry grasses may be pulverized and lost within fill materials provided no concentrated pockets of organics result. It is the responsibility of the grading contractor to remove excess organics from the fill materials. No more than 2 percent of organic material, by weight, should be allowed within the fill materials at any given location.

General site clearing should also include removal of any loose or saturated materials from the proposed structural improvement and pavement areas. A representative of our firm should be present during site clearing operations to identify the location and depth of potential fills not disclosed by this report, to observe removal of deleterious materials, and to identify any existing site conditions which may require mitigation prior to site development.

Addressing Existing Fills: Following general site clearing, all existing non-engineered fills and fill stockpiles should be over-excavated down to firm native or engineered fill materials. Reference should be made to the site description, test pit and boring logs for anticipated fill locations.

During the overexcavation procedures, any lime sludge material encountered may be mixed with on-site soil and rock materials and placed as engineered fill provided that these materials are sufficiently blended to mitigate the corrosion potential. Additional corrosivity testing may be required to evaluate the sulfate content if these blended materials are present near finished grade. It should be noted that, during our subsurface exploration procedure, sludge materials were encountered within Test Pit TP-9, which is located outside of the previously mapped sludge areas (Terrasearch 1980). As such, additional mitigation of these materials beyond the limits shown of Figure A-2, should be anticipated.

Any depressions extending below final grade resulting from the removal of fill materials or other deleterious materials should be properly prepared as discussed below and backfilled with engineered fill. Prior to placement of engineered fill, the exposed soil surfaces receiving fills should be scarified to a minimum depth of 12 inches, moisture conditioned as necessary, and compacted to at least 90 percent of the maximum dry density based on the ASTM D1557 test method. Additionally, test pits should be re-excavated and backfilled with engineered fill.

Exposed Grade Compaction: Exposed soil grades following initial site preparation activities should be scarified to a minimum depth of 12 inches and compacted to the requirements for engineered fill. Prior to placing fill, the exposed subgrades should be in a firm, unyielding state. Any localized zones of soft or pumping soils observed within a subgrade should either be scarified and recompacted or be overexcavated and replaced with engineered fill as detailed in the engineered fill section below.

Soil Moisture Considerations
The near-surface fine grained soils may become partially or completely saturated during the rainy season. Grading operations during this time period may be difficult since compaction efforts may be hampered by saturated materials. It is, therefore, suggested that consideration be given to the seasonal limitations and costs of winter grading operations on the site. Special attention should be given regarding the drainage of the project site. If the project is expected to work through the wet season, the contractor should install appropriate temporary drainage systems at the construction site and should minimize traffic over exposed subgrades due to the moisture-sensitive nature of the on-site soils. During wet weather operations, the soil should be graded to drain and should be sealed by rubber tire rolling to minimize water infiltration.

Excavation Characteristics
The test pits were excavated using a CASE 580 Super M backhoe equipped with an 18 inch wide bucket. The degree of difficulty encountered in excavating our test pits is an indication of the effort that will be required for excavation during construction. Based on our test pits, we expect that the site soils can be excavated using conventional earthmoving equipment such as a Caterpillar D6 to D8 for mass grading and rubber tired backhoe for trench excavations.

We expect that the upper, weathered portion of the rock, will require use of a Caterpillar D8 equipped with single or multiple shank rippers, or similar equipment. We anticipate that a ripper equipped D8 can penetrate at least as deep as our test pits at most locations with moderate effort. Excavations in general approaching 50 to 60 feet, which represents less weathered rock, will require heavier equipment, such as a D9R or D10R. Drilling and blasting of localized resistant core stones may be necessary during excavation of the deeper cuts to achieve design grade. Reference should be made to the attached seismic refraction study (Appendix C) for additional detail regarding site excavatability.

Where hard rock cuts in fractured rock are proposed, the orientation and direction of ripping will likely play a large role in the rippability of the material. When hard rock is encountered, we should be contacted to provide additional recommendations prior to performing an alternative such as blasting.

Utility trenches will likely encounter hard rock excavation conditions especially in deeper cut areas. Utility contractors should be prepared to use special rock trenching equipment such as large excavators (Komatsu PC400 or CAT 345 or equivalent). Blasting to achieve utility line grades, especially in planned cut areas, cannot be precluded. Water inflow into any excavation approaching hard rock surface is likely to be experienced in all but the driest summer and fall months. Pre-ripping during mass grading may be beneficial and should be considered with the Geotechnical Engineer prior to, or during mass grading.

Engineered Fills
All materials placed as fills on the site should be placed as “Engineered fill" observed and compacted as described in the following paragraphs.

Suitability of On-Site Materials: We anticipate that a large amount of on-site soils will be generated during mass grading operations. We expect that soil generated from excavations on the site, excluding deleterious material, may be used as engineered fill provided the material does not exceed the maximum size specifications listed below.

Rock fragments or boulders exceeding 24 inches in maximum dimension should not be placed within the upper five feet site grades. The upper two feet of site grades should consist of

predominantly rocks and rock fragments less than 12 inches in maximum dimension. The rock fragments should be thoroughly mixed with soil so that a uniform mixture of rocks and compacted soil is obtained without voids. Boulders over 24 inches in maximum dimension should be placed within the deeper portions of fill embankments below a depth of 5 feet and a minimum of 5 feet from the finish slope face. The individual boulders should be spaced such that compaction of finer rock and soil materials between the boulders can be achieved. Materials placed between the boulders should consist of predominantly soil and rock less than 12 inches in maximum dimension. The soil/rock mixture should be placed between the boulders so as to preclude nesting or the formation of voids and compacted to the requirements of engineered fill. Should insufficient deep fill areas exist for oversize rock disposal, contractor should (at their option) either dispose of the excess materials to an offsite location or mechanically reduce the rocks to less than 24 inches in maximum dimension. The contractor should avoid placing rocks or rock fragments larger than 12 inches in maximum dimension within zones of proposed underground facilities.

Fill Placement and Compaction: All areas proposed to receive fill should be scarified to a minimum depth of 12 inches, moisture conditioned as necessary, and compacted to at least 90 percent of the maximum dry density based on the ASTM D1557 test method. The fill should be placed in thin horizontal lifts not to exceed 12 inches in uncompacted thickness. The fill should be moisture conditioned as necessary and compacted to a relative compaction of not less than 90 percent based on the ASTM D1557 test method. The upper 8 inches of fills placed under proposed pavement areas should be compacted to a relative compaction of not less than 95 percent based on the ASTM D1557 test method. Expansive clays, if encountered, should not be placed within the upper three feet of building pad and subgrade level. Alternatively, clays may be mixed thoroughly with less expansive on site materials (silts, sands, and gravels). Proper disposition of clays on site should be verified by a representative of Youngdahl Consulting Group, Inc.

To mitigate the potential for deep fill settlement, all fills placed deeper than 12 feet from finished grade should be compacted to a minimum of 95 percent relative compaction. In addition, to mitigate the effects of differential support conditions, any fill placed within building pads where cut/fill transitions are present and more than 12 feet of fill is present, should have all fill materials within the pad and extending 10 feet beyond the building line, compacted to a minimum of 95 percent relative compaction. The fills should be placed at a minimum of two percent over optimum moisture content.

Fill soil compaction should be verified by means of in-place density tests performed during fill placement so that adequacy of soil compaction efforts may be evaluated as earthwork progresses, or by method specification if the quantity of rock fragments in the fills preclude traditional compaction testing. This will likely include the excavation of test pits within the fill materials to observe and document that a uniform over-optimum moisture condition, and absence of large and/or concentrated voids has been achieved prior to additional fill placement.

Compaction Equipment: In areas to receive structural fill, a Caterpillar 825 steel-wheel compactor, or approved equivalent should be employed as a minimum to facilitate breakdown of oversize bedrock materials and generation of soil fines during the fill placement process. If the quantity of rock fragments in the fills preclude traditional compaction testing, then the proposed fills should be compacted using method specifications as indicated below.

Soils exposed in excavations should be moisture conditioned and compacted in place by a minimum of four completely covering passes with a Caterpillar 825, or approved equivalent. The compactor's last two passes should be at 90 degrees to the initial passes. In areas where

95 percent relative compaction is designated, an additional two passes should be applied, with three completely covering passes made at 90 degrees to the initial three passes. Engineered fill should be constructed in lifts not exceeding 12 inches in uncompacted thickness, moisture conditioned and compacted in accordance with the above specification. Additional passes as deemed necessary during fill placement to achieve the desired condition based upon field conditions may be recommended.

Import Materials: If imported fill material is needed for this project, import material should be approved by the Geotechnical Engineer prior to transporting it to the project. It is preferable that import material meet the following requirements:

1. Plasticity index not to exceed 12.
2. "R"-value of equal to or greater than 25.
3. Should not contain rocks larger than 6 inches in diameter.
4. Not more than 15% passing through the No. 200 sieve.

If these requirements are not met, additional testing and evaluation may be necessary to determine the appropriate design parameters for foundations, pavement and other improvements.

Slope Configuration and Grading
Generally a cut slope orientation of 2H:1V is considered stable with the material types encountered on the site. A fill slope constructed at the same orientation is considered stable if compacted to the engineered fill recommendations as stated in the recommendations section of this report. All slopes should have appropriate drainage and vegetation measures to minimize erosion of slope soils.

Placement of Fills on Slopes: Placement of fill material on natural slopes should be stabilized by means of keyways and benches. Where the slope of the original ground equals or exceeds 5H:1V, a keyway should be constructed at the base of the fill. The keyway should consist of a trench excavated to a depth of at least two feet into firm, competent materials. The keyway trench should be at least eight feet wide or as designated by the Geotechnical Engineer. Benches should be cut into the original slope as the filling operation proceeds. Each bench should consist of a level surface excavated at least six feet horizontally into firm soils or four feet horizontally into rock. The rise between successive benches should not exceed 36 inches. The need for subdrainage should be evaluated at the time of construction.

Slope Face Compaction: All slope fills should be laterally overbuilt and cut back such that the required compaction is achieved at the proposed finish slope face. As a less preferable alternative, the slope face could be track walked or compacted with a wheel. If this second alternative is used, additional slope maintenance may be necessary.

Slope Drainage: Surface drainage should not be allowed to flow uncontrolled over any slope face. Adequate surface drainage control should be designed by the project civil engineer in accordance with the latest applicable edition of the CBC. All slopes should have appropriate drainage and vegetation measures to minimize erosion of slope soils.

Differential Support Conditions
Differential support conditions may be a concern where fills are placed and compacted for construction of a building pad and the proposed building will span from a native to deep fill condition. As detailed in the Engineered Fill Section, in order to mitigate the potential for differential fill settlement, all fills placed within building pads with a cut/fill transition and more

than 12 feet of fill proposed, should have all fills compacted to a minimum of 95 percent as determined by the ASTM D1557 test method. Additional measures to mitigate differential fill settlement could include overexcavation of the cut portion of the building pad and deepening of the foundations.

Underground Improvements

Trench Excavation: Trenches or excavations in soil should be shored or sloped back in accordance with current OSHA regulations prior to persons entering them. Where clay rind in combination with moist conditions is encountered in fractured bedrock, the project engineering geologist should be consulted for appropriate mitigation measures. The potential use of a shield to protect workers cannot be precluded. Refer to the Excavation Characteristics section of Site Grading and Improvements of this report for anticipated excavation conditions.

Backfill Materials: Backfill materials for utilities should conform to the local jurisdiction's requirements. It should be realized that permeable backfill materials will likely carry water at some time in the future.

When backfilling within structural footprints, compacted low permeability materials are recommended to be used a minimum of 5 feet beyond the structural footprint to minimize moisture intrusion. If the materials are too rocky, they may need to be screened prior to backfill in order to limit pipe damage. If a permeable material is used as backfill within this zone, subdrainage mitigation may be required.

A common problem occurs on sites graded with large equipment and rocky fill materials where the excavated spoils from the lot utilities are too rocky to place as engineered fill back in the trench with the common compaction practices employed by the subcontractors installing these utilities. We recommend that where excavated soils are too rocky to place and compact to a tight condition with low void space, these materials be replaced with a proper import material for compaction.

Backfill Compaction: All backfill, placed after the underground facilities have been installed, including wet/dry service utilities and lateral connections, should be compacted a minimum of 90 percent relative compaction. Compaction should be accomplished using lifts which do not exceed 12 inches. However, thickness of the lifts should be determined by the contractor. If the contractor can achieve the required compaction using thicker lifts, the method may be judged acceptable based on field verification by a representative of our firm using standard density testing procedures. Light weight compaction equipment may require thinner lifts to achieve the required densities.

Drainage Considerations: In developments with the potential for a perched groundwater condition (i.e. shallow bedrock), underground utilities can become collection points for subsurface water. When these conditions are present, we recommend permanent subdrainage mitigation measures be installed. Such measures may include plug and drains within the utility trenches to collect and convey water to the storm drain system or other approved outlet. Temporary dewatering measures may be necessary and could include the installation of submersible pumps and/or point wells.

4.2 DESIGN RECOMMENDATIONS

Foundations

In our opinion, shallow spread or continuous footings will provide adequate support for the proposed buildings if the subgrades are properly prepared as described in the Site Grading and

Improvement section. In addition, a drilled pier foundation will provide adequate support for the proposed fueling station canopy. We offer the following comments and recommendations for purposes of footing design and construction. The provided minimums do not constitute a structural design of foundations which should be performed by the structural engineer. Our firm should be afforded the opportunity to review the project grading and foundation plans to confirm the applicability of the recommendations provided below. Modifications to these recommendations may be made at the time of our review. In addition to the provided recommendations, foundation design and construction should conform to applicable sections of the 2007 California Building Code.

Shallow Spread or Continuous Footings

Bearing Capacities: An allowable dead plus live load bearing pressure of 2,500 psf may be used for design of footings based on firm native soils or engineered fills. An allowable dead plus live load bearing pressure of 3,500 psf may be used for design of footings based on weathered bedrock. These capacities are based upon minimum foundation depths of 18 inches below lowest adjacent grade. The above allowable pressures are for support of dead plus live loads and may be increased by 1/3 for short term wind and seismic loads.

A total settlement of less than 1 inch is anticipated; a differential settlement of ½ of the total is anticipated where foundations are bearing on like materials. This settlement is based upon the assumption foundations will be sized in accordance with the provided allowable bearing capacities.

Lateral Pressures: Lateral forces on structures may be resisted by passive pressure acting against the sides of shallow footings and/or friction between the soil and the bottom of the footing. For resistance to lateral loads, a friction factor of 0.32 may be utilized for sliding resistance at the base of spread footings in undisturbed native materials or engineered fill. A passive resistance of 325 pcf equivalent fluid weight may be used against the side of shallow footings in native soil or engineered fill. Foundations constructed within weathered bedrock materials may increase the friction factor to 0.45 and passive resistance to 400 pcf. If friction and passive pressures are combined, the lesser value should be reduced by 50%.

Footing Configuration: Foundation reinforcement should be provided by the structural engineer. The reinforcement schedule should account for typical construction issues such as load consideration, concrete cracking, and the presence of isolated irregularities. At a minimum, we recommend that continuous spread footing foundations be reinforced with four No. 4 reinforcing bars, two located near the bottom of the footing and two near the top of the stem wall.

All footings should be founded below an imaginary 2.5H:1V plane projected up from the bottoms of adjacent footings and/or parallel utility trenches, or to a depth that achieves a minimum horizontal clearance of 6 feet from the outside toe of the footings to the slope face, whichever requires a deeper excavation.

Foundations for the proposed structures should be a minimum of 12 inches in width, and be founded a minimum of 18 inches below the lowest adjacent grade. Isolated pad footings should be a minimum of 24 inches wide.

Subgrade Conditions: Footings should never be cast atop soft, loose, organic, slough, debris, nor atop subgrades covered by ice or standing water. A representative of our firm should be retained to observe all subgrades during footing excavations and prior to concrete placement so that a determination as to the adequacy of subgrade preparation can be made.

Shallow Footing / Stemwall Backfill: All footing/stemwall backfill soil should be compacted to at least 90 percent of the maximum dry density (based on ASTM D1557).

Drilled Pier Foundations

Bearing Capacities: The following pier capacities are estimated based on the following assumptions: 1) 24 inch diameter cast-in-place reinforced concrete piers; and 2) pier excavations a minimum of 10 feet into firm native or engineered fill materials. The axial pier capacities summarized in the table below are for a single pier spaced with a minimum of 3 pier diameters on center. These capacities may be increased by 1/3 for short term wind and seismic loads. For piers spaced at less than 3 diameters on center, additional group capacity reduction effects should be taken into account in evaluating the allowable axial capacity of the pile groups.

Axial Pier Capacity
Drilled Cast-In-Place Concrete Piers

Pier Length (feet)	Allowable Axial Bearing Capacity (kips)	Allowable Uplift Capacity* (kips)
10	12	3.5

Note: * Self weight of pier is included.

Other pier sizes and/or configurations may be used. Additional parameters can be provided upon request if alternate pier configurations are proposed.

Construction Considerations

Precautions should be taken during pier excavations to reduce caving and raveling. The following recommendations are presented and should be followed where applicable.

- Pier excavations should be filled with concrete as soon as possible following drilling. Pier excavations should not be left open for extended periods of time.
- In the event of caving or water seepage into the pier excavation, casing may be required. Casing may be pulled as the pier excavation is filled with concrete. The use of "wet" construction, such as "super-mud", is not recommended.
- Concrete should be placed and vibrated throughout the full length of the pier so that voids do not exist in either the pier base or the shaft. Placement procedures, such as tremie, should be used so that the concrete is not allowed to fall freely more than 5 feet and to prevent the concrete from striking the walls of the excavations and possibly causing caving.
- Where the drilling operation might affect the concrete in an adjacent pier (i.e., where pier spacing is less than 3 diameters), drilling should not be carried out before the previously poured pier concrete has set for at least 24 hours.

Seismic Criteria

Based on the 2007 California Building Code, Chapter 16, and our previous site investigation findings, the following seismic parameters are recommended from a geotechnical perspective for structural design. The final choice of design parameters, however, remains the purview of the project structural engineer.

IBC/CBC - CHAP. 16	SEISMIC PARAMETER	RECOMMENDED VALUE
Table No. 1613.5.2	Site Class	C
Figure No. 1613.5(3)*	Short-Period MCE at 0.2s, S_S	0.44
Figure No. 1613.5(4)*	1.0s Period MCE, S_1	0.19
Table No. 1613.5.3(1)**	Site Coefficient, F_a	1.2
Table No. 1613.5.3(2)**	Site Coefficient, F_v	1.6
Equation 16-37	Adjusted MCE Spectral Response Parameters, $S_{MS} = F_a S_s$	0.52
Equation 16-38	Adjusted MCE Spectral Response Parameters, $S_{M1} = F_v S_1$	0.31
Equation 16-39	Design Spectral Acceleration Parameters, $S_{DS} = ⅔ S_{MS}$	0.35
Equation 16-40	Design Spectral Acceleration Parameters, $S_{D1} = ⅔ S_{M1}$	0.21
Table 1613.5.6(1)	Seismic Design Category (Short Period), Occupancy I to III	C
Table 1613.5.6(1)	Seismic Design Category (Short Period), Occupancy IV	D
Table 1613.5.6(2)	Seismic Design Category (1-Second Period), Occupancy I to III	D
Table 1613.5.6(2)	Seismic Design Category (1-Second Period), Occupancy IV	D

Notes: * Values from Figures 1613.5(3)/(4) are derived from the National Earthquake Hazards Reduction Program (NEHRP) for Site Class B soil profiles.
** Values from Tables 1613.3(1)/(2) are adjustments to account for the Site Class (Project Specific) provided in Table 1613.5.2.

Slab-on-Grade Construction

It is our opinion that soil-supported slab-on-grade floors could be used for the main floor, contingent on proper subgrade preparation. Often the geotechnical issues regarding the use of slab-on-grade floors include proper soil support and subgrade preparation, proper transfer of loads through the slab underlayment materials to the subgrade soils, and the anticipated presence or absence of moisture at or above the subgrade level. We offer the following comments and recommendations concerning support of slab-on-grade floors. *The slab design (concrete mix, reinforcement, joint spacing, moisture protection and underlayment materials) is the purview of the project Structural Engineer.*

Slab Subgrade Preparation: All subgrades proposed to support slab-on-grade floors should be prepared and compacted to the requirements of engineered fill as discussed in the Site Grading and Improvements section of this report.

Slab Underlayment: As a minimum for slab support conditions, the slab should be underlain by a minimum 4 inch crushed rock layer and covered by a 10-mil moisture retarding plastic membrane. An optional 1 inch blotter sand layer above the plastic membrane is sometimes used to aid in curing of the concrete. If the blotter is omitted, special curing procedures may be necessary. The blotter layer can become a reservoir for excessive moisture if inclement weather occurs prior to pouring the slab, excessive water collects in it from the concrete pour, or an external source of water enters above or bypasses the membrane. The membrane may only be functional when it is above the vapor sources. The bottom of the crushed rock layer should

be above the exterior grade to act as a capillary break and not a reservoir, unless it is provided with an underdrain system. The slab design and underlayment should be in accordance with ASTM E1643 and E1745.

Slab Moisture Protection: Due to the potential for landscape to be present directly adjacent to the slab edge/foundation or for drainage to be altered following our involvement with the project, varying levels of moisture below, at, or above the pad subgrade level should be anticipated. The slab designer should include the potential for moisture vapor transmission when designing the slab. Our experience has shown that vapor transmission through concrete is controlled through slab thickness as well as proper concrete mix design.

It should be noted that placement of the recommended plastic membrane, proper mix design, and proper slab underlayment and detailing per ASTM E1643 and E1745 will not provide a waterproof condition. If a waterproof condition is desired, we recommend that a waterproofing expert be consulted for slab design.

Slab thickness and Reinforcement: Geotechnical reports have historically provided minimums for slab thickness and reinforcement for general crack control. The concrete mix design and construction practices can additionally have a large impact on concrete crack control. All concrete should be anticipated to crack. As such, these minimums should not be considered to be stand alone items to address crack control, but are suggested to be considered in the slab design methodology.

In order to help control the growth of cracks in interior concrete from becoming significant, we suggest the following minimums. Interior concrete slabs-on-grade not subject to heavy loads should be a minimum of 4 inches thick. A 4 inch thick slab should be reinforced. A minimum of No. 3 deformed reinforcing bars placed at 24 inches on center both ways, at the center of the structural section is suggested. Joint spacing should be provided by the structural engineer. Troweled joints recovered with paste during finishing or “wet sawn” joints should be considered every 10 feet on center. Expansion joint felt should be provided to separate floating slabs from foundations and at least at every third joint. Cracks will tend to occur at recurrent corners, curved or triangular areas and at points of fixity. Trim bars can be utilized at right angle to the predicted crack extending 40 bar diameters past the predicted crack on each side.

Vertical Deflections: Soil-supported slab-on-grade floors can deflect downward when vertical loads are applied, due to elastic compression of the subgrade. For design of concrete floors, a modulus of subgrade reaction of k = 150 psi per inch would be applicable for native soils and engineered fills.

Exterior Flatwork: Exterior concrete flatwork need not be underlain by a rock cushion where non-expansive soils are encountered. However, some vertical movement of concrete should be anticipated when arranging outside concrete flatwork joints where rock is omitted

If exterior flatwork concrete is against the floor slab edge without a moisture separator it may transfer moisture to the floor slab. Expansion joint felt should be provided to separate exterior flatwork from foundations and at least at every third joint. Contraction / groove joints should be provided to a depth of at least 1/4 of the slab thickness and at a spacing of less than 30 times the slab thickness for unreinforced flatwork, dividing the slab into nearly square sections. Cracks will tend to occur at recurrent corners, curved or triangular areas and at points of fixity. Trim bars can be utilized at right angle to the predicted crack extending 40 bar diameters past the predicted crack on each side.

Retaining Walls
Our design recommendations and comments regarding retaining walls for the project site are discussed below.

Retaining Wall Foundations: For footings founded a minimum of 18 inches in engineered fill or firm native soil, an allowable dead plus live load bearing capacity of 2,500 psf should be used. For footings with a minimum depth of 18 inches into weathered bedrock, an allowable dead plus live load bearing capacity of 3,500 pounds per square foot is considered appropriate. The following allowable pressures may be increased by 1/3 for short term wind or seismic loads.

Resisting Forces: Lateral forces on the retaining walls may be resisted by passive pressure acting against the side of the wall footing and/or friction between the soil and the bottom of the footing. A passive equivalent fluid weight of 325 pcf may be used against the sides of shallow footings founded in native soil or engineered fill. A friction factor of 0.32 may be used at the base of footings founded on firm native soil or engineered fill. The above values may be increased to 400 pcf and 0.45, respectively where foundations are constructed within weathered bedrock materials. If friction and passive pressures are combined, the lesser value should be reduced by 50%. All backfill placed behind retaining walls or against retaining wall footings should be compacted in accordance with the "Engineered Fill" section of this report.

Retaining Wall Lateral Pressures: Based on our observations and testing, the retaining wall should be designed to resist lateral pressure exerted from a soil media having an equivalent fluid weight as follows.

Wall Type	Wall Slope Configuration	Equivalent Fluid Weight (pcf)	Surcharge Load (psf)*	Lateral Pressure Coefficient	Earthquake Loading (plf)***
Free Cantilever	Flat	40	per structural	0.33	$17H^2$ Applied 0.6H above the base of the wall
	2H:1V	65	per structural	0.54	
Restrained**	Flat	60	per structural	0.50	

* The surcharge loads should be applied as uniform loads over the full height of the walls as follows: Surcharge Load (psf) = (q) (K), where q = surcharge in psf, and K = coefficient of lateral pressure. Final design is the purview of the project structural engineer.

** Restrained conditions shall be defined as walls which are structurally connected to prevent flexible yielding, or rigid wall configurations (i.e. walls with numerous turning points) which prevent the yielding necessary to reduce the driving pressures from an at-rest state to an active state.

*** Section 1802.2.7 of the 2007 California Building Code states that a determination of lateral pressures on basement and retaining walls due to earthquake loading shall be provided for structures to be designed in Seismic Design Categories D, E or F (Load value derived from Wood (1973) and modified by Whitman (1991)).

Wall Drainage: The above criteria are based on fully drained conditions. For these conditions, we recommend that a blanket of filter material be placed behind all proposed walls. The blanket of filter material should be a minimum of 12 inches thick and should extend from the bottom of the wall to within 12 inches of the ground surface. The filter material should conform to Class One, Type B permeable material as specified in Section 68 of the California Department of Transportation Standard Specifications, current edition. A clean ⅜ inch angular gravel or ¾ inch crushed rock is also acceptable, provided filter fabric is used to separate the open graded gravel/rock from the surrounding soils. The top 12 inches of wall backfill should consist of a compacted native soil cap. A filter fabric should be placed on top of the gravel filter material to

separate it from the native soil cap. A 4 inch diameter drain pipe should be installed near the bottom of the filter blanket with perforations facing down. The drain pipe should be underlain by at least 4 inches of filter-type material. As an alternative to drain pipe, where deemed appropriate, weep holes may be provided. Adequate gradients should be provided to discharge water that collects behind the retaining wall to an controlled discharge system. Prior to placement of the drainage blanket, additional consideration should be given to the use of a waterproofing membrane such as bituthene or equivalent membrane system on the outside of the wall.

Pavement Design

We understand that asphaltic pavements will be used for the associated roadways. The following comments and recommendations are given for pavement design and construction purposes. All pavement construction and materials used should conform to applicable sections of the latest edition of the California Department of Transportation Standard Specifications.

Subgrade Compaction: After installation of any underground facilities, the upper 8 inches of subgrade soils under pavements sections should be compacted to a minimum relative compaction of 95 percent based on the ASTM D1557 test method at a moisture content near or above optimum. Aggregate bases should also be compacted to a minimum relative compaction of 95 percent based on the aforementioned test method. All subgrades and aggregate base should be proof-rolled with a full water truck or equivalent immediately before paving, in order to verify their condition.

Design Criteria: Critical features that govern the durability of a pavement section include the stability of the subgrade; the presence or absence of moisture, free water, and organics; the fines content of the subgrade soils; the traffic volume; and the frequency of use by heavy vehicles. Soil conditions can be defined by a soil resistance value, or “R”-Value, and traffic conditions can be defined by a Traffic Index (TI).

Design Values: Table 1 provides recommended pavement sections based on the "R" - Value test (California Test Method 301-F) performed on bulk samples representative of the silty SAND materials expected to be exposed at subgrade, as well as our experience with similar materials in the area. R-values of 44 and 47 were determined for the materials tested. However, due to the high expansion pressures developed during our laboratory testing, we used an R-Value of 14 in our design. *If clay soils are encountered, we should review pavement subgrades to determine the appropriateness of the provided sections, and provide additional pavement design recommendations as field conditions dictate. Even minor clay constituents will greatly reduce the design R-Value.* The recommended design thicknesses presented in Table 1 were calculated in accordance with the methods presented in the latest update of the Fifth Edition of the California Department of Transportation Highway Design Manual. A varying range of traffic indices are provided for use by the project Civil Engineer for roadway design.

Design values provided are based upon properly drained subgrade conditions. Although the R-Value design to some degree accounts for wet soil conditions, proper surface and landscape drainage design is integral in performance of adjacent street sections with respect to stability and degradation of the asphalt.

Table 1. Recommended Pavement Design Thickness

DESIGN TRAFFIC INDICES	ALTERNATIVE PAVEMENT SECTIONS (INCHES)	
	ASPHALT CONCRETE *	AGGREGATE BASE **
4.5	2.5 3.0	8.0 7.0
5.0	2.5 3.0	9.5 8.5
5.5	3.0 3.5	10.5 9.5
6.0	3.0 3.5	12.0 11.0
6.5	3.5 4.0	13.0 12.0

NOTES:
* Asphaltic Concrete: must meet specifications for CAL TRANS Type B Asphaltic Concrete
** Aggregate Base: must meet specifications for CAL TRANS Class II Aggregate Base ("R"-Value = minimum 78)

Due to the redistribution of materials that occurs during mass grading operations, we should review pavement subgrades to determine the appropriateness of the provided sections. Deep cut areas may have better support characteristics than those used in determining the above sections.

Portland Cement Concrete Pavement Design
The ACI Concrete Pavement Design method (ACI 330R-92) was used for design of the concrete (rigid) pavement at the site. The pavement thicknesses were evaluated based on the soil design parameters provided in Table 2.

Table 2
Rigid Pavement Soil Parameters

Subgrade Soil Description	Silty SAND
K, Modulus of Subgrade Reaction	150 pci
Base Course	6 inches

Based on the subgrade soil parameters shown in Table 2, the recommended concrete thicknesses for various traffic descriptions are presented in Table 3.

We recommend that the rigid pavement be placed on at least 6 inches of aggregate base compacted to at least 95 percent of the maximum dry density as determined by the ASTM D 1557 test method. Contraction, construction, and isolation joints should be placed in accordance with American Concrete Institute (ACI) recommendations. Reinforcement steel and tie bar requirements should also meet ACI recommendations.

Table 3
Rigid Pavement Sections

Category	ADTT[1]	Pavement Traffic Description	Thickness (inches)	
			4000 psi[2]	3000 psi[2]
A	0	Car parking areas and access lanes Autos, pickups, and panel trucks only	3.5	4.0
A-1	10	Truck access lanes	5.5	6.0
B	25	Shopping center entrance and service lanes Bus parking areas and interior lanes Single-unit truck parking areas and interior lanes	5.5	6.5
C	300	Bus entrance and exterior lanes Single-unit truck entrance and exterior lanes Multiple-unit truck parking areas and interior lanes	6.5	7.5
D	700	Bus entrance and exterior lanes Multiple-unit truck entrance and exterior lanes Multiple-unit truck parking areas and interior lanes	8.0	8.0

Notes:[1]Average Daily Truck Traffic;
[2]28-day concrete compressive strength.

Drainage Considerations
In order to maintain the engineering strength characteristics of the soil presented for use in this Geotechnical Engineering Study, maintenance of the site will need to be performed. This maintenance generally includes, but is not limited to, proper drainage and control of surface and subsurface water which could affect structural support and fill integrity. A difficulty exists in determining which areas are prone to the negative impacts resulting from high moisture conditions due to the diverse nature of potential sources of water; some of which are outlined in the paragraph below. We suggest that measures be installed to minimize exposure to the adverse effects of moisture, but this will not guarantee that excessive moisture conditions will not affect the structure.

Some of the diverse sources of moisture could include water from landscape irrigation, annual rainfall, offsite construction activities, runoff from impermeable surfaces, collected and channeled water, and water perched in the subsurface soils on the weathered bedrock horizon or present in fractures in the weathered rock. Some of these sources can be controlled through drainage features installed either by the developer or contractor. Others may not become evident until they, or the effects of the presence of excessive moisture, are visually observed on the property.

Some measures that can be employed to minimize the build up of moisture include, but are not limited to; proper backfill materials and compaction of utility trenches on the site and within the footprint of the proposed commercial buildings to minimize the transmission of moisture through these areas; grout plugs at foundation penetrations; collection and channeling of drained water from impermeable surfaces (i.e. roofs, concrete or asphalt paved areas); installation of subdrain/cut-off drain provisions; utilization of low flow irrigation systems; and consultation with the developer on proper design and maintenance of landscaping and drainage facilities that they or their landscaper installs.

All grades should provide rapid removal of surface water runoff; ponding water should not be allowed on building pads or adjacent to foundations or other structural improvements (during and following construction). All soils placed against foundations during finish grading should be compacted to minimize water infiltration. Finish and landscape grading should include positive drainage away from all foundations. Section 1805.3.4 of the 2007 California Building Code states that for graded soil sites, the top of any exterior foundation shall extend above the elevation of the street gutter at the point of discharge or the inlet of an approved drainage device a minimum of 12 inches plus 2 percent. Surface grades should slope a minimum of 2 percent away from all foundations. Surface drainage should be designed by the Project Architect/Civil Engineer in general accordance with Section 1803.3 of the 2007 California Building Code. Downspouts should be tight piped via an area drain network and discharged to an appropriate non-erosive outlet.

In developments built on relatively poor draining soils (i.e. weathered bedrock horizons), prolonged water seepage into pavement sections can result in softening of subgrade soils and subsequent pavement distress. In addition, where shallow bedrock conditions are present, water can become perched on the relatively impermeable horizon and eventually inundate utility trench backfill. The variable support condition between the bedrock and compacted trench backfill materials, coupled with prolonged water exposure can lead to subsidence of trench backfill materials if bridging of trench backfill occurs during placement or natural jetting of soils into voids around pipes occurs. Joint utility trenches are generally more susceptible to the jetting issues due to the quantity of pipe placed in the trench.

It is anticipated that heavy landscape watering could enter and pond within the street aggregate base section as it permeates through the aggregate base under the sidewalks. Prolonged seepage within the pavement section could cause distress to pavements. Some measures that can be employed to minimize the saturation of the subgrade and aggregate base materials include, but are not limited to, construction of cut-off drains or moisture barriers to separate the landscape and pavement areas, and installation of plug and drain systems within utility trenches. Due to the elusive and discontinuous nature of drainage related issues, a risk based approach should be determined by the developer based on consultation and discussions with the design professionals and the amount of protection of facilities that the developer may want to provide against potential moisture related issues.

Post Construction: All drainage related issues may not become known until after construction and landscaping are complete. Therefore, some mitigation measures may be necessary following site development. Landscape watering is typically the largest source of water infiltration into the subgrade. Given the soil conditions on site, excessive or even normal landscape watering may contribute to groundwater levels rising, which could contribute to moisture related problems and/or cause distress to foundations and slabs, pavements, and underground utilities, as well as creating a nuisance where seepage occurs. In order to mitigate these conditions, additional subdrainage measures may be necessary. On foothill developments constructed with cut/fill pads on shallow bedrock conditions, seepage may not be apparent until post construction. In order to mitigate these conditions additional subdrainage measures may be necessary.

5.0 DESIGN REVIEW AND CONSTRUCTION MONITORING

The design plans and specifications should be reviewed and accepted by Youngdahl Consulting Group, Inc., hereinafter described as the Geotechnical Engineer, prior to contract bidding. A review should be performed to determine whether the recommendations contained within this report are still applicable and/or are properly reflected and incorporated into the project plans and specifications.

Construction Monitoring
Construction monitoring is a continuation of the findings and recommendations provided in this report. It is essential that our representative be involved with all grading activities in order for us to provide supplemental recommendations as field conditions dictate. Youngdahl Consulting Group, Inc. should be notified at least two working days before site clearing or grading operations commence, and should observe the stripping of deleterious material, overexcavation of existing fills, and provide consultation to the Grading Contractor in the field.

Low Impact Development Standards
Low Impact Development or LIDs standards have become a consideration for many projects in the region. LID standards are intended to address and mitigate urban storm water quality concerns. These methods include the use of Source Controls, Run-off Reduction and Treatment Controls. For the purpose of this report use of Run-off Reduction measures and some Treatment Controls may impact geotechnical recommendations for the project. Use of any LID measure that would require infiltration of discharge of water to surfaces adjacent to structures/pavement or include infiltration type measures should be reviewed by Youngdahl Consulting Group, Inc. during the design process.

A review of soil survey and the data collected from the test pits and borings indicate that soils within the project are Hydrologic Soil Group C (low infiltration characteristic), and too variable to classify. Due to these hydrologic conditions, the proposed engineered fill construction (which should not be used for infiltration), and the relatively shallow depth to bedrock, the use of infiltration type LID methods (Infiltration trenches, dry wells, infiltration basins, etc.) should not be considered for this property. Youngdahl Consulting Group, Inc. did not perform any percolation of infiltration testing for the site.

Post Construction Monitoring
As described in Post Construction section of this report, all drainage related issues may not become known until after construction and landscaping are complete. Youngdahl Consulting Group, Inc. can provide consultation services upon request that relate to proper design and installation of drainage features during and following site development.

In addition, if the development includes use of LID measures maintenance of those features in conformance with the standard of practice and documentation from the designer will be necessary. The impact from infiltration or run-off reduction measures to engineered structures and foundations may not become apparent until after construction. We recommend that all LID measures be inspected and maintained as documented by the designer and if adverse impacts are noted related to the structure or site that Youngdahl Consulting Group, Inc. be retained to review the LID measure and provide additional consulting and options.

6.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. This report has been prepared for the exclusive use of GGV Missouri Flat, LLC for specific application to the Diamond Dorado Commercial Center project. Youngdahl Consulting Group, Inc. has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Youngdahl Consulting Group, Inc. makes no other warranty, express or implied.

2. As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they be due to natural processes or to the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may cause this report to be invalid, wholly or partially. Therefore, this report should not be relied upon after a period of three years without our review nor should it be used or is it applicable for any properties other than those studied.

3. Section 106.3.4.1 of the International Building Code and Appendix Chapter 1 of the 2007 California Building Code states that, in regard to the design professional in responsible charge, the building official shall be notified in writing by the owner if the registered design professional in responsible charge is changed or is unable to continue to perform the duties.

   WARNING: Do not apply any of this report's conclusions or recommendations if the nature, design, or location of the facilities is changed. If changes are contemplated, Youngdahl Consulting Group, Inc. must review them to assess their impact on this report's applicability. Also note that Youngdahl Consulting Group, Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of this report's subsurface data or engineering analyses without the express written authorization of Youngdahl Consulting Group, Inc.

4 The analyses and recommendations contained in this report are based on limited windows into the subsurface conditions and data obtained from subsurface exploration. The methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. Should any variations or undesirable conditions be encountered during the development of the site, Youngdahl Consulting Group, Inc., will provide supplemental recommendations as dictated by the field conditions.

5 The recommendations included in this report have been based in part on assumptions about strata variations that may be tested only during earthwork. Accordingly, these recommendations should not be applied in the field unless Youngdahl Consulting Group, Inc. is retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method. Youngdahl Consulting Group, Inc. cannot assume responsibility or liability for the adequacy of its recommendations when they are used in the field without Youngdahl Consulting Group, Inc. being retained to observe construction. Unforeseen subsurface conditions containing soft native soils, loose or previously placed non-engineered fills should be a consideration while preparing for the grading of the property. It should be noted that it is the responsibility of the owner or his/her representative to notify

Youngdahl Consulting Group, Inc., in writing, a minimum of 48 hours before any excavations commence at the site.

6 Our experience has shown that vapor transmission through concrete is controlled through proper concrete mix design. As such, proper control of moisture vapor transmission should be considered in the design of the slab as provided by the project architect, structural or civil engineer. It should be noted that placement of the recommended plastic membrane, proper mix design, and proper slab underlayment and detailing per ASTM E1643 and E1745 will not provide a waterproof condition. If a waterproof condition is desired, we recommend that a waterproofing expert be consulted for slab design.

7 Following site development, additional water sources (ie. landscape watering, downspouts) are generally present. The presence of low permeability materials can prohibit rapid dispersion of surface and subsurface water drainage. Utility trenches typically provide a conduit for water distribution. Provisions may be necessary to mitigate adverse effects of perched water conditions. Mitigation measures may include the construction of cut-off systems and/or plug and drain systems. Close coordination between the design professionals regarding drainage and subdrainage conditions may be warranted.

Seepage may be observed emanating from the cut slopes following their excavation during the following rainy season or following development of the areas above the cut. Generally this seepage is not enough flow to be a stability issue to the cut slope, but may be an issue for the owner of the lot at the base of the cut from a surface drainage and standing water (damp spot) standpoint. This amount of water is generally collected easily with landscaping drainage, surface drainage at the toe of the slope, or subsurface toe drains. Recommendations may be provided at the time of observed seepage; however, we recommend that the developer of the property disclose this possibility to future owners.

CHECKLIST OF RECOMMENDED SERVICES

	Item Description	Recommended	Not Anticipated
1	Provide foundation design parameters	Included	
2	Review grading plans and specifications	✓	
3	Review foundation plans and specifications	✓	
4	Observe and provide recommendations regarding demolition	✓	
5	Observe and provide recommendations regarding site stripping	✓	
6	Observe and provide recommendations on moisture conditioning removal, and/or precompaction of unsuitable existing soils	✓	
7	Observe and provide recommendations on the installation of subdrain facilities	✓	
8	Observe and provide testing services on fill areas and/or imported fill materials	✓	
9	Review as-graded plans and provide additional foundation recommendations, if necessary	✓	
10	Observe and provide compaction tests on storm drains, water lines and utility trenches	✓	
11	Observe foundation excavations and provide supplemental recommendations, if necessary, prior to placing concrete	✓	
12	Observe and provide moisture conditioning recommendations for foundation areas and slab-on-grade areas prior to placing concrete		✓
13	Provide design parameters for retaining walls	Included	
14	Provide finish grading and drainage recommendations	Included	
15	Provide geologic observations and recommendations for keyway excavations and cut slopes during grading	✓	
16	Excavate and recompact all test pits within structural areas	✓	

REFERENCES

1.) Preliminary Research & Evaluation of Reclamation Criteria & Measures for Diamond Springs Lime Plant, prepared by Youngdahl & Associates, inc., dated 11 December 1996 (Project No. 93111.A).
2.) Sewage Disposal Design for El Dorado Disposal Services, prepared by Youngdahl & Associates, Inc., dated October 1994 (Project No.93111.1E).
3.) Sewage Disposal Design for El Dorado Disposal Services, prepared by Youngdahl & Associates, Inc., dated September 1994 (Project No.93111.1E).
4.) Geotechnical Services and Supplemental Investigation on Industrial Subdivision, prepared by Youngdahl & Associates, Inc., dated April 1988.
5.) Geotechnical Engineering Study for Dimetrics Building Project, prepared by Youngdahl & Associates, Inc., dated June 1993 (Project No. 93111.e).
6.) Report of Parking and Driveway Area Testing Services for Dimetrics Building, prepared by Terrasearch, Inc., dated 15 June 1981 (Project No. 2397-C1).
7.) Progress Report of Dimetrics Building Pad and Adjacent Parking Areas, prepared by Terrasearch, Inc., dated 24 September 1980 (Project No. 2397-C).

APPENDIX A

Field Study

Vicinity Map
Site Plan
Logs of Exploratory Test Pits and Borings
Soil Classification Chart and Log Exploration

Introduction

The contents of this appendix shall be integrated with the geotechnical engineering study of which it is a part. They shall not be used in whole or in part as a sole source for information or recommendations regarding the subject site.

Field study

Our field study included a site reconnaissance by a Youngdahl Consulting Group, Inc. representative followed by a subsurface exploration program conducted on 2 April 2008, which included the advancing of 6 exploratory borings and excavation of 9 test pits at the approximate locations shown on Figure A-2, this Appendix.

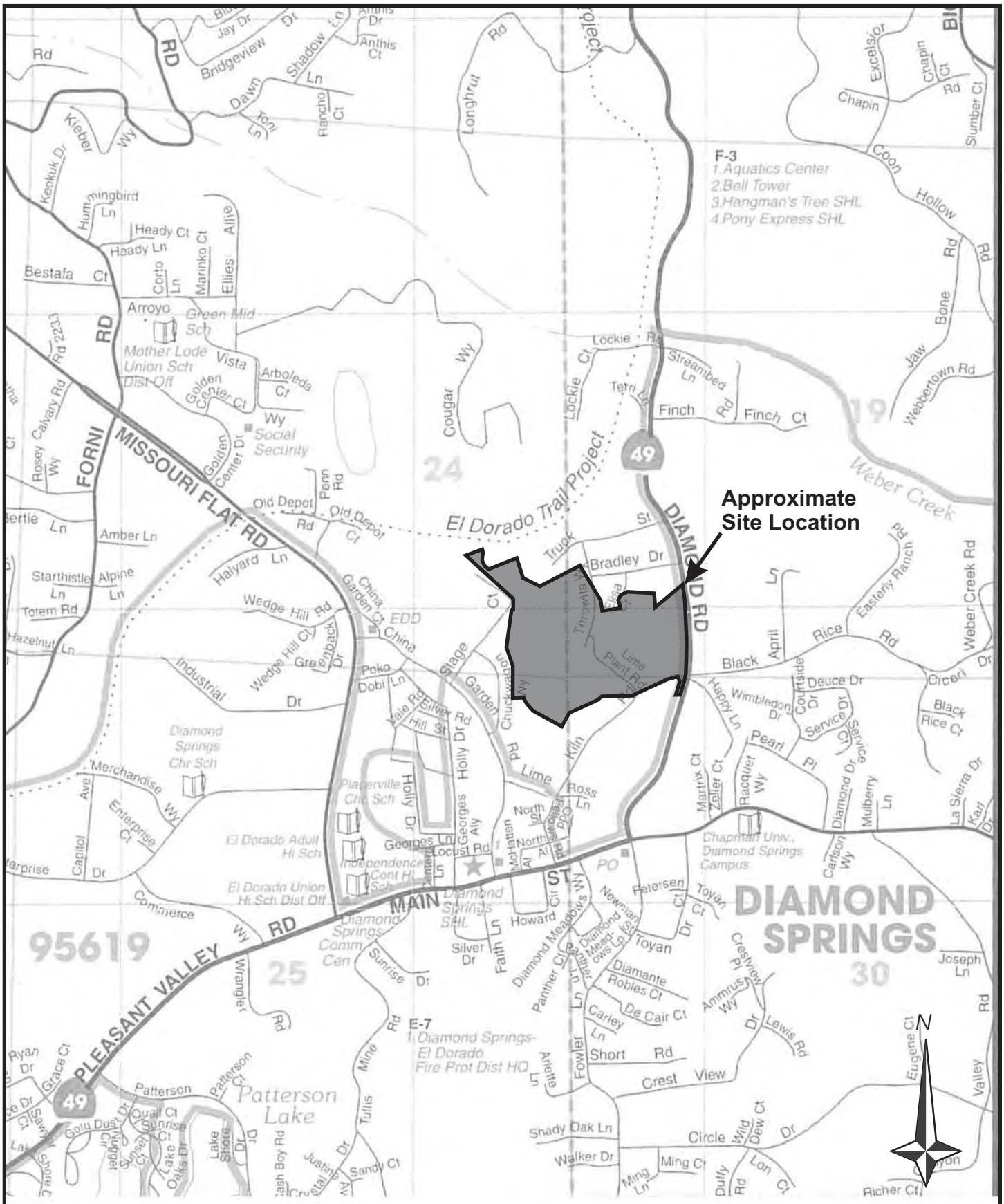
Excavation of the test pits was accomplished with a CASE 580SL rubber tire-mounted backhoe equipped with an 18 inch wide bucket. As the excavation proceeded, Bulk samples were collected from the test pits and returned to our laboratory for further examination and testing.

The Exploratory Test Pit Logs describe the vertical sequence of soils and materials encountered in each test pit, based primarily on our field classifications and supported by our subsequent laboratory examination and testing. Where a soil contact was observed to be gradual, our logs indicate the average contact depth. Our logs also graphically indicate the sample type, sample number and approximate depth of each soil sample obtained from the test pits.

The soils encountered were logged during excavation and provide the basis for the "Logs of Test Pits", Figures A-3 through A-11, this Appendix. These logs show a graphic representation of the soil profile, the location and depths at which samples were collected.

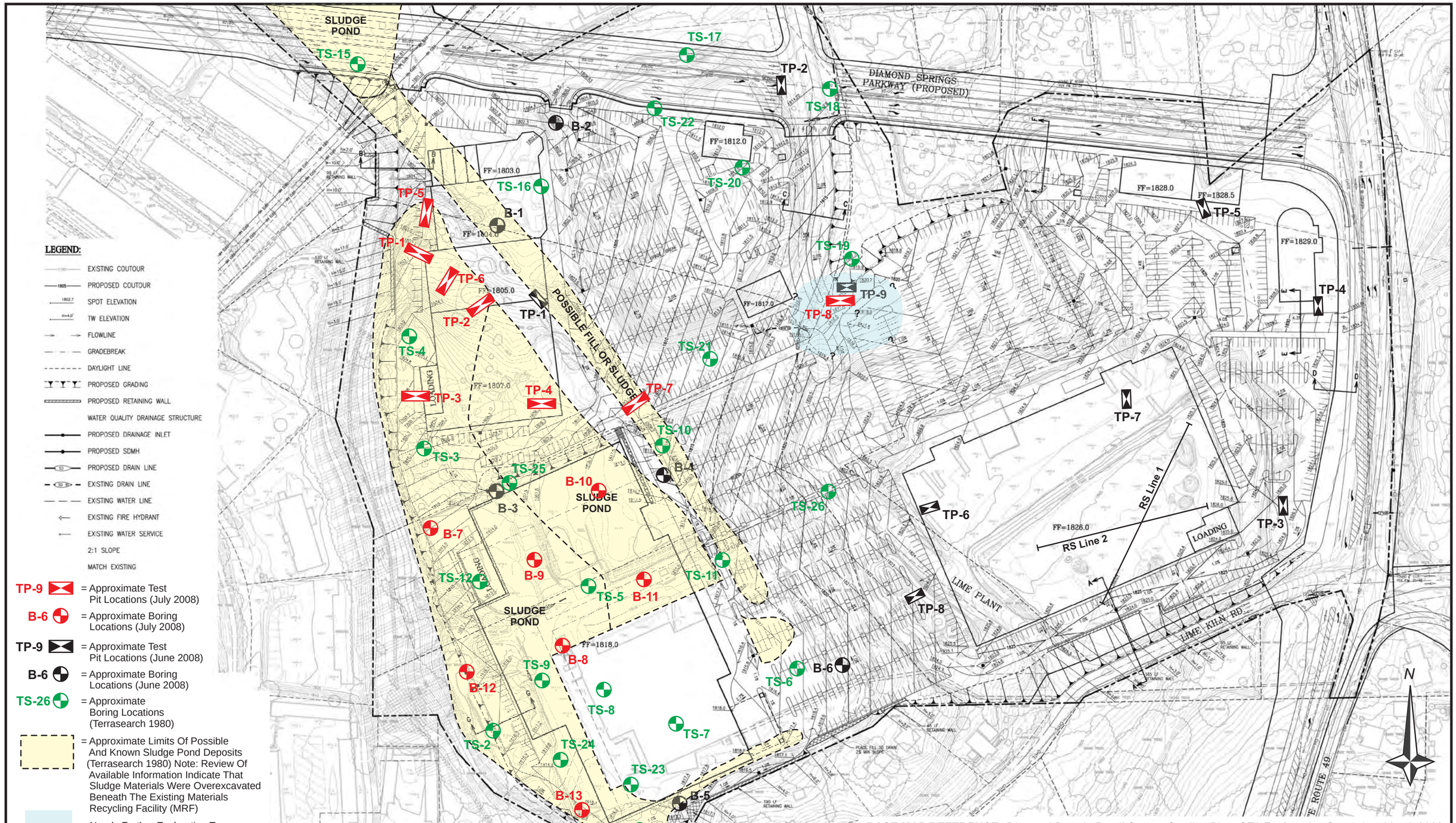
Drilling of the exploratory borings was accomplished with a CME-55 truck mounted drill rig. Throughout the drilling operation, soil samples were obtained at 5-foot depth intervals by means of a Modified California Sampler. This testing and sampling procedure consists of driving the steel sampler 18 inches into the soil with a 140-pound hammer free-falling 30 inches. The number of blows required to drive the sampler through each 6-inch interval is counted, and the total number of blows struck during the final 12 inches is recorded. If a total of 50 blows is struck within any 6-inch interval, the driving is stopped and the blow count is recorded as 50 blows for the actual penetration distance.

The soils encountered were logged during drilling and provide the basis for the "Boring Logs", Figures A-12 through A-17, this Appendix. The enclosed Boring Logs describe the vertical sequence of soils and materials encountered in each boring, based primarily on our field classifications and supported by our subsequent laboratory examination and testing. Where a soil contact was observed to be gradational, our logs indicate the average contact depth. Where a soil type changed between sample intervals, we inferred the contact depth. Our logs also graphically indicate the blow count, sample type, sample number, and approximate depth of each soil sample obtained from the borings, as well as any laboratory tests performed on these soil samples. If any groundwater was encountered in a borehole, the approximate groundwater depth is depicted on the boring log. Groundwater depth estimates are typically based on the moisture content of soil samples, the wetted height on the drilling rods, and the water level measured in the borehole after the auger has been extracted.



BASE MAP REF: El Dorado County Street And Road Atlas. Compass Maps 2006 Page 200

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E08072.000	**VICINITY MAP**	**FIGURE**
	June 2008	**Diamond Dorado Commercial** Diamond Springs, California	**A-1**



LEGEND:

- EXISTING COUTOUR
- PROPOSED COUTOUR
- SPOT ELEVATION
- TW ELEVATION
- FLOWLINE
- GRADEBREAK
- DAYLIGHT LINE
- PROPOSED GRADING
- PROPOSED RETAINING WALL
- WATER QUALITY DRAINAGE STRUCTURE
- PROPOSED DRAINAGE INLET
- PROPOSED SDMH
- PROPOSED DRAIN LINE
- EXISTING DRAIN LINE
- EXISTING WATER LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE
- 2:1 SLOPE
- MATCH EXISTING

TP-9 = Approximate Test Pit Locations (July 2008)

B-6 = Approximate Boring Locations (July 2008)

TP-9 = Approximate Test Pit Locations (June 2008)

B-6 = Approximate Boring Locations (June 2008)

TS-26 = Approximate Boring Locations (Terrasearch 1980)

= Approximate Limits Of Possible And Known Sludge Pond Deposits (Terrasearch 1980) Note: Review Of Available Information Indicate That Sludge Materials Were Overexcavated Beneath The Existing Materials Recycling Facility (MRF)

? ? = Needs Further Exploration To Define Limits

0 75 150 300

Approximate Scale: 1" = 150'

BASE MAP REFERENCE: *Diamond Dorado Retail Center, Grading Plan, CTA Engineering Surveying, March 2008*

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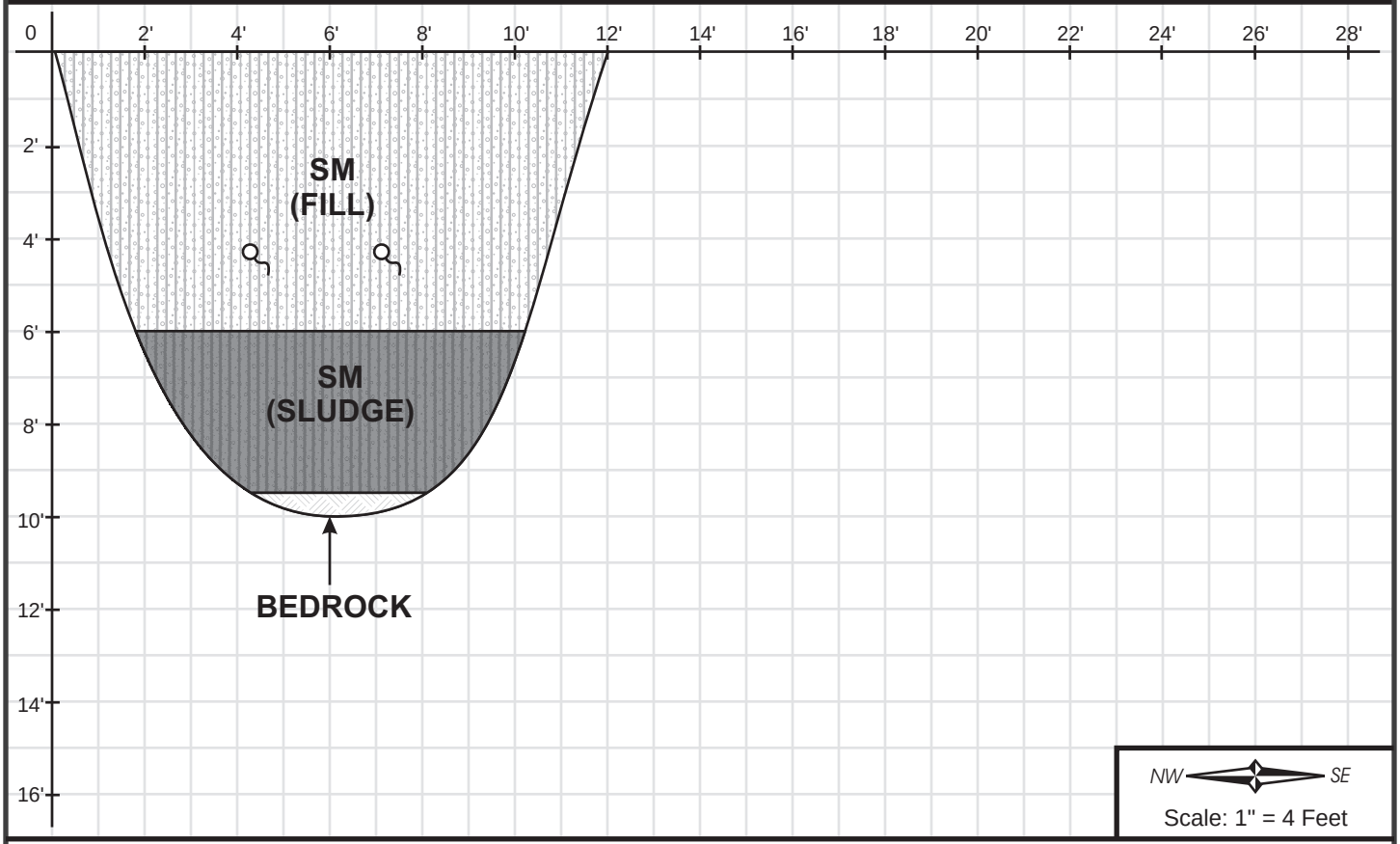
SITE PLAN

Diamond Dorado Commercial
Diamond Springs, California

FIGURE
A-2

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-1**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **NW - SE**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 6'	Red brown to green brown silty **SAND (SM)**, loose to medium dense, moist (FILL)		
@ 6' - 10'	Gray brown to white silty **SAND (SM)**, loose, saturated (SLUDGE)		
@ 10'	Limestone **BEDROCK** (Covered With Water)		
	Test pit terminated at 10' Groundwater encountered at 4' (seepage) Moderate caving at 6'		



Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

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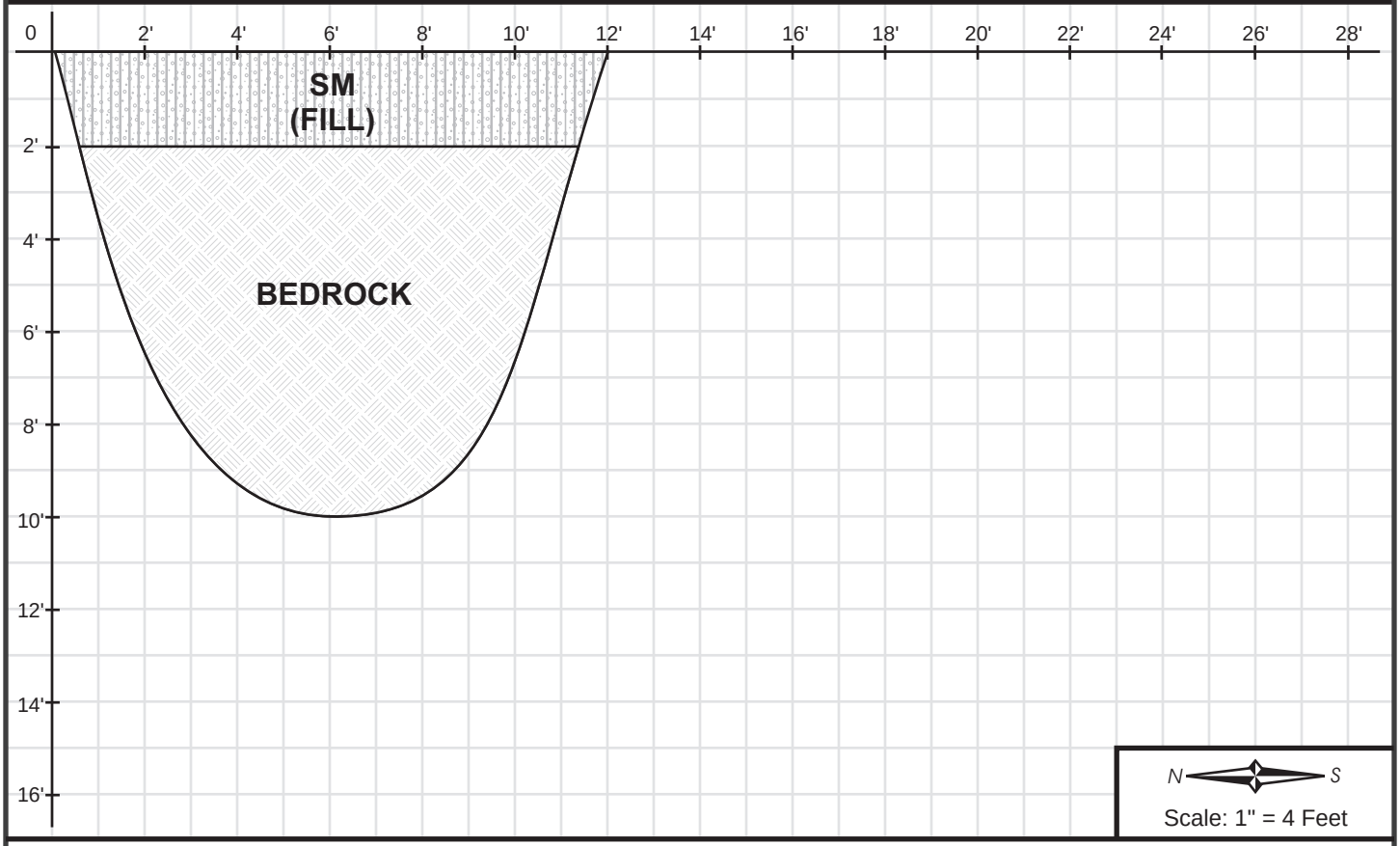
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-3

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-2**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **N - S**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown to gray silty **SAND (SM)**, loose, moist (Aggregate/Limestone - FILL)		*Wood Debris*
@ 2' - 10'	Red brown to yellow brown **BEDROCK**, weakly to moderately indurated, moderate fracturing	**Bulk 1** @ 2' - 10'	
	Test pit terminated at 10' No free groundwater encountered No caving noted		



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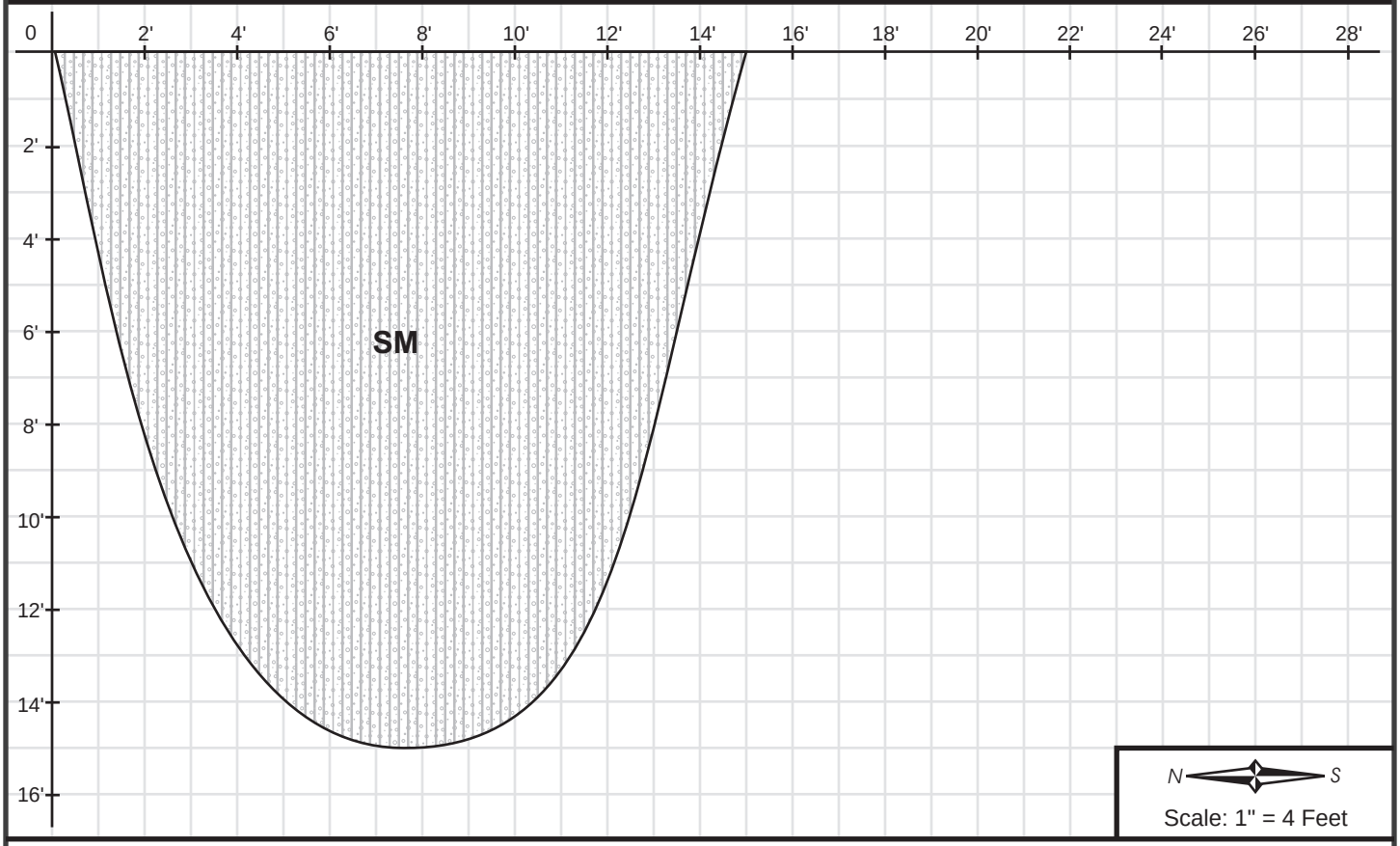
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-4

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-3**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **N - S**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 15'	Interbedded silty **SAND (SM)** with cobbles, medium dense to dense, slightly cemented, moist	**Bulk 2** @ 0' - 15'	
	Test pit terminated at 15' No free groundwater encountered No caving noted		



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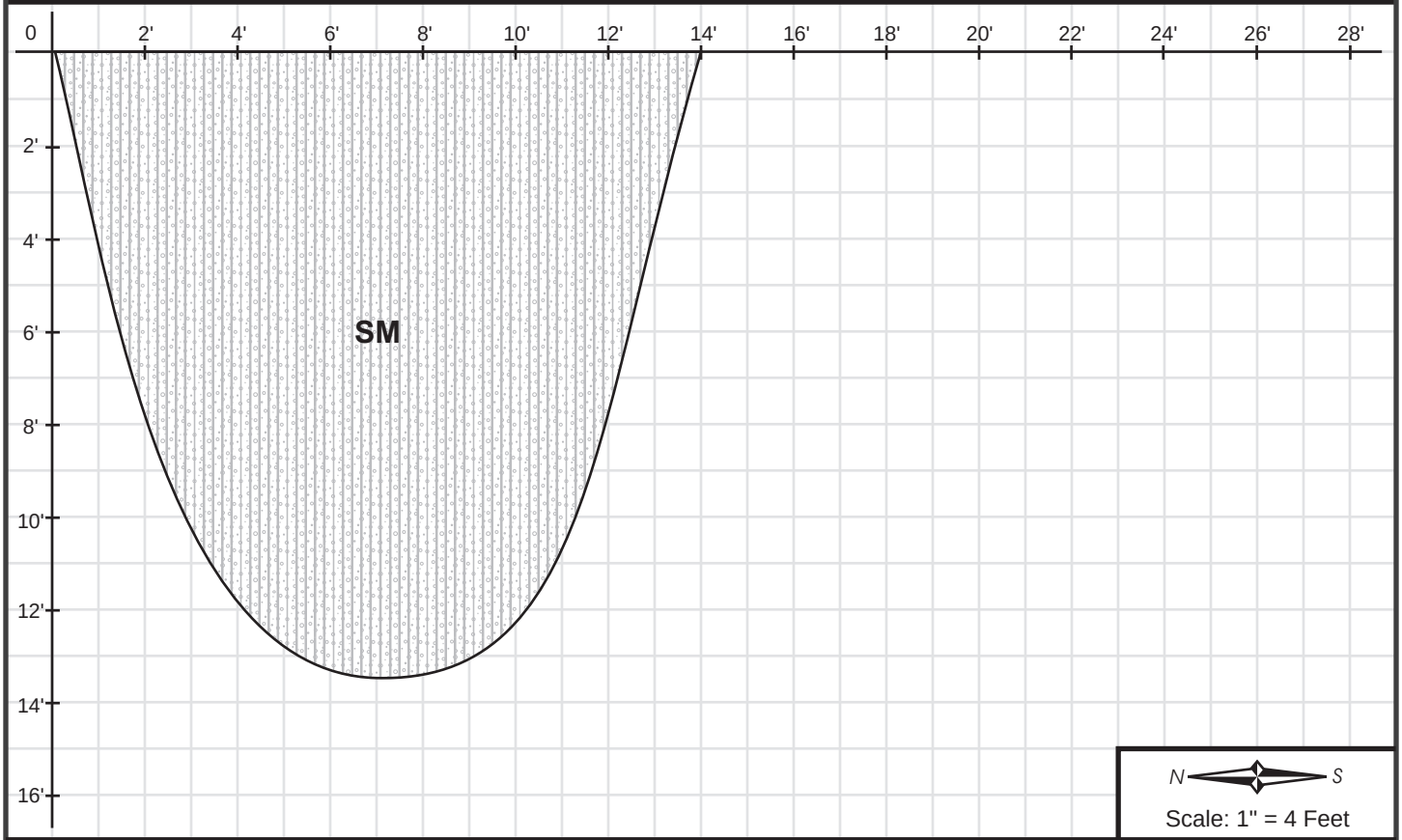
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-5

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-4**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **N - S**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 13.5'	Red brown to yellow brown silty **SAND (SM)** with cobble, medium dense to dense, slightly to moderately cemented, moist		
	Test pit terminated at 13.5' (equipment refusal) No free groundwater encountered No caving noted		



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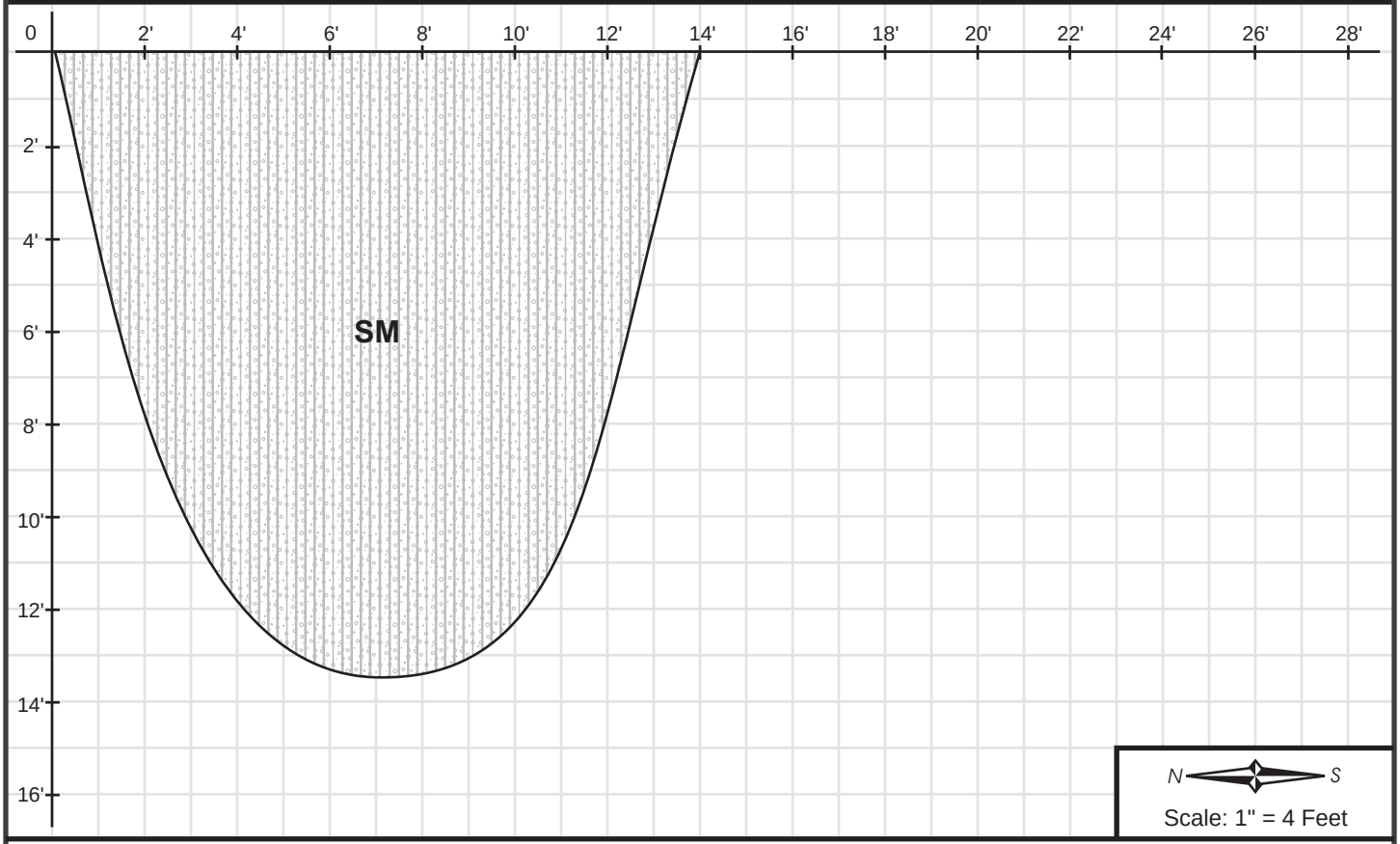
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-6

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-5**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **N - S**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 3'	Yellow brown silty medium to coarse **SAND (SM)**, medium dense, moist		
@ 3' - 13.5'	Yellow brown interbedded silty **SAND (SM)**, with cobble to 6" diameter, dense, slightly to moderately cemented, moist		
	Test pit terminated at 13.5' (equipment refusal) No free groundwater encountered No caving noted		



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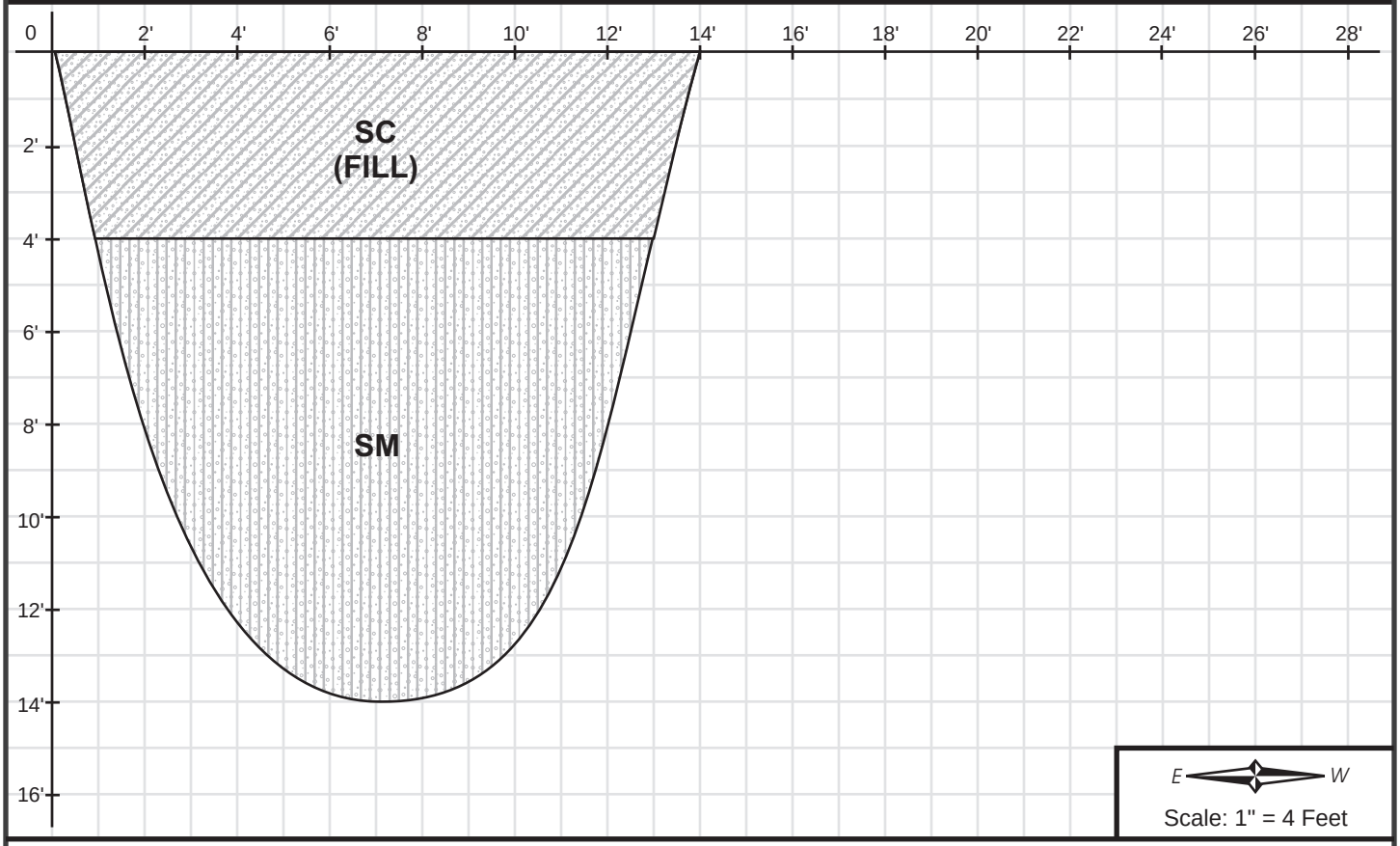
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-7

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-6**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **E - W**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 4'	Red brown clayey **SAND (SC)**, medium dense, moist (FILL)	**Bulk 3** @ 0' - 4'	
@ 4' - 14'	Yellow brown to gray brown silty **SAND (SM)** with cobble to 4" diameter, medium dense, slightly cemented, moist		
	Test pit terminated at 14' (equipment refusal) No free groundwater encountered No caving noted		



Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

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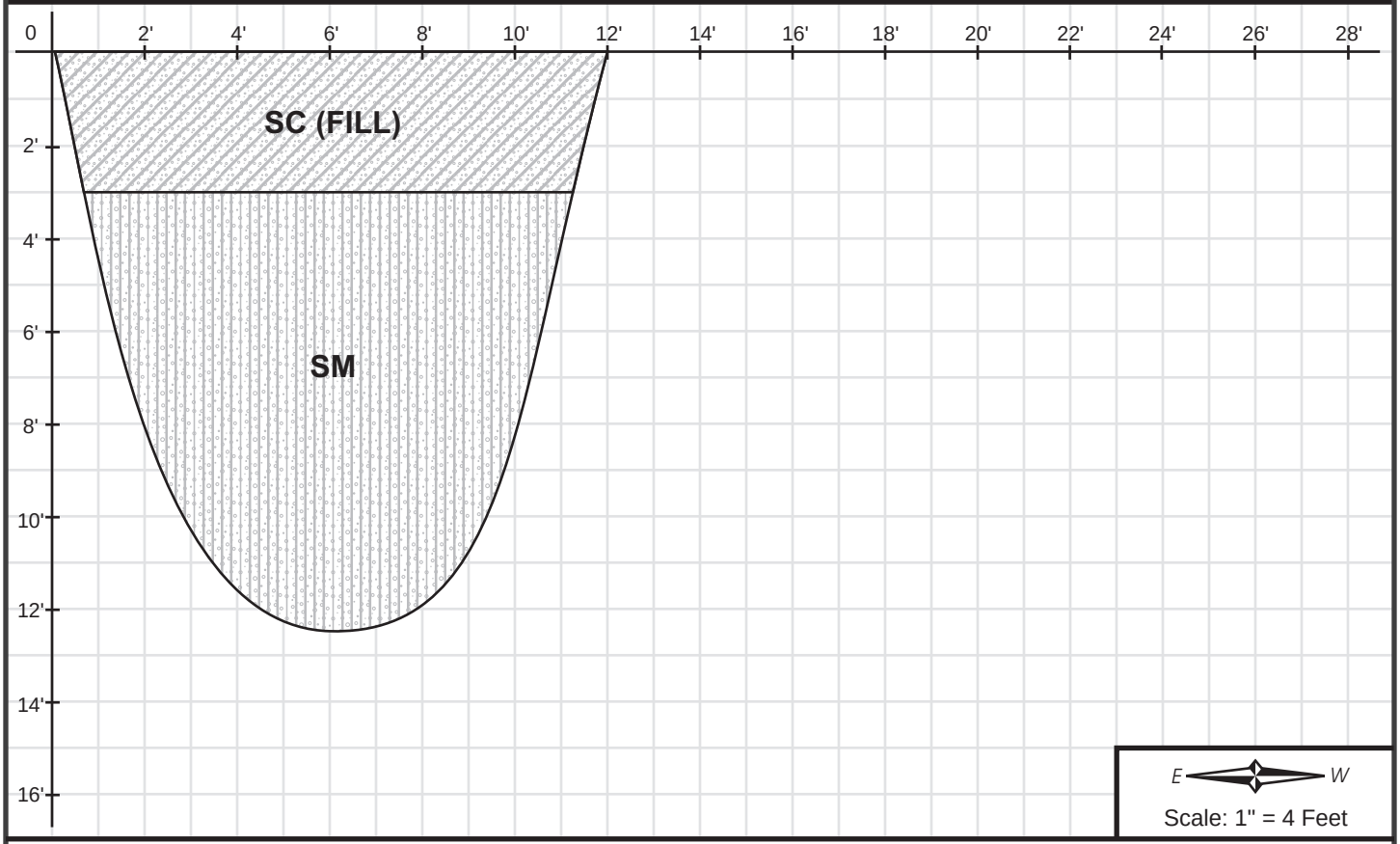
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-8

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-7**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **E - W**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 3'	Brown to red brown clayey **SAND (SC)**, medium dense, moist (FILL)		
@ 3' - 12.5'	Brown silty **SAND (SM)** with cobble, medium dense, slightly cemented, moist		
	Test pit terminated at 12.5' (equipment refusal) No free groundwater encountered No caving noted		



Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

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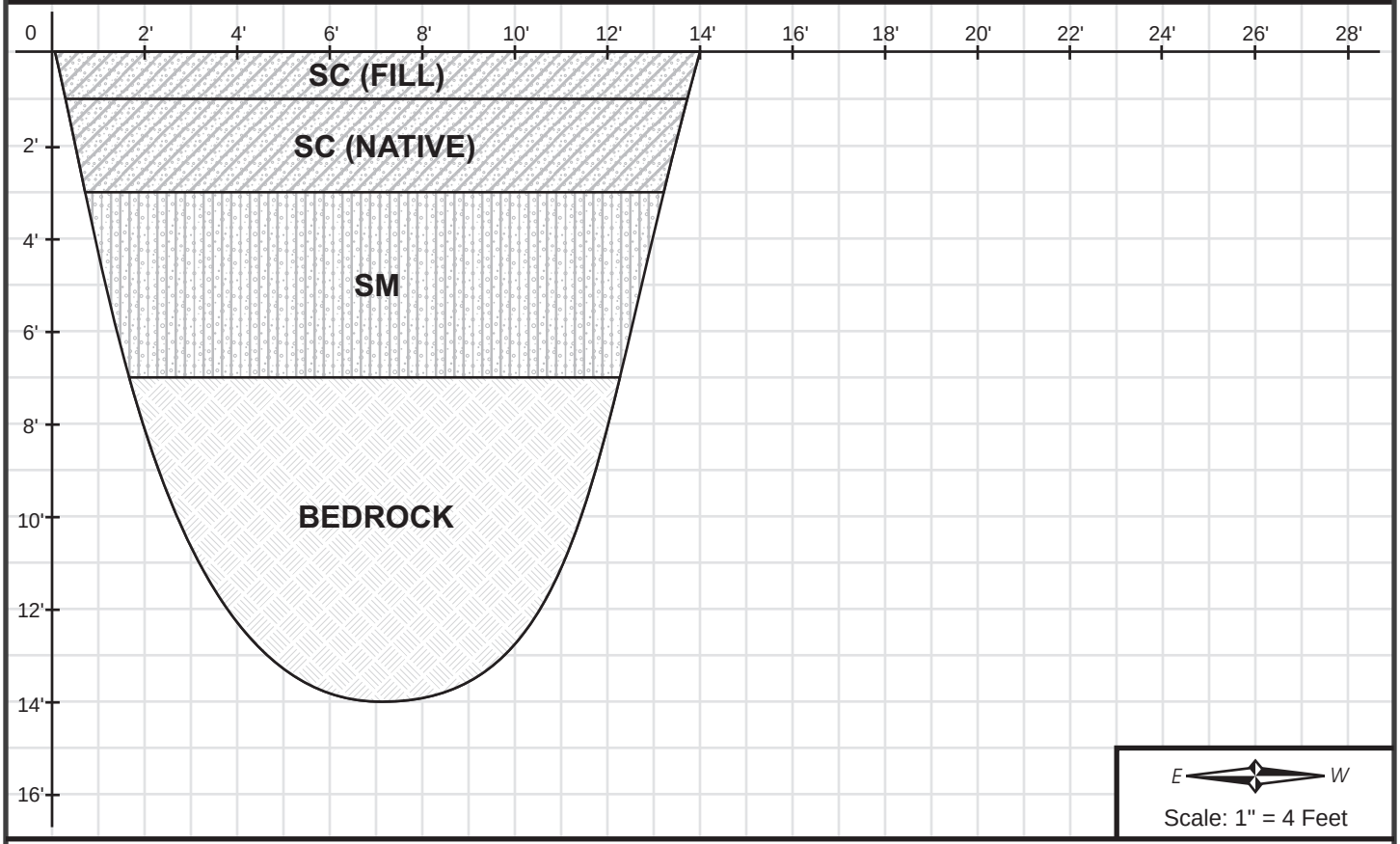
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-9

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-8**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **E - W**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown clayey **SAND (SC)** with cobble, medium dense, moist (FILL)		
@ 1' - 3'	Red brown clayey **SAND (SC)** with cobble, medium dense, moist (NATIVE)		
@ 3' - 7'	Red brown silty **SAND (SM)** with cobble to 6" diameter, medium dense, slightly to moderately cemented, moist		
@ 7' - 14'	Yellow brown to red brown **BEDROCK** with cobble, moderately indurated		
	Test pit terminated at 14' (equipment refusal) No free groundwater encountered No caving noted		



Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

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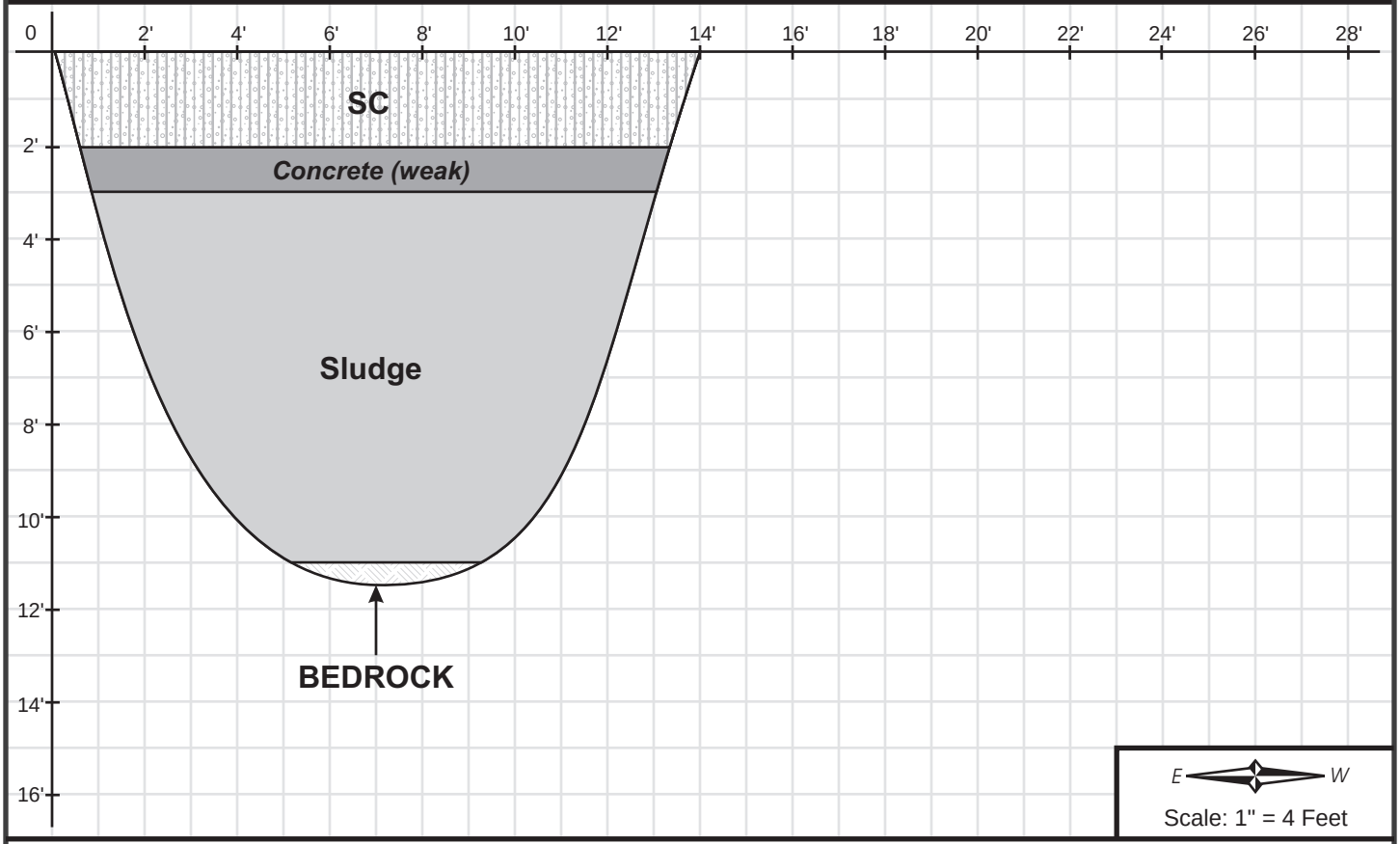
EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-10

Logged By: **VPD**	Date: **2 April 2008**	Elevation:	Pit No. **TP-9**
Equipment: **CASE 580M With 18" Bucket**		Pit Orientation: **E - W**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Red brown clayey **SAND (SC)**, medium dense, moist		
@ 2' - 3'	*Concrete (weak)*		
@ 3' - 11'	Grey brown white **SLUDGE**, soft, saturated	**Bulk 4** @ 3' - 11'	
@ 11' - 11.5'	**BEDROCK,** weakly indurated		
	Test pit terminated at 14' (equipment refusal) No free groundwater encountered No caving noted		



Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

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EXPLORATORY TEST PIT LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-11

Logged By: **KEM**	Date: **2 April 2008**	Elevation:	Boring No. **B-1**
Equipment: **CME 55**			

Depth (Feet)	Graphic Log	Ground Water	Geotechnical Description & Unified Soil Classification	Sample	Blow Count	Dry Density (pcf)	Moisture Content (%)	Tests & Comments
1			Brown silty **SAND (SM)** with some gravel, loose, slightly moist (FILL)					**Bulk 1** @ 0 - 3' *Construction Debris On Surface*
2								
3								
4								
5					50/1"			*No recovery*
6			Light brown sandy **GRAVEL (GP)** with some silt, loose, moist (FILL)					
7			*Grades light blue gray*					
8		▽						
9			Brown silty **SAND (SM)** with some gravel, very loose, saturated (FILL)					
10								
11					6			*No recovery*
12								
13								
14			Very light yellow brown to light gray metamorphic **BEDROCK**, intensely weathered, friable, moist					
15								
16					50/5"			*Rock*
17								
18			Boring terminated at 18' (practical refusal) No groundwater encountered					
19								
20								

Note: The boring log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations. Note, too, that the passage of time may affect conditions at the sampling locations.

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EXPLORATORY BORING LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-12

Logged By: **KEM**	Date: **2 April 2008**	Elevation:	Boring No. **B-2**
Equipment: **CME 55**			

Depth (Feet)	Graphic Log	Ground Water	Geotechnical Description & Unified Soil Classification	Sample	Blow Count	Dry Density (pcf)	Moisture Content (%)	Tests & Comments
1			Light brown silty **SAND (SM)** with some gravel and construction debris, loose, dry (FILL)					
2								
3			Very light brown to white metamorphic **BEDROCK**, completely weathered, indurated, dry					
4								
5								
6					50			*Rock*
7								
8			*Grades highly weathered, very indurated*					
9								
10					50/6"			*No recovery Bedrock in shoe*
11			Boring terminated at 10.5' No groundwater encountered					
12								
13								
14								
15								
16								
17								
18								
19								
20								

Note: The boring log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations. Note, too, that the passage of time may affect conditions at the sampling locations.

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EXPLORATORY BORING LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-13

Logged By: **KEM**	Date: **2 April 2008**	Elevation:	Boring No. **B-3**
Equipment: **CME 55**			

Depth (Feet)	Graphic Log	Ground Water	Geotechnical Description & Unified Soil Classification	Sample	Blow Count	Dry Density (pcf)	Moisture Content (%)	Tests & Comments
1			Light brown to gray silty **SAND (SM)** with some gravel, loose, slightly moist (FILL)					*Garbage On Surface*
3			Gray **SILT (ML)** with few sand, very stiff, slightly moist (SLUDGE) (Lime)					
5			*Grades hard*					
6					39			
7			Yellow brown metamorphic **BEDROCK**, completely to intensely weathered, weakly indurated to indurated, slightly moist					
9			*Grades highly weathered, weakly to very indurated*					
11					63/11"			
12			Boring terminated at 11.5' No groundwater encountered					

Note: The boring log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations. Note, too, that the passage of time may affect conditions at the sampling locations.

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EXPLORATORY BORING LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-14

Logged By: **KEM**	Date: **2 April 2008**	Elevation:	Boring No. **B-4**
Equipment: **CME 55**			

Depth (Feet)	Graphic Log	Ground Water	Geotechnical Description & Unified Soil Classification	Sample	Blow Count	Dry Density (pcf)	Moisture Content (%)	Tests & Comments
1			Yellow brown metamorphic **BEDROCK**, completely weathered, weakly indurated, slightly moist					
2								
3								
4								
5								
6					40			
7			*Grades highly weathered, indurated*					
8								
9			*Grades very indurated*					
10			Boring terminated at 10' No groundwater encountered					
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Note: The boring log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations. Note, too, that the passage of time may affect conditions at the sampling locations.

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EXPLORATORY BORING LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-15

Logged By: **KEM**	Date: **2 April 2008**	Elevation:	Boring No. **B-5**
Equipment: **CME 55**			

Depth (Feet)	Graphic Log	Ground Water	Geotechnical Description & Unified Soil Classification	Sample	Blow Count	Dry Density (pcf)	Moisture Content (%)	Tests & Comments
1			4" AC 8" AB					
2			Light gray to light yellow brown metamorphic **BEDROCK**, moderately weathered, indurated to very indurated, slightly moist					
3								
4								
5			Boring terminated at 4.5' (practical refusal) No groundwater encountered					
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Note: The boring log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations. Note, too, that the passage of time may affect conditions at the sampling locations.

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EXPLORATORY BORING LOG

Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-16

Logged By: **KEM**	Date: **2 April 2008**	Elevation:	Boring No. **B-6**
Equipment: **CME 55**			

Depth (Feet)	Graphic Log	Ground Water	Geotechnical Description & Unified Soil Classification	Sample	Blow Count	Dry Density (pcf)	Moisture Content (%)	Tests & Comments
1–4			Brown to gray silty **SAND (SM)** with few gravel, loose to slightly moist (FILL)					
4–6			Very light gray to red metamorphic **BEDROCK**, highly weathered, indurated, slightly moist *Grades moderately weathered, very indurated*		85/8"			
7			Boring terminated at 6.5' (practical refusal) No groundwater encountered					

Note: The boring log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations. Note, too, that the passage of time may affect conditions at the sampling locations.

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EXPLORATORY BORING LOG

Diamond Dorado Commercial
Diamond Springs, California

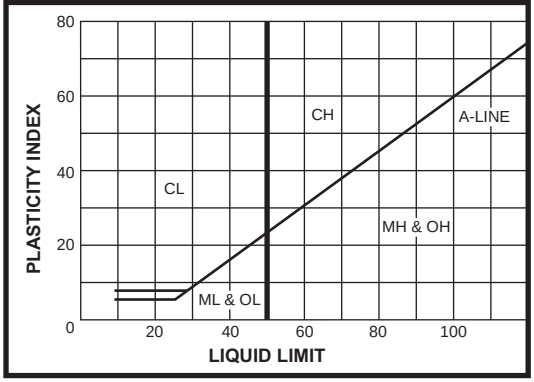
FIGURE A-17

UNIFIED SOIL CLASSIFICATION SYSTEMS

MAJOR DIVISION			SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS Over 50% > #200 sieve	GRAVELS Over 50% > #4 sieve	Clean GRAVELS With Little Or No Fines	GW		Well graded **GRAVELS**, **GRAVEL-SAND** mixtures
			GP		Poorly graded **GRAVELS**, **GRAVEL-SAND** mixtures
		GRAVELS With Over 12% Fines	GM		Silty **GRAVELS**, poorly graded **GRAVEL-SAND-SILT** mixtures
			GC		Clayey **GRAVELS**, poorly graded **GRAVEL-SAND-CLAY** mixtures
	SANDS Over 50% < #4 sieve	Clean SANDS With Little Or No Fines	SW		Well graded **SANDS**, gravelly **SANDS**
			SP		Poorly graded **SANDS**, gravelly **SANDS**
		SANDS With Over 12% Fines	SM		Silty **SANDS**, poorly graded **SAND-SILT** mixtures
			SC		Clayey **SANDS**, poorly graded **SAND-CLAY** mixtures
FINE GRAINED SOILS Over 50% < #200 sieve	SILTS & CLAYS Liquid Limit < 50		ML		Inorganic **SILTS**, silty or clayey fine **SANDS**, or clayey **SILTS** with plasticity
			CL		Inorganic **CLAYS** of low to medium plasticity, gravelly, sandy, or silty **CLAYS**, lean **CLAYS**
			OL		Organic **CLAYS** and organic silty **CLAYS** of low plasticity
	SILTS & CLAYS Liquid Limit > 50		MH		Inorganic **SILTS**, micaceous or diamacious fine sandy or silty soils, elastic **SILTS**
			CH		Inorganic **CLAYS** of high plasticity, fat **CLAYS**
			OH		Organic **CLAYS** of medium to high plasticity, organic **SILTS**
HIGHLY ORGANIC CLAYS			PT		PEAT & other highly organic soils

PLASTICITY CHART

USED FOR CLASSIFICATION OF FINE GRAINED SOILS

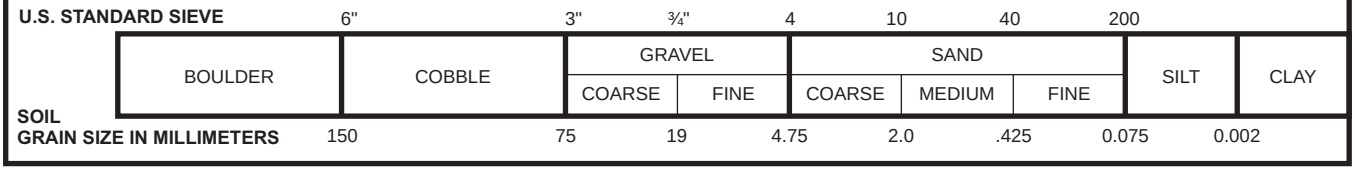


SAMPLE DRIVING RECORD

BLOWS PER FOOT	DESCRIPTION
25	25 Blows drove sampler 12 inches, after initial 6 inches of seating
50/7"	50 Blows drove sampler 7 inches, after initial 6 inches of seating
50/3"	50 Blows drove sampler 3 inches during or after initial 6 inches of seating

Note: To avoid damage to sampling tools, driving is limited to 50 blows per 6 inches during or after seating interval.

SOIL GRAIN SIZE



KEY TO PIT & BORING SYMBOLS

- Standard Penetration test
- 2.5" O.D. Modified California Sampler
- 3" O.D. Modified California Sampler
- Shelby Tube Sampler
- 2.5" Hand Driven Liner
- Bulk Sample
- Water Level At Time Of Drilling
- Water Level After Time Of Drilling
- P — Perched Water

KEY TO PIT & BORING SYMBOLS

- Joint
- Foliation
- Water Seepage
- NFWE — No Free Water Encountered
- FWE — Free Water Encountered
- REF — Sampling Refusal
- DD — Dry Density (pcf)
- MC — Moisture Content (%)
- LL — Liquid Limit
- PI — Plasticity Index
- PP — Pocket Penetrometer
- UCC — Unconfined Compression (ASTM D2166)
- TVS — Pocket Torvane Shear
- EI — Expansion Index (ASTM D4829)
- Su — Undrained Shear Strength

YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING

Project No.: E08072.000

June 2008

SOIL CLASSIFICATION CHART AND LOG EXPLANATION
Diamond Dorado Commercial
Diamond Springs, California

FIGURE A-18

APPENDIX B

Laboratory Testing

Direct Shear Test
Expansion Index Test
Modified Proctor Test
R-Value Test
Corrosivity Test

Introduction

Our laboratory testing program for this evaluation included numerous visual classifications, Direct Shear, Expansion Index, Modified Proctor, Resistence Value, and Corrosivity tests. The following paragraphs describe our procedures associated with each type of test. Graphical results of certain laboratory tests are enclosed in this appendix. The contents of this appendix shall be integrated with the geotechnical engineering study of which it is a part. They shall not be used in whole or in part as a sole source for information or recommendations regarding the subject site.

Laboratory Testing

Visual Classification Procedures

Visual soil classifications were conducted on all samples in the field and on selected samples in our laboratory. All soils were classified in general accordance with the United Soil Classification System, which includes color, relative moisture content, primary soil type (based on grain size), and any accessory soil types. The resulting soil classifications are presented on the exploration logs in Appendix A.

Soil Strength Determination Procedures

The strength parameters of the foundation soils were based on direct shear tests (ASTM D3080) performed on representative remolded samples of the near-surface soils. The results of these tests are presented on Figures B-1 and B-2, this Appendix.

Expansion Index Determination Procedures

An expansion index test (ASTM 4829) provides an index to the expansion potential of compacted soils. The results of this test is presented on Figure B-3, this Appendix.

Maximum Dry Density Determination Procedures

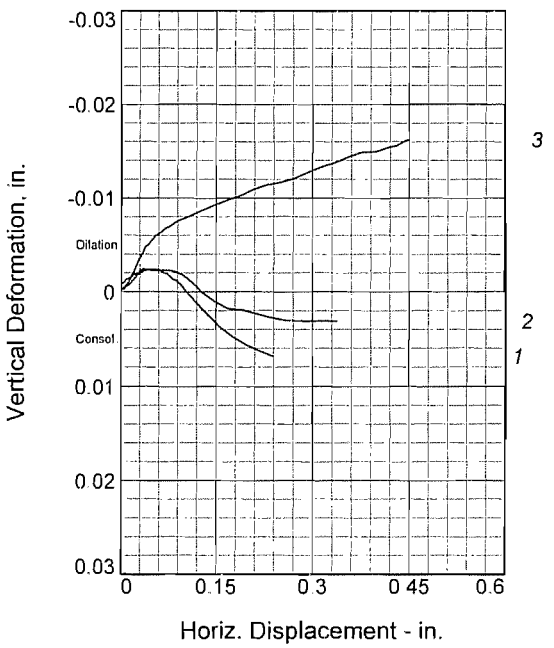
Modified Proctor Tests (ASTM D1557) were conducted to provide the optimum moisture and maximum dry density on the near surface materials. The results of these tests are presented on Figures B-4 and B-5, this Appendix.

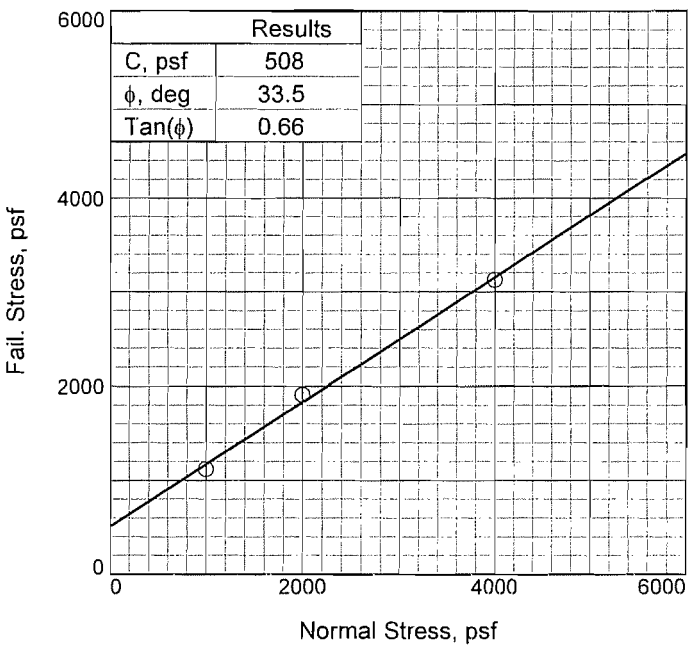
Resistance Value Determination Procedures

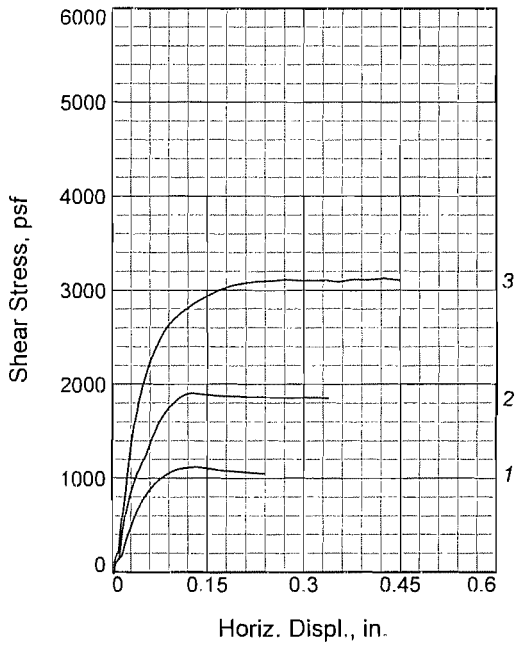
R-Value tests (California Test Method 301 - F) were performed to obtain asphalt concrete pavement design parameters. The results of these tests are presented on Figure B-6 and B-7, this Appendix.

Corrosivity Test Procedures

A corrosivity test typically comprises individual measurements of pH, electrical resistivity, sulfate content, and chloride content, which together indicate the corrosiveness of a soil. Corrosivity tests were performed on selected samples by an independent analytical laboratory working under subcontract to Youngdahl Consulting Group, Inc. The results of these tests are presented on the enclosed analytical certificates.







Sample No.		1	2	3
Initial	Water Content, %	14.5	14.5	14.5
	Dry Density, pcf	103.9	103.9	103.9
	Saturation, %	68.5	68.5	68.5
	Void Ratio	0.5440	0.5440	0.5440
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	20.0	19.8	18.7
	Dry Density, pcf	105.6	106.2	108.3
	Saturation, %	99.0	99.8	99.8
	Void Ratio	0.5191	0.5108	0.4812
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.984	0.979	0.959
Normal Stress, psf		1000	2000	4000
Fail. Stress, psf		1118	1908	3127
Displacement, in.		0.134	0.125	0.425
Ult. Stress, psf				
Displacement, in.				
Strain rate, in./min.		0.003	0.003	0.003

Sample Type: Remolded
Description: Yellow Brown Silty SAND w/ ash & trace gravel

Specific Gravity= 2.57
Remarks: Remolded to 90% of 115.5 pcf

Client:

Project: DIAMOND DORADO COMMERCIAL GES

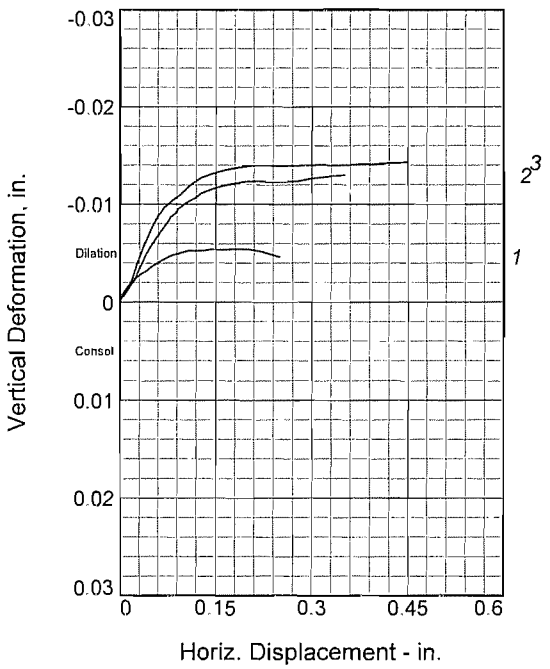
Source of Sample: NATIVE
Sample Number: BK 1
Proj. No.: E08072.000 **Date:** 4/18/2008

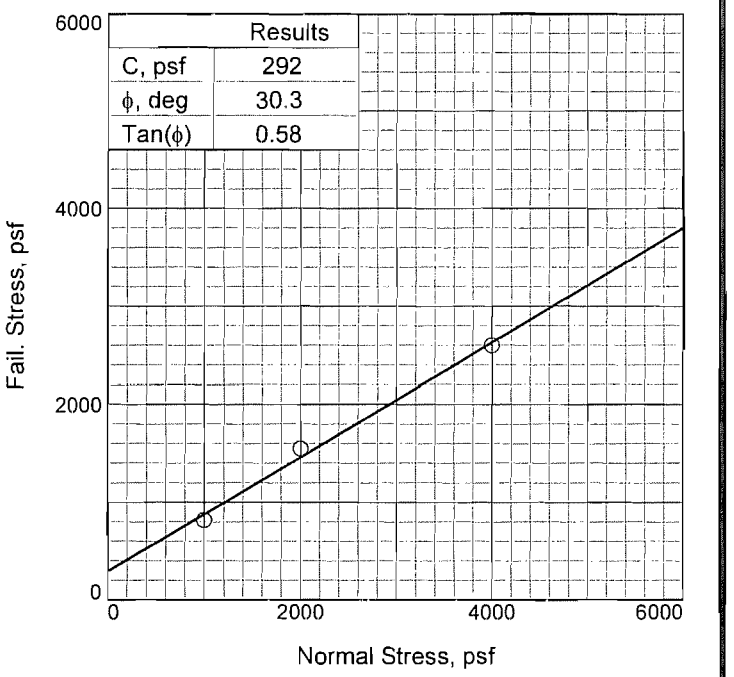
DIRECT SHEAR TEST REPORT

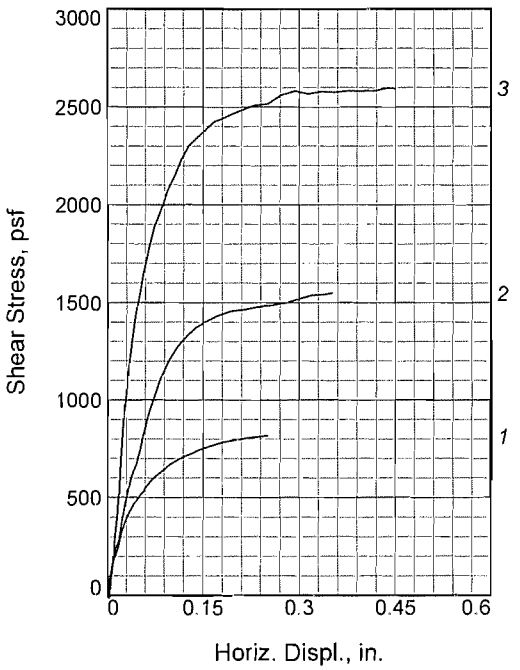
YOUNGDAHL CONSULTING GROUP, INC.

Figure B-1

Tested By: JSP **Checked By:** BLM







Sample No.		1	2	3
Initial	Water Content, %	11.8	11.8	11.8
	Dry Density, pcf	105.4	105.4	105.4
	Saturation, %	66.2	66.2	66.2
	Void Ratio	0.4275	0.4275	0.4275
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	17.0	16.0	14.6
	Dry Density, pcf	106.8	108.6	111.2
	Saturation, %	99.9	100.0	99.9
	Void Ratio	0.4090	0.3850	0.3527
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.987	0.970	0.948
Normal Stress, psf		1000	2000	4000
Fail. Stress, psf		817	1547	2597
Displacement, in.		0.248	0.351	0.437
Ult. Stress, psf				
Displacement, in.				
Strain rate, in./min.		0.003	0.003	0.003

Sample Type: Remolded
Description: Light Brown Silty SAND w/little clay & few gravel

Specific Gravity= 2.41
Remarks: Remolded to 90% of 119.0 pcf

Client:

Project: DIAMOND DORADO COMMERCIAL GES

Source of Sample: NATIVE
Sample Number: BK 3
Proj. No.: E08072.000 **Date:** 4/21/08

DIRECT SHEAR TEST REPORT

YOUNGDAHL CONSULTING GROUP, INC.

Figure B-2

EXPANSION INDEX TEST (ASTM 4829, UBC 18-25)

SAMPLE NO. **BK 3** DEPTH:

SAMPLE DESCRIPTION: **Light Brown Sandy SILT w/ little clay & few gravel**

REMARKS:

SAMPLE DATA:

	Initial	Final
Dry Density (pcf)	105.6	103.0
Moisture Content (%)	9.9%	20.3%

Maximum Dry Density (pcf)	NA *
Optimum Moisture (%)	NA *

*Based on ASTM 1557

Tested Expansion Index	**23**
Expansion Potential	**LOW**

Expansion Index	Expansion Potential
0 - 20	Very Low
21 - 50	Low
51 - 90	Moderate
91 - 130	High
Over 130	Very High

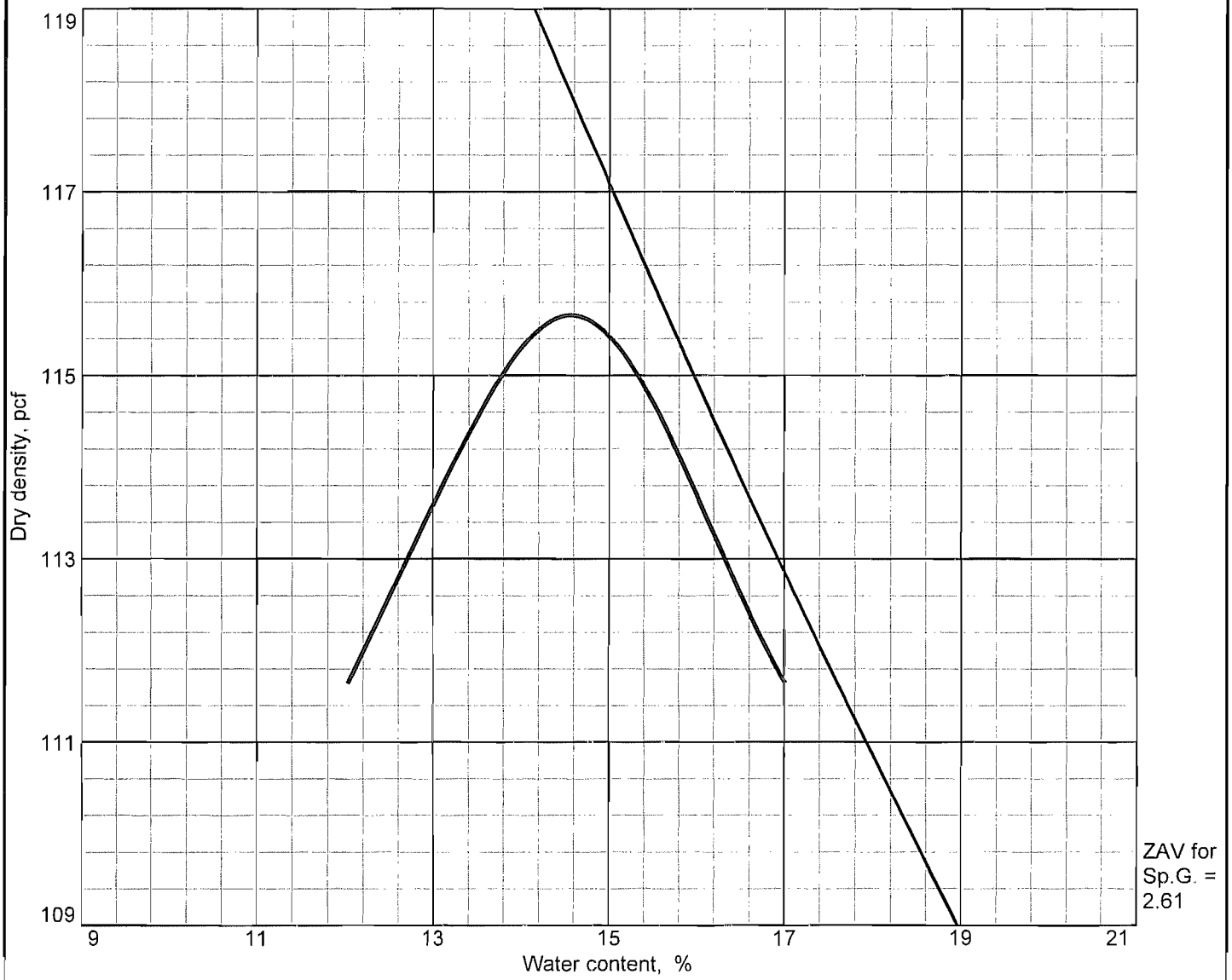
Tested By: JSP
Reviewed By: BLM

CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

DIAMOND DORADOCOMMERCIAL GES

PROJECT NO	DATE	FIGURE NO
E08072.000	**June 2008**	**B-3**

COMPACTION TEST REPORT



Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM			2.57				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 115.5 pcf Optimum moisture = 14.5 %	Yellow Brown Silty SAND w/ ash & trace gravel

Project No. E08072.000 **Client:**

Project: DIAMOND DORADO COMMERCIAL GES

Remarks:

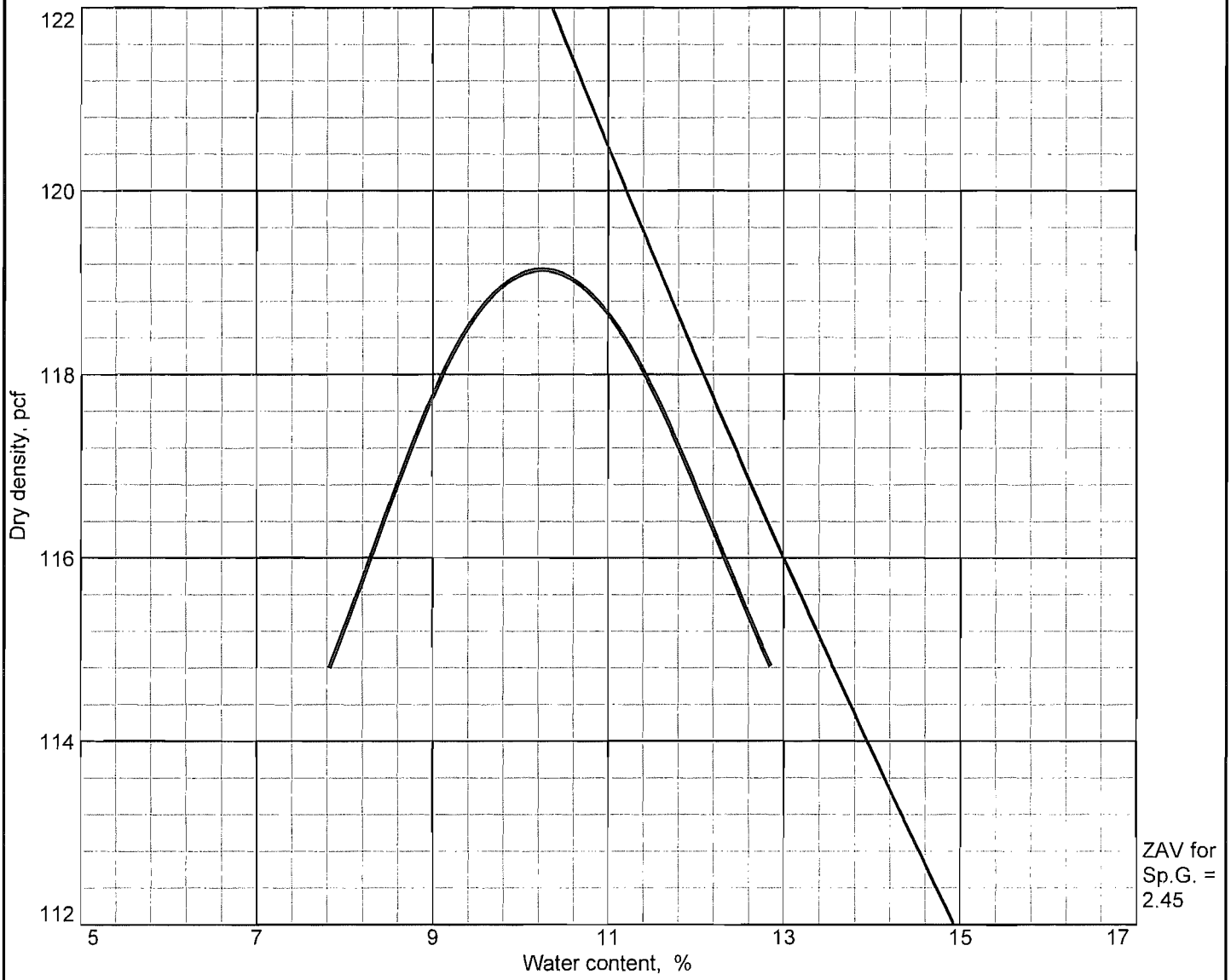
● **Source:** NATIVE **Sample No.:** BK 1

YOUNGDAHL CONSULTING GROUP, INC.

El Dorado Hills, California

Figure B-4

COMPACTION TEST REPORT



Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM			2.41				

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 119.0 pcf Optimum moisture = 10.0 %	Light Brown Silty SAND w/little clay & few gravel

Project No. E08072.000 **Client:**

Project: DIAMOND DORADO COMMERCIAL GES

● **Source:** NATIVE **Sample No.:** BK 3

Remarks:

YOUNGDAHL CONSULTING GROUP, INC.

El Dorado Hills, California

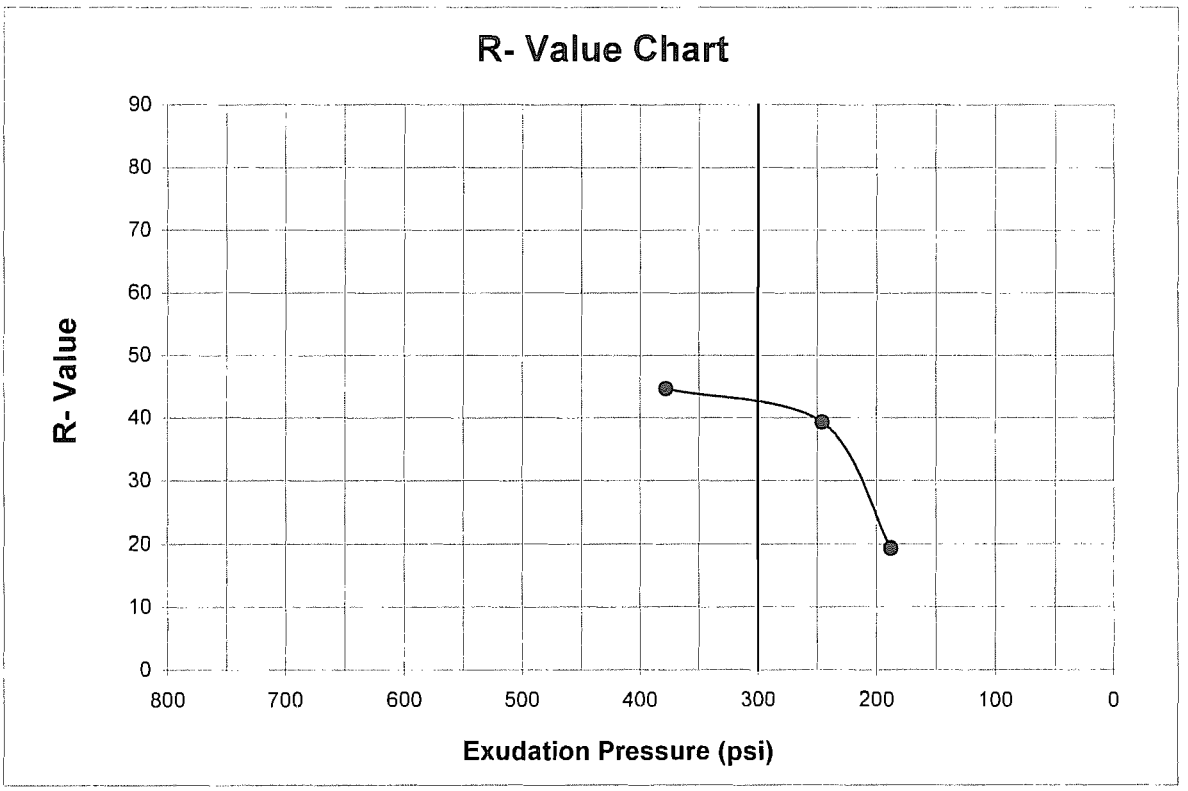
Figure B-5

RESISTANCE VALUE TEST (Cal Test 301, ASTM D2844)

Sample I.D.: BK 3 Depth:

Description: Light Brown Silty SAND w/ little clay & few gravel

Test Specimen	K	A	Q
Moisture Content (%)	17.0	15.9	14.8
Dry Density (pcf)	112.7	114.1	113.6
Expansion Dial (0.0001")	31	65	108
Expansion Pressure (psf)	134.2	281.5	467.6
Exudation Pressure (psi)	187.8	245.9	378.0
Resistance Value "R"	19	39	45
R Value at 300 psi Exudation Pressure:			**44**



CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

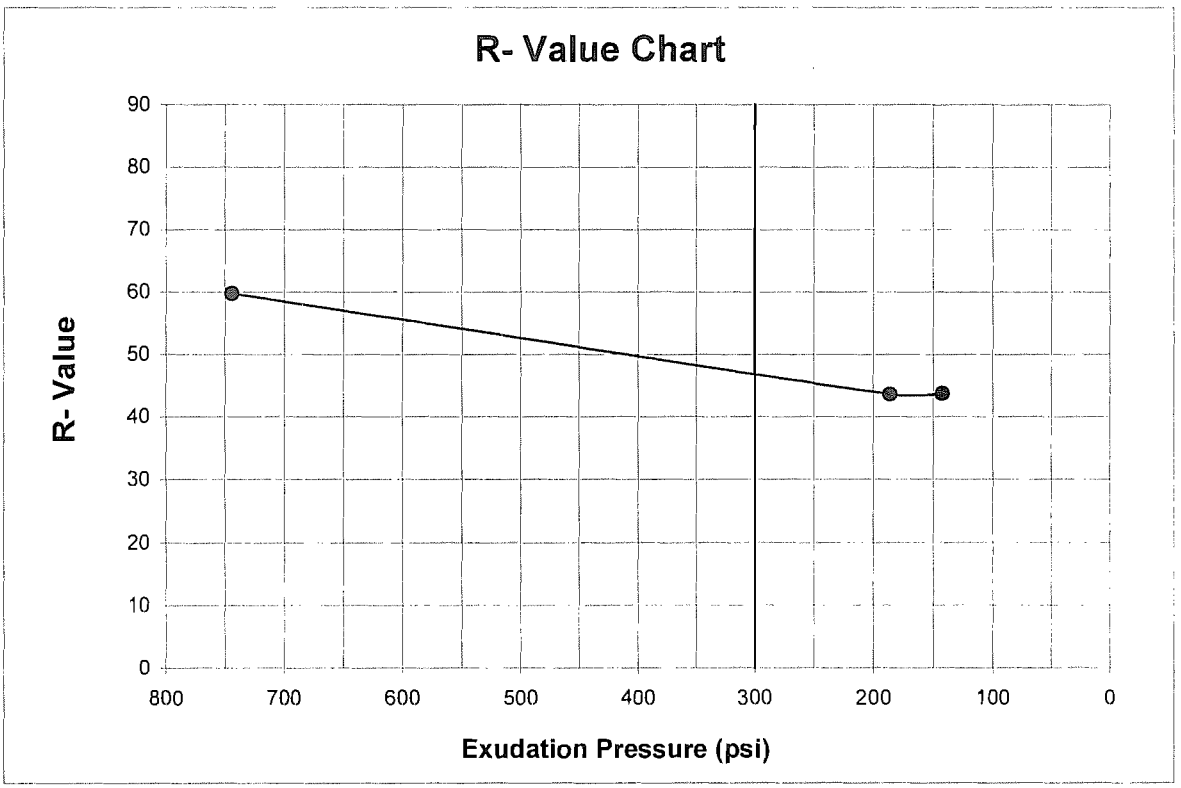
DIAMOND DORADO COMMERCIAL GES		FIGURE NO
PROJECT NO	DATE	B-6
E08072.000	June 2008	

RESISTANCE VALUE TEST (Cal Test 301, ASTM D2844)

Sample I.D.: BK 4 Depth:

Description: Yellow Brown Silty SAND w/ few gravel

Test Specimen	C	A	Q
Moisture Content (%)	15.9	17.0	14.8
Dry Density (pcf)	109.6	111.0	114.2
Expansion Dial (0.0001")	56	35	100
Expansion Pressure (psf)	242.5	151.6	433.0
Exudation Pressure (psi)	186.2	142.4	744.1
Resistance Value "R"	44	44	60
R Value at 300 psi Exudation Pressure:			**47**



CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

DIAMOND DORADO COMMERCIAL GES		FIGURE NO
PROJECT NO	DATE	B-7
E08072.000	June 2008	

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/11/2008
Date Submitted 04/08/2008

To: Victor Dumlao
Youngdahl Consulting Group
1234 Glenhaven Ct.
El Dorado Hills CA 95762

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : NATIVE,DIAM.DORADO Site ID : BK1.
Thank you for your business.

* For future reference to this analysis please use SUN # 52944-105934.

EVALUATION FOR SOIL CORROSION

Soil pH	6.98	
Minimum Resistivity	3.48 ohm-cm (x1000)	
Chloride	10.8 ppm	00.00108 %
Sulfate	22.5 ppm	00.00225 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/11/2008
Date Submitted 04/08/2008

To: Victor Dumlao
Youngdahl Consulting Group
1234 Glenhaven Ct.
El Dorado Hills CA 95762

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : NATIVE,DIAM.DORADO Site ID : BK2.
Thank you for your business.

* For future reference to this analysis please use SUN # 52944-105935.

EVALUATION FOR SOIL CORROSION

Soil pH	6.89	
Minimum Resistivity	1.18 ohm-cm (x1000)	
Chloride	12.2 ppm	00.00122 %
Sulfate	19.3 ppm	00.00193 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/11/2008
Date Submitted 04/08/2008

To: Victor Dumlao
Youngdahl Consulting Group
1234 Glenhaven Ct.
El Dorado Hills CA 95762

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : NATIVE,DIAM.DORADO Site ID : BK3.
Thank you for your business.

* For future reference to this analysis please use SUN # 52944-105936.

EVALUATION FOR SOIL CORROSION

Soil pH	11.89	
Minimum Resistivity	0.32 ohm-cm (x1000)	
Chloride	72.4 ppm	00.00724 %
Sulfate	424.5 ppm	00.04245 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

Sunland Analytical
11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 04/11/2008
Date Submitted 04/08/2008

To: Victor Dumlao
Youngdahl Consulting Group
1234 Glenhaven Ct.
El Dorado Hills CA 95762

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : NATIVE,DIAM.DORADO Site ID : B3.
Thank you for your business.

* For future reference to this analysis please use SUN # 52944-105937.

EVALUATION FOR SOIL CORROSION

Soil pH	6.58		
Minimum Resistivity	1.61 ohm-cm (x1000)		
Chloride	6.6 ppm	00.00066	%
Sulfate	4.0 ppm	00.00040	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

APPENDIX C

Refraction Seismic Investigation

APPENDIX C

Refraction Seismic Investigation

Refraction Seismic Investigation at the Planned Diamond Dorado Retail Center El Dorado County, California

G&A Project No. 2008-09.01

Prepared by:

Gasch & Associates
Rancho Cordova, California 95742-6576

Submitted to:

Mr. Victor Dumlao
Youngdahl Consulting Group, Inc.
1234 Glenhaven Court
El Dorado Hills, California 95762

March, 2008

GASCH & ASSOCIATES, INC.

March 31, 2008

Mr. Victor Dumlao
Youngdahl Consulting Group, Inc.
1234 Glenhaven Court
El Dorado Hills, CA 95762

Re: Refraction Seismic Investigation at the Planned Diamond Dorado Retail Center, Diamond Springs, El Dorado County, California.
G&A Project No. 2008-09.01
YCG Project No. E08072.000

Dear Mr. Dumlao:

At your request and authorization, Gasch & Associates (G&A) has completed a refraction seismic investigation for the planned Diamond Dorado Retail Center in Diamond Springs, El Dorado County, California (Figure 1).

This investigation involved the acquisition of two refraction seismic (RS) lines, collected at locations field selected by Youngdahl Consulting Group, Inc. personnel. Approximate line locations, as well as their lengths and orientation are indicated on Figure 2.

Purpose

The purpose of this investigation was to determine the depth to higher velocity material and also help define rippability (excavatibility) characteristics of the sub-surface materials. As seismic primary-wave velocity values can be used to quantify rippability in areas of hard rock; the refraction seismic method was used to evaluate the rock velocities on site prior to building the proposed project.

Method, Instrumentation and Software

The RS method measures the velocity at which a seismic wave propagates through a soil or rock medium. Higher seismic primary-wave velocities indicate material of higher density, thus quantifying the competency, or strength of the soil or rock medium, and providing an estimation of the rippability and/or excavatibility of the sub-surface materials.

G&A's seismic data acquisition system is a distributed, 24-bit digital instrument with data output to electronic media for subsequent processing. Digital grade geophones were used and the energy source was a hand held impact tool. All data were processed in house, on our data reduction and plotting workstation.

Our processing software uses a nonlinear forward modeling optimization technique called adaptive simulated annealing. This technology derives sophisticated velocity models, especially in areas characterized by strong lateral velocity gradients and extreme variations in topography or complex near-surface structure.

A color-coded seismic velocity cross-section of the subsurface has been generated for each RS line, where cool colors (blues) indicate lower seismic velocities and warm colors (reds) indicate higher velocities. Color scaling of these geo-seismic cross sections is based on the range of seismic velocity values calculated. The axes on each cross-section have been scaled 1:1, vertical to horizontal, and color scaling of the seismic velocity cross-sections has been normalized.

Data Acquisition Parameters

Both RS lines were acquired with geophone stations, spaced at 15-foot intervals. The energy source points were located between every other geophone as well as points off the ends of the line. RS Line utilized 21 active geophones, giving a length of 330 feet and RS Line 2 had 18 active geophones for a total length of 285 lineal feet. The northeast end of Line 1 and the eastern end of Line 2 were field staked with appropriately labeled orange colored stakes and flagging. The southwestern end of Line 1 and the western end of Line 2 were not staked due to difficulty of planting a stake This RS data was acquired on March 28th, 2008.

Seismic Velocities

Generally, seismic p-wave velocities less than 3,000 ft/s indicate soil, fill material, or heavily weathered or fractured and/or decomposed rock, while velocities in excess of 10,000 ft/s indicate fresh (essentially non-weathered) rock. Seismic velocities between these two values typically indicate rock with varying degrees of weathering and/or fracturing. Moderate velocities may indicate soil *or* rock, as saturated sediment below the water table characteristically displays seismic velocities near or slightly above 5,000 ft/s. Both very low and high seismic velocities are found on site.

Extremes in seismic velocities may range from below 1,500 ft/s to over 20,000 ft/s. Very low seismic velocities usually indicate poorly compacted material, either natural or man-made. Extremely high velocities are rare in the near-surface, and only possible in certain types of rock.

Rippability

Rippability is dependent on the physical condition of the rock masses to be excavated. In addition to the rock type and degree of weathering, structural features in the rock such as bedding planes, cleavage planes, joints, fractures and shear zones also influence rippability. Rock masses tend to be more easily ripped if they have well defined, closely spaced fractures, joints, or other planes of weakness. Massive rock

bodies which lack discontinuities may exhibit marginal rippability, even where partially weathered, and may require blasting for efficient removal.

Seismic primary wave (p-wave) velocities are related to both rock hardness and fracture density. Rippability has been empirically correlated to seismic refraction velocities by Caterpillar Inc., as displayed on Figure 5 for a CAT D10R (Caterpillar Performance Handbook, Edition 32, October 2001). According to this chart, igneous rocks, in this case greenstone, become marginally rippable near 8,500 feet/second (ft/s); and non-rippable at 11,000 ft/s.

This chart of ripper performance should be considered as being only one indicator of rippability. Ripper tooth penetration is the key to successful ripping, regardless of seismic velocity. This is particularly true in finer-grained, homogeneous materials and in tightly cemented formations. Ripping success may ultimately be determined by the operator finding the proper combination of factors, such as: number of shanks used, length and depth of shank, tooth angle, direction of travel, and use of throttle. Although low seismic velocities in any rock type indicate probable rippability; if the fractures, bedding and/or joints do not allow tooth penetration, the material may not be ripped efficiently. In some cases, drilling and blasting may be required to induce sufficient fracturing to allow tooth penetration for excavation.

The association between the seismic velocity of any given earth material and its rippability also varies greatly from one type of earth-moving equipment to another. For example, although a large track laying dozer with a single ripper tooth can sometimes rip material with seismic velocities in excess of 10,000 ft/s, G&A has experienced a limiting velocity for large excavators to range from 3,500 ft/s to 4,500 ft/s, and a standard backhoe may meet refusal at seismic velocities as low as 3,000 ft/s. Ultimately, the relationship between seismic velocity and rippability is dependent on both: site conditions *and* equipment / operator ability.

Findings

The results of the refraction seismic investigation are summarized by Figures 3 and 4. Models created through the inversion process have low error, and provide a high degree of lateral definition of seismic velocity structures.

Examination of these sections provides a visual depiction of the variation in seismic velocities beneath each RS line. Four seismic velocity zones are readily identifiable, and are present to varying extent on each line:

<u>Zone 1 – Low Velocity</u>

On each line, a zone of excavatible, low-velocity material (dark blue to light blue-green, 1,000 ft/s to 3,500 ft/s) is found at ground surface, extending to varying depths beneath each line. Generally, this zone is found to be from 20 to 100+ feet in thickness. Both of the RS Lines show a very thick (relatively) layer of this zone which grades quickly to

higher velocity material. On RS Line 1, this zone is not present on the southwestern portion of the line from station 195 to the end of the line

Zone 2 – Moderate Velocity

Underlying Zone 1, seismic velocities increase to moderate levels (light blue-green to yellow-green - 3,500 ft/s to 6,000 ft/s). This zone probably indicates the presence of moderately to heavily fractured and/or weathered, rippable rock; however, it could also represent sediment with varying degrees of saturation. On these RS lines, it appears to be a thick transitional zone to the underlying higher velocity materials.

This zone is generally found to extend from 60 to 120 feet below ground surface (bgs), however; on RS Line 1, this zone is not as well defined as compared to Line 2.

Zone 3 – Transitional High Velocity

At greater depth, underlying Zone 2, seismic velocities increase to moderately high values (yellow-green to red, 6,000 ft/s to 8,500 ft/s). Typically, Zone 3 represents slightly to marginally fractured and/or weathered rock. This transitional zone indicates the marginal limit of the rippable range for a CAT D10R in greenstone material.

This zone appears as a thin layer approximately 15 to 20 feet thick across southwestern portion of RS Line 1, however, this zone is absent to the northeast between stations 170 to 330. On RS Line 2, Zone 3 is an undulating layer that averages about 30 feet in thickness.

Zone 4 – High Velocity

Indicating marginal to non-rippable conditions for a CAT D10R, Zone 4 consists of high seismic velocity material (reddish-purple, 8,500+ ft/s). This zone is usually due to the presence of relatively unweathered rock. Depending on rock joint and/or fracture density, this rock may require blasting for efficient excavation.

RS Line 1 displays an abrupt gradation from Zone 3 to Zone 4 and is concentrated on the southwestern end of the line. RS Line 2 also shows an abrupt change in velocities near the center of the line. The depth down to this high velocity material is below the depth of the planned excavation for the project.

Summary

This refraction seismic investigation revealed a very high degree of variation in the calculated seismic velocities of the subsurface materials, with maximum seismic velocity values greater than 14,000 ft/s. Very low velocity material was also encountered in the near surface material which suggests fill, native soils and/or highly weathered rock. The velocity gradient on these RS Lines, shows a thick section of moderate velocity material which grades to high velocity material fairly deep.

In general, the top 50 feet of material exhibited velocities ranging from 1,000 to 3,500 ft/s, common levels in fill material, native soils and heavily weathered rock. Conversely, the deepest portions of the seismic sections revealed velocities in excess of 10,000 ft/s, which suggested fresh, relatively un-weathered rock. This refraction seismic investigation revealed a moderately high degree of variation in the seismic velocities of the subsurface materials.

Four zones have been identified which characterize the seismic velocity distributions, and their probable indications as to site conditions and rippability. As noted in the above discussion, excavation does not appear to be problematic based on the planned maximum depth of excavation for the project.

We trust that this is the information you require; however, should you have comments or questions, please contact our Rancho Cordova office at your convenience. Thank you for this opportunity to be of service.

Sincerely,

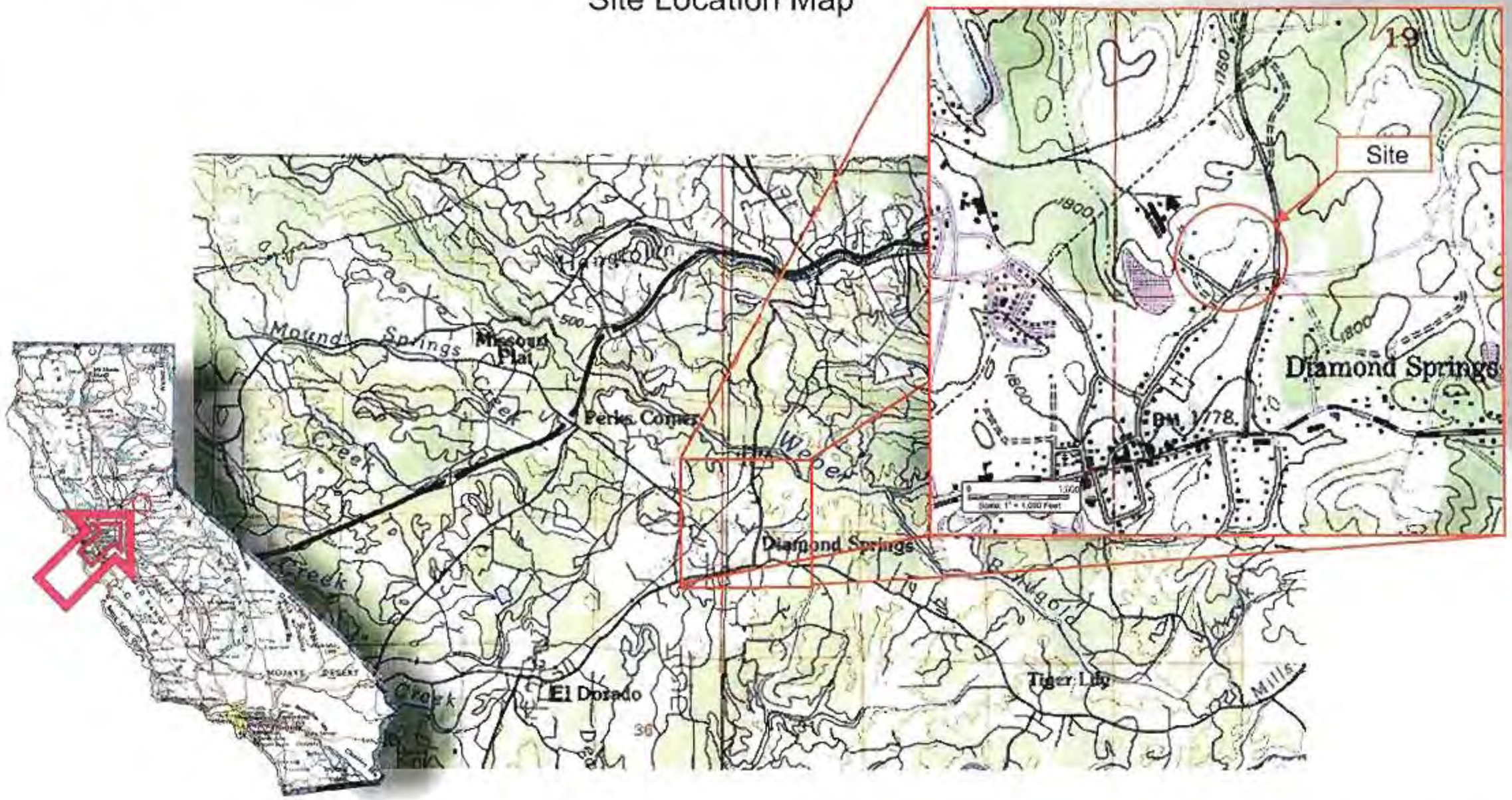
GASCH & ASSOCIATES

Kent L. Gasch
Professional Geophysicist No. 1061
Geologist

Jerrie W. Gasch
Professional Geophysicist No. 516
Professional Geologist No. 450
Engineering Geologist No. 1203

Base Map Courtesy of: USGS

Site Location Map



0 5 10 15 20 miles
0 10 20 30 kilometers

North

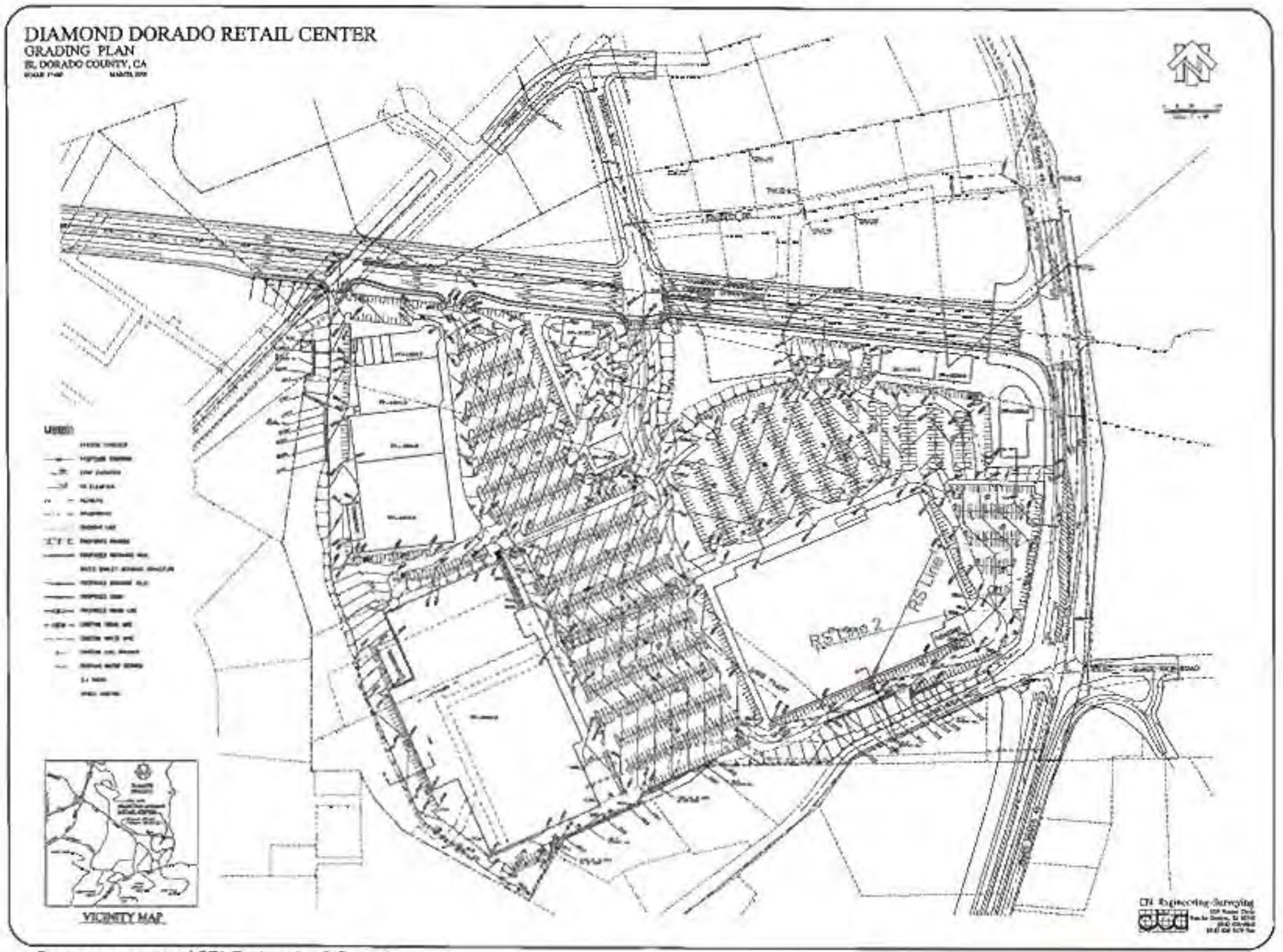
Figure 1

Diamond Dorado Retail Center
Refraction Seismic Investigation

Prepared for: Youngdahl Consulting Group

GASCH & ASSOCIATES
CONSULTANTS IN GEOPHYSICS AND GEOLOGY FOR THE ENGINEERING, GROUNDWATER, ENVIRONMENTAL and MINING INDUSTRIES.
3174 Luyung Drive, Building #2
Rancho Cordova, California 95742 U.S.A.
(916) 635-8505 • FAX (916) 635-8507
www.gasch.com

Refraction Seismic Line Location Map



Base map courtesy of CTA Engineering & Surveying

North

0 1250 feet

Scale: 1' = 250'

Figure 2

Diamond Dorado Retail Center
Refraction Seismic Investigation

Prepared for: Youngdahl Consulting Group

CONSULTANTS IN GEOPHYSICS AND GEOLOGY FOR THE ENGINEERING, GROUNDWATER, ENVIRONMENTAL and LEGAL PROFESSIONS
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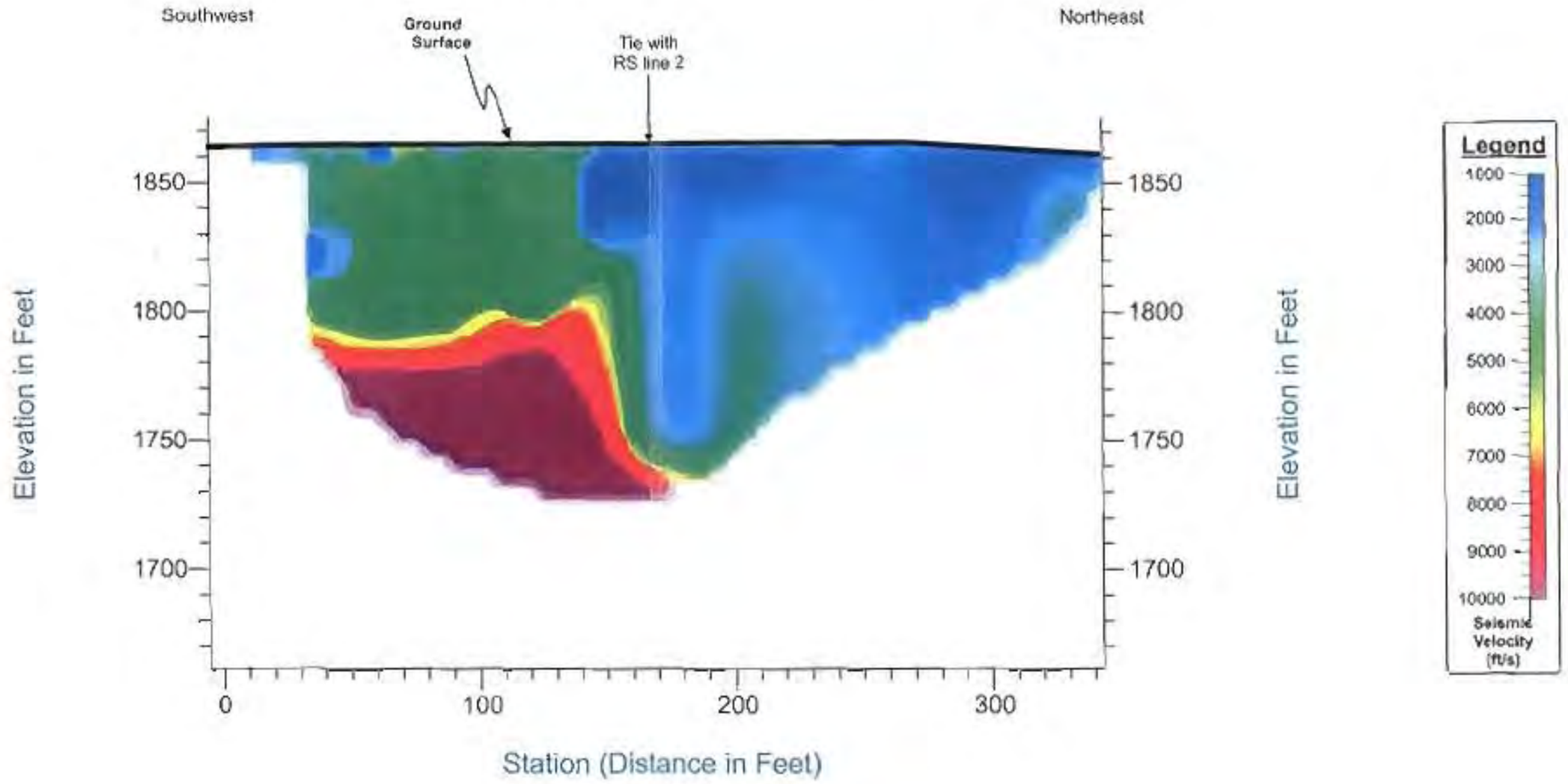
Rancho Cordova, California 95742, U.S.A.
Phone: (916) 851-1900 Fax: (916) 851-1995 Web: Gasch, 2008

Seismic Velocity Section • RS Line 1



Scale: 1" = 50'
Geophone Station Interval = 15 feet
Energy Source-Point Interval = 30 feet

Figure 3

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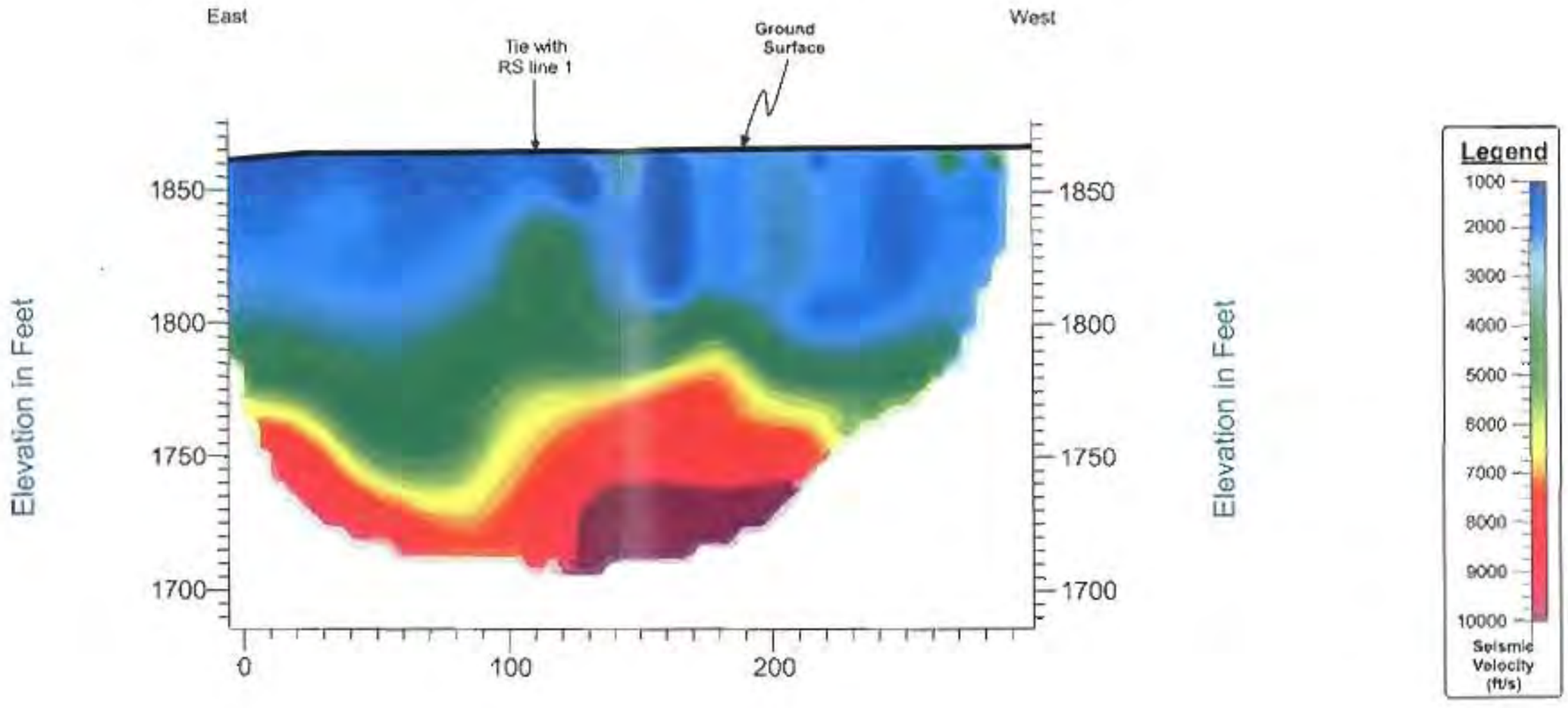
Diamond Dorado Retail Center
Refraction Seismic Investigation

Prepared for: *Youngdahl Consulting Group*

Project Number: 2008.06.01 Date: March 2008

Seismic Velocity Section • RS Line 2



Scale: 1" = 50'
Geophone Station Interval = 15 feet
Energy Source-Point Interval = 30 feet

Figure 4

GA GASCH & ASSOCIATES
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Diamond Dorado Retail Center
Refraction Seismic Investigation

Prepared for: *Youngdahl Consulting Group*

Project Number: 2008-09.01 Date: March, 2008

Caterpillar D10R Ripper Performance Chart*

D10R

Multi or Single Shank No. 10 Ripper
Estimated by Seismic Wave Velocities

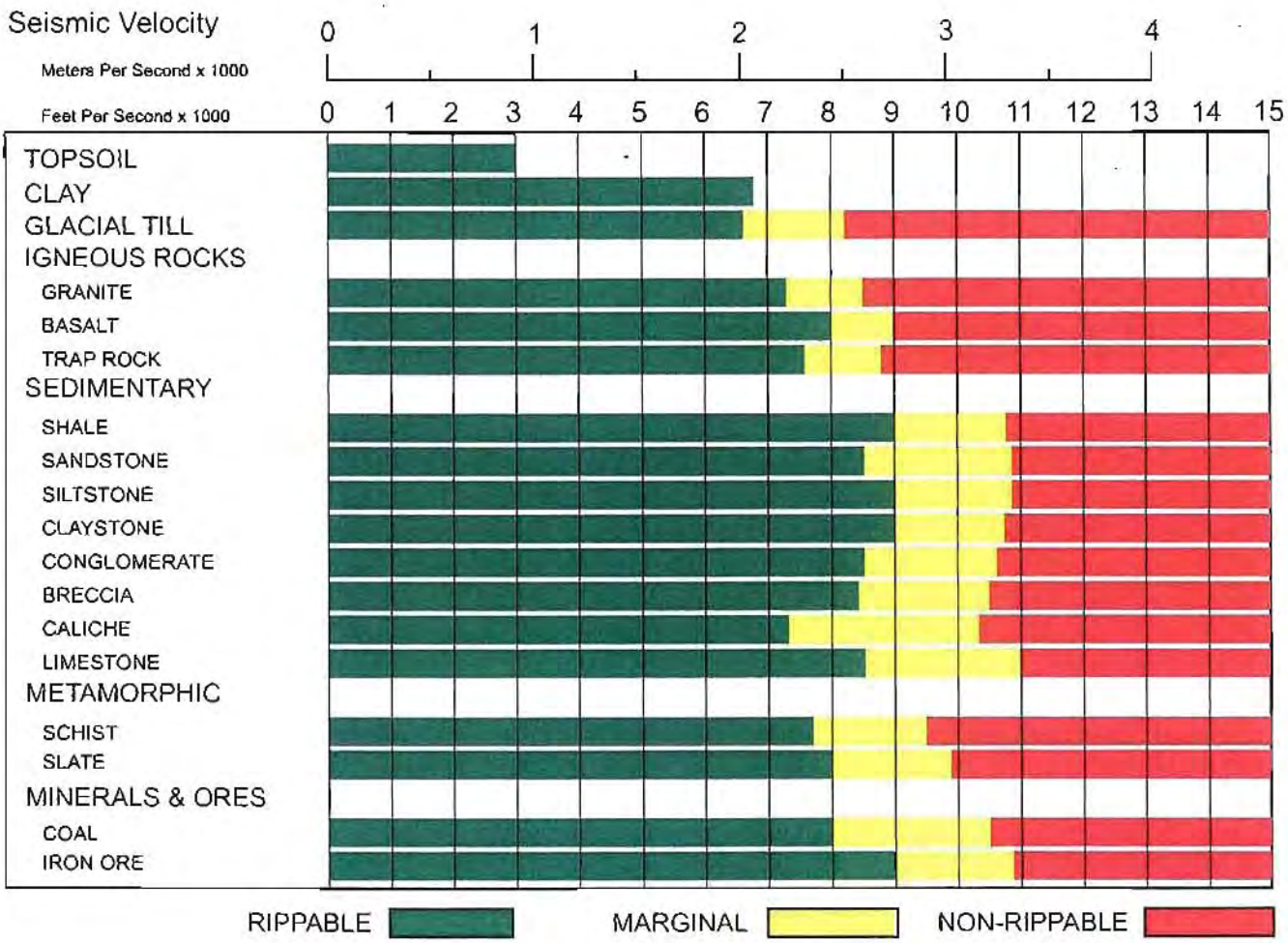

Figure 7

* Based on the Caterpillar Performance Handbook Edition 32 - October, 2001

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Diamond Dorado Retail Center
Refraction Seismic Investigation

Prepared for: Youngdahl Consulting Group

Project Number: 2008-09.01 Date: March 2008

APPENDIX D

Boring Logs (Terrasearch 1980)

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 1

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Tan sandy SILT with blue-grey rock chips, dry, loose	ML					
2			Grey-brown silty SAND, damp, loose	SM	6				Lost sample
3	1-1		Blue-grey fine sandy SILT, saturated very loose. Pushing auger through it easily.		3				
4									
5									
6	1-2				2		43	95	
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18	1-3				2		70	47	
19			Light brown silty SAND, dry at top, damp to moist below. Rocky. Very dense	SM					
20									
21									
22									
23			Boring terminated at 22 feet						
24									

TERRA SEARCH INC.

FIGURE NO. 2 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 2

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown and grey silty SAND, with rock chips, damp, loose.	SM					
2									
3			Blue-grey fine sandy SILT, moist, loose	ML	7		76	73	
4	2-1								
5			Saturated, very loose, pushing auger through easily						
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24	2-2		Brown silty SAND with weathered rocks damp, very dense	GM	50/ 1.5 "				No sample retained

Boring terminated at 25 feet

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FIGURE NO. 3 - Test Boring

Project No 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 3

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown silty SAND with rock chips, dry loose	SM					
2	3-1		Blue-grey fine sandy SILT, damp to moist, loose to medium dense	ML	12		78	24	Bag A
3									Direct Shear
4									C = 700
5									Ø = 37
6	3-2				10		80	36	
7									
8	3-3		White chalky pods		9		86	24	
9									
10			Saturated						
11									
12			Brown silty SAND, damp, dense. (Old topsoil layer)	SM					
13									
14	3-4		Grades to light brown silty SAND and GRAVELS, damp, very dense	GM			90	23	
15									
16									
17									
18									
19									
20			Boring terminated at 20 feet.						
21									
22									
23									
24									

TERRA SEARCH INC.

FIGURE NO. 4 - Test Boring

P oject No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 4

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Crusty white sandy SILT, dry loose	ML					
2			Blue-grey fine sandy SILT, with lime-stone gravels, moist, loose to very loose	ML					
3									
4									
5									
6	4-1				5		73	35	
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21			Brown silty SAND and GRAVEL, weathered rocks, damp, very dense	GM					
22									
23									
24									
25									
			Boring terminated at 25 feet						

TERRA SEARCH INC.

FIGURE NO. 5 - Test Boring

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 5

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1–2			Brown sandy SILT with rock chips, damp, loose	ML					
3–13			Blue-grey fine sandy SILT, saturated, very loose, pushing auger through easily	ML					
13–16	5-1		Yellowish brown silty SAND and weathered rock, damp, very dense	GM	100+		111	19	Direct Shear C = 2800 Ø = 45°
16			Boring terminated at 16 feet						

TERRA SEARCH INC.

FIGURE NO. 6 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 6

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Reddish-brown silty gravely SAND, damp loose to medium dense	GM					
2									
3	6-1		Dark-brown silty gravely SAND, minor clay, moist, medium dense		17		73	37	
4									
5			Light reddish brown silty gravelly						
6	6-2		SAND, damp, dense to very dense		47		115	15	
7									
8									
9									
10									
11									
12			Dry						
13									
14									
15			Boring terminated at 15 feet.						
16									
17									
18									
19									
20									
21									
22									
23									
24									

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FIGURE NO. 7 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 7

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Light brown silty gravely SAND, dry to damp, dense	GM					
6			Lighter color, very dense						
15			Boring terminated at 15 feet						

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FIGURE NO. 8 - Test Boring

Project No. 2 97-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 8

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1–3	8-1		Brown gravelly silty SAND, damp to moist, medium dense	SM	14		97	19	
4–5			Blue grey fine sandy SILT, loose	ML					
6			Brown silty SAND, damp, loose	SM					
7–9			Light brown gravelly SAND, damp, very dense	GP					
10			Boring terminated at 10 feet						
11–24									

TERRA SEARCH INC.

FIGURE NO. 9 - Test Boring

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 9

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1–3			Light brown gravelly silty SAND, dry to damp, loose to medium dense	SM					
4–11			Blue-grey fine sandy SILT, saturated very loose. Push auger through easily. Moist, not as soft	ML					
12–14			Brown silty gravelly SAND, damp damp, very loose	GM					
15			Boring terminated at 15 feet						

TERRA SEARCH INC.

FIGURE NO. 10 - Test Boring

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 10

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Yellowish brown silty gravelly SAND, damp, loose (fill)	SM					
2									
3	10-1				8		101	15	
4									
5									
6	10-2				7		105	18	
7									
8			Water at 8 feet						
9			Greenish black, slightly clayey, moist, medium dense, organic smell						
10									
11	10-3		Dark-brown gravelly SAND and weathered rock, damp, very dense	GP	43		98	16	
12									
13									
14									
15			Boring terminated at 15 feet.						

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FIGURE NO. 11 - Test Boring

Project No. 2397 E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 11

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown silty gravelly SAND, damp, loose to medium dense (fill).	SM					
2									
3									
4	11-1				11		100	18	
5									
6									
7			Dark blue-grey silty SAND, saturated loose, organic smell.	SM					
8									
9			Water at 9 feet						
10									
11			Yellowish brown silty SAND and weathered rock, damp, dense to very dense.	GM					
12									
13									
14									
15									
			Boring terminated at 15 feet.						

TERRA SEARCH INC.

FIGURE NO. 12 - Test Boring

Project o. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 12

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown gravelly silty SAND, damp, loose to medium dense.	SM					
2									
3			Blue-grey fine sandy SILT, moist, medium dense	ML					
4	12-1				13		67	33	
5									
6									
7	12-2		Saturated 7-8 feet, very loose		4		79	49	
8			Rock encountered 8-10 feet.						
9									
10			Brown silty gravelly SAND, damp, dense	GM					
11									
12									
13									
14									
15			Boring terminated at 15 feet						

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FIGURE NO. 13 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 13

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown gravelly silty SAND, damp, loose	SM					
2			Blue-grey fine sandy SILT, damp loose	ML					
3	13-1				8		83	23	
4									
5			Moist to saturated, loose to very loose, pushing auger through easily						
6	13-2				5		72	31	
7									
8									
9									
10									
11									
12									
13									
14									
15			Dark-brown clayey SAND with weathered rock, moist, dense	SC					
16									
17									
18			Boring terminated at 18 feet.						

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FIGURE NO. 14 - Test Boring

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 14

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown gravelly silty SAND, damp, loose	SM					
2			Blue-grey fine sandy SILT, moist to saturated, loose to very loose. Pushing auger through easily.	ML					
3									
4									
5									
6			Less moisture, firmer at 6 feet.						
7									
8									
9									
10									
11			Light brown silty SAND, damp, loose to medium dense	SM					
12									
13									
14									
15									
16									
17									
18			Brown silty SAND with weathered rock, damp, very dense	GM					
19									
20									
			Boring terminated at 20 feet.						

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FIGURE NO. 15 - Test Boring

Project No 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 15

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Light brown and grey silty SAND, damp loose	SM					
2									
3			Blue-grey fine sandy SILT, with chalky pods, asphalt chunks, moist to saturated, loose to very loose. Pushing auger through easily.	ML					
4	15-1				5		54	53	
5									
6									
7									
8									
9									
10			Less moist and firmer at 10 feet.						
11									
12			Water at 12 feet.						
13									
14									
15									
16									
17									
			Refusal on rock at 17 feet						

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FIGURE NO. 16 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 16

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
			Asphalt pavement						
1			Dark-brown silty SAND, damp to moist medium dense	SM					
2	16-1		Siltier at 2.5 feet		15		89	22	
3									
4									
5			Reddish-brown at 5 feet.						
6									
7			Light brown and gravelly at 6.5 feet.						
8									
9			Dense at 8.5 feet.						
10									
11									
12			Very dense at 12 feet.						
13									
14									
15			Boring terminated at 15 feet.						

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FIGURE NO. 17 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 17

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			White and blue-grey SAND and GRAVELS, dry, loose.	GW					
2			Light-brown silty SAND, damp, medium dense.	SM					
3	17-1				27		97	19	
4									
5									
6									
7									
8			Lighter color at 8 feet.						
9									
10			Boring terminated at 10 feet.						

TERRA SEARCH inc.

FIGURE NO. 18 - Test Boring

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 18

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			White and blue-grey SAND and GRAVELS dry, loose	GW					
2	18-1		Blue-grey sand SILT, moist, loose	ML			68	23	
3			White chalky lime, rocks, moist, dense		45				
5			Brown silty SAND, damp, medium dense	SM					
15			Water at 15 feet.						
17			Brown silty SAND and weathered rock, damp, very dense.	GM					
20			Boring terminated at 20 feet						

TERRA SEARCH INC.

FIGURE NO. 19 - Test Boring

Project No. 2197-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 19

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			White and grey SAND and GRAVEL, dry, loose.	GW					
2			Light-brown silty SAND with chalk pods and rocks	GM					
3									
4	19-1								Rock refusal of sampler
5			Dark-brown silty gravelly SAND, damp medium dense	SM	17		103	19	
6	19-2								
7									
8			Lighter color, dense at 8 feet.						
9									
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 20 - Test Boring

LOGGED BY DR DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 20

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			White and grey SAND and GRAVEL, dry loose	GW					
2			Light brown silty gravelly SAND, dry, very dense.	GM					
3									
4	20-1				100+		93	9	
5									
6			Slightly damp at 5.5 feet.						
7									
8			Damp, dense at 7.5 feet.						
9									
10									
			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 21 - Test Boring

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 21

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Dark brown silty SAND, damp, dense	SM					Bag B
2									
3					40				
4	21-1		Light tan, slightly damp, very dense at 3.5 feet.		100+		110	14	
5									
6									
7									
8									
9									
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 22 - Test Boring

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 22

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Asphalt pavement						
1			Dark-grey SAND and large GRAVELS, dry to damp.	GW					
2									
3	22-1		Dark-reddish-brown silty SAND, damp, medium dense	SM	23	-	78	19	Poor Sample
4									
5									
6									
7									
8			Light-brown gravelley and dense at 7.5 feet.						
9									
10									
11									
12									
13									
14									
15			Boring terminated at 15 feet.						

TERRA SEARCH INC.

FIGURE NO. 23 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 23

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Light brown silty gravelly SAND, damp, loose to medium dense	SM					
2			Blue-grey fine sandy SILT, saturated very loose.	ML					
3	23-1		Dark-brown silty SAND, damp, dense (old topsoil)	SM	42		107	19	
4									
5									
6									
7			Light-brown silty gravelly SAND, damp, very dense	GM					
8									
9									
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 24 - Test Boring

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 24

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown and grey silty SAND, damp, loose to medium dense.	SM					
2									
3			Blue-grey fine sandy SILT, saturated, very soft. Push auger through easily.	ML					
4									
5									
6			Moist, firmer at 6.5 feet.						
7									
8									
9			Brown gravelly SAND and weathered rock, damp, very dense	GM					
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 25 - Test Boring

Project No. 2 97-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 25

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Light-brown SAND and GRAVELS, dry, loose	GW					Bag C
2			Reddish-brown silty SAND, damp, dense	SM					
5			Lighter in color at 5 feet.						
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 26 - Test Boring

Project No. 23 7-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 26

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
			Asphalt pavement						
1			Light-brown silty gravelly SAND, slightly damp, very dense		SM				
2									
3	26-				61		111	5	
4									
5									
6									
7									
8			Weathered rock, very slow drilling						
9									
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 27 - Test Boring

APPENDIX E

Previous Grading Reports (Terrasearch 1980 and 1981)

Project No. 2397-C
24 September 1980

Maxim Development Company
P. O. Box 411
Diamond Springs, California 95619

Attention: Mr. Robert Maxim

Subject: Industrial Site at Diamond Springs
Lime Plant - Phase I Building Pad
Lime Kiln Road, Diamond Springs, California
PROGRESS REPORT OF DIAMETRICS BUILDING PAD
AND ADJACENT PARKING AREAS

Gentlemen:

At your request, TERRASEARCH, INC. has performed testing and observation services at the subject site.

Site preparation consisted of stripping of surface vegetation and deleterious materials. Phase I building pads and parking areas were draglined out to acceptable bearing material. A mixture of on site materials was then placed and compacted in 6-8 inch lifts. Field density tests performed by our firm indicate that a relative compaction of least 95% was obtained. Tests on which acceptance is based were performed in accordance with ASTM D1557-70 Test Procedure.

Summarized in Tables I and II are the results of all laboratory and field density tests performed by our firm to date.

At the date of this letter, the area of future building site located adjacent to the west end of the proposed building pad has not been completed to requirements. Approximately one-half of the parking area in the north side of the building pad has also not been completed.

Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
TERRASEARCH, INC.

Reviewed by:

Dennis E. Youngdahl, P.E.
Senior Engineering Manager
Sacramento Region

John C. Parker
Field Technician

JCP:DEY:cas

TABLE I

Summary of Laboratory Test Results

Test No. (Soil Type)	Description	Max. Dry Density p.c.f.	Opt. Moisture %
1	Light tan silty SAND with weathered rock	124.8	9.8
2	Blue gray SILT withsome gravels	105.5	16.2
3	Mixture of 1 and 2 actual	114.7	15.0

TABLE II

Summary of Field Density Test Results

Test No.	Date 1980	Description	Elevation Feet	Moisture Content %	Dry Density p.c.f.	Relative Compaction %	Soil Type & Remarks
1	8/15	NE building pad corner	1869	19	103.8	98	(2)
2	8/15	50' S NE pad corner	1869	16	105.8	100	(2)
3	8/15	100' S NE pad corner	1870	16	104.5	99	(2)
4	8/15	150' S NE pad corner	1872	16	105.8	100	(2)
5	8/15	50' W SE pad corner	1876	9	98.5	79	(1)* RT#6
6	8/15	Retest of #5	1876	7	117.0	94	(1)
7	8/15	50' W 75' N SE pad corner	1871	16	103.8	98	(2)
8	8/15	50' W 125' N SE corner	1870	14	103.8	98	(2)
9	8/15	50' W 175' N SE corner	1870	16	102.5	97	(2)
10	8/18	NE corner	1872	14	108.6	95	(3)
11	8/18	100' S NE corner	1872	12	104.5	99	(2)
12	8/18	SE corner	1875	8	116.8	95	(1)
13	8/18	75' W 55' N SE corner	1874	12	108.8	95	(3)
14	8/18	75' S 50' W NE corner	1872	12	104.3	99	(2)
15	8/18	150' W 30' S NE corner	1873	13	104.0	99	(2)
16	8/18	150' W 100' S NE corner	1871	15	101.8	96	(2)
17	8/18	150' W 30' N Se corner	1874	11	117.0	95	(1)
18	8/20	90' W 50' S NE corner	1876	15	100.3	94	(2)
19	8/20	90' W 40' N SE corner	1876	21	91.0	86	(2)* RT #20
20	8/20	Retest of #19	1876	15	108.8	95	(3)
21	8/20	NE corner	1875	17	104.8	99	(2)
22	8/20	50' S NE corner	1876	17	103.0	98	(2)
23	8/20	125' S NE corner	1976	16	108.8	95	(3)
24	8/20	SE corner	1976	16	108.3	95	(3)
25	8/20	100' W SE corner	1876	18	104.0	91	(3)* RT#26
26	8/20	Retest of #25	1876	17	108.8	95	(3)

TS 10

TABLE II

Summary of Field Density Test Results

Test No.	Date 1980	Location	Elevation (ft.)	Moisture Content %	Dry Density p.c.f.	Relative Compaction	Soil Type & Remarks
27	8/21	100' W 100' N SE corner	1876	15	108.8	95	(3)
28	8/21	150' N 100' W SE corner	1876	16	101.5	96	(2)
29	8/21	100' W NE corner	1876	11	106.5	93	(3)* RT#30
30	8/21	Retest of #29	1876	12	108.8	95	(3)
31	8/21	200' W NE corner	1876	17	106.3	93	(3)* RT#32
32	8/21	Retest of #31	1876	15	108.5	95	(3)
33	8/21	200' W 85' S NE corner	1876	18	101.5	96	(2)
34	8/21	200' W 50' N SE corner	1876	16	104.0	100	(2)
35	8/21	200' W SE corner	1876	11	113.8	99	(3)
36	8/21	200' W 10' N SE corner	1876	11	110.0	96	(3)
37	8/21	55' W SE corner	1878	18	101.3	96	(2)
38	8/21	255' W 75' N SE corner	1878	18	103.5	98	(2)
39	8/21	255' W 125' N SE corner	1878	17	105.5	100	(2)
40	8/21	255' W NE corner	1878	17	102.8	97	(2)
41	8/27	NE corner	FG	12	102.5	97	(2)
42	8/27	75' W NE corner	FG	15	110.3	96	(3)
43	8/27	150' W NE corner	FG	17	108.8	94	(3)
44	8/27	225' W NE corner	FG	12	105.5	100	(2)
45	8/27	225' W 100' S NE corner	FG	18	103.5	98	(2)
46	8/27	200' W SE corner	FG	12	105.0	99	(2)
47	8/27	150' W SE corner	FG	15	112.0	98	(3)
48	8/27	75' W SE corner	FG	15	113.5	99	(3)
49	8/27	SE corner	FG	14	109.8	96	(3)
50	8/27	100' N SE corner	FG	14	110.8	97	(3)
51	8/28	NW corner	1880	10	112.5	98	(3)
52	8/28	75' S NW corner	1880	15	106.0	92	(3)* RT#58
53	8/28	150' S NW corner	1879	12	119.0	95	(1)
54	8/28	SW corner	1879	12	113.0	99	(3)
55	8/29	SW corner	1881	17	106.8	93	(3)* RT#56
56	8/29	Retest of #55	1881	15	110.0	96	(3)
57	8/29	80' N SW corner	1880	19	104.0	98	(2)
58	8/29	Retest of #52	1880	20	103.0	90	(3)
59	8/29	NW corner	1880	20	104.3	91	(3)
60	9/3	110' E NW corner	FG	16	103.3	98	(2)
61	9/3	100' E 60' S NW corner	FG	10	109.3	95	(3)
62	9/3	100' E 140' S NW corner	FG	14	105.5	100	(2)
63	9/3	100' E SE corner	FG	13	108.3	95	(3)
		PARKING AREA					
64	9/8	NE corner	FG	10	111.0	97	(3)
65	9/8	75' W NE corner	1	10	112.0	98	(3)
66	9/8	150' W NE corner	1	10	110.0	96	(3)
67	9/8	50' S 225' W NE corner	1	11	107.5	94	(3)* RT#68

TS 10

TABLE II

Summary of Field Density Test Results

Test No.	Date 1980	Location	Depth (ft.)	Moisture Content %	Dry Density p.c.f.	Relative Compaction	Soil Type & Remarks
68	9/8	Retest of #67	1	11	109.0	95	(3)
69	9/8	50' N 175' W NE corner	1	12	108.8	95	(3)
70	9/8	50' N 125' W NE corner	1	13	112.3	98	(3)
71	9/8	50' S 75' W NE corner	1	10	111.5	97	(3)
72	9/8	50' S NE corner	1	13	107.8	94	(3)* RT#73
73	9/8	Retest of #72	1	12	109.3	95	(3)

NOTES

( ) = Indicates Soil Type

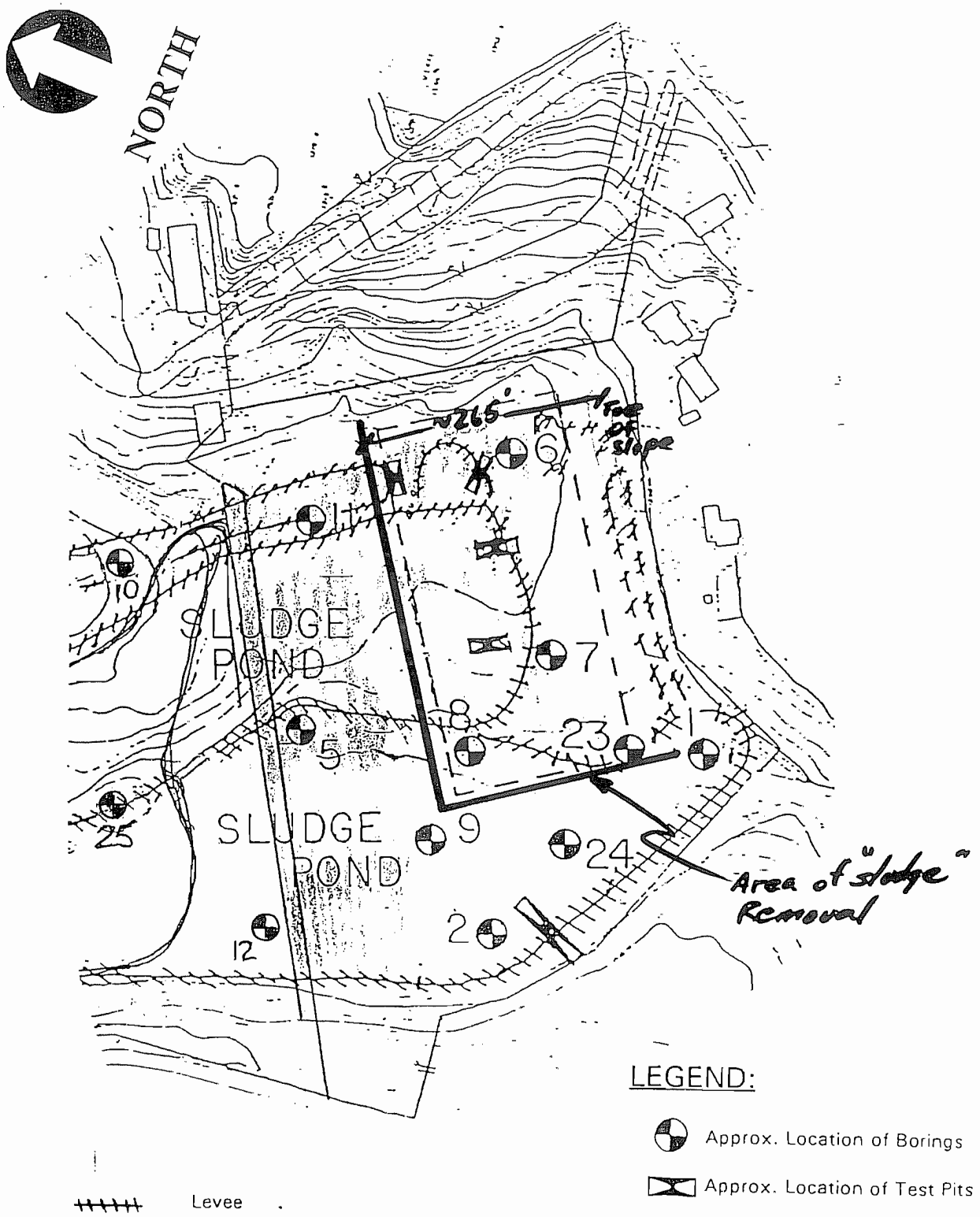
* = Indicates Failing Test

RT = Retest Number

FG = Finished Grade

OG = Original Ground

Depth = Depth Below Finished Grade



Project No. 93111.E	JUNE 1993	SITE PLAN Dimetrics Building Project El Dorado County, CA	FIGURE D-1

YOUNGDAHL & ASSOCIATES, INC.
GEOTECHNICAL, ENVIRONMENTAL & CONSTRUCTION LAB

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 1

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Tan sandy SILT with Blue-grey rock chips, dry, loose	ML					
2			Grey-brown silty SAND, damp, loose	SM	6				Lost sample
3	1-1		Blue-grey fine sandy SILT, saturated very loose. Pushing auger through it easily.		3				
4									
5									
6	1-2				2		43	95	
7									
8									
9			NOT REMOVED						
10									
11									
12									
13									
14									
15									
16									
17									
18	1-3				2		70	47	
19			Light brown silty SAND, dry at top, damp to moist below. Rocky. Very dense	SM					
20									
21									
22									
23			Boring terminated at 22 feet						
24									

TERRA SEARCH INC.

FIGURE NO. 2 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 2

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown and grey silty SAND, with rock chips, damp, loose.	SM					
2									
3	2-1		Blue-grey fine sandy SILT, moist, loose	ML	7		76	73	
4									
5			Saturated, very loose, pushing auger through easily						
6									
7									
8									
9									
10									
11			NOT REMOVED						
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24	2-2		Brown silty SAND with weathered rocks damp, very dense	GM	50/ 1.5 "				No sample retained

TERRA SEARCH INC.

FIGURE NO. 3 - Test Boring

Boring terminated at 25 feet

Project No 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 5

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown sandy SILT with rock chips, damp, loose	ML					
3			Blue-grey fine sandy SILT, saturated, very loose, pushing auger through easily	ML					
13	5-1		Yellowish brown silty SAND and weathered rock, damp, very dense	GM	100+		111	19	Direct Shear C = 2800 Ø = 45°
16			Boring terminated at 16 feet						

NOT REMOVED

TERRA SEARCH INC.

FIGURE NO. 6 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 6

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Reddish-brown silty gravely SAND, damp loose to medium dense	GM					
2									
3	6-1		Dark-brown silty gravely SAND, minor clay, moist, medium dense		17		73	37	
4			REMOVED AND RECONSTRUCTED AUGUST 1980						
5			Light reddish brown silty gravelly						
6	6-2		SAND, damp, dense to very dense		47		115	15	
7									
8									
9									
10									
11									
12									
13			Dry						
14									
15									
16			Boring terminated at 15 feet.						
17									
18									
29									
20									
21									
22									
23									
24									

TERRA SEARCH INC.

FIGURE NO. 7 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 7

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Light brown silty gravely SAND, dry to damp, dense	GM					
6			Lighter color, very dense						
15			Boring terminated at 15 feet						

TERRA SEARCH INC.

FIGURE NO. 8 - Test Boring

Project No. 2 97-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 8

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown gravelly silty SAND, damp to moist, medium dense	SM					
2			REMOVED AND RECONSTRUCTED AUGUST 1980						
3	8-1				14		97	19	
4			Blue grey fine sandy SILT, loose	ML					
5									
6			Brown silty SAND, damp, loose	SM					
7			Light brown gravelly SAND, damp, very dense	GP					
8									
9									
10			Boring terminated at 10 feet						
11									
12									
13									
14									
15									
16									
17									
18									
29									
20									
21									
22									
23									
24									

TERRA SEARCH INC.

FIGURE NO. 9 - Test Boring

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 9

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1–3			Light brown gravelly silty SAND, dry to damp, loose to medium dense	SM					
3–12			Blue-grey fine sandy SILT, saturated very loose. Push auger through easily. Moist, not as soft. REMOVED AND RECONSTRUCTED TO 10' WEST OF BUILDING AUGUST 1980	ML					
12–15			Brown silty gravelly SAND, damp damp, very loose	GM					
15			Boring terminated at 15 feet						

TERRA SEARCH INC.

FIGURE NO. 10 - Test Boring

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 10

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Yellowish brown silty gravelly SAND, damp, loose (fill)	SM					
2									
3	10-1				8		101	15	
4									
5									
6	10-2				7		105	18	
7									
8			Water at 8 feet						
9			Greenish black, slightly clayey, moist, medium dense, organic smell						
10									
11	10-3		Dark-brown gravelly SAND and weathered rock, damp, very dense	GP	43		98	16	
12									
13									
14									
15			Boring terminated at 15 feet.						

TERRA SEARCH INC.

FIGURE NO. 11 - Test Boring

Project No. 2397 E
24 June 1980

LOGGED BY DB DATE DRILLED 5/27/80 BORING DIAMETER 6" BORING NO. 11

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown silty gravelly SAND, damp, loose to medium dense (fill).	SM					
2									
3									
4	11-1				11		100	18	
5			MOT REMOVED						
6									
7			Dark blue-grey silty SAND, saturated loose, organic smell.	SM					
8									
9			Water at 9 feet						
10									
11			Yellowish brown silty SAND and weathered rock, damp, dense to very dense.	GM					
12									
13									
14									
15									
			Boring terminated at 15 feet.						

TERRA SEARCH INC.

FIGURE NO. 12 - Test Boring

Project o. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 12

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown gravelly silty SAND, damp, loose to medium dense.	SM					
2									
3			Blue-grey fine sandy SILT, moist, medium dense	ML					
4	12-1				13		67	33	
5									
6									
7									
7	12-2		Saturated 7-8 feet, very loose		4		79	49	
8			Rock encountered 8-10 feet.						
9									
10			Brown silty gravelly SAND, damp, dense	GM					
11									
12									
13									
14									
15			Boring terminated at 15 feet						

TERRA SEARCH INC.

FIGURE NO. 13 - Test Boring

Project No. 2397-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 23

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Light brown silty gravelly SAND, damp, loose to medium dense	SM					
2			Blue-grey fine sandy SILT, saturated very loose.	ML					
3									
4	23-1		Dark-brown silty SAND, damp, dense (old topsoil)	SM	42		107	19	
5			REMOVED AND RECONSTRUCTED AUGUST 1980						
6									
7									
8			Light-brown silty gravelly SAND, damp, very dense	GM					
9									
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 24 - Test Boring

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 24

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Brown and grey silty SAND, damp, loose to medium dense.	SM					
2									
3			Blue-grey fine sandy SILT, saturated, very soft. Push auger through easily.	ML					
4									
5									
6									
7			Moist, firmer at 6.5 feet.						
8									
9			Brown gravelly SAND and weathered rock, damp, very dense	GM					
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 25 - Test Boring

Project No. 2 37-E
24 June 1980

LOGGED BY DB DATE DRILLED 5/28/80 BORING DIAMETER 6" BORING NO. 25

Depth, ft.	Sample No. and type	Symbol	SOIL DESCRIPTION	Unified Soil Classification	Blows/foot 350 ft-lbs.	Qu - t. s. f. Penetrometer	Dry Density p.c.f.	Moisture % dry wt.	MISC. LAB RESULTS
1			Light-brown SAND and GRAVELS, dry, loose	GW					Bag C
2			Reddish-brown silty SAND, damp, dense	SM					
5			Lighter in color at 5 feet.						
10			Boring terminated at 10 feet.						

TERRA SEARCH INC.

FIGURE NO. 26 - Test Boring

Appendix H:
Phase I Environmental Site Assessments

H.1 - Abel Property - APN 051-250-12 and Waste Connections Property - APN 051-250-47

PHASE I ENVIRONMENTAL SITE ASSESSMENT
ABEL PROPERTY (APN 051-250-12)
AND
WASTE CONNECTIONS PROPERTY (APN 051-250-47)
PLACERVILLE, EL DORADO COUNTY, CALIFORNIA

Prepared By

Youngdahl Consulting Group, Inc.
1234 Glenhaven Court
El Dorado Hills, California 95762

Prepared For

Palos Verdes Properties, Inc.
4330 Golden Circle Drive, Suite D
Placerville, California 95667

Project No. E07443.000
December 2007

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Project No. E07443.000
17 December 2007

Palos Verdes Properties, Inc.
Mr. Leonard Grado
4330 Golden Center Drive, Suite D
Placerville, California 95667

Subject: **ABEL PROPERTY (APN 051-250-12) and WASTE CONNECTIONS PROPERTY (APN 051-250-47) PHASE I ENVIRONMENTAL SITE ASSESSMENT**
Placerville, El Dorado County, California

Reference: 1. Proposal and Contract for PE07-555; Prepared by Youngdahl Consulting Group, Inc.; 6 November 2007.

Dear Mr. Grado,

As requested, Youngdahl Consulting Group, Inc., has performed a Phase I Environmental Site Assessment for the Abel Property, El Dorado County APN 051-250-12 and the Waste Connections Property, El Dorado County APN 051-250-47 (subject properties). The subject properties are located west of Highway 49 in the vicinity of Throwita Way in Placerville, El Dorado County, California (Figure 1 - Vicinity Map). The Abel Property is approximately 13.8 acres of industrial land. The Waste Connections Property is approximately 10.3 acres of industrial land. The Abel Property is used for the storage and maintenance of portable fire fighting mobilization units for sleeping, laundry, showering, refrigeration, and toilet use. The Waste Connection Property is the Western El Dorado Material Recovery Facility (M.R.F.) at 4100 Throwita Way and includes municipal, green waste, construction/demolition, and household hazardous waste processing (Figure 2, Site Plan). Adjacent property includes: commercial and industrial property to the west; Thowita Way and Lime Plant Road and property formerly occupied by the Diamond Lime Basic Mineral Plant construction yard to the north, industrial and residential property to the east, and residential property to the south.

Our study consisted of a review of environmental record sources, physical setting sources, review of site related documents, historical use information, and a site reconnaissance. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property. No additional investigation is recommended for the subject property at this time; however, since portions of the subject properties were formerly part of the Diamond Lime Basic Mineral Plant, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

This Phase I Environmental Site Assessment has been completed in accordance to the ASTM Practice E 1527-05. Youngdahl Consulting Group, Inc. (YCG) declares that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

Reviewed by:

Laurie B. Israel, R.E.A.
Senior Environmental Scientist

Roy C. Kroll, C.E.G., R.E.A.
Associate/Environmental Manager

Distribution: Mr. Leonard Grado (3 copies)

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PHASE I ENVIRONMENTAL SITE ASSESSMENT
ABEL PROPERTY (APN 051-250-12)
AND
WASTE CONNECTIONS PROPERTY (APN 051-250-47)
PLACERVILLE, EL DORADO COUNTY, CALIFORNIA

EXECUTIVE SUMMARY

The property descriptions referred to herein are based on a parcel map and on site reconnaissance visits performed by a representative of Youngdahl Consulting Group, Inc. These were also the basis for the "Vicinity Map" - Figure 1. The Abel Property, El Dorado County APN 051-250-12 and the Waste Connections Property, El Dorado County APN 051-250-47 (subject properties) are located at west of Highway 49 in the vicinity of Throwita Way in Placerville, El Dorado County, California (Figure 1 - Vicinity Map). The Abel Property is approximately 13.8 acres of industrial land. The Waste Connections Property is approximately 10.3 acres of industrial land. The Abel Property is used for the storage and maintenance of portable fire fighting mobilization units for sleeping, laundry, showering, refrigeration, and toilet use. The Waste Connection Property is the Western El Dorado Material Recovery Facility (M.R.F.) at 4100 Throwita Way and includes municipal, green waste, construction/demolition, and household hazardous waste processing (Figure 2, Site Plan). Adjacent property includes: commercial and industrial property to the west; Thowita Way and Lime Plant Road and property formerly occupied by the Diamond Lime Basic Mineral Plant construction yard to the north, industrial and residential property to the east, and residential property to the south.

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that there are no identified recognized environmental conditions. The rationale used for this opinion is the observations made during the site visits, the review of aerial photographs, and interviews with knowledgeable persons. Portions of the subject properties may have been part of the Diamond Lime Basic Mineral plant. No additional investigation is recommended for the subject property at this time; however, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

1.0 INTRODUCTION

This report presents the results of the Phase I Environmental Site Assessment (ESA) performed for the Abel Property and the Waste Connection Property (subject properties). The Abel Property is 13.8 acres located east of Lime Plant Road and west of Highway 49 and is assigned APN 051-250-12. The Abel Property is industrial land used for the storage of mobile fire fighting units. The Waste Connections Property is 10.3 acres located at 4100 Throwita Way and is assigned APN 051-250-47. The Waste Connections Property is the Western El Dorado M.R.F. The user of this report, Palos Verdes Properties, Inc., may rely on the information contained herein for all purposes in connection with making a loan secured by, or investment in, the subject property. This report is valid as of the date stated on the document; the report should not be relied upon for information concerning changes in the condition of the property after the report was prepared.

1.1 Purpose

This Phase I ESA was conducted according to the American Society for Testing and Materials (ASTM) Designation E1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Phase I Standards). The ASTM E1527-05 standard is consistent with the requirement of the All Appropriate Inquiry (AAI) rule in Title 40 of the Code of Federal Regulations (40 C.F.R. § 312). The ASTM practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous

property owner, or bona fide prospective purchaser limitations on CERCLA liability. The purpose of this Phase I ESA was to identify recognized environmental conditions which may affect the property. Recognized environmental conditions are defined in the ASTM Phase I Standards to mean "the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum product into structures on the property or into the ground, groundwater, or surface water of the property." The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

Controlled substances are not included within the scope of this standard. Petroleum products are included within the scope of this practice because they are of concern with respect to many parcels of commercial real estate and current custom and usage is to include an inquiry into the present of petroleum products when doing an ESA of commercial real estate. This practice does not address requirements of any state or local laws or of any federal laws other than the appropriate inquiry provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)'s landowner liability protection. Users are cautioned that federal, state, and local laws may impose environmental assessment obligations that are beyond the scope of this practice. Users should also be aware that there are likely to be other legal obligations with regard to hazardous substances or petroleum products discovered on the property that are not addressed in this practice and that may pose risks of civil and/or criminal sanctions for non-compliance. The scope of this practice includes research and reporting requirements that support the user's ability to qualify for landowner liability protection. As such, sufficient documentation of all sources, records, and resources utilized in conducting the inquiry required by this practice must be provided in the written report.

1.2 Detailed Scope of Services

This scope of services is site specific in that it relates to assessment of environmental conditions on a specific parcel of commercial real estate. The Phase I ESA will be performed by an environmental professional. An environmental professional is defined as a person meeting the education, training, and experience requirements set forth in 40 CFR § 312.10(b). We declare that, to the best of our professional knowledge and belief, we meet the definition of an Environmental Professional as defined in 40 CFR § 312.10(b). The scope of services for this Phase I ESA is as follows:

Government Records Review: Standard environmental record sources, including Federal, Tribal, and State lists as well as local sources of environmental records were reviewed. We authorized Environmental Data Resources (EDR), to conduct a search of specified government databases and produce a map-based radius search report which would identify sites within the approximate minimum distances pursuant to the ASTM E1527-05 Standard. A current USGS 7.5 Minute Topographic Map showing the area on which the property is located was reviewed.

Review of Historical Sources

Historical records that may have been reviewed include, but are not limited to, aerial photographs, fire insurance (Sanborn®) maps, building department records, chain-of-title documents, city directory abstracts, land use records, and USGS Topographic Maps. The AAI rule requires that historical documents be reviewed as far back in time as the property contained structures or the property was used for agricultural, residential, commercial, industrial, or governmental purposes. Under the AAI rule, historical sources

of information must be reviewed as far back as 1940. The AAI rule does not specify a research interval for reviewing historical records.

Site Reconnaissance: During our visit to the property, we visually and physically observed the property and any structure(s) located on the property to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles. The AAI rule requires that a visual inspection of adjoining properties be performed from the subject property line, public rights-of-way, or another vantage point. The periphery of the property was also observed, as well as the periphery of all structures on the property, and the property was viewed from all adjacent public thoroughfares. Current and past uses of adjoining properties and properties in the surrounding area were also identified if they were likely to indicate recognized environmental conditions in connection with the adjoining properties or the property. The topographic conditions of the property were also noted to the extent visually and/or physically observed to evaluate whether hazardous substances or petroleum products are likely to migrate to the property, or within or from the property, into groundwater or soil.

Interviews: Prior to the site visit, the Client was asked to identify a person with good knowledge of the property (the key site manager). A Phase I ESA Questionnaire was completed by the Owner to facilitate the collection of information and is provided in Appendix A). The AAI rule requires interviews be conducted with the current owner(s) and occupant(s) of the subject property. The AAI rule also requires that additional interviews be conducted with current and past facility manager, past owners, operators or occupants of the property, and past employees, as necessary to meet the objectives of the AAI rule. The AAI rule allows the environmental professional to determine whether such interviews are necessary.

Identify Data Gaps: If data failure is encountered, the report shall document the failure and, if any of the standard historical sources were excluded, the environmental professional will give the reasons for their exclusion. If data failure represents a significant data gap, the report shall comment on the impact of the data gap on the ability of the environmental professional to identify recognized environmental conditions. If the data gaps are found, the Environmental professional can and does not warrant nor guarantee that no significant events, releases, or conditions arose during the periods of such data gaps.

Evaluation and Report Preparation: The findings, opinions, and conclusions in the Phase I ESA report are supported by documentation. The report: (1) describes all services performed; (2) has a findings section which summarized known or suspect environmental conditions associated with the property, and which may include recognized environmental conditions, historical recognized environmental conditions, and de minimis conditions; (3) includes Youngdahl Consulting Group Inc.'s opinion(s) of the impact on the property of the known or suspect environmental conditions identified in the findings section as well as the logic and reasoning used in evaluating information collected during the course of the investigation; and (4) includes a conclusions and recommendations section that summarizes the recognized environmental conditions connected with the property and presents recommendations to address those conditions. The report will include an analysis of the relationship of the purchase price of the subject property to the fair market value of the property, if it were not contaminated.

Report Shelf Life: Under the AAI rule, a prospective property owner may use a Phase I ESA Report without having to update any information collected as part of the inquiry: (1) if the all appropriate inquiries investigation was completed less than 180 days prior to the

date of acquisition of the property or (2) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation and was completed less than 180 days prior to the date of acquisition of the property. A prospective property owner may use a previously conducted Phase I ESA Report: (1) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation for the same property; and (2) if the information was collected or updated within one year prior to the date of acquisition of the property; and (3) certain aspects of the previously conducted report are conducted or updated within 180 days prior to the date of acquisition of the property. These aspects include the interviews, on-site visual inspection, the historical records review, and the search for environmental liens.

1.3 Significant Assumptions

This report and review of the subject property is limited in scope. All appropriate inquiry does not mean an exhaustive assessment of a clean property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of the ASTM 1527-05 practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an ESA and the reduction of uncertainty about unknown conditions resulting from additional information. The appropriate level of inquiry will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry.

This type of investigation is undertaken with the risk that the presence, full nature, and extent of contamination would not be revealed by visual observation and review of available data alone. The findings presented in this report were based on field observations and review of available data. Therefore, the data obtained is clear and accurate only to the degree implied by the sources and methods used. The information presented herewith was based on professional interpretation and on the data obtained. No other warranty, expressed or implied, is made.

1.4 Limitations and Exceptions

This study did not include an asbestos survey, or lead paint, or electric and magnetic field (EMF) studies and this study intentionally did not include inquiries with respect to those issues. Those issues are best addressed, where required in isolated studies, by specialty firms licensed or certified to evaluate such technically intricate issues in focused evaluations from a quantitative viewpoint. A review of regional radon values was performed as part of this study. Furthermore, it was not the intent of this report to address issues more appropriate to an Environmental Impact Report such as project feasibility, ecological concerns (such as wetlands delineations), or aesthetic concerns. No analysis of potential flood hazards, slope stability, or other geologic hazards was conducted.

1.5 Special Terms and Conditions and/or Additional Services

A Phase I ESA meeting or exceeding the ASTM 1527-05 practice and completed less than 180 days prior to the date of acquisition (the date on which a person acquires title to the subject property) or the date of the intended transaction is presumed to be valid. If within this period the assessment will be used by a different user than the user for whom the assessment was originally prepared, the subsequent user must also satisfy the User's Responsibilities set forth in Section 1.6. Users and environmental professionals may use information in prior environmental site assessments provided such information was generated as a result of procedures that meet or exceed the requirements of ASTM 1527-05.

1.6 User Responsibilities

The user should provide land title records and judicial records for review for the existence of environmental liens or activity and use limitations (AUL), if any, that are currently recorded

against the property. AULs are an explicit recognition by a federal, tribal, state, or local regulatory agency that residual levels of hazardous substances or petroleum products may be present on a property, and that unrestricted use of the property may not be acceptable.

If the user is aware of any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate any information based on such specialized knowledge or experience in the environmental professional, and before the site reconnaissance is conducted. In a transaction involving the purchase of a parcel of commercial real estate, the user shall consider the relationship of the purchase price of the property to the fair market value of the property if the property was not affected by hazardous substances or petroleum products. The user should try to identify an explanation for a lower price which does not reasonably reflect fair market value if the property were not contaminated, and make a written record of such explanation. If the user is aware of any commonly known or reasonable ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate such information to the environmental professional before the site reconnaissance is conducted.

2.0 PROPERTY DESCRIPTION

2.1 Site Description and Current Uses of Adjoining Properties

The property description referred to herein is based on site maps and a site reconnaissance performed by a representative of Youngdahl Consulting Group, Inc. These were also the bases for the "Site Map" (Figure 2). The Abel Property is situated in Section 19 and the Waste Connections Property is situated in Sections 19 and 30 in Township 10 North, Range 11 East of the Mount Diablo Base and Meridian. Adjacent property includes: commercial and industrial property to the west; Thowita Way and Lime Plant Road and property formerly occupied by the Diamond Lime Basic Mineral Plant construction yard to the north, industrial and residential property to the east, and residential property to the south.

2.2 Description of Structures, Roads, Other Improvements on the Site

There are no permanent structures on the Abel Property. The Abel Property is not serviced by municipal water or sewer or electricity. There are no septic systems on the Abel Property. There is a single large structure and two small gate house structures on the Waste Connections Property. The Waste Connections Property is serviced by municipal water and sewer.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

Mr. Leonard Grado with Palos Verdes Properties, Inc., provided a First Supplemental Report by Inter-County Title Company for the Abel Property in El Dorado County, California. The First Supplemental Report is dated 22 August 2007. Title to said estate or interest is vested in Lawrence E. Abel, also shown of record as Laurance Abel and Jacqueline Abel, husband and wife, as joint tenants. A copy of the Preliminary Report is provided in Appendix A.

Mr. Leonard Grado with Palos Verdes Properties, Inc., provided a Preliminary Title Report for the Waste Connections Property at 4100 Throwita Way in Diamond Springs, California was produced by First American Title Company. The Preliminary Title Report is dated 31 October 2007. Title to said estate or interest is vested in Waste Connections of California, Inc., a California corporation. A copy of the Preliminary Report is provided in Appendix A.

3.2 Environmental Liens or Activity and Use Limitations

The user, Mr. Leonard Grado with Palos Verdes Properties, Inc., did not identify any environmental liens, activity or use limitations. The EDR Environmental Lien Search Reports for the Abel and Waste Connections Properties were received on 29 November 2007. According to

the Lien Search Report for the Abel Property (APN 051-250-12), title is vested in Lawrence E. Abel and Jacqueline Abel, husband and wife as joint tenants. Title received from: Western Title Insurance Company. The Deed was recorded on 9 November 1978. The Lien Search Report did not identify any environmental liens or other activity and use limitations (AULs) for APN 051-250-12. According to the Lien Search Report for the Waste Connections Property (APN 051-250-47), title is vested in Waste Connections of California, Inc., a California corporation. Title received from: USA Waste of California, Inc., a Delaware corporation, successor-in-merger to Western El Dorado Recovery Systems, Inc., a California corporation. The Deed was recorded on 2 June 2006. The Lien Search Report did not identify any environmental liens or other activity and use limitations (AULs) for APN 051-250-47. A copy of each report is provided in Appendix A.

3.3 Valuation Reduction for Environmental Issues

According to the questionnaires completed by the user, Mr. Leonard Grado with Palos Verdes Properties, Inc., the purchase prices or appraised values of the Abel and Waste Connections Properties are not significantly less than comparable properties in the vicinity.

3.4 Reasons for Performing the Phase I

The user, Mr. Leonard Grado with Palos Verdes Properties, Inc., requested the completion of the Phase I ESA per ASTM E1527-05 to satisfy the requirement of performing appropriate inquiry provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)'s landowner liability protection.

4.0 INTERVIEWS

Copies of the Phase I ESA Questionnaires and Project Contact Reports documenting the interviews conducted for this Phase I ESA are presented in Appendix A.

4.1 Interviews with Past and Present Owners, Key Site Manager, and or Occupants

Mr. Larry Abel, landowner of the Abel Property and long-time resident of Placerville, was interviewed during the site reconnaissance on 6 November 2007. Mr. Abel recalled that Diamond Lime operated a lime plant in the vicinity of the subject property for over 50 years. According to Mr. Abel, the subject property has been used for storage purposes only. The Abel Property is used for the storage and maintenance of portable fire fighting mobilization units for sleeping, laundry, showering, refrigeration, and toilet use. There are no permanent structures on the Abel Property. The Abel Property is serviced by municipal water and sewer. There are no septic systems on the Abel Property. Mr. Abel recalled that historically a house was present on the property; however, the house was not present when he took ownership. Mr. Abel graded the hill where the house was previously located and he did not recall any septic systems or wells in the former location of the house. An auction yard was formerly located on the southeast corner of the property in the early 2000s. Mr. Abel recalled that cars and household goods were sold at the auction once a month for about three or four years. Currently there are two mobile homes stored at the subject property's southern boundary.

Mr. Albert Magallanez, MRF Manager with Waste Connections Inc. was interviewed during the site visit on 28 November 2007. Mr. Magallanez stated that prior to Waste Connections, Diametrics occupied the main structure at 4100 Throwita Way. Diametrics manufactured automated welding equipment. Mr. Magallanez stated that there are no underground storage tanks at the Waste Connections Property, but there are aboveground diesel, oil, and waste oil fuel tanks. Mr. Magallenez also noted that the septic system previously located on the property was closed and the drain lines were filled with concrete. The septic tank is still present on the property, but inactive. The office bathrooms are connected to the sanitary sewer and EID provided potable water to the facility. There are no wells on the Waste Connections Property. According to Mr. Magallanez, no vehicle maintenance involving hazardous materials occurs on

the Waste Connections Property. Mr. Magallanez stated that all vehicle maintenance occurs at the Truck Street facility, north of the Waste Connections Property.

4.2 Interviews with State and/or Local Government Officials

El Dorado County Environmental Management Department (EDCEMD) was contacted to evaluate the status of the subject properties. According to EDCEMD, they have no information regarding unauthorized releases or incidents involving hazardous materials on the Abel Property or the Waste Connections Property at 4100 Throwita Way. According to the EDCEMD, Placer County is the Lead Enforcement Agency (LEA) for the Waste Connection MRF. According to Mr. Lem Estolas with Placer County Solid Waste Department, there are no existing violations or enforcement actions for the Waste Connections Property at 4100 Throwita Way. Mr. Estolas stated that the Waste Connections Property has three operating permits: one for green waste, one for construction and demolition waste, and one for municipal solid waste (MSW). El Dorado County oversees the household hazardous waste collection processes at the Waste Connections Property. EDCEMD has no files for the Diamond Lime plant on Lime Kiln Road.

5.0 RECORDS REVIEW

The records review consisted of a review of reasonable ascertainable environmental record sources, physical setting sources, and historical use information that will help identify recognized environmental conditions in connection with the property. Reasonably ascertainable record information must be publicly available, obtainable from its source within reasonable time and cost constraints, and be practically reviewable.

5.1 Environmental Record Source - EDR Report

A commercial database search of Federal, Tribal, State, and Local regulatory lists were conducted in order to assess whether documented environmental conditions exist on or near the property. In an effort to fulfill due diligence requirements, Youngdahl Consulting Group, Inc. employed the services of Environmental Data Resources, Inc. (EDR) to identify sites listed on regulatory agency databases within approximate minimum search distances from the subject property with potential of existing environmental problems. The term approximate minimum search distances means the distances within the area which government records must be reviewed pursuant to ASTM Phase I Standards. The term minimum search distance is used in lieu of radius as to include irregularly shaped properties.

The EDR Radius Map with GeoCheck® (EDR Report) for the area including the subject property and vicinity was received on 30 August 2007 and reviewed. A recently conducted EDR Report for the adjacent Lindeman Property, located west of Throwita Way, was reviewed and is included in this report, per the request of Mr. Leonard Grado. A copy of the EDR Report is presented as Appendix B. Included in the report are the dates the original government sources were updated and the dates the sources were last updated by EDR, as well as a list of acronyms used by EDR and descriptions of the various lists searched.

The Abel Property was not identified in the EDR Report. The Waste Connections Property at 4100 Throwita Way was identified in the EDR Report on the following lists: SWF/LF, SWRCY, and CA WDS. The Waste Connections Property at 4100 Throwita Way is identified in the EDR Report as a solid waste transfer/processing facility handling construction/demolition, inert, metals, and wood waste. This site is listed is the Western El Dorado Recycling Service (WEDRS) Green Waste Recycling Center as a chipping and grinding composting facility and as Waste Management Inc. Western El Dorado, a large volume transfer and processing facility for liquid or semisolid wastes from industrial facilities (Figure 3, Waste Connections Site Plan). This site is identified as having a minor threat to water quality with a primary waste stream of storm water runoff.

The following surrounding listed sites within the minimum search distances were identified in the EDR Report: 1 CERCLIS-NFRAP, 3 RCRA-SQG, 3 Cortese sites, 2 SWRCY sites, 2 LUST sites, 1 CA FID UST site, 1 HIST UST site, 1 SWEEPS UST site, and 4 ENVIROSTOR sites. Eldorado Disposal Service Inc. at 3940 Highway 49 is on the CERCLIS-NFRAP, SWRCY, HIST UST, and SWEEPS UST lists. The Cortese sites are D.M. and Patricia Gustafson at 3655 Chuckwagon, Sierra Door at 4415 Missouri Flat Road, and Former SS at 493 Main Street. Sierra Door and Former SS are also listed on the LUST list. Former SS is listed as a closed site. The Sierra Door facility has a status of "Pollution Characterization" for groundwater impacted by gasoline contamination. This site has been referred to the Regional Water Quality Control Board (RWQCB). The Geotracker web site did not provide any information not already provided in the EDR Report. The Celebrity Plating site is incorrectly listed on 4502 Missouri Flat Road in the EDR Report. Celebrity Plating is no longer doing business at this address. According to EDCEMD, Teters Auto Wreckers, listed on the ENVIROSTOR list, is a closed site. None of the listed sites appear to present a significant potential to impact the subject property.

Due to poor or inadequate information, EDR is unable to map certain sites. These sites are referred to by EDR as Orphans. The sites listed in the "Orphans List" of the EDR Report, are located beyond the minimum search distance from the subject property. According to the EDR Report, the subject property is not designated as a wetland, per the National Wetlands Inventory (1994).

5.2 Environmental Record Source - EDCEMD File Review

There are no records for the Abel Property at EDCEMD. The Waste Connections Property is an active CUPA (Certified Unified Program Agency) site. According to EDCEMD, Placer County Environmental Management oversees the operations at 4100 Throwita Way (see Section 4.2 Interviews). According to EDCEMD, Sierra Door at 4415 Missouri Flat Road is located less than 0.5 miles to the west northwest of the subject property and is identified in the EDR Report as a site with groundwater contaminated with gasoline. The release was reported in 1991. The most recent document in the file is a June 2006 letter from the Regional Water Quality Control Board requesting additional soil and groundwater investigations. According to EDCEMD, the Sierra Door site is located over ¾ mile northwest of the property. Groundwater is contaminated at the site; however, groundwater flows to the northwest, away from the subject property.

5.3 Review of Previously Conducted Environmental Studies

Golder Associates prepared a Environmental Site Assessment for U.S.A. Waste Services of California DBA Western El Dorado Recovery Systems DBA El Dorado Disposal Services Operations, Placerville, California in 5 June 2006 (the Report). The Report included the MRF at 4100 Throwita Way and the Truck Street Properties at 3940 Highway 49. The MRF was described as a property that uses and/or generates petroleum products in the form of diesel fuel, motor oil, antifreeze, and various automotive fluids. These products are temporarily stored onsite prior to product use and/or pick up for recycling or disposal. Minor oil staining was observed on the floor of the MRF. The staining was evaluated to be de minimus and not a recognized environmental condition. The Report stated that the MRF may have an oil/water interceptor. During Youngdahl Consulting Group, Inc.'s interview with Mr. Magallanez during the November 2007 site visit, he confirmed that none exists at the MRF. The Report noted that sewage is handled by a septic system on the property. Mr. Magallanez confirmed during the November 2007 site visit that the drain lines were filled with concrete and the tank closed in place in 2006. The Golder Associates Report concluded that no recognized environmental conditions were identified as defined by ASTM 1527-00.

5.4 Physical Setting Source(s)

The current U.S.G.S. topographic map of the Placerville Quadrangle (1949, photorevised 1973), a geologic map of the Placerville 15-Minute Quadrangle, and observations made during our site

reconnaissance visits were used to make interpretations regarding the physical setting of the subject property and the surrounding area. The subject properties are located in the western foothills of the Sierra Nevada mountain range in northern California. The properties are at an elevation of approximately 1,800 feet above mean sea level.

5.3.1 Regional Geology and Soils

The project vicinity is located within the Sierra Nevada geomorphic province of California. Based upon a review of published geologic data the vicinity is mapped as Mesozoic-age granitic rocks (Mzg) (Loyd, 1984). Tectonic activity related to the Sierra Nevada mountain uplift resulted in a rock fabric consisting of northeast to northwest-trending fracturing and foliation. The regional structure and tectonic framework is dominated by the Foothills Fault system, which traverses the western side of the Sierra Nevada tectonic block. This fault system developed in the early Mesozoic during several episodes of continental accretion involving island arc belts. The fault system includes two major fault zones, the Bear Mountains Fault Zone in El Dorado Hills and the Melones Fault Zone in Placerville, both of which trend north-northwest and dip steeply easterly.

A review of the Fault Activity of California Map (Jennings, 1994) within 60 miles (about 100 Kilometers) of the boundaries of the site reveals numerous earthquake epicenters. These epicenters are generally located on the eastern flank of the Sierra Nevada Mountains and the eastern flank of the Diablo Range. According to the California Division of Mines and Geology (Jennings, 1994), the nearest known active fault to the site is the North Tahoe fault located approximately 40 miles northeast of the site, and the nearest potentially active fault is the Melones Fault - West branch, located about approximately 1.5 miles to the east.

The Soil Survey of El Dorado County (1974) notes the subject properties to consist of Placer diggings (PrD). Placer diggings consist of areas of stony, cobbly, and gravelly material, commonly in beds of creeks and other streams, or of areas that have been placer mined and contain enough fine sand or silt to support some grass for grazing.

5.3.2 Regional Radon Values

According to the Geologic Controls on the Distribution of Radon in California by Ronald Churchill for the Department of Health Services (1991, revised 2003), elevated radon gas levels in indoor air are a result of radon moving into buildings from the soil, either by diffusion or flow due to air pressure differences. The ultimate source of radon gas in buildings is the uranium naturally present in rock, water, and soil. Some rock types are known to contain more uranium than others. In California, most uranium deposits are relatively small and are located in rural areas. Consequently, the chance of severe radon levels (>200 pCi/L) occurring in buildings in California should be very low. The following rock units contain uranium in concentrations above the crustal average: the Monterey Formation, asphaltic rocks, marine phosphatic rocks, granitic rocks, felsic volcanic rocks, and certain metamorphic rocks.

According to EPA publication 402-R-93-025, entitled EPA's Map of Radon Zones, California, dated September 1993, El Dorado County is shown to be in Zone 2. Zone 2 has a predicted average radon screening level of greater than 2 Pico Curies per Liter (pCi/l) but less than 4 pCi/l, this is considered to be a moderate or variable value of geologic radon potential. The State of California Department of Health Services California Statewide Radon Survey Screening Results (May 1990) indicated that El Dorado County (Region 5) had a value of 3.7% of homes with predicted radon levels of over 4 pCi/L. The subject property is located within Zip Code 956667. Of the 26 test screening results for that Zip Code, two sites were identified with values over 4 pCi/L.

5.4 Historical Use Information on the Property and Adjoining Properties

All obvious uses of the property shall be identified from the present, back to the property's first developed use, or back to 1940, whichever is earlier. The term developed use includes agricultural uses and placement of fill dirt. Standard historical sources shall be reviewed at approximately five year intervals. Uses in the area surrounding the property shall also be identified. Standard historical sources may include: aerial photographs, fire insurance maps, recorded land title records, USGS topographic maps, local street directories, building department records, and zoning/land use records.

5.4.1 Aerial Photographic Review

EDR aerial photographs for 1935, 1952, 1962, 1984, 1993, and 1998 were provided in The EDR Aerial Photo Decade Package and reviewed. Photographs dated 1971 and 1977 and a 2006 digital image from terraserver.com were also reviewed. Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and to determine if any significant topographic or cultural changes have occurred. A summary of all of the aerial photographs reviewed is provided in Table 1. A copy of the EDR Aerial Photo Decade Package is provided in Appendix B following the EDR Report.

The **1935** aerial photograph shows portions of the Abel Property and the Waste Connections Property to be part of the Diamond Lime Basic Mineral Plant. Due to the resolution of the photograph, structures may or may not be present on the Abel and Waste Connections properties. The majority of the lime processing plant is located to the west of the Abel Property and north of the Waste Connections Property. The eastern portion of the Abel Property appears to be covered with trees. Orchards are located to the north. Property to the south appears to be undeveloped land or possibly rural residential property. Property to the west of the Waste Connections Property appears to be undeveloped.

The **1952** and **1962** aerial photographs show the subject property to be similar to what was observed in 1935. Adjacent property to the south and east appear to be both undeveloped and rural residential properties. Orchards are present to the north of the Abel Property.

The **1971** and **1977** aerial photographs show the Abel Property to be cleared of all but two trees. The Waste Connections Property has also been cleared of vegetation. A single structure is located on the Abel Property. No structures are located on the Waste Connections Property. The lime plant structures and material storage are located to the northwest of the Abel Property and to the northeast of the Waste Connections Property. Adjacent property to the south and east appears to be partly undeveloped and partly rural residential. Undeveloped property is located to the east of the Abel Property and to the west of the Waste Connections Property.

The **1984** aerial photograph shows the Abel Property to be predominately undeveloped. The main structure currently on the Waste Connections Property is present on the 1984 photograph. The lime plant structures are no longer present to the north of the subject properties, however the area appears to be disturbed and the foundations/footings of removed structures are present to the north. Due to the resolution of the photograph, specific structures could not be identified. Property to the south appears to be residential. Residential land also appears to be located east of the Abel Property and Highway 49. Commercial or industrial property is located west of the Waste Connections Property and north of the Abel Property.

The **1993** and **1998** aerial photographs show the subject property to be similar to what was observed on the 1984 photograph. Adjacent property to the north includes the former lime plant, commercial or industrial property is to the west of the Waste Connections Property and to the north of the Abel Property, and residential property is to the south and east.

The **2006** photograph shows the subject property to be similar to the site visits. Adjacent property includes the former lime facility to the north, industrial property to the north of the Abel Property and west of the Waste Connections Property, and residential property to the south.

5.4.2 Review of Historical and Current USGS Topographic Maps

A topographic map (topo) is a color coded line-and-symbol representation of natural and selected artificial features plotted to a scale. Topographic maps show the shape, elevation, and development of the terrain in precise detail by using contour lines and color coded symbols. The EDR - Historical Topographic Map Report provided maps dated 1893, 1949, 1950, and 1973 (revised from 1949). Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and determine if any significant topographic or cultural changes have occurred. A summary of the topographic maps review is provided below. A copy of the EDR - Historical Topographic Map Report is provided in Appendix B.

The 1893 Placerville 30 minute quadrangle map does not show specific details for the subject property. The nearest features are the Sacramento and Placerville Railroad line to the north and Highway 49 to the east.

The 1949 Placerville 15 minute quadrangle map shows one structure on the Abel Property, east of Lime Plant Road. The lime processing plant is present to the north of the subject property. A railroad spur is present to the north of the lime plant. A cable way is identified traversing across the northern portion of the subject property, between the lime plant and a Quarry to the east in Section 28. The surrounding properties are a mix of rural residential and undeveloped land.

The 1950 Placerville 7.5 minute quadrangle map shows one structure on the Abel Property, east of Lime Plant Road. Two small ponds are identified on the Waste Connections Property. The lime processing plant is present to the north of the subject properties. A cable way is identified traversing between the lime plant and a Quarry to the east in Section 28. Surrounding property is a mix of rural residential and undeveloped land.

The 1973 (revised from 1949) Placerville 7.5 minute quadrangle map shows one structure on the Abel Property. The lime processing plant is shown to the north. The cable way is no longer identified on the map. A large pond is shown at the current location of the Waste Connections Property. Surrounding property is a mix of rural residential and undeveloped land.

5.4.3 Historical City Directory Abstract Review

EDR provided the EDR-City Directory Abstract for review. Building directories including city, cross reference and telephone directories were reviewed, if available, as approximately five year intervals for the years spanning 1972 through 2002. A copy of the EDR-City Directory Abstract is provided in Appendix B, following the EDR Report. The subject property's address, 4100 Throwita Way and multiple other addresses were not listed.

5.4.4 Review of Historical Sanborn® Maps

There are no Sanborn Maps that cover the subject property.

6.0 SITE RECONNAISSANCE

A reconnaissance of the Abel Property and was conducted by Youngdahl Consulting Group, Inc. on 6 November 2007. A reconnaissance of the Waste Connections Property and was conducted by Youngdahl Consulting Group, Inc. on 28 November 2007. Mr. Larry Abel, an the landowner of the Abel Parcel and long-time resident of Placerville accompanied the Youngdahl Consulting Group, Inc. representative during both site visits. Mr. Albert Magallanez, MRF Manager at the Waste Connections Property accompanied the Youngdahl Consulting Group, Inc. representative and Mr. Abel during the site visit of 4100 Throwita Way. Typical views at the

of the Abel Property are presented as Photos 1 – 5 and views of the Waste Connections Property are presented as Photos 6 – 12. The site visits consisted of visual and physical observations of the periphery of the properties and traverses throughout the properties on foot.

Abel Property

The Abel Property is used for the storage and maintenance of portable fire fighting mobilization units for sleeping, laundry, showering, refrigeration, and toilet use. (Photo 1). During the site visit, the majority of the property was in use as a storage yard. A tent is located on the property and is used for the storage of equipment (Photo 2). Inside the tent are gasoline cans, cleaners, generators, and other tools (Photo 3). The property stores mobile shower and laundry units (Photo 4), as well as units for sleeping, refrigeration, and toilet use. Portions of the Abel Property are used for stockpiling clean fill material from nearby construction projects and for storing road grinding for use as road base (Photo 5).

Waste Connections

The Waste Connections Property was observed to be an active material recovery facility (MRF) for El Dorado County. At the time of the visit, trucks were entering the property through the gate house to bring their contents to the M.R.F. (Photo 6). The main structure was observed to include offices and a ballroom in the eastern portion and the sorting line and push wall in the western portion (Photo 8). El Dorado County oversees the collection and disposal of household hazardous waste which is located at the western end of the structure (Photos 9 and 10). Waste oil and other hazardous materials are collected, sorted, and packed for disposal at a Class I or II landfill. Mr. Magallenez stated that the floor trenches in the household hazardous waste storage room do not drain and are not connected to any subsurface impoundment. The MRF facility also stores new oil product within the structure (Photo 11). Green waste and construction waste are collected to the north of the structure (Photo 12). There is a propane tank at the southwest corner of the property. Forklifts used at the MRF are powered by propane. Mr. Magallenez pointed out that there are two storm water runoff detention ponds, one in the southwest corner and one in the northeast corner of the property. Mr. Magallenez noted that there are no oil/water separators at the MRF. Adjacent property includes: industrial property to the east; Thowita Way and Lime Plant Road and property formerly occupied by the Diamond Lime Basic Mineral Plant construction yard and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the to the west; and a mix of residential, vacant, and industrial property (including Camps Propane) to the north.

7.0 FINDINGS AND CONCLUSIONS

The Abel Property is located east of Lime Plant Road and is assigned El Dorado County APN 051-250-46-12 and the Waste Connections Property is located at 4100 Throwita Way and is assigned El Dorado County APN 051-250-46-47 (subject properties). The subject properties are located in Placerville, El Dorado County, California. The Abel Property has been owned by Larry Abel for approximately 30 years has been used for storage purposes only. The Waste Connection Property is an active MRF and processes municipal waste, green waste, construction waste, and household hazardous waste. Based on our study portions of the subject properties were a part of the Diamond Lime Basic Mineral plant. Due to the lack of information regarding the configuration of the lime plant, the former location of possible storage areas, shops, or disposal sites is unknown.

Youngdahl Consulting Group, Inc. has performed a Phase I Environmental Site Assessment in conformance with ASTM Practice E 1527-05 of the Abel Property (APN 051-250-12) and the Waste Connections Property (APN 051-250-47), the subject properties. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property.

7.1 Data Gaps

No significant data gaps were identified during the course of this investigation that affected the environmental professional's ability to identify recognized environmental conditions.

8.0 OPINION

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that there are no identified recognized environmental conditions. The rationale used for this opinion are the observations made during the site visit, the review of aerial photographs, and interviews with knowledgeable persons corroborate the conclusion that portions of the subject properties may have been part of the Diamond Lime Basic Mineral plant. No additional investigation is recommended for the subject property at this time; however, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

9.0 SELECTED REFERENCES

1. California Department of Water Resources (DWR) – Water Data Library, Groundwater Level Data (1953-2004): http//wdl.water.ca.gov/gw

2. Churchill, Ronald, Geologic Controls on the Distribution of Radon in California for the Department of Health Services, 25 January 1991, revised December 2003.

3. Golder Associates, Environmental Site Assessment, U.S.A. Waste Services of California DBA Western El Dorado Recovery Systems DBA El Dorado Disposal Services Operations, Placerville, California, Prepared for Waste Connections, Inc., 5 June 2006.

4. Jennings, C.W., (1994): "Fault Activity Map of California and Adjacent Areas", California Department of Conservation, Division of Mines and Geology, Geologic Data Map No. 6, Scale 1:750,000.

5. Loyd, R.C., and others, (1983): Mineral Land Classification of the Placerville 15-Minute Quadrangle, El Dorado and Amador Counties, California", California Department of Conservation, Division of Mines and Geology, Open-File Report 83-29.

6. U.S. Department of Agriculture (USDA) Soil Conservation Service, Soil Survey of El Dorado County - Western Part, California (1974).

7. U.S. Geological Survey Topographic Map – Placerville, California Topographic Quadrangle, 7.5 minute series, 1949 (photorevised 1973).

10.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Roy C. Kroll - Certified Engineering Geologist - California No. 1328, Registered Environmental Assessor - California No. 02266, Bachelor of Science in Earth Sciences, California State University - Long Beach, 1975, Certificate - Environmental Studies, California State University - Long Beach, 1975

Mr. Kroll has been involved in the Engineering Geology aspects of numerous public works, commercial, and residential projects throughout California since 1981. Mr. Kroll's experience has also included performing numerous Phase I Environmental Site Assessments, and coordinating limited Phase II investigations by others.

Laurie B. Israel Registered Environmental Assessor - California No. 05557,
Bachelor of Science in Environmental Policy Analysis and Planning, University of California - Davis, 1988

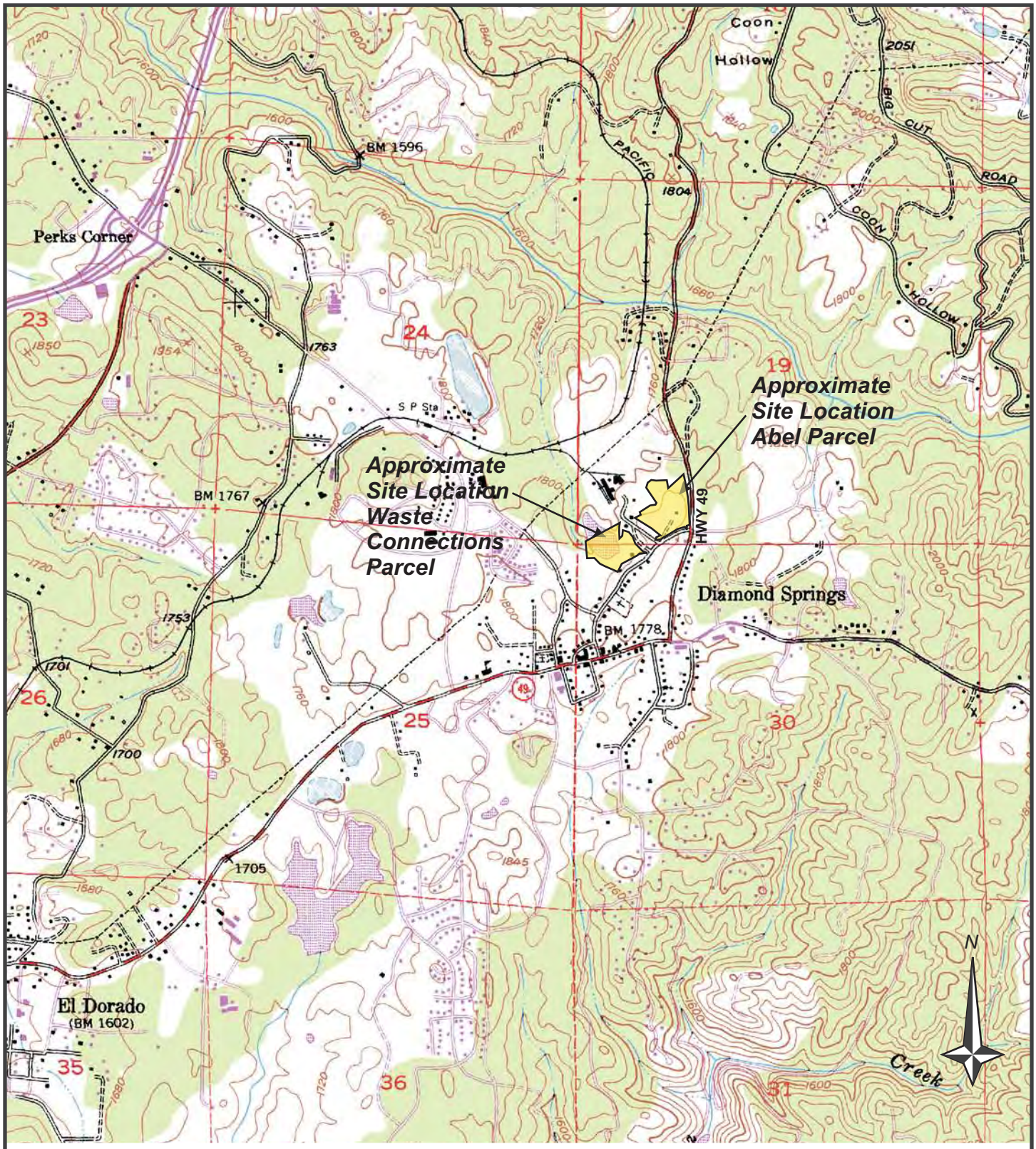
Ms. Israel has worked in the environmental field since 1988. She has been involved in all aspects of Phase I Environmental Site Assessments. Ms. Israel became a Registered Environmental Assessor with the State of California in 1994. Ms. Israel has also performed limited Phase II investigations

TABLE

TABLE 1: SUMMARY OF AERIAL PHOTOGRAPHS REVIEWED
ABEL PROPERTY (APN 051-250-12)
AND
WASTE CONNECTIONS PROPERTY (APN 051-250-47)
PLACERVILLE, EL DORADO COUNTY, CALIFORNIA
Project No. E07443.000

AERIAL PHOTOGRAPHS				
Date	**Provided By**	**Scale (±)**	**Type**	**Source**
1935	EDR	1" = 166'	B&W	Wallace
1935	USDA	Unknown	B&W	USDA SCS
1952	EDR	1" = 555'	B&W	Robinson
1962	EDR	1" = 555'	B&W	Cartwright
1971	Cartwright	1" = 2000'	B&W	Cartwright Flt. 2942-11-150
1977	Cartwright	1" = 2000'	B&W	Cartwright Flt. 7069, 14-8
1984	EDR	1" = 690'	B&W	WSA
1993	EDR	1" = 666'	B&W	USGS
1998	EDR	1" = 666'	B&W	USGS
2006	Teraserver	Unknown	Color	Teraserver.com

FIGURES

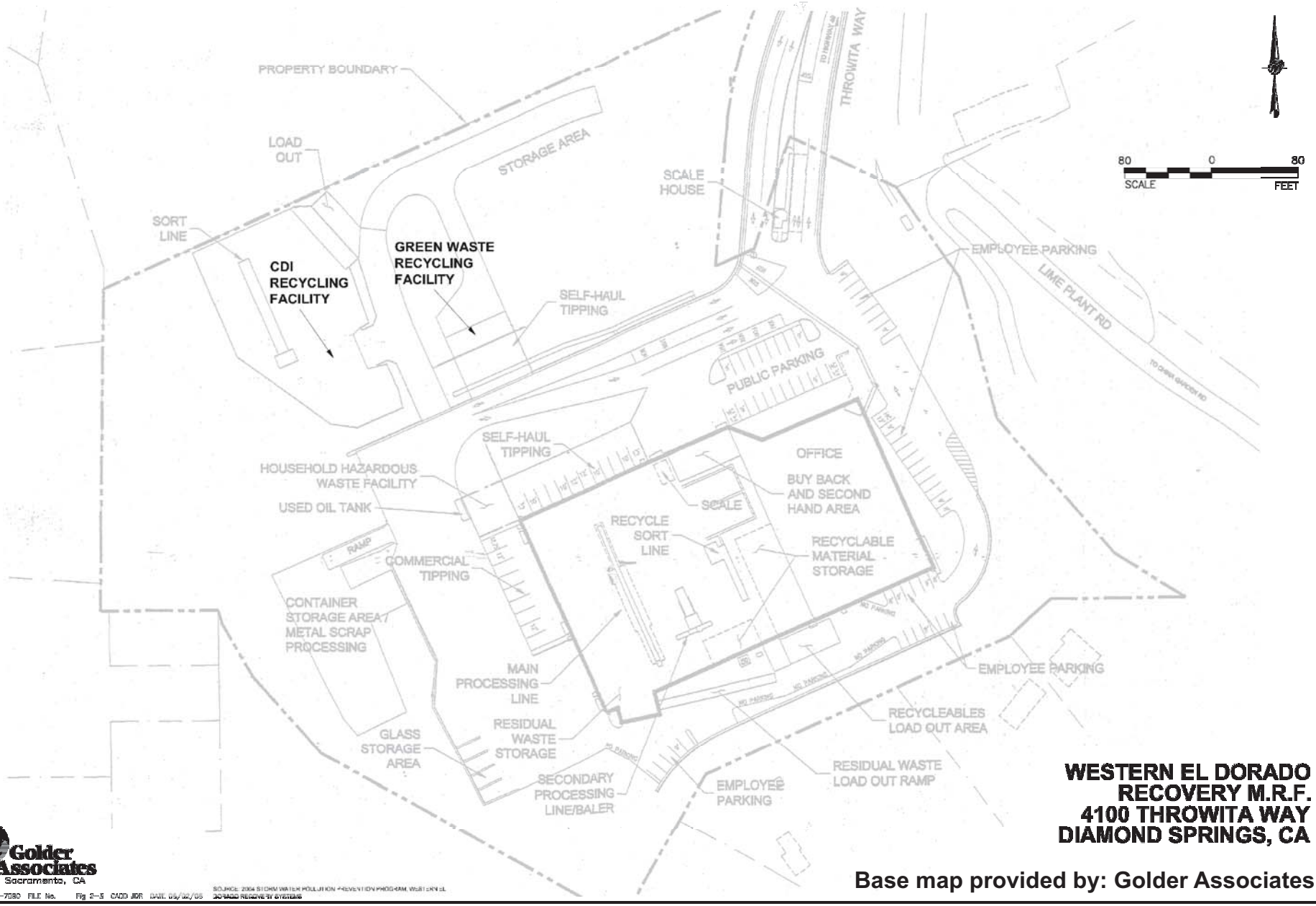


Scale: 1:24,000

BASE MAP REFERENCE: U.S.G.S. 7.5 Minute Topographic Series, Placerville Quadrangle, Dated 1949 (Revised 1973)

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 **December 2007**	**VICINITY MAP** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE 1**

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 December 2007	**SITE PLAN** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE 2**



WESTERN EL DORADO RECOVERY M.R.F.
4100 THROWITA WAY
DIAMOND SPRINGS, CA

Golder Associates
Sacramento, CA

Base map provided by: Golder Associates

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000	**WASTE CONNECTIONS SITE PLAN** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE 3**
	December 2007		

Photo 1: Entrance to Abel property (APN 051-250-12), east of Lime Plant Road. Property is used for the storage of equipment used for mobile fire fighting units. View to the north east.

Photo 2: Storage tent and parked vehicles on the Abel Property. View to the east.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000	**SITE PHOTOGRAPHS** **Abel and Waste Connections Properties Phase I ESA** Placerville, California	**FIGURE 4**
	December 2007		

Photo 3: Gasoline cans (refueled off site), enamel reducers and cleaners stored in the tent on the Abel Property.

Photo 4: Mobile shower and laundry units stored on the Abel Property.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 **December 2007**	**SITE PHOTOGRAPHS** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE** **5**

Photo 5: Soil from nearby Hwy 49 and Pleasant Valley Road commercial project and stockpiled road grinding for future use as road base stored on the Abel Property.

Photo 6: Gate house entrance to the Waste Connections facility at 4100 Throwita Way. View to the northeast.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000	**SITE PHOTOGRAPHS** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE** **6**
	December 2007		

Photo 7: Waste Connections main structure at 4100 Throwita Way.
View to the south.

Photo 8: Recyclable material sorting line inside the Waste Connections structure.
View to the south.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 **December 2007**	**SITE PHOTOGRAPHS** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE** **7**

Photo 9: Certified used oil recycling facility outside of the building at the western end of the Waste Connections structure. Waste oil tanks have secondary containment.

Photo 10: Household hazardous waste facility processing room at the west end of the Waste Connections building. Floor trenches are located in this room.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 **December 2007**	**SITE PHOTOGRAPHS** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE** **8**

Photo 11: New oil product stored within the structure at the Waste Connections facility.

Photo 12: Recyclable green waste and concrete/construction waste stored to the north of the Waste Connections structure. Views to the north.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 December 2007	**SITE PHOTOGRAPHS** **Abel and Waste Connections Properties** **Phase I ESA** Placerville, California	**FIGURE** **9**

APPENDICES

APPENDIX A: Interview Documentation

Telephone Conversations Records
Phase I ESA Questionnaires
Preliminary Title Reports
EDR Environmental Lien Search Report – Abel Property
EDR Environmental Lien Search Report – Waste Connections Property

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Larry Abel DATE 11/6/07 TIME _____

COMPANY NAME _____

TELEPHONE NO. _____ FAX NO. _____

MAILING ADDRESS _____

_____

PROJECT NAME AND NUMBER E074

NOTES Site Visit 11/06/07 at 1:00pm (@ Grado's office)
Abel Property # 051-250-12, 13.8 acres

_____

_____

Murray Property # 051-250-46, 5.12 acres
4027 Lime Plant Road
- no house on property when Larry took ownership;
- there was a residence on the hill before it was cut down
- not sure what happened to it; never found septic or well
- Auction Yard along Hwy 49; cars, household goods, flea market, once a months for 3-4 years in early 2000s - 2004;
- no releases of significance of haz mat
- Mobile home trailer lived on site, hooked to sewer + water (2"); EID

Recorded by Laurie Israel

f:\wp51\reports\lbi\foncnt.rpt

owned 18 months only

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Jim Little DATE 11/19/07 TIME 10 AM

COMPANY NAME Waste Connections, U.P.

TELEPHONE NO. 916 608-8223 FAX NO. _____

MAILING ADDRESS ~~cell 916 705-6887~~ / 35 Iron Pt Cir #200
(916) 765-7229 /

PROJECT NAME AND NUMBER E07443 (at Oak Park Ave)

NOTES lm on vm

11/20/07 Meet w/ Sue Farris or Albert on site
Prior ESA by Golder at office on CD (til 5pm)
Truck Street, north of facility
Albert, tour, been
Waste Mngmt prior own

jiml@wcnx.org ; email questionnaire

Recorded by Laurie Israel

f:\wp51\reports\lbi\foncnt.rpt

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Dave Johnston DATE 12/04/07 TIME 3:30

COMPANY NAME El Dorado County

TELEPHONE NO. (530) 621-5300 FAX NO. _____

MAILING ADDRESS _____

Todd Lincoln

PROJECT NAME AND NUMBER E07443

NOTES Waste Connections
4100 Throwita Way

LEA - Placer County oversees SW processes
Lem Estolds (530) 745-2314
EDC Contracts w/ Placer County
(conflicts of interest)
At EDCEMD
- haz mat file - Household Haz Waste
- inspection reports
- HMMP
-
Jeff Ruert - solid waste file

Recorded by Laurie Israel

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YOUNGDAHL CONSULTING GROUP, INC.
1234 Glenhaven Court
El Dorado Hills, CA 95762

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Lem Estolas DATE 12/6/07 TIME 3:50pm

COMPANY NAME Placer County - Solid Waste Dept.

TELEPHONE NO. (530) 745-2314 FAX NO. _____

MAILING ADDRESS 3091 County Center Drive
Auburn, CA 95603

PROJECT NAME AND NUMBER E07443

NOTES Waste Connections
4100 Throwita Way
- no violations
- no pending issues
- 3 separated permits
(1) Green Waste
(2) CDI (Construction + Demo)
(3) MSW - Municipal Solid Waste
1) Sort out recycling outside
2) " " " inside
- Sedimentation ponds; 2 ponds
- SWC & NEC

CEQA docs to be done by EDC (State Clearing house)

Recorded by Laurie Israel

f:\wp51\reports\lbi\foncnt.rpt

Phase I Environmental Site Assessment

Project: **Site Name:** Larry Abel Property (APN 051-250-12)
Location: 13.81 acres west of Highway 49
Placerville, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482.)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	(Yes)	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	(No)	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	(No)	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	(No)	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	(No)	Unknown

6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	(No)	Unknown
7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	(No)	Unknown
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	(No)	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	(No)	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	(No)	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	(No)	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	(No)	Unknown
13.	Have any *hazardous substances* or *petroleum products,* unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	(No)	Unknown
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	(No)	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	(No)	Unknown
16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	(No)	Unknown

17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	(No)	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	(No)	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	(No)	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): LEONARD GRADO **SIGNATURE:** [signature] **DATE:**

TITLE: PRESIDENT **ADDRESS:** 4330 GOLDEN CENTER DRIVE, SUITE D

FIRM: PALOS VERDES PROPERTIES PLACERVILLE, CA 95667

PHONE NUMBER: 530-622-5682 **FAX NUMBER:** 530-621-3103

RELATIONSHIP TO SITE: Owner _____ **or Owner's Representative** ✓

Phase I Environmental Site Assessment

Project: **Site Name:** Larry Abel Property (APN 051-250-12)
Location: 13.81 acres west of Highway 49
Placerville, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482.)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	Yes	(No)	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	(No)	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	(No)	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	(No)	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	(No)	Unknown

6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	(No)	Unknown
7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	(No)	Unknown
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	(No)	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	(No)	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	(No)	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	(No)	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	(No)	Unknown
13.	Have any *hazardous substances* or *petroleum products,* unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	(No)	Unknown
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	(No)	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	(No)	Unknown
16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	(No)	Unknown

17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	(No)	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	(No)	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	(No)	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): Larry Abel	**SIGNATURE:** Larry Abel **DATE:** 11/6/07
TITLE: Owner	**ADDRESS:**
FIRM:	
PHONE NUMBER: 916-761-6132	**FAX NUMBER:**
RELATIONSHIP TO SITE: Owner X	**or Owner's Representative** ____

Phase I Environmental Site Assessment

Project: **Site Name:** Waste Connections Inc. Property (APN 051-250-47)
Location: 10.31 acres at 4100 Thowita Way
Placerville, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482.)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	(Yes)	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	(No)	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	(No)	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	(No)	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	(No)	Unknown

6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	(No)	Unknown
7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	(No)	Unknown
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	(No)	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	(No)	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	(No)	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	(No)	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	(No)	Unknown
13.	Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	(No)	Unknown
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	(No)	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	(No)	Unknown
16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	(No)	Unknown

17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	(No)	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	(No)	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	(No)	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): LEONARD GRADO **SIGNATURE:** [signature] **DATE:** 12-11-07

TITLE: PRESIDENT **ADDRESS:** 4330 GOLDEN CENTER DR. SUITE D

FIRM: PALOS VERDES PROPERTIES PLACERVILLE, CA 95667

PHONE NUMBER: 530-622-5682 **FAX NUMBER:** 530-622-3103

RELATIONSHIP TO SITE: Owner _____ **or Owner's Representative** /

Phase I Environmental Site Assessment

Project: **Site Name:** **Waste Connections Inc. Property (APN 051-250-47)**
Location: **10.31 acres at 4100 Thowita Way**
Placerville, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482.)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	(Yes)	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	(Yes)	No	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	(Yes)	No	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	(Yes)	No	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	(No)	Unknown

6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	(No)	Unknown
7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	No	(Unknown)
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	(No)	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	(No)	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	(No)	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	No	Unknown
12.	Are you aware of any floor drains or sumps on the property?	(Yes)	No	Unknown
13.	Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	No	(Unknown)
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	No	(Unknown)
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	(No)	Unknown
16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	(Yes)	No	Unknown

N/A.

17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	(Yes)	No	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	(No)	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	(No)	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): James M Loftus	**SIGNATURE:** **DATE:**
TITLE: Vice President	**ADDRESS:**
FIRM: WCF	
PHONE NUMBER: 916-608-8223	**FAX NUMBER:**
RELATIONSHIP TO SITE: Owner ✓	**or Owner's Representative** _____

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT ~~Susan Wells~~ Sue Farris, Office Mngr. x2816 DATE 11/20/07 TIME 4pm

COMPANY NAME Waste Connections

TELEPHONE NO. (530) 626-4411 FAX NO. Cell (916) 801-0200

MAILING ADDRESS P. O. Box 1270

Diamond Springs, 95619

PROJECT NAME AND NUMBER EO7443.000

NOTES Site Visit

Albert

- lm on 2m

MRF = Material Recovery Facility

4100 Thorwita Way, Placerville

11/26/07 10AM lm on 2m

Recon Wed 11/28/07 @ 1pm

Recorded by Laurie Israel

f:\wp51\reports\lbi\foncnt.rpt

YOUNGDAHL CONSULTING GROUP, INC.
1234 Glenhaven Court
El Dorado Hills, CA 95762

Inter-County Title Co.

Of El Dorado County
596 Main Street
Placerville, CA 95667
(530) 622-3135
(530) 622-0897 (Fax)

FIRST SUPPLEMENTAL REPORT

IMPORTANT
When replying refer to:
Order No.: PV-215306-JM
Escrow officer: Judy Musick
Email: jmusick@ictitle.com

PROPERTY: APN 051-250-12

In response to the above referred application for a Policy of Title Insurance, Inter-County Title Co. of El Dorado County hereby reports that it is prepared to cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance by Stewart Title Guaranty Company describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage of said Policy or Policies are set forth on the attached cover Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the Policy forms should be read. They are available from the office that issued this Report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters that are not covered under the terms of the title insurance policy and should be carefully considered.
It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This Report (and any supplements or amendments thereto) is issued solely for the purpose of facilitating the issuance of a Policy of Title Insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a Policy of Title Insurance, a Binder or Commitment should be requested.

Dated as of **August 22, 2007 at 7:30 A.M.**

The form of Policy of Title Insurance contemplated by this Report is:
( ) CLTA Homeowner's Policy — 1998
(X) CLTA Standard Coverage Policy — 1990
( ) ALTA Loan Policy — 1992 with ALTA Endorsement form 1 Coverage (10-17-92)
( ) ALTA Residential Title Insurance Policy — 1987 (6-1-87)
( ) ALTA Owner's Policy — 1987 (10-17-92)

The estate or interest in the land hereinafter described or referred to covered by this Report is a fee.

Title to said estate or interest at the date hereof is vested in

Lawrence E. Abel, also shown of record as Laurance Abel and Jacqueline Abel, husband and wife, as joint tenants

MM/LS
nstr/ON

The land referred to in this report is described in the Schedule attached hereto entitled "DESCRIPTION."

At the date hereof exceptions to coverage in addition to the printed exceptions and exclusions contained in said policy form would be as follows:

1. General and special property taxes, and any assessments collected with taxes, including utility assessments, are a lien not yet payable to be levied for the fiscal year 2007 - 2008.

2. The lien of supplemental taxes, if any, assessed pursuant to the provisions of Chapter 3.5 (commencing with Section 75) of the Revenue and Taxation Code of the State of California.

3. Any taxes, assessments or charges that may be due El Dorado Irrigation District by reason of the land being situated in said District, Improvement District, or by reason of any service received from said District.

4. Such rights and easements as may exist in and to any portion of the herein described premises as may lie within the boundaries of any public highway or road.

5. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes:

   GRANTED TO : American River Electric Company

   No representation is made as to the present ownership of said easement.

RECORDED	: August 13, 1903
BOOK	: 57 of Deeds
PAGE	: 548
FOR	: pole lines for the transmission of electricity, and for all purposes connected therewith
AFFECTS	: over lands of which the realty herein described constitutes a portion, however, the exact location of said easement is not disclosed of record.

6. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes:

   GRANTED TO : American River Electric Company

   No representation is made as to the present ownership of said easement.

   RECORDED : December 14, 1903
   BOOK : 62 of Deeds
   PAGE : 94
   FOR : pole line, together with the right to trim trees
   AFFECTS : over lands of which the realty herein described constitutes a portion, however, the exact location of said easement is not disclosed of record.

7. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes:

   GRANTED TO : American River Electric Company

   No representation is made as to the present ownership of said easement.

   RECORDED : January 29, 1904
   BOOK : 62 of Deeds
   PAGE : 165
   FOR : pole line, together with the right to trim trees
   AFFECTS : over lands of which the realty herein described constitutes a portion, however, the exact location of said easement is not disclosed of record.

8. Right of way for a ditch forming a part of the Diamond Ridge System of ditches as disclosed by an instrument,
   DATED : November 2, 1910
   EXECUTED BY : Norvin N. Hall, et al
   RECORDED : April 17, 1916
   BOOK : 85 of Deeds
   PAGE : 280
   AFFECTS : the Southwest corner area of the realty herein described

9. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes:

   GRANTED TO : Richard L. Hollingsworth

   No representation is made as to the present ownership of said easement.

   RECORDED : July 27, 1927
   BOOK : 106 of Deeds
   PAGE : 440
   FOR : poles, towers, wires, cables and appurtenances thereto in the operation and maintenance of an electric power line, telephone line and aerial tramway for the transportation of rock and other materials
   AFFECTS : a strip of land 50 feet in width situated over and across the Northerly portion of said property

10. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes:

    GRANTED TO : James B. Throne, et ux

    No representation is made as to the present ownership of said easement.

    RECORDED : October 28, 1947
    BOOK : 249
    PAGE : 130
    FOR : ingress and egress in order to maintain a pipeline which runs from the El Dorado Irrigation District ditch to Highway 49
    AFFECTS : over lands of which the realty herein described constitutes a portion, however, the exact location of said easement is not disclosed of record.

11. Right of way for pipeline as disclosed by the last above mentioned document.

12. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes:

    GRANTED TO : United States of American

    No representation is made as to the present ownership of said easement.

    RECORDED : June 19, 1962
    BOOK : 595
    PAGE : 689
    FOR : water pipelines of not more that 10 inches inside diameter with all fixtures, devices and appurtenances together with incidental rights and conditions relating thereto
    AFFECTS : near and along the Easterly boundary of the realty herein described

13. An easement affecting the portion of said land and for the purposes stated herein, and incidental purposes:

    GRANTED TO : The United States of America

    No representation is made as to the present ownership of said easement.

RECORDED	: January 31, 1963
BOOK	: 623
PAGE	: 14
FOR	: water pipelines with incidents and appurtenances, and for all purposes connected therewith
AFFECTS	: the Easterly edge

14. A permanent easement for road and Public Utility purposes in favor of County of El Dorado by Final Order of Condemnation filed September 4, 1999 in Superior Court of California, Case No. PV-000895 recorded September 18, 1998. Document No. 1998-0054094-00.
    AFFECTS : the Northeast portion reference to the map in said document for exact location

NOTE: For proration purposes, the general and special taxes for the fiscal year shown below are:

FISCAL YEAR	: 2006-2007
FIRST INSTALLMENT	: $315.45 Paid
SECOND INSTALLMENT	: $315.45 Paid
ASSESSED LAND VALUE	: $61,668.00
ASSESSED IMPROVEMENT VALUE	: $0
PERSONAL PROPERTY VALUE	: NONE
EXEMPTIONS	: NONE
PARCEL NUMBER	: 051-250-12

NOTE: Any conveyance of the herein real property should recite:

TOGETHERWITH the non-exclusive easement for a roadway and for public utilities as granted to Laurence Abel, et ux, recorded February 26, 1980 in Book 1853 Page 572 Official Records.

NOTE: CALIFORNIA "GOOD FUNDS" LAW

Effective January 1, 1990, California Insurance Code Section 12413.1, (Chapter 598, Statutes of 1989), prohibits a title insurance company, controlled escrow company, or underwritten title company from disbursing funds from an escrow or sub-escrow account, (except for funds deposited by **WIRE TRANSFER, ELECTRONIC PAYMENT**, or **CASH**) until the day these funds are made available to the depositor pursuant to Part 229 of Title 12 of the Code of Federal Regulations, (Reg. CC). Items such as **CASHIER'S, CERTIFIED** or **TELLER'S CHECKS** may be available for disbursement on the business day following the business day of deposit; however, other forms of deposits may cause extended delays in closing the escrow or sub-escrow.

NOTE: This report is subject to a minimum charge, as required by Section 12404 of the California Insurance Code and Rule 2 of Department of Insurance Bulletin No. NS-35E.

NOTE: In the event any party to this transaction requests an ALTA Loan Policy of title insurance, a physical inspection of the subject property will be required. An appropriate charge will be made for such inspection, with a minimum charge of $25.00.

NOTE: All maps attached hereto are provided for your convenience as a guide to the general location of the subject property. The accuracy of said maps is not guaranteed, nor are they a part of any policy, report or guarantee to which they may be attached.

DESCRIPTION

All that certain real property situated in the County of El Dorado, State of California, more particularly described as follows:

Portion of the South one-half of Lot 5 of the Southwest quarter of Section 19, Township 10 North, Range 11 East, M.D.B.&M., described as follows:

BEGINNING at the most Westerly corner of Parcel B as said Parcel B is shown on the Parcel Map filed for record September 18, 1979 in Book 25 of Parcel Map at Page 46, Records El Dorado County; thence on and along the Westerly boundaries of Parcels B, C and D, South 7° 44' 47" East, 137.99 feet; South 1° 39' 22" East 153.59 feet; South 1° 46' 02" East 299.91 feet; South 3° 04' 33" West, 283.48 feet; and South 12° 32' 14" West 77.70 feet to the most Westerly corner of said Parcel D; thence on and along the Northwesterly boundary of the parcel described in the deed to Milo Joe Martinovich, et ux, recorded February 2, 1945 in Book 214 Page 180 Official Records, South 17° 55' 14" West, 133.44 feet to the South line of said Section 19; thence on and along said South section line South 89° 50' 25" West 43.15 feet to the Southeast corner of the parcel described in the Deed to Frank DeBenning, et ux, recorded October 17, 1974 in Book 1290 Page 628 of Official Records, thence on and along the exterior boundaries of said DeBenning parcel, North 17° 49' 25" East, 136.64 feet; North 26° 09' 35" West 52.12 feet; South 76° 30' 25" West 102.70 feet; and South 66° 38' 25" West 34 feet to the Northwest corner of said DeBenning parcel; thence on and along the exterior boundary lines of the parcel described in the Deed to Gary E. Wakefield recorded February 23, 1978 in Book 1601 at Page 34 of Official Records South 66° 38' 25" West 79.49 feet; thence South 65° 53' 25" West 243.83 feet, and thence South 35° 53' 00" West 11.67 feet to the Southwest corner of said Wakefield parcel located on said South line of Section 19; thence on and along said South Section line South 89° 50' 25" West 84.14 feet; thence leaving said Section line North 31° 49' 59" East 55.82 feet to a point on the Southerly boundary line of the Parcel described as Parcel No. 2 of the Quitclaim Deed by Laurance Abel, et ux, to Basic Minerals Inc., recorded February 25, 1980 in Book 1853 Page 569 Official Records; thence on and along the exterior boundary line of said Parcel No. 2, North 69° 38' 06" East 73 feet; North 47° 09' 54" West 180 feet; and North 52° 10' 47" West 336.62 feet to the Northeast corner of said Parcel No. 2; said Northeast corner being on an exterior boundary line of the Parcel described as Parcel No. 1 in the Deed by Basic Minerals Inc. to Maxim Development Co., recorded February 26, 1980 in Book 1853 Page 591 Official Records; thence on and along the exterior boundary lines of said Parcel No. 1, North 65° 43' 06" East 109.92 feet; North 17° 52' 00" West 41 feet; North 61° 07' 42" East 215.67 feet; North 84° 22' 56" East 99 feet; North 37° 22' 56" East 35 feet, and North 27° 48' 24" West 258.33 feet to the Southeast corner of Parcel 9 as said Parcel 9 is delineated on the Parcel Map filed for record on November 5, 1978 in Book 22 of Parcel Maps at Page 28, Records of El Dorado County, thence on and along the exterior boundary lines of Parcels 9, 10 and 11 of said Parcel Map filed for record in Book 22 of Parcel Maps at Page 28, North 15° 04' 30" West 80.58 feet; North 26° 03' 58" East 57.32 feet; North 64° 59' 48"

East 69.57 feet; and South 85° 39' 06" East 261.45 feet to the Southeast corner of said Parcel 11 located on the West line of the fee parcel of real property described on Page 4 of the Decree of Distribution in the Matter of the Estate of Clement H. Mercier, deceased, Recorded March 31, 1977 in Book 1485 Page 41 of Official Records; thence on and along the exterior boundaries of said fee parcel described on said Page 4, South 4° 11' 00" East 136.75 feet; thence continuing South 4° 11' 00" East 15.15 feet; and North 50° 52' 05" East 346.91 feet to the point of beginning.

The herein before described parcel is delineated on the Record of Survey filed for record July 30, 1980 in Book 8 at Page 85 of Records of Surveys, Records of El Dorado County.

EXCEPTING THEREFROM any real property conveyed to Basic Minerals Inc. by virtue of the Quitclaim Deed recorded February 25, 1980 in Book 1853 Page 569 Official Records.

Assessor's Parcel No. 051-250-12

POR. LOTS 3,4,&5 SEC.19 T.10N.R.11E & POR.SEC.24T.10N.R.11E
& POR. SEC. 30T.10N.R.10E. M.D.M.

Tax Area Code 51-25

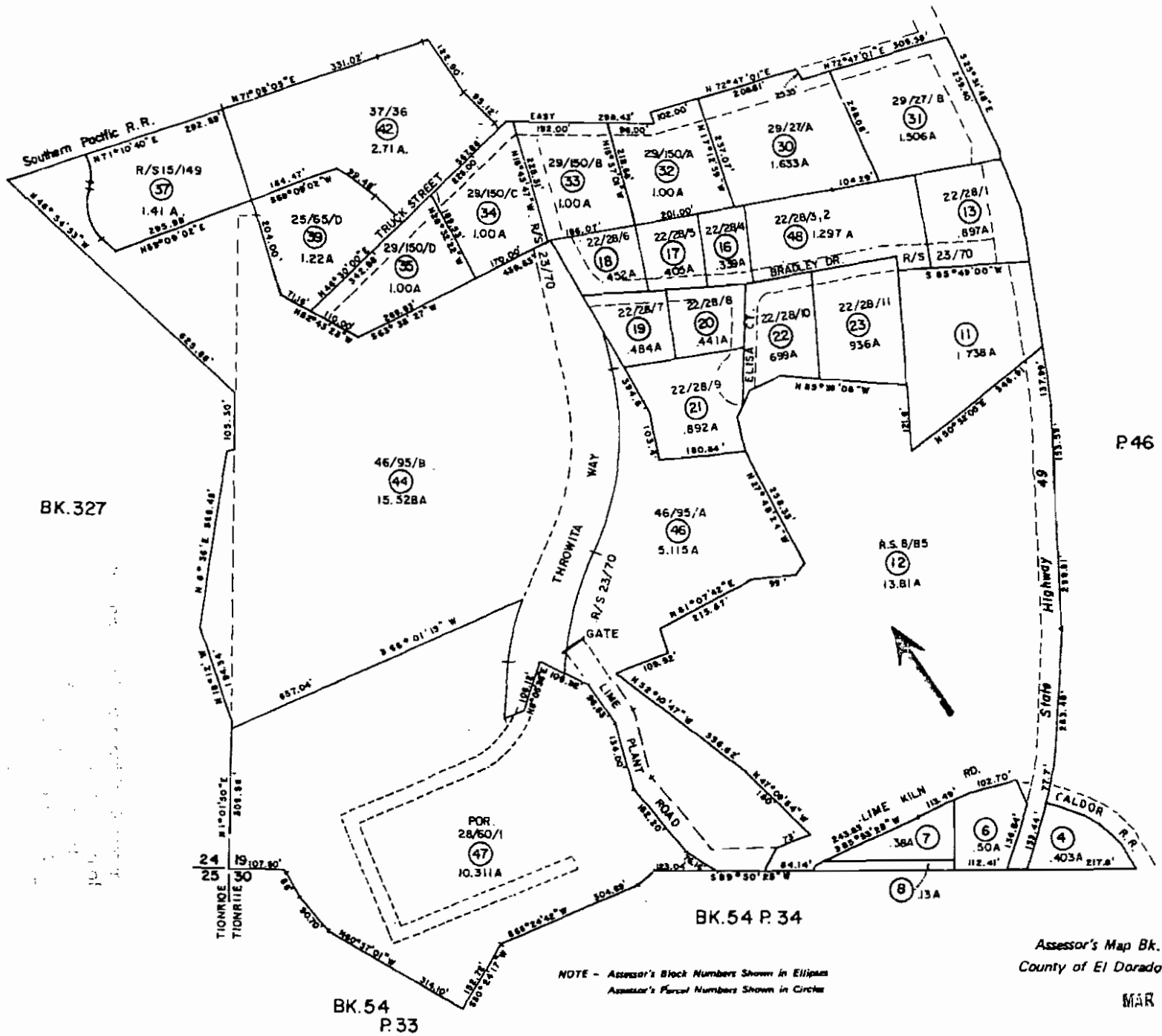


Exhibit A (Revised 11-17-04)

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land, (ii) the character, dimensions or location of any improvement now or hereafter erected on the land, (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge

3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.

4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.

5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.

6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1 Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records

Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.

Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.

Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.

(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (10/22/03)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE

EXCLUSIONS

In addition to the Exceptions in Schedule B. You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1 Governmental police power, and the existence or violation of any law or government regulation. This includes ordinances, laws and regulations concerning

a. building
b. zoning
c. Land use
d improvements on the Land
e. Land division
f environmental protection

This Exclusion does not apply to violations or the enforcement of these matters if notice of the violation or enforcement appears in the Public Records at the Policy Date

This Exclusion does not limit the coverage described in Covered Risk 14, 15, 16, 17 or 24.

2 The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at the Policy Date

3. The right to take the Land by condemning it, unless.

a. a notice of exercising the right appears in the Public Records at the Policy Date; or
b the taking happened before the Policy Date and is binding on You if You bought the Land without Knowing of the taking.

4 Risks:

a. that are created, allowed, or agreed to by You, whether or not they appear in the Public Records;
b that are Known to You at the Policy Date, but not to Us, unless they appear in the Public Records at the Policy Date;
c that result in no loss to You; or
d that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.d, 22, 23, 24 or 25

5. Failure to pay value for Your Title.

6 Lack of a right:

a to any Land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
b. in streets, alleys, or waterways that touch the Land.

This Exclusion does not limit the coverage described in Covered Risk 11 or 18.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows

For Covered Risk 14, 15, 16 and 18, Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 14:	1.00% of Policy Amount or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 15:	1.00% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 16:	1.00% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 17:	1.00% of Policy Amount or $2,500.00 (whichever is less)	$5,000.00

AMERICAN LAND TITLE ASSOCIATION
RESIDENTIAL TITLE INSURANCE POLICY (6-1-87)

EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:

   * land use
   * improvements on the land
   * land division
   * environmental protection

   This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at Policy Date.

   This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.

2. The right to take the land by condemning it, unless:

   * a notice of exercising the right appears in the public records
   * on the Policy Date
   * the taking happened prior to the Policy Date and is binding on you if you bought the land without knowing of the taking

3. Title Risks:

   * that are created, allowed, or agreed to by you
   * that are known to you, but not to us, on the Policy Date -- unless they appeared in the public records
   * that result in no loss to you
   * that first affect your title after the Policy Date -- this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks

   Failure to pay value for your title.

   Lack of a right

   * to any land outside the area specifically described and referred to in Item 3 of Schedule A

   OR

   * in streets, alleys, or waterways that touch your land

   This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

AMERICAN LAND TITLE ASSOCIATION LOAN POLICY (10-17-92)
WITH ALTA ENDORSEMENT-FORM 1 COVERAGE

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1 (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy

2 Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge

3. Defects, liens, encumbrances, adverse claims or other matters:

(a) created, suffered, assumed or agreed to by the insured claimant;
(b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
(c) resulting in no loss or damage to the insured claimant;
(d) attaching or created subsequent to Date of Policy (except to the extent that this policy insures the priority of the lien of the insured mortgage over any statutory lien for services, labor or material or to the extent insurance is afforded herein as to assessments for street improvements under construction or completed at Date of Policy); or
(e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage

4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable doing business laws of the state in which the land is situated

5 Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.

6. Any statutory lien for services, labor or materials (or the claim of priority of any statutory lien for services, labor or materials over the lien of the insured mortgage) arising from an improvement or work related to the land which is contracted for and commenced subsequent to Date of Policy and is not financed in whole or in part by proceeds of the indebtedness secured by the insured mortgage which at Date of Policy the insured has advanced or is obligated to advance.

7. Any claim, which arises out of the transaction creating the interest of the mortgagee insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:

(i) the transaction creating the interest of the insured mortgagee being deemed a fraudulent conveyance or fraudulent transfer, or
(ii) the subordination of the interest of the insured mortgagee as a result of the application of the doctrine or equitable subordination; or
(iii) the transaction creating the interest of the insured mortgagee being deemed a preferential transfer except where the preferential transfer results from the failure:

(a) to timely record the instrument of transfer; or
(b) of such recordation to impart notice to a purchaser for value or a judgment or lien creditor

The above policy forms may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following General Exceptions:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of

1 Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2 Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.

3 Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.

4 Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records

5 (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records

AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY (10-17-92)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of.

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land, (ii) the character, dimensions or location of any improvement now or hereafter erected on the land, (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part, or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.

3 Defects, liens, encumbrances, adverse claims or other matters:

   (a) created, suffered, assumed or agreed to by the insured claimant,
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy.
   (c) resulting in no loss or damage to the insured claimant,
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the estate or interest insured by this policy

4. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:

   (i) the transaction creating the estate or interest insured by this policy being deemed a fraudulent conveyance or fraudulent transfer; or
   (ii) the transaction creating the estate or interest insured by this policy being deemed a preferential transfer except where the preferential transfer results from the failure:

      (a) to timely record the instrument of transfer; or
      (b) of such recordation to impart notice to a purchaser for value or a judgment or lien creditor.

The above policy forms may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage Policy will also include the following General Instructions:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1 Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2 Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof

3 Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.

4 Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof, (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (10/13/01)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys fees or expenses which arise by reason of:

1 (a)Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the Land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the Land; (iii) a separation in ownership or a change in the dimensions or areas of the Land or any parcel of which the Land is or was a part, or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that s notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the Land has been recorded in the Public Records at Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14, and 16 of this policy.

(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the Land has been recorded in the Public Records at Date of Policy This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14, and 16 of this policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the Public Records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without Knowledge

3 Defects, liens, encumbrances, adverse claims or other matters:

(a) created, suffered, assumed or agreed to by the Insured Claimant,
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting In no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (this paragraph does not limit the coverage provided under Covered Risks 8, 16, 18, 19, 20, 21, 22, 23, 24, 25 and 26), or
(e) resulting in loss or damage which would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.

4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of the Insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable doing business laws of the state in which the Land is situated

5 Invalidity or unenforceability of the lien of the Insured Mortgage, or claim thereof, which arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, except as provided in Covered Risk 27, or any consumer credit protection or truth in lending law

6. Real property taxes or assessments of any governmental authority which become a lien on the Land subsequent to Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 7, 8(e) and 26.

Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This exclusion does not limit the coverage provided in Covered Risk 8

Lack of priority of the lien of the Insured Mortgage as to each and every advance made after Date of Policy, and all interest charged thereon, over liens, encumbrances and other matters affecting the title, the existence of which are Known to the Insured at:

(a) The time of the advance; or
(b) The time a modification is made to the terms of the Insured Mortgage which changes the rate of interest charged, if the rate of interest is greater as a result of the modification than it would have been before the modification. This exclusion does not limit the coverage provided in Covered Risk 8

The failure of the residential structure, or any portion thereof to have been constructed before, on or after Date of Policy in accordance with applicable building codes This exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at Date of Policy

Inter-County Title Co.

Of El Dorado County
596 Main Street
Placerville, CA 95667
(530)622-3135
(530)622-0897 (Fax)

Privacy Policy Notice

Purpose of This Notice

Title V of the Gramm-Leach-Bliley Act (GLBA) generally prohibits any financial institution, directly or through its affiliates, from sharing nonpublic personal information about you with a nonaffiliated third party unless the institution provides you with a notice of its privacy policies and practices, such as the type of information that it collects about you and the categories of persons or entities to whom it may be disclosed. In compliance with the GLBA, we are providing you with this document, which notifies you of the privacy policies and practices of Stewart Title Guaranty Company, Stewart Title Insurance Company, and Stewart Title of Sacramento.

We may collect nonpublic personal information about you from the following courses:

- Information we received from you, such as on applications or other forms
- Information about your transactions we secure from our files or from our affiliates or others
- Information we receive from a consumer-reporting agency
- Information that we receive from others involved in your transaction, such as the real estate agent or lender.

Unless it is specifically stated otherwise in an amended Privacy Policy Notice, no additional nonpublic personal information will be collected about you.

We may disclose any of the above information that we collect about our customers or former customers to our affiliates or to nonaffiliated third parties as permitted by law.

We also may disclose this information about our customers or former customers to the following types of nonaffiliated companies that perform marketing services on our behalf or with whom we have joint marketing agreements:

- Financial service providers such as companies engaged in banking, consumer finance, securities and insurance.
- Non-financial companies such as envelope such as envelope stuffers and other fulfillments service providers.

WE DO NOT DISCLOSE ANY NONPUBLIC PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT SPECIFICALLY PERMITTED BY LAW.

We restrict access to nonpublic personal information about you to those employees who need to know that information in order to provide products or services to you. We maintain physical, electronic and procedural safeguards that comply with federal regulations to guard you nonpublic personal information.

051-250-47-100

First American

670 Placerville Dr Ste 1A,
Placerville CA 95667
Tel: 5306223260 Fax: (866)-3189736

El Dorado

0000032368480256639

Transmittal
Order No: 2936281

Dated: 11/9/2007

Attention: Leonard Grado
Palos Verdes Properties
4330 Golden Center Dr Ste D
Placerville , CA 95667

Enclosed please find 2 attached documents.

Placerville Escrow

Page Count 20

First American Title Company

670 Placerville Drive, #1A
Placerville, CA 95667

Escrow Officer:	Norma Quigley (NQ)
Phone:	(530)622-3260
Fax No.:	(866)317-0102
E-Mail:	nquigley@firstam.com
E-Mail Loan Documents to:	TahoeFoothillsEdocs@firstam.com
Owner:	Waste Connections of California, Inc.
Property:	4100 Throwita Way Placerville, CA

PRELIMINARY REPORT

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage of said Policy or Policies are set forth in Exhibit A attached. Copies of the Policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of October 31, 2007 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

ALTA Standard Owner's Policy 2006 (WRE 6-17-06)

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

Waste Connections of California, Inc., a California corporation

The estate or interest in the land hereinafter described or referred to covered by this Report is:

A fee.

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. General and special taxes and assessments for the fiscal year 2007-2008.

First Installment:	$20,954.97, DUE
Penalty:	$0.00
Second Installment:	$20,954.97, PAYABLE
Penalty:	$0.00
Tax Rate Area:	078-070
A. P. No.:	051-250-47-100

2. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

3. An easement for right of way, pole lines and incidental purposes, recorded December 14, 1903 in Book 62 of Deeds, Page 94.
   In Favor of: American River Electric Company
   Affects: A portion of the land

4. An easement for right of way, pole lines and incidental purposes, recorded January 29, 1904 in Book 62 of Deeds, Page 165.
   In Favor of: American River Electric Company
   Affects: A portion of the land

5. Covenants, conditions, restrictions and easements in the document recorded July 27, 1927 in Book 106 of Deeds, Page 459, but deleting any covenant, condition or restriction indicating a preference, limitation or discrimination based on race, color, religion, sex, sexual orientation, marital status, ancestry, disability, handicap, familial status, national origin or source of income (as defined in California Government Code §12955(p)), to the extent such covenants, conditions or restrictions violate 42 U.S.C. 3604(c) or California Government Code §12955 . Lawful restrictions under state and federal law on the age of occupants in senior housing or housing for older persons shall not be construed as restrictions based on familial status.

6. An easement for underground conditions, pipes, manholes, service boxes, wires, cables and electrical conductors; aboveground marker posts, risers and service pedestals, underground and aboveground switches, fuses, terminals and transformers with associated concrete pads; and fixtures and appurtenances, together with ingress and egress and incidental purposes, recorded April 30, 1981 as Book 1975, Page 1 of Official Records.

In Favor of:	Pacific Gas and Electric Company, a California corporation
Affects:	A strip of land 5 feet wide as shown by drawing attached to said document

7. The terms and provisions contained in the document entitled Waiver of Landlord or Mortgagee recorded December 23, 1981 as Book 2041, Page 335 of Official Records.

8. The effect of a document entitled United States Bankruptcy Court Eastern District of California, recorded January 6, 1994 as Instrument No. 026118 in Book 4261, Page 210 of Official Records.

9. An easement for utility, septic system, road and incidental purposes, recorded April 26, 1994 as Book 4261, Page 196 of Official Records.

In Favor of:	Western El Dorado Recovery Systems, Inc.
Affects:	A portion of the land

10. The terms and provisions contained in the document entitled Extension of Facilities Agreement-Water Western El Dorado Recovery - MRF recorded April 25, 1995 as Instrument No. 018217 in Book 4457, Page 507 of Official Records.

11. The terms and provisions contained in the document entitled Extension of Facilities Agreement-Water Project Name: El Dorado Disposal Line Relocation Project -Work Order No. 71908 recorded September 30, 2005 as Instrument No. 2005-0081991 of Official Records.

12. An easement for permanent right to enter, re-enter, occupy and use the hereinafter described property to construct, maintain, repair, replace, remove, enlarge and operate one or more Water pipelines and all underground and surface appurtenances and incidental purposes, recorded May 15, 2006 as Instrument No. 2006-0032765 of Official Records.

In Favor of:	El Dorado Irrigation District
Affects:	A portion of the land

13. Rights of parties in possession.

INFORMATIONAL NOTES

Note: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the certain dollar amount set forth in any applicable arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. If you desire to review the terms of the policy, including any arbitration clause that may be included, contact the office that issued this Commitment or Report to obtain a sample of the policy jacket for the policy that is to be issued in connection with your transaction.

1. Supplemental taxes for the year 2006-2007 assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.

First Installment:	$6,526.52, PAID
Penalty:	$0.00
Second Installment:	$6,526.52, PAID
Penalty:	$0.00
Tax Rate Area:	078-070
A. P. No.:	051-250-47-100

2. According to the latest available equalized assessment roll in the office of the county tax assessor, there is located on the land a(n) Commercial Structure known as 4100 Throwita Way, Placerville, California.

3. According to the public records, there has been no conveyance of the land within a period of twenty four months prior to the date of this report, except as follows:

A document recorded June 06, 2006 as Instrument No. 2006-0037666 of Official Records.

From:	USA Waste of California, Inc., a Delaware corporation, successor-in-merger to Western EL Dorado Recovery Systems, Inc., a California corporation
To:	Waste Connections of California, Inc., a California corporation

4. Should this report be used to facilitate your transaction, we must be provided with the following prior to the issuance of the policy:

   A. WITH RESPECT TO A CORPORATION:

      a. A certificate of good standing of recent date issued by the Secretary of State of the corporation's state of domicile.

      b. A certificate copy of a resolution of the Board of Directors authorizing the contemplated transaction and designating which corporate officers shall have the power to execute on behalf of the corporation.

      c. Requirements which the Company may impose following its review of the above material and other information which the Company may require.

B. WITH RESPECT TO A CALIFORNIA LIMITED PARTNERSHIP:

a. A certified copy of the certificate of limited partnership (form LP-1) and any amendments thereto (form LP-2) to be recorded in the public records;

b. A full copy of the partnership agreement and any amendments;

c. Satisfactory evidence of the consent of a majority in interest of the limited partners to the contemplated transaction;

d. Requirements which the Company may impose following its review of the above material and other information which the Company may require.

C. WITH RESPECT TO A FOREIGN LIMITED PARTNERSHIP:

a. A certified copy of the application for registration, foreign limited partnership (form LP-5) and any amendments thereto (form LP-6) to be recorded in the public records;

b. A full copy of the partnership agreement and any amendment;

c. Satisfactory evidence of the consent of a majority in interest of the limited partners to the contemplated transaction;

d. Requirements which the Company may impose following its review of the above material and other information which the Company may require.

D. WITH RESPECT TO A GENERAL PARTNERSHIP:

a. A certified copy of a statement of partnership authority pursuant to Section 16303 of the California Corporation Code (form GP-I), executed by at least two partners, and a certified copy of any amendments to such statement (form GP-7), to be recorded in the public records;

b. A full copy of the partnership agreement and any amendments;

c. Requirements which the Company may impose following its review of the above material required herein and other information which the Company may require.

E. WITH RESPECT TO A LIMITED LIABILITY COMPANY:

a. A copy of its operating agreement and any amendments thereto;

b. If it is a California limited liability company, a certified copy of its articles of organization (LLC-1) and any certificate of correction (LLC-11), certificate of amendment (LLC-2), or restatement of articles of organization (LLC-10) to be recorded in the public records;

c. If it is a foreign limited liability company, a certified copy of its application for registration (LLC-5) to be recorded in the public records;

d. With respect to any deed, deed of trust, lease, subordination agreement or other document or instrument executed by such limited liability company and presented for recordation by the Company or upon which the Company is asked to rely, such document or instrument must be executed in accordance with one of the following, as appropriate:

(I) If the limited liability company properly operates through officers appointed or elected pursuant to the terms of a written operating agreement, such documents must be executed by at least two duly elected or appointed officers, as follows: the chairman of the board, the president or any vice president, and any secretary, assistant secretary, the chief financial officer or any assistant treasurer;

(II) If the limited liability company properly operates through a manager or managers identified in the articles of organization and/or duly elected pursuant to the terms of a written operating agreement, such document must be executed by at least two such managers or by one manager if the limited liability company properly operates with the existence of only one manager.

e. Requirements which the Company may impose following its review of the above material and other information which the Company may require.

F. WITH RESPECT TO A TRUST:

a. A certification pursuant to Section 18500.5 of the California Probate Code in a form satisfactory to the Company.

b. Copies of those excerpts from the original trust documents and amendments thereto which designate the trustee and confer upon the trustee the power to act in the pending transaction.

c. Other requirements which the Company may impose following its review of the material require herein and other information which the Company may require.

G. WITH RESPECT TO INDIVIDUALS:

a. A statement of information.

The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

LEGAL DESCRIPTION

Real property in the unincorporated area of the County of El Dorado, State of California, described as follows:

PARCEL NO. 1:
PARCEL 1, AS SAID PARCEL IS SHOWN ON THAT CERTAIN PARCEL MAP ENTITLED "POR. SW 1/4 SEC. 19 T.10N., R.11E., M.D.M. AND POR. LOT 1 BLOCK 3 TOWNSITE OF DIAMOND SPRINGS BEING POR., NW 1/4 SEC. 30 T.10N., R.11E., M.D.M.", FILED JANUARY 12, 1981 IN THE OFFICE OF THE COUNTY RECORDER OF EL DORADO COUNTY IN BOOK 28 OF PARCEL MAPS, AT PAGE 60.

PARCEL NO.2:

ALL THAT PORTION OF THE SOUTHWEST ONE-QUARTER OF SECTION 19, T10N., R11E., M.D.M., DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF THE PARCEL HEREIN DESCRIBED, BEING THE NORTHWEST CORNER OF PARCEL 1 AS SAID PARCEL 1 IS DESCRIBED AND SET FORTH ON THE PARCEL MAP FILED FOR RECORD IN BOOK 28 OF PARCEL MAPS AT PAGE 60 IN THE OFFICE OF THE RECORDER OF THE COUNTY OF EL DORADO, STATE OF
CALIFORNIA (HEREAFTER ORED), AND FROM WHICH SAID POINT OF BEGINNING THE SOUTHWEST CORNER OF SAID SECTION 19 BEARS SOUTH 00° 36' 13" WEST, 63.23 FEET; THENCE FROM THE POINT OF BEGINNING ALONG THE EASTERLY LINE OF THAT PARCEL MAP FILED IN BOOK 26 AT PAGE 33 ORED, NORTH 00° 36' 13" EAST, 229.20 FEET; THENCE LEAVING SAID EASTERLY LINE, NORTH 66° 01' 19" EAST, 657.04 FEET TO A POINT IN THE WESTERLY RIGHT-OF-WAY LINE OF "THROWITA WAY"; THENCE ALONG SAID RIGHT-OF-WAY LINE THE FOLLOWING TWO (2) COURSES: (1) ALONG THE ARC OF A CURVE TO THE LEFT, SAID ARC HAVING A RADIUS OF 420.00 FEET AND BEING SUBTENDED BY A CHORD WHICH BEARS SOUTH 13° 45' 13" WEST, 137.66 FEET AND
(2) SOUTH 04° 19' 16" WEST, 113.06 FEET TO A POINT IN THE NORTHERLY LINE OF PARCEL 1 OF SAID PARCEL MAP BOOK 28 PAGE 60; THENCE ALONG SAID NORTHERLY LINE SOUTH 66° 01' 19" WEST, 614.54 FEET TO THE POINT OF BEGINNING.

APN: 051-250-47-100

NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

If you have any questions about the effect of this new law, please contact your local First American Office for more details.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

1. CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY - 1990
SCHEDULE B

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notice of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable "doing business" laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by their policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

2. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY FORM B - 1970
SCHEDULE OF EXCLUSIONS FROM COVERAGE

1. Any law, ordinance or governmental regulation (including but not limited to building and zoning ordinances) restricting or regulating or prohibiting the occupancy, use or enjoyment of the land, or regulating the character, dimensions or location of any improvement now or hereafter erected on the land, or prohibiting a separation in ownership or a reduction in the dimensions of area of the land, or the effect of any violation of any such law, ordinance or governmental regulation.
2. Rights of eminent domain or governmental rights of police power unless notice of the exercise of such rights appears in the public records at Date of Policy.
3. Defects, liens, encumbrances, adverse claims, or other matters (a) created, suffered, assumed or agreed to by the insured claimant; (b) not known to the Company and not shown by the public records but known to the insured claimant either at Date of Policy or at the date such claimant acquired an estate or interest insured by this policy and not disclosed in writing by the insured claimant to the Company prior to the date such insured claimant became an insured hereunder; (c) resulting in no loss or damage to the insured claimant; (d) attaching or

created subsequent to Date of Policy; or (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the estate or interest insured by this policy.

3. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY FORM B - 1970 WITH REGIONAL EXCEPTIONS

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 2 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage by reason of the matters shown in parts one and two following:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the public records.

4. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1970 WITH A.L.T.A. ENDORSEMENT FORM 1 COVERAGE SCHEDULE OF EXCLUSIONS FROM COVERAGE

1. Any law, ordinance or governmental regulation (including but not limited to building and zoning ordinances) restricting or regulating or prohibiting the occupancy, use or enjoyment of the land, or regulating the character, dimensions or location of any improvement now or hereafter erected on the land, or prohibiting a separation in ownership or a reduction in the dimensions or area of the land, or the effect of any violation of any such law ordinance or governmental regulation.
2. Rights of eminent domain or governmental rights of police power unless notice of the exercise of such rights appears in the public records at Date of Policy.
3. Defects, liens, encumbrances, adverse claims, or other matters (a) created, suffered, assumed or agreed to by the insured claimant, (b) not known to the Company and not shown by the public records but known to the insured claimant either at Date of Policy or at the date such claimant acquired an estate or interest insured by this policy or acquired the insured mortgage and not disclosed in writing by the insured claimant to the Company prior to the date such insured claimant became an insured hereunder, (c) resulting in no loss or damage to the insured claimant; (d) attaching or created subsequent to Date of Policy (except to the extent insurance is afforded herein as to any statutory lien for labor or material or to the extent insurance is afforded herein as to assessments for street improvements under construction or completed at Date of Policy).
4. Unenforceability of the lien of the insured mortgage because of failure of the insured at Date of Policy or of any subsequent owner of the indebtedness to comply with applicable "doing business" laws of the state in which the land is situated.

5. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1970 WITH REGIONAL EXCEPTIONS

When the American Land Title Association Lenders Policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy, the exclusions set forth in paragraph 4 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage by reason of the matters shown in parts one and two following:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

6. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1992 WITH A.L.T.A. ENDORSEMENT FORM 1 COVERAGE EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy;
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims, or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy (except to the extent that this policy insures the priority of the lien of the insured mortgage over any statutory lien for services, labor or material or the extent insurance is afforded herein as to assessments for street improvements under construction or completed at date of policy); or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable "doing business" laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any statutory lien for services, labor or materials (or the claim of priority of any statutory lien for services, labor or materials over the lien of the insured mortgage) arising from an improvement or work related to the land which is contracted for and commenced subsequent to Date of Policy and is not financed in whole or in part by proceeds of the indebtedness secured by the insured mortgage which at Date of Policy the insured has advanced or is obligated to advance.
7. Any claim, which arises out of the transaction creating the interest of the mortgagee insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:
   (i) the transaction creating the interest of the insured mortgagee being deemed a fraudulent conveyance or fraudulent transfer; or
   (ii) the subordination of the interest of the insured mortgagee as a result of the application of the doctrine of equitable subordination; or
   (iii) the transaction creating the interest of the insured mortgagee being deemed a preferential transfer except where the preferential transfer results from the failure:
   (a) to timely record the instrument of transfer; or
   (b) of such recordation to impart notice to a purchaser for value or a judgment or lien creditor.

7. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 1992 WITH REGIONAL EXCEPTIONS

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 6 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

8. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 1992

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims, or other matters:
   (a) created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the estate or interest insured by this policy.
4. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:
   (i) the transaction creating the estate or interest insured by this policy being deemed a fraudulent conveyance or fraudulent transfer; or
   (ii) the transaction creating the estate or interest insured by this policy being deemed a preferential transfer except where the preferential transfer results from the failure:
   (a) to timely record the instrument of transfer; or
   (b) of such recordation to impart notice to a purchaser for value or a judgment or lien creditor.

9. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 1992
WITH REGIONAL EXCEPTIONS

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 8 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.
3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

10. AMERICAN LAND TITLE ASSOCIATION RESIDENTIAL
TITLE INSURANCE POLICY - 1987
EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
   - land use
   - land division
   - improvements on the land
   - environmental protection

   This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at Policy Date.
   This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.
2. The right to take the land by condemning it, unless:

* a notice of exercising the right appears in the public records on the Policy Date
* the taking happened prior to the Policy Date and is binding on you if you bought the land without knowing of the taking.

3. Title Risks:
* that are created, allowed, or agreed to by you
* that are known to you, but not to us, on the Policy Date - unless they appeared in the public records
* that result in no loss to you
* that first affect your title after the Policy Date - this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks

4. Failure to pay value for your title.

5. Lack of a right:
* to any land outside the area specifically described and referred to in Item 3 of Schedule A, or
* in streets, alleys, or waterways that touch your land

This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

11. EAGLE PROTECTION OWNER'S POLICY

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE - 1998
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE - 1998

Covered Risks 14 (Subdivision Law Violation), 15 (Building Permit), 16 (Zoning) and 18 (Encroachment of boundary walls or fences) are subject to Deductible Amounts and Maximum Dollar Limits of Liability

EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes ordinances, laws and regulations concerning:
   a. building
   b. zoning
   c. land use
   d. improvements on the land
   e. land division
   f. environmental protection

   This exclusion does not apply to violations or the enforcement of these matters if notice of the violation or enforcement appears in the Public Records at the Policy Date.
   This exclusion does not limit the coverage described in Covered Risk 14, 15, 16, 17 or 24.

2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at the Policy Date.

3. The right to take the Land by condemning it, unless:
   a. a notice of exercising the right appears in the Public Records at the Policy Date; or
   b. the taking happened before the Policy Date and is binding on You if You bought the Land without Knowing of the taking.

4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they appear in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they appear in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.d, 22, 23, 24 or 25.

5. Failure to pay value for Your Title.

6. Lack of a right:
   a. to any Land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.

   This exclusion does not limit the coverage described in Covered Risk 11 or 18.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

Covered Risk 14, 15, 16 and 18, Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 14:	1% of Policy Amount or $5,000.00 (whichever is less)	$10,000.00
Covered Risk 15:	1% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 16:	1% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00

Covered Risk 18: 1% of Policy Amount or $2,500.00 (whichever is less) $5,000.00

12. SECOND GENERATION EAGLE LOAN POLICY AMERICAN LAND TITLE ASSOCIATION EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (10/13/01)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the Land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the Land; (iii) a separation in ownership or a change in the dimensions or area of the Land or any parcel of which the Land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the Land has been recorded in the Public Records at Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14 and 16 of this policy.
(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14 and 16 of this policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the Public Records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without Knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
(a) created, suffered, assumed or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (this paragraph does not limit the coverage provided under Covered Risks 8, 16, 18, 19, 20, 21, 22, 23, 24, 25 and 26); or
(e) resulting in loss or damage which would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of the Insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable doing business laws of the state in which the Land is situated.
5. Invalidity or unenforceability of the lien of the Insured Mortgage, or claim thereof, which arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, except as provided in Covered Risk 27, or any consumer credit protection or truth in lending law.
6. Real property taxes or assessments of any governmental authority which become a lien on the Land subsequent to Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 7, 8 (e) and 26.
7. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This exclusion does not limit the coverage provided in Covered Risk 8.
8. Lack of priority of the lien of the Insured Mortgage as to each and every advance made after Date of Policy, and all interest charged thereon, over liens, encumbrances and other matters affecting title, the existence of which are Known to the Insured at:
(a) The time of the advance; or
(b) The time a modification is made to the terms of the Insured Mortgage which changes the rate of interest charged, if the rate of interest is greater as a result of the modification than it would have been before the modification.
This exclusion does not limit the coverage provided in Covered Risk 8.
9. The failure of the residential structure, or any portion thereof to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at Date of Policy.

13. SECOND GENERATION EAGLE LOAN POLICY AMERICAN LAND TITLE ASSOCIATION EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (10/13/01)
WITH REGIONAL EXCEPTIONS

When the American Land Title Association loan policy with EAGLE Protection Added is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 12 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of said land or by making inquiry of persons in possession thereof.

3. Easements, claims of easement or encumbrances which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by public records.
5. Unpatented mining claims; reservations or exceptions in patents or in acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the public records.

14. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 2006

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;

   (ii) the character, dimensions, or location of any Improvement erected on the Land;

   (iii) the subdivision of land; or

   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters

   (a) created, suffered, assumed, or agreed to by the Insured Claimant;

   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

   (c) resulting in no loss or damage to the Insured Claimant;

   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or

   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is

   (a) a fraudulent conveyance or fraudulent transfer, or

   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

15. AMERICAN LAND TITLE ASSOCIATION LOAN POLICY - 2006

WITH REGIONAL EXCEPTIONS

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 14 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

16. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 2006
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

   (i) the occupancy, use, or enjoyment of the Land;

   (ii) the character, dimensions, or location of any improvement erected on the Land;

   (iii) the subdivision of land; or

   (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters

   (a) created, suffered, assumed, or agreed to by the Insured Claimant;

   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

   (c) resulting in no loss or damage to the Insured Claimant;

   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risks 9 and 10); or

   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors? rights laws, that the transaction vesting the Title as shown in Schedule A, is

   (a) a fraudulent conveyance or fraudulent transfer; or

   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

17. AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY - 2006
WITH REGIONAL EXCEPTIONS

When the American Land Title Association policy is used as a Standard Coverage Policy and not as an Extended Coverage Policy the exclusions set forth in paragraph 16 above are used and the following exceptions to coverage appear in the policy.

SCHEDULE B

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

PRIVACY POLICY

We Are Committed to Safeguarding Customer Information

In order to better serve your needs now and in the future, we may ask you to provide us with certain information. We understand that you may be concerned about what we will do with such information – particularly any personal or financial information. We agree that you have a right to know how we will utilize the personal information you provide to us. Therefore, together with our parent company, The First American Corporation, we have adopted this Privacy Policy to govern the use and handling of your personal information.

Applicability

This Privacy Policy governs our use of the information which you provide to us. It does not govern the manner in which we may use information we have obtained from any other source, such as information obtained from a public record or from another person or entity. First American has also adopted broader guidelines that govern our use of personal information regardless of its source. First American calls these guidelines its *Fair Information Values*, a copy of which can be found on our website at www.firstam.com.

Types of Information

Depending upon which of our services you are utilizing, the types of nonpublic personal information that we may collect include:

- Information we receive from you on applications, forms and in other communications to us, whether in writing, in person, by telephone or any other means;
- Information about your transactions with us, our affiliated companies, or others; and
- Information we receive from a consumer reporting agency.

Use of Information

We request information from you for our own legitimate business purposes and not for the benefit of any nonaffiliated party. Therefore, we will not release your information to nonaffiliated parties except: (1) as necessary for us to provide the product or service you have requested of us; or (2) as permitted by law. We may, however, store such information indefinitely, including the period after which any customer relationship has ceased. Such information may be used for any internal purpose, such as quality control efforts or customer analysis. We may also provide all of the types of nonpublic personal information listed above to one or more of our affiliated companies. Such affiliated companies include financial service providers, such as title insurers, property and casualty insurers, and trust and investment advisory companies, or companies involved in real estate services, such as appraisal companies, home warranty companies, and escrow companies. Furthermore, we may also provide all the information we collect, as described above, to companies that perform marketing services on our behalf, on behalf of our affiliated companies, or to other financial institutions with whom we or our affiliated companies have joint marketing agreements.

Former Customers

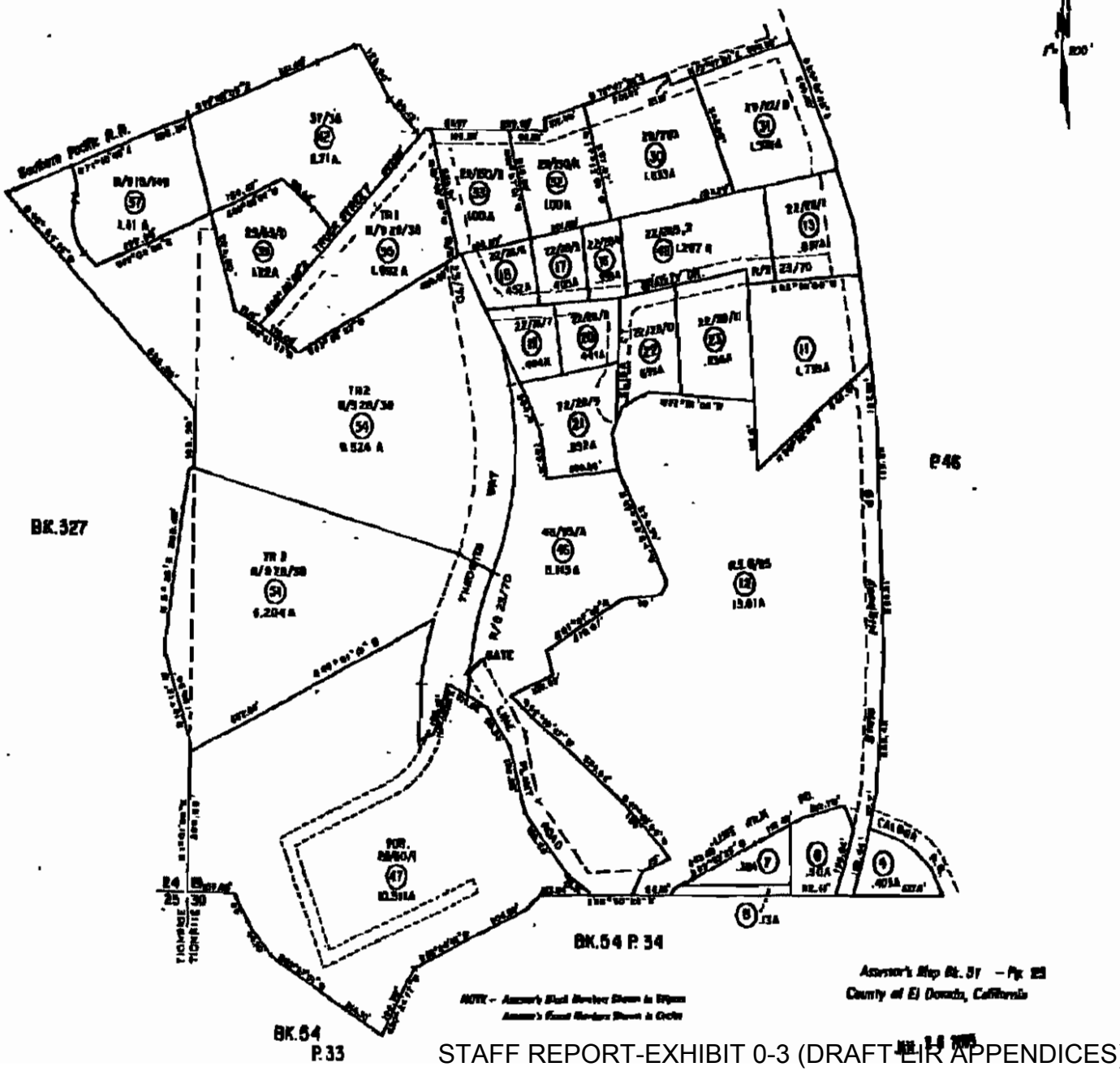
Even if you are no longer our customer, our Privacy Policy will continue to apply to you.

Confidentiality and Security

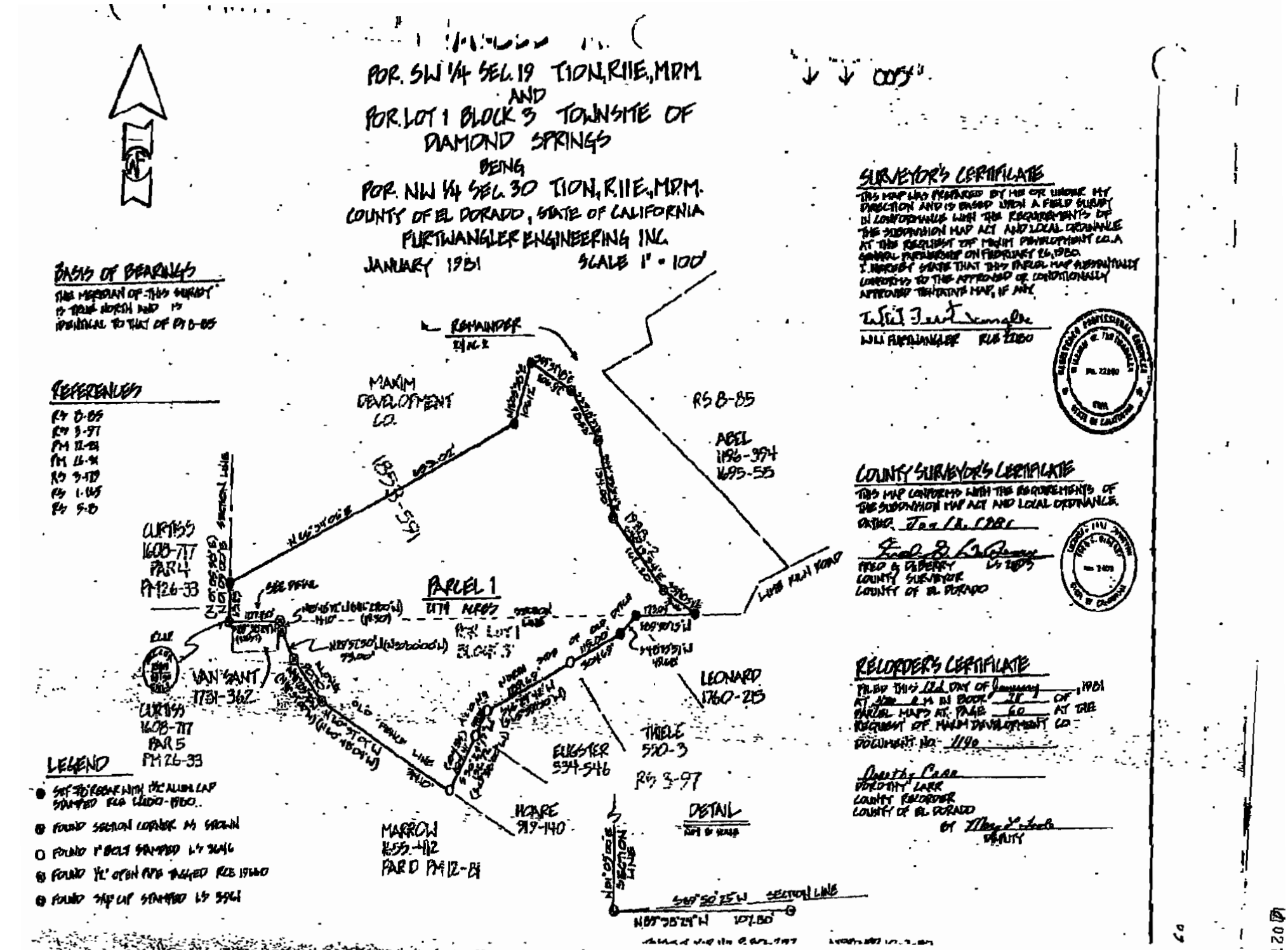
We will use our best efforts to ensure that no unauthorized parties have access to any of your information. We restrict access to nonpublic personal information about you to those individuals and entities who need to know that information to provide products or services to you. We will use our best efforts to train and oversee our employees and agents to ensure that your information will be handled responsibly and in accordance with this Privacy Policy and First American's *Fair Information Values*. We currently maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

POR. LOTS 3,4, &5 SEC.19 T.10N.R.11E & POR.SEC.24T.10N.R.11E & POR.SEC. 30T.10N.R.10E. M.D.M.

Tax Area Code 5|:25



POR. SW 1/4 SEC. 19 T10N, R11E, MDM
AND
POR. LOT 1 BLOCK 3 TOWNSITE OF
DIAMOND SPRINGS
BEING
POR. NW 1/4 SEC. 30 T10N, R11E, MDM.
COUNTY OF EL DORADO, STATE OF CALIFORNIA
FURTWANGLER ENGINEERING INC.
JANUARY 1981 SCALE 1" = 100'



BASIS OF BEARINGS

THE MERIDIAN OF THIS SURVEY IS TRUE NORTH AND IS IDENTICAL TO THAT OF RS B-85

REFERENCES

RS B-85
RS 3-97
PM 12-81
PM 26-33
RS 3-119
RS 1-145
RS 5-20

LEGEND

- SET 5/8" REBAR WITH 1¼" ALUMINUM CAP STAMPED RCE 11860.
- FOUND SECTION CORNER AS SHOWN
- FOUND 1" BOLT STAMPED LS 3646
- FOUND ½" OPEN PIPE TAGGED RCE 19660
- FOUND 3/4" CAP STAMPED LS 5961

SURVEYOR'S CERTIFICATE

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND IS BASED UPON A FIELD SURVEY IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF MAXIM DEVELOPMENT CO. A GENERAL PARTNERSHIP ON FEBRUARY 26, 1980. I HEREBY STATE THAT THIS PARCEL MAP SUBSTANTIALLY CONFORMS TO THE APPROVED OR CONDITIONALLY APPROVED TENTATIVE MAP, IF ANY.

WILLIAM FURTWANGLER RCE 11860

COUNTY SURVEYOR'S CERTIFICATE

THIS MAP CONFORMS WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE.

DATED: Jan 16, 1981

FRED A. OLBERTZ LS 2895
COUNTY SURVEYOR
COUNTY OF EL DORADO

RECORDER'S CERTIFICATE

FILED THIS 22nd DAY OF January, 1981 AT 9:00 A.M. IN BOOK 11 OF PARCEL MAPS AT PAGE 60 AT THE REQUEST OF MAXIM DEVELOPMENT CO. DOCUMENT NO. 1190

DOROTHY LARR
COUNTY RECORDER
COUNTY OF EL DORADO
BY [illegible] DEPUTY

EDR Environmental Data Resources Inc

The EDR Environmental Lien Search Report

WASTE CONNECTIONS
4100 THROWITA WAY
PLACERVILLE, CALIFORNIA

Thursday, November 29, 2007

Project Number: L07-10146

The Standard In Environmental Risk Management Information

440 Wheelers Farm Road
Milford, Connecticut 06460

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

ENVIRONMENTAL LIEN REPORT

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied property information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' office, registries of deed, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved and description); and
- provide a copy of the deed or cite documents reviewed;

Thank you for your business
Please contact EDR at 1-800-352-0050
with any questions or comments

ENVIRONMENTAL LIEN REPORT

The EDR Environmental Lien Search Report is intended to assist in the search for environmental liens filed in land title records.

TARGET PROPERTY INFORMATION

ADDRESS

Waste Connections
4100 Throwita Way
Placerville, California

RESEARCH SOURCE

Source: El Dorado County Assessor
El Dorado County Recorder

DEED INFORMATION

Type of Instrument: Grant Deed

Title is vested in: Waste Connections of California, Inc., a California corporation

Title received from: USA Waste of California, Inc., a Delaware corporation, successor-in-merger to Western El Dorado Recovery Systems, Inc., a California corporation

Deed Dated: 06/02/2006
Deed Recorded: 06/06/2006
Instrument: 2006-0037666-00

LEGAL DESCRIPTION

Parcel 1, as said parcel is shown on that certain Parcel Map entitled "Por. SW 1/4 Sec. 19 T.10 N., R.11 E., M.D.M. and Por. Lot 1 Block 3 Townsite of Diamond Springs being Por. NW 1/4 Sec. 30 T.10 N., R.11 E., M.D.M." of according to the map or plat thereof, as filed of record in Book 28 of Parcel Maps, Page 60, recorded 01/12/1981, situated and lying in the Unincorporated Area of El Dorado County, State of California

Assessor's Parcel Number(s): 051-250-47

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☐ Not Found ☒

RECORDING REQUESTED BY
Inter County Title Co
AND WHEN RECORDED MAIL DOCUMENT TO:

Waste Connections of California, Inc.
35 Iron Point Circle, Suite 200
Folsom, CA 95630-8589
Attention: Ronald J. Mittelstaedt

El Dorado, County Recorder
William Schultz Co Recorder Office
DOC- 2006-0037666-00
Acct 4-INTER COUNTY TITLE CO
Tuesday, JUN 06, 2006 14:30:00
Ttl Pd $13.00 Nbr-0000869544
KMV/C1/1-3

GRANT DEED

APN: 051-250-47
4100 Throwita Way
Placerville, CA 95667
PV-21595S-TO

PCOS
FILED

The undersigned grantor(s) declare(s)
DOCUMENTARY TRANSFER TAX $ Rat 11932
■ computed on the full value of property conveyed, or
☐ computed on the full value less liens or encumbrances remaining at time of sale.
☐ Unincorporated Area City of Placerville

FOR VALUE RECEIVED, the receipt of which is hereby acknowledged, **USA WASTE OF CALIFORNIA, INC., a Delaware corporation**, successor-in-merger to WESTERN EL DORADO RECOVERY SYSTEMS, INC., a California corporation, GRANTOR,

hereby Grants to

WASTE CONNECTIONS OF CALIFORNIA, INC., a California corporation, GRANTEE,

UNINCORPORATED

the following described real property located in the, County of El Dorado, State of California:

Legal description attached hereto and incorporated herein by reference as Exhibit "A".

Dated: June 2, 2006

USA WASTE OF CALIFORNIA, INC., a Delaware corporation, successor-in-merger to Western El Dorado Recovery Systems, Inc., a California corporation

By: Robert E. Longo
Robert E. Longo, Assistant Secretary

STATE OF ARIZONA
COUNTY OF MARICOPA

On June 2, 2006, before me, Barbara J. Dyson, a notary public in and for said County and State, personally appeared Robert E. Longo, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s), acted, executed the instrument.

WITNESS my hand and official seal.

Barbara J. Dyson
NOTARY PUBLIC

(seal)

ILLEGIBLE NOTARY SEAL DECLARATION

I CERTIFY UNDER PENALTY OF PERJURY THAT THE NOTARY SEAL ON THE DOCUMENT TO WHICH THIS STATEMENT IS ATTACHED READS AS FOLLOWS:

NAME OF NOTARY: Barbara J. Dyson

DATE COMMISSION EXPIRES: 8-23-2008

COMMISSION NUMBER: 167557

MANUFACTURER/VENDER ID NUMBER: N/A

PLACE OF EXECUTION: Maricopa Co. Arizona

DATE OF EXECUTION: 6-2-2006

D. Young for ICT

Inter-County Title Co. of El Dorado County

EXHIBIT "A"

All that certain real property situated in the County of El Dorado, State of California, more particularly described as follows:

PARCEL NO. 1:
PARCEL 1, as said parcel is shown on that certain Parcel Map entitled "POR. SW ¼ SEC. 19 T.10N., R.11E., M.D.M. AND POR. LOT 1 BLOCK 3 TOWNSITE OF DIAMOND SPRINGS BEING POR., NW ¼ SEC. 30 T.10N., R.11E., M.D.M.", filed January 12, 1981 in the office of the County Recorder of El Dorado County in Book 28 of Parcel Maps, at Page 60.

PARCEL NO. 2:
All that portion of the Southwest one-quarter of Section 19, T10N., R11E., M.D.M., described as follows:

BEGINNING at the Southwest corner of the parcel herein described, being the Northwest corner of Parcel 1 as said Parcel 1 is described and set forth on the Parcel Map filed for record in Book 28 of Parcel Maps at page 60 in the office of the Recorder of the County of El Dorado, State Of California (hereafter ORED), and from which said point of beginning the Southwest corner of said Section 19 bears South 00° 36' 13" West, 63.23 feet; thence from the point of beginning along the Easterly line of that Parcel Map filed in Book 26 at Page 33 ORED, North 00° 36' 13" East, 229.20 feet; thence leaving said Easterly line, North 66° 01' 19" East, 657.04 feet to a point in the Westerly right-of-way line of "Throwita Way"; thence along said right-of-way line the following two (2) courses: (1) along the arc of a curve to the left, said arc having a radius of 420.00 feet and being subtended by a chord which bears South 13° 45' 13" West, 137.66 feet and (2) South 04° 19' 16" West, 113.06 feet to a point in the Northerly line of Parcel 1 of said Parcel Map Book 28 Page 60; thence along said Northerly line South 66° 01' 19" West, 614.54 feet to the point of beginning.

APN: 051-250-47

06/06/2006,20060037666

The EDR Environmental Lien Search Report

ABEL PROPERTY
LIME PLANT ROAD
PLACERVILLE, CALIFORNIA

Thursday, November 29, 2007

Project Number: L07-10150

The Standard In Environmental Risk Management Information

440 Wheelers Farm Road
Milford, Connecticut 06460

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

ENVIRONMENTAL LIEN REPORT

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied property information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' office, registries of deed, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved and description); and
- provide a copy of the deed or cite documents reviewed;

Thank you for your business
Please contact EDR at 1-800-352-0050
with any questions or comments

ENVIRONMENTAL LIEN REPORT

The EDR Environmental Lien Search Report is intended to assist in the search for environmental liens filed in land title records.

TARGET PROPERTY INFORMATION

ADDRESS

Abel Property
Lime Plant Road
Placerville, California

RESEARCH SOURCE

Source: El Dorado County Assessor
El Dorado County Recorder

DEED INFORMATION

Type of Instrument: Corporation Joint Tenancy Deed

Title is vested in: Lawrence E. Abel and Jacqueline Abel, husband and wife as joint tenants

Title received from: Western Title Insurance Company, a corporation

Deed Dated: 11/09/1978
Deed Recorded: 11/13/1978
Book: 1695
Page: 55
Instrument: 52231

LEGAL DESCRIPTION

Portion of Lot 5, situated and lying in Section 19, Township 10 North, Range 11 East of the Mt Diablo Principal Meridian, El Dorado County, State of California

Assessor's Parcel Number(s): 051-250-12

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☐ Not Found ☒

EL DORADO COUNTY

RECORDING REQUESTED BY
Western Title Insurance Co

AND WHEN RECORDED MAIL TO
Name Lawrence E. Abel
Address Hanks Exchange Road
City & State Placerville, Calif. 95667

Title Order No. 26841 OO Escrow No.

OFFICIAL RECORDS
RECORDED AT REQUEST OF
WESTERN TITLE & INS. CO.
NOV [illegible]
AT ___ MIN. PAST 8 O'CLOCK 11 M.
EL DORADO COUNTY, CALIFORNIA
3.00 RECORDER

SPACE ABOVE THIS LINE FOR RECORDER'S USE

MAIL TAX STATEMENTS TO
Name SAME AS ABOVE
Address
City & State

AFFIX I.R.S. $ -0- IN THIS SPACE
NO CONSIDERATION - NO TAX DUE

WESTERN TITLE INSURANCE CO.

Corporation Joint Tenancy Deed

WESTERN TITLE FORM NO. 101

FOR VALUE RECEIVED, WESTERN TITLE INSURANCE COMPANY, a corporation

GRANTS to LAWRENCE E. ABEL and JACQUELINE ABEL, husband and wife

as JOINT TENANTS all that real property situate in the unincorporated area of the County of El Dorado, State of California, described as follows:

All that portion of Lot 5, Section 19, Township 10 North, Range 11 East, M.D.M., described as follows:
BEGINNING at a 5/8 inch rebar with a yellow plastic cap marked LS 3279, from which the Southwest corner of said Section 19 bears South 59°02' 06" West 1297.99 feet; thence from said point of beginning, North 27° 48'24" West 258.33 feet; thence North 15°05'09" West 80.59 feet; thence North 26°03'58" East 57.32 feet; thence North 64°59'48" East 69.57 feet; thence South 85°39'06" East 261.45 feet; thence South 04°11'00" East 136.75 feet; thence South 50°54'20" West 139.12 feet; thence South 37°22'56" West 180.29 feet to the point of beginning.

THE PURPOSE OF THIS DEED IS TO EFFECT A BOUNDARY LINE ADJUSTMENT.

IN WITNESS WHEREOF, said corporation has executed these presents by its officers thereunto duly authorized, this 9th day of November, 19 78.

WESTERN TITLE INSURANCE COMPANY

By Darwin Grimes Vice President

By Peter Brundage Asst. Secretary

52231

STATE OF CALIFORNIA
County of El Dorado } ss.

On Nov. 9, 19 78, before me, the undersigned, a Notary Public, in and for said State, personally appeared Darwin Grimes and Peter Brundage known to me to be the Vice President and the Asst. Secretary of the corporation that executed the within instrument, and also known to me to be the persons who executed it on behalf of such corporation, and acknowledged to me that such corporation executed the same, and further acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its Board of Directors.

Mary Ann Friedrich
Notary Public

Name (Typed or Printed)

FOR NOTARY SEAL OR STAMP

MARY ANN FRIEDRICH
NOTARY PUBLIC
EL DORADO CO., CALIFORNIA
MY COMMISSION EXPIRES AUGUST 6, 1981

BOOK 1695 PAGE 55

MAIL TAX STATEMENTS AS DIRECTED ABOVE END OF DOCUMENT

APPENDIX B: Historical Record Documentation

EDR Radius Map Report with GeoCheck®
EDR Aerial Photo Decade Package
EDR Historical Topographic Map Report
EDR-City Directory Abstract
EDR-Sanborn Map Report (No Coverage)

The EDR Radius Map
with GeoCheck®

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.2s

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

THROWITA WAY
PLACERVILLE, CA 95667

COORDINATES

Latitude (North):	38.700800 - 38° 42' 2.9''
Longitude (West):	120.815900 - 120° 48' 57.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	689933.9
UTM Y (Meters):	4285631.5
Elevation:	1795 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	38120-F7 PLACERVILLE, CA
Most Recent Revision:	1973

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL National Priority List
Proposed NPL Proposed National Priority List Sites
Delisted NPL National Priority List Deletions
NPL LIENS Federal Superfund Liens
CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS Corrective Action Report
RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
LIENS 2 CERCLA Lien Information
RADINFO Radiation Information Database
US CDL Clandestine Drug Labs
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
ICIS Integrated Compliance Information System
LUCIS Land Use Control Information System
DOT OPS Incident and Accident Data
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

HIST Cal-Sites Historical Calsites Database
CA BOND EXP. PLAN Bond Expenditure Plan
SCH School Property Evaluation Program
Toxic Pits Toxic Pits Cleanup Act Sites
CA WDS Waste Discharge System
WMUDS/SWAT Waste Management Unit Database
SLIC Statewide SLIC Cases
UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
LIENS Environmental Liens Listing
CHMIRS California Hazardous Material Incident Report System
Notify 65 Proposition 65 Records
DEED Deed Restriction Listing
VCP Voluntary Cleanup Program Properties
CLEANERS Cleaner Facilities
WIP Well Investigation Program Case List
CDL Clandestine Drug Labs
RESPONSE State Response Sites
HAZNET Facility and Manifest Data
EMI Emissions Inventory Data
HAULERS Registered Waste Tire Haulers Listing

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

CERCLIS-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 06/21/2007 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
ELDORADO DISPOSAL SERVICE INC	***3940 HWY 49***	***1/4 - 1/2 NE***	***14***	***17***

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store , treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 3 RCRA-SQG sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
RACK IT TRUCK RACKS B C I INC	***521 TRUCK ST***	***1/8 - 1/4 NNE***	***B7***	***13***
SIERRA DESIGN AND WALLPAPER	***4060 STAGE CT BLDG G SE***	***1/8 - 1/4 WNW***	***C8***	***13***
ABE ARENS BROTHERS ENVIRONMENT	***4066 STAGE COURT***	***1/8 - 1/4 WNW***	***C9***	***14***

STATE AND LOCAL RECORDS

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 06/11/2007 has revealed that there are 3 SWF/LF sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WEDRS- CDI RECOVETY OPERATION	4100 THROWITA WAY	0 - 1/8 NE	A1	6
WEDRS-GREEN WASTE RECYCLING CE	4100 THROWITA WAY	0 - 1/8 NE	A3	8
WASTE MGT INC WESTERN EL DORAD	***4100 THROWITA WAY***	***0 - 1/8 NE***	***A4***	***9***

CORTESE: This database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration. The source is the California Environmental Protection Agency/Office of Emergency Information.

A review of the Cortese list, as provided by EDR, and dated 04/01/2001 has revealed that there are 3 Cortese sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
GUSTAFSON, D.M. & PATRICI	***3655 CHUCKWAGON***	***1/8 - 1/4 SW***	***5***	***12***
SIERRA DOOR	***4415 MISSOURI FLAT RD***	***1/4 - 1/2 WNW***	***18***	***22***

Lower Elevation	Address	Dist / Dir	Map ID	Page
FORMER SS	***493 MAIN ST***	***1/4 - 1/2 SSW***	***17***	***20***

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 07/09/2007 has revealed that there are 3 SWRCY sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WESTERN EL DORADO RECOVERY SYS	4100 THROWITA WY	0 - 1/8 NE	A2	7
E M RECYCLING	4040 #A-2 STAGE CT	1/8 - 1/4 W	11	15

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE	580 TRUCK ST	1/8 - 1/4 NNE	B6	12

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 07/10/2007 has revealed that there are 2 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
SIERRA DOOR	***4415 MISSOURI FLAT RD***	***1/4 - 1/2 WNW***	***18***	***22***
Facility Status: Pollution Characterization				

Lower Elevation	Address	Dist / Dir	Map ID	Page
FORMER SS	***493 MAIN ST***	***1/4 - 1/2 SSW***	***17***	***20***
Facility Status: Case Closed				

CA FID: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WAYNE I. QUEEN	4052 STAGE CT	1/8 - 1/4 W	10	14

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE INC	***3940 HIGHWAY 49***	***1/8 - 1/4 NNE***	***12***	***15***
ELDORADO DISPOSAL SERVICE INC.	3940 HIWAY 49	1/8 - 1/4 NE	13	16

SWEEPS: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE INC	***3940 HIGHWAY 49***	***1/8 - 1/4 NNE***	***12***	***15***

EXECUTIVE SUMMARY

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

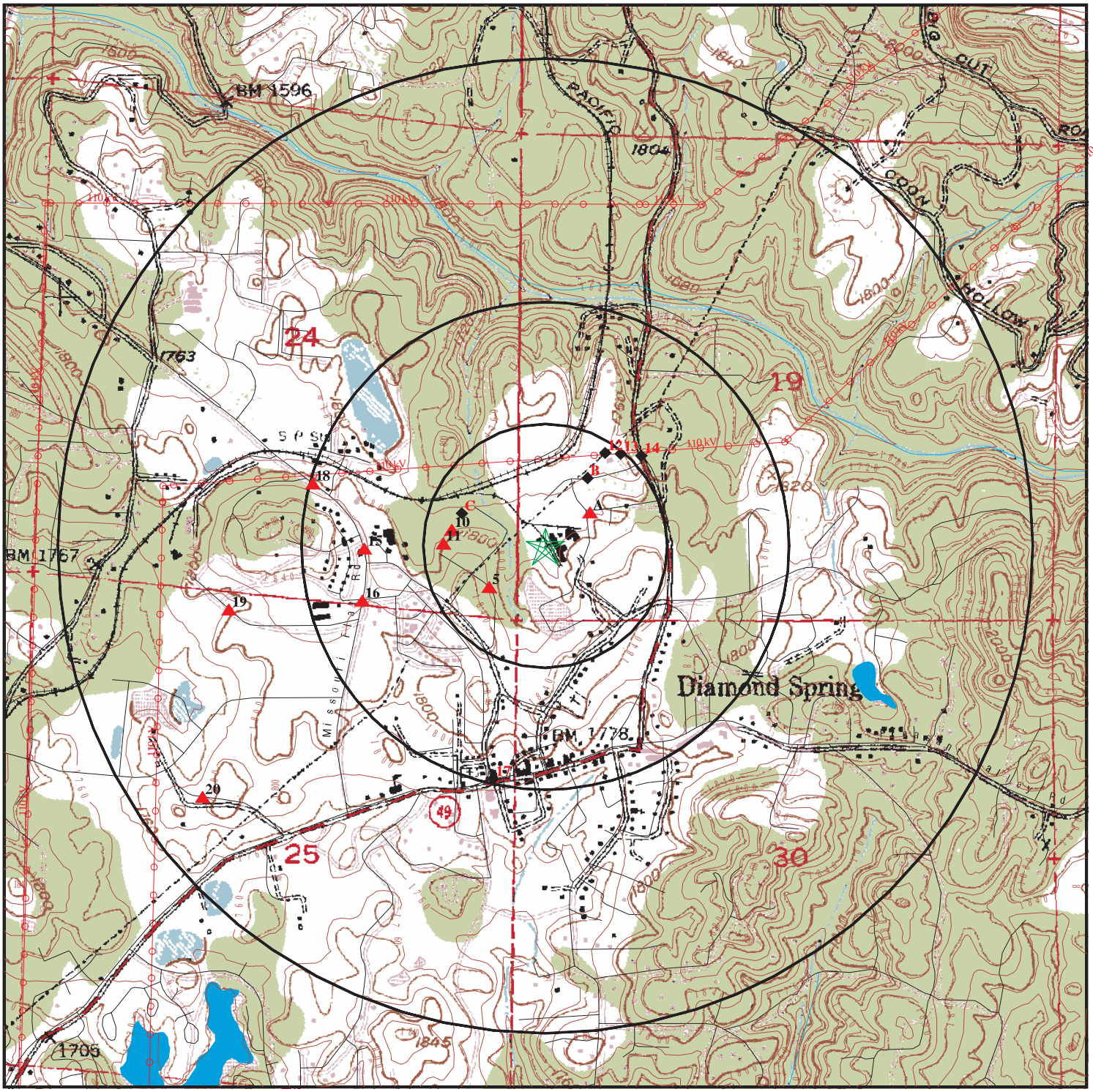
A review of the ENVIROSTOR list, as provided by EDR, and dated 05/29/2007 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
TETERS AUTO WRECKERS Facility Status: Refer: Other Agency	4487 MISSOURI FLAT ROAD	1/4 - 1/2 W	15	18
CELEBRITY PLATING Facility Status: Refer: RCRA	4502 MISSOURI FLAT ROAD	1/4 - 1/2 WSW	16	19
OLD CALDOR LUMBER COMPANY YARD Facility Status: No Further Action	180 INDUSTRIAL DRIVE	1/2 - 1 WSW	19	24
FOOTHILL AUTO REPAIR Facility Status: Refer: RWQCB	6566-C COMMERCE WAY	1/2 - 1 SW	20	25

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
WAYNE I. QUEEN	SWEEPS UST
HANGTOWN MARINE LLC	CLEANERS
OLD CALDOR LUMBER CO YD	CERC-NFRAP
OXYGEN SERVICE & SUPPLY CO	CERC-NFRAP
SMUD: EL DORADO COUNTY ROADS	CERC-NFRAP
PG & E CHILI BAR POWERHOUSE	RCRA-SQG, FINDS, HAZNET
CALTRANS- HIGHWAY 50	SLIC
SIERRA PACIFIC INDUSTRIES - HAZEL CREEK MINE	SLIC
OXYGEN SERVICE AND SUPPLY COMPANY	ENVIROSTOR
SHAW MINE, NEAR INDIAN CREEK RANCH	ENVIROSTOR

OVERVIEW MAP - 2018466.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Lyndeman Property	CLIENT:	Youngdahl Consulting Group
ADDRESS:	Throwita Way Placerville CA 95667	CONTACT:	Laurie Israel
LAT/LONG:	38.7008 / 120.8159	INQUIRY #:	2018466.2s
		DATE:	August 30, 2007 1:59 pm

DETAIL MAP - 2018466.2s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Lyndeman Property	CLIENT: Youngdahl Consulting Group
ADDRESS: Throwita Way Placerville CA 95667	CONTACT: Laurie Israel
LAT/LONG: 38.7008 / 120.8159	INQUIRY #: 2018466.2s DATE: August 30, 2007 1:59 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	1	NR	NR	1
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	3	NR	NR	NR	3
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
LIENS 2		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
Hist Cal-Sites		1.000	0	0	0	0	NR	0
CA Bond Exp. Plan		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0
State Landfill		0.500	3	0	0	NR	NR	3
CA WDS		TP	NR	NR	NR	NR	NR	0
WMUDS/SWAT		0.500	0	0	0	NR	NR	0
Cortese		0.500	0	1	2	NR	NR	3

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SWRCY		0.500	1	2	0	NR	NR	3
LUST		0.500	0	0	2	NR	NR	2
CA FID UST		0.250	0	1	NR	NR	NR	1
SLIC		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
HIST UST		0.250	0	2	NR	NR	NR	2
AST		0.250	0	0	NR	NR	NR	0
LIENS		TP	NR	NR	NR	NR	NR	0
SWEEPS UST		0.250	0	1	NR	NR	NR	1
CHMIRS		TP	NR	NR	NR	NR	NR	0
Notify 65		1.000	0	0	0	0	NR	0
DEED		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RESPONSE		1.000	0	0	0	0	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
ENVIROSTOR		1.000	0	0	2	2	NR	4
HAULERS		TP	NR	NR	NR	NR	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
NE
< 1/8
606 ft.

Relative:
Higher

Actual:
1798 ft.

WEDRS- CDI RECOVETY OPERATION (MVCDI)
4100 THROWITA WAY
SHINGLE SPRINGS, CA

Site 1 of 4 in cluster A

SWF/LF **S106800105**
N/A

LF:

Region:	STATE
Facility ID:	09-AA-0007
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69925 / -120.81581
Land Owner:	Not reported
Owner Name:	Western El Dorado Disposal Services, Inc
Owner Telephone:	5302953000
Owner Address:	Susan Farris, General Manager
Owner Address2:	P. O. Box 1270
Owner City,St,Zip:	Diamond Springs, CA 95619
Operator:	Western El Dorado Disposal Services, Inc
Operator Phone:	5302953000
Operator Address:	Susan Farris, General Manager
Operator Address2:	P. O. Box 1270
Operator City,St,Zip:	Diamond Springs, CA 95619
Operator's Status:	Active
Permit Date:	9/5/2006
Permit Status:	Permitted
Permitted Acreage:	3.00
Activity:	Medium Vol CD Wood Debris ChipGrind Fac.
Regulation Status:	Permitted
Land Use:	Not reported
Landuse Name:	Not reported
GIS Source:	Map
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Construction/demolition,Inert,Metals,Wood waste
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported

WEDRS- CDI RECOVETY OPERATION (MVCDI) (Continued) **S106800105**

Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	Not reported
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported
Permitted Throughput with Units:	175
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	63525
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/year
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

A2 **WESTERN EL DORADO RECOVERY SYSTEMS** **SWRCY** **S107138342**
NE **4100 THROWITA WY** **N/A**
< 1/8 **PLACERVILLE, CA 95667**
606 ft.

Site 2 of 4 in cluster A

Relative: Higher

Actual: 1798 ft.

SWRCY:

Certification Status:	D
Facility Phone Number:	(530) 626-4141
Date facility became certified:	08/30/00
Date facility began operating:	10/01/00
Date facility ceased operating:	11/09/06
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

A3
NE
< 1/8
606 ft.

Relative:
Higher

Actual:
1798 ft.

WEDRS-GREEN WASTE RECYCLING CENTER
4100 THROWITA WAY
DIAMOND SPRINGS, CA

Site 3 of 4 in cluster A

SWF/LF **S106800104**
N/A

LF:

Region:	STATE
Facility ID:	09-AA-0006
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69887 / -120.81504
Land Owner:	Not reported
Owner Name:	Waste Connections, Inc.
Owner Telephone:	9166088200
Owner Address:	Not reported
Owner Address2:	35 Iron Point Circle, Suite 200
Owner City,St,Zip:	Folsom, CA 95630-8589
Operator:	Waste Connections of California, Inc.
Operator Phone:	9166088200
Operator Address:	Not reported
Operator Address2:	35 Iron Point Circle
Operator City,St,Zip:	Folsom, CA 95630
Operator's Status:	Active
Permit Date:	6/26/2006
Permit Status:	Notification
Permitted Acreage:	3.00
Activity:	Chipping and Grinding Activity Fac./ Op.
Regulation Status:	Notification
Land Use:	Not reported
Landuse Name:	Commercial
GIS Source:	Map
Category:	Composting
Unit Number:	01
Inspection Frequency:	Quarterly
Accepted Waste:	Green Materials
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported

WEDRS-GREEN WASTE RECYCLING CENTER (Continued) **S106800104**

Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	Not reported
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported
Permitted Throughput with Units:	200
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	72600
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/year
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

A4 **WASTE MGT INC WESTERN EL DORAD** **SWF/LF** **S105155530**
NE **4100 THROWITA WAY** **CA WDS** **N/A**
< 1/8 **PLACERVILLE, CA 95667**
606 ft.

Site 4 of 4 in cluster A

Relative: Higher

Actual: 1798 ft.

LF:

Region:	STATE
Facility ID:	09-AA-0004
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69920 / -120.81498
Land Owner:	Not reported
Owner Name:	Waste Connections of California, Inc.
Owner Telephone:	9166088200
Owner Address:	Not reported
Owner Address2:	35 Iron Point Circle
Owner City,St,Zip:	Folsom, CA 95630
Operator:	Western El Dorado Reg System
Operator Phone:	5306264141
Operator Address:	Not reported
Operator Address2:	P.O. Box 1270
Operator City,St,Zip:	Diamond Springs, CA 95619
Operator's Status:	Active
Permit Date:	2/23/2005

WASTE MGT INC WESTERN EL DORAD (Continued) **S105155530**

Permit Status:	Permitted
Permitted Acreage:	10.10
Activity:	Large Volume Transfer/Proc Facility
Regulation Status:	Permitted
Land Use:	Not reported
Landuse Name:	Not reported
GIS Source:	Map
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Mixed municipal
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported
Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	MRF
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported

WASTE MGT INC WESTERN EL DORAD (Continued) **S105155530**

Permitted Throughput with Units:	400
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	400
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/day
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

CA WDS:

Facility ID:	5S 09I017764
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	0
Facility Telephone:	5306420731
Facility Contact:	James Milton
Agency Name:	WASTE MANAGEMENT INC EL DORADO
Agency Address:	PO Box 1510
Agency City,St,Zip:	Diamond Springs 956191510
Agency Contact:	MILTON JAMES
Agency Telephone:	2302953002
Agency Type:	Private
SIC Code:	4953
SIC Code 2:	Not reported
Primary Waste:	Stormwater Runoff
Primary Waste Type:	Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

5
SW
1/8-1/4
752 ft.

Relative:
Higher

Actual:
1817 ft.

GUSTAFSON, D.M. & PATRICI
3655 CHUCKWAGON
PLACERVILLE, CA 95667

HAZNET
Cortese

1000294914
N/A

HAZNET:

Gepaid:	CAD982342073
Contact:	Not reported
Telephone:	0000000000
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	3655 CHUCKWAGON WAY
Mailing City,St,Zip:	PLACERVILLE, CA 956670000
Gen County:	9
TSD EPA ID:	CA0000084517
TSD County:	Sacramento
Waste Category:	Not reported
Disposal Method:	Recycler
Tons:	.0291
Facility County:	9

Cortese:

Region:	CORTESE
Facility Addr2:	Not reported

B6
NNE
1/8-1/4
850 ft.

Relative:
Lower

Actual:
1781 ft.

EL DORADO DISPOSAL SERVICE
580 TRUCK ST
PLACERVILLE, CA 95667

SWRCY

S108086801
N/A

Site 1 of 2 in cluster B

SWRCY:

Certification Status:	O
Facility Phone Number:	(530) 626-4141
Date facility became certified:	09/22/06
Date facility began operating:	10/12/06
Date facility ceased operating:	Still operating
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

B7
NNE
1/8-1/4
866 ft.

Relative:
Lower

Actual:
1781 ft.

RACK IT TRUCK RACKS B C I INC
521 TRUCK ST
DIAMOND SPRINGS, CA 95619

RCRA-SQG
FINDS

1004676293
CAR000083428

Site 2 of 2 in cluster B

RCRAInfo:
Owner: C A CORPORATION
(530) 621-0754
EPA ID: CAR000083428

Contact: GARY JONES
(530) 621-0754

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C8
WNW
1/8-1/4
969 ft.

Relative:
Lower

Actual:
1788 ft.

SIERRA DESIGN AND WALLPAPER
4060 STAGE CT BLDG G SECT 3
PLACERVILLE, CA 95667

RCRA-SQG
FINDS

1000686175
CAD983634106

Site 1 of 2 in cluster C

RCRAInfo:
Owner: HAZEN JOE
(916) 626-7136
EPA ID: CAD983634106

Contact: JOE HAZEN
(916) 626-7136

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C9
WNW
1/8-1/4
972 ft.

Relative:
Lower

Actual:
1788 ft.

ABE ARENS BROTHERS ENVIRONMENTAL
4066 STAGE COURT
PLACERVILLE, CA 95667

RCRA-SQG
HAZNET

1008372089
CAR000162636

Site 2 of 2 in cluster C

RCRAInfo:
Owner: ABE ARENS BROTHERS ENVIRONMENTAL
EPA ID: CAR000162636
Contact: CHERYL ARENS
530-621-3044
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

HAZNET:

Gepaid:	CAR000162636
Contact:	CHERYL L ARENS
Telephone:	5306213044
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	3987 MISSOURI FLAT RD ST 340 PMB107
Mailing City,St,Zip:	PLACERVILLE, CA 956670000
Gen County:	El Dorado
TSD EPA ID:	Not reported
TSD County:	Not reported
Waste Category:	Waste oil and mixed oil
Disposal Method:	Transfer Station
Tons:	1.66
Facility County:	Not reported

10
West
1/8-1/4
1028 ft.

Relative:
Higher

Actual:
1799 ft.

WAYNE I. QUEEN
4052 STAGE CT
PLACERVILLE, CA 95667

CA FID UST

S101627949
N/A

CA FID UST:

Facility ID:	09000446
Regulated By:	UTNKA
Regulated ID:	00052072
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9166266903
Mail To:	Not reported
Mailing Address:	BOX
Mailing Address 2:	Not reported
Mailing City,St,Zip:	PLACERVILLE 95667
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

11
West
1/8-1/4
1103 ft.

Relative:
Higher

Actual:
1803 ft.

E M RECYCLING
4040 #A-2 STAGE CT
PLACERVILLE, CA 95667

SWRCY **S107136889**
N/A

SWRCY:

Certification Status:	R
Facility Phone Number:	(916) 621-2027
Date facility became certified:	01/09/91
Date facility began operating:	01/09/91
Date facility ceased operating:	01/07/93
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

12
NNE
1/8-1/4
1198 ft.

Relative:
Lower

Actual:
1767 ft.

EL DORADO DISPOSAL SERVICE INC
3940 HIGHWAY 49
DIAMOND SPRINGS, CA 95619

HIST UST **1000191344**
SWEEPS UST **N/A**

HIST UST:

Region:	STATE
Facility ID:	00000050247
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00010000
Facility Type:	Other
Other Type:	Not reported
Total Tanks:	0002
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Tank Construction:	Not reported
Leak Detection:	Visual
Contact Name:	HARRY DE WOLF
Telephone:	9166224141
Owner Name:	EL DORADO DISPOSAL SERVICE, IN
Owner Address:	3940 HIGHWAY 49
Owner City,St,Zip:	DIAMOND SPRINGS, CA 95619

Region:	STATE
Facility ID:	00000050247
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00010000
Facility Type:	Other
Other Type:	Not reported
Total Tanks:	0002
Tank Used for:	PRODUCT

EL DORADO DISPOSAL SERVICE INC (Continued) **1000191344**

Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Visual
Contact Name: HARRY DE WOLF
Telephone: 9166224141
Owner Name: EL DORADO DISPOSAL SERVICE, IN
Owner Address: 3940 HIGHWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

SWEEPS UST:
Status: A
Comp Number: 16160
Number: 9
Board Of Equalization: 44-002936
Ref Date: 12-11-92
Act Date: 01-08-93
Created Date: 10-13-88
Tank Status: A
Owner Tank Id: D-1
Swrcb Tank Id: 09-000-016160-000001
Actv Date: 07-01-85
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: DIESEL
Number Of Tanks: 2

Status: A
Comp Number: 16160
Number: 9
Board Of Equalization: 44-002936
Ref Date: 12-11-92
Act Date: 01-08-93
Created Date: 10-13-88
Tank Status: A
Owner Tank Id: G02
Swrcb Tank Id: 09-000-016160-000002
Actv Date: 12-11-92
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: LEADED
Number Of Tanks: Not reported

---

13 **ELDORADO DISPOSAL SERVICE INC.** **HIST UST** **U001612635**
NE **3940 HIWAY 49** **N/A**
1/8-1/4 **DIAMOND SPRINGS, CA 95619**
1289 ft.

Relative:
Lower

Actual:
1763 ft.

HIST UST:
Region: STATE
Facility ID: 00000016160
Tank Num: 001
Container Num: D-1
Year Installed: Not reported
Tank Capacity: 00010000
Facility Type: Other

ELDORADO DISPOSAL SERVICE INC. (Continued) **U001612635**

Other Type: DISPOSAL SERVICE
Total Tanks: 0002
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor
Contact Name: Not reported
Telephone: 9166264141
Owner Name: ELDORADO DISPOSAL SERVICE INC.
Owner Address: 3940 HIWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

Region: STATE
Facility ID: 00000016160
Tank Num: 002
Container Num: G-1
Year Installed: Not reported
Tank Capacity: 00010000
Facility Type: Other
Other Type: DISPOSAL SERVICE
Total Tanks: 0002
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor
Contact Name: Not reported
Telephone: 9166264141
Owner Name: ELDORADO DISPOSAL SERVICE INC.
Owner Address: 3940 HIWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

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14 **ELDORADO DISPOSAL SERVICE INC** **RCRA-SQG 1000341016**
NE **3940 HWY 49** **FINDS CAD980637698**
1/4-1/2 **PLACERVILLE, CA 95667** **CERC-NFRAP**
1427 ft.

Relative:
Lower

Actual:
1778 ft.

RCRAInfo:
Owner: DEWOLF & SCARIOT
(415) 555-1212
EPA ID: CAD980637698
Contact: ENVIRONMENTAL MANAGER
(916) 626-4141
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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ELDORADO DISPOSAL SERVICE INC (Continued) **1000341016**

CERC-NFRAP:
Site ID: 0901913
Federal Facility: Not a Federal Facility
NPL Status: Not on the NPL
Non NPL Status: NFRAP

CERCLIS-NFRAP Site Contact Name(s):
Contact Name: Matt Mitguard
Contact Tel: (415) 972-3096
Contact Title: Site Assessment Manager (SAM)

Contact Name: Jere Johnson
Contact Tel: (415) 972-3094
Contact Title: Site Assessment Manager (SAM)

CERCLIS-NFRAP Site Alias Name(s):
Alias Name: EL DORADO DSPL SERV
Alias Address: 1/2 MI W OF WEBER CR BRG ON STATE HWY 49, CA 95619
Site Description: Not reported

CERCLIS-NFRAP Assessment History:
Action: DISCOVERY
Date Started: Not reported
Date Completed: 06/01/1981
Priority Level: Not reported

Action: PRELIMINARY ASSESSMENT
Date Started: 02/01/1985
Date Completed: 07/01/1985
Priority Level: High

Action: SITE INSPECTION
Date Started: Not reported
Date Completed: 03/01/1986
Priority Level: NFRAP (No Futher Remedial Action Planned

Action: ARCHIVE SITE
Date Started: Not reported
Date Completed: 03/01/1986
Priority Level: Not reported

---

15 West 1/4-1/2 1959 ft.

Relative: Higher

Actual: 1822 ft.

TETERS AUTO WRECKERS **ENVIROSTOR** **S102860835**
4487 MISSOURI FLAT ROAD **N/A**
PLACERVILLE, CA 95667

ENVIROSTOR:
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Central California

TETERS AUTO WRECKERS (Continued) **S102860835**

Facility ID:	09500006
Site Code:	Not reported
Assembly:	04
Senate:	01
Special Program:	* Rural County Survey Program
Status:	**Refer: Other Agency**
Status Date:	1995-09-12 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.7
Longitude:	-120.822222222222
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	10097, 10196, 10199, 30013, 30018
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

16
WSW
1/4-1/2
2068 ft.

CELEBRITY PLATING **ENVIROSTOR** **S100857925**
4502 MISSOURI FLAT ROAD **N/A**
PLACERVILLE, CA 95667

Relative:
Higher

Actual:
1822 ft.

ENVIROSTOR:

Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	HWMP, EL DORADO COUNTY
Lead Agency:	HWMP
Program Manager:	Not reported
Supervisor:	Steven Becker
Division Branch:	Central California

CELEBRITY PLATING (Continued) **S100857925**

Facility ID:	09340001
Site Code:	101525
Assembly:	04
Senate:	01
Special Program:	EPA - PASI
Status:	**Refer: RCRA**
Status Date:	2004-03-12 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.7
Longitude:	-120.822222222222
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	NONE SPECIFIED
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

---

17 **FORMER SS** **LUST** **S102423350**
SSW **493 MAIN ST** **Cortese** **N/A**
1/4-1/2 **DIAMOND SPRINGS, CA 95619**
2588 ft.

Relative:
Lower

Actual:
1787 ft.

LUST:

Region:	STATE
Case Type:	Soil only
Cross Street:	CHINA GARDEN
Enf Type:	None Taken
Funding:	R
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	Corrosion
Leak Source:	Tank
Global Id:	T0601700047
Stop Date:	Not reported
Confirm Leak:	1992-04-01 00:00:00
Workplan:	Not reported

FORMER SS (Continued) **S102423350**

Prelim Assess: Not reported
Pollution Char: Not reported
Remed Plan: Not reported
Remed Action: Not reported
Monitoring: Not reported
Close Date: 1992-06-22 00:00:00
Discover Date: 1992-02-28 00:00:00
Enforcement Dt: 1965-01-01 00:00:00
Release Date: 1992-04-01 00:00:00
Review Date: 1992-04-01 00:00:00
Enter Date: 1992-04-21 00:00:00
MTBE Date: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Max MTBE GW ppb: Not reported
Max MTBE Soil ppb: Not reported
County: 09
Org Name: Not reported
Reg Board: 5S
Status: Case Closed
Chemical: Gasoline
Contact Person: Not reported
Responsible Party: THORNTON, TOM
RP Address: 6441 OAKHILL RD, PLACERVILLE, CA 95667
Interim: Not reported
Oversight Prgm: LUST
MTBE Class: *
MTBE Conc: 0
MTBE Fuel: 1
MTBE Tested: Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
Staff: PGM
Staff Initials: JAR
Lead Agency: Regional Board
Local Agency: 09000
Hydr Basin #: UNNAMED BASIN
Beneficial: Not reported
Priority: 3
Cleanup Fund Id: Not reported
Work Suspended: No
Local Case #: Not reported
Case Number: 090065
Qty Leaked: Not reported
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site
Operator: Not reported
Water System Name: Not reported
Well Name: Not reported
Distance To Lust: 0
Waste Discharge Global ID: Not reported
Waste Disch Assigned Name: Not reported
Summary: 04/01/92 2,500GAL TANK IMPROPERLY ABANDONED PRIOR TO CURRENT OWNERSHIP FORMER SS ,TANKS FILLED W/ PEA GRAVEL & NOT CLEANED TANK BOTTOMS HAD NUMEROUS HOLES

LUST:
Region: 5
Case Number: 090065
Staff Initials: PGM

FORMER SS (Continued) **S102423350**

Substance: GASOLINE
Case Type: Soil only
Status: Case Closed
Lead Agency: Regional
Program: LUST
MTBE Code: N/A

Cortese:
Region: CORTESE
Facility Addr2: 493 MAIN ST

---

18 **SIERRA DOOR** **LUST** **S101581227**
WNW **4415 MISSOURI FLAT RD** **Cortese** **N/A**
1/4-1/2 **PLACERVILLE, CA 95667** **CA FID UST**
2607 ft. **SWEEPS UST**

Relative:
Higher

Actual:
1808 ft.

LUST:
Region: STATE
Case Type: Drinking Water Aquifer affected
Cross Street: FORNI RD
Enf Type: None Taken
Funding: Not reported
How Discovered: Subsurface Monitoring
How Stopped: Not reported
Leak Cause: Corrosion
Leak Source: Tank
Global Id: T0601700050
Stop Date: Not reported
Confirm Leak: Not reported
Workplan: Not reported
Prelim Assess: 1992-07-24 00:00:00
Pollution Char: 2006-06-23 00:00:00
Remed Plan: Not reported
Remed Action: Not reported
Monitoring: Not reported
Close Date: Not reported
Discover Date: 1992-07-22 00:00:00
Enforcement Dt: 1965-01-01 00:00:00
Release Date: 1992-07-24 00:00:00
Review Date: Not reported
Enter Date: Not reported
MTBE Date: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Max MTBE GW ppb: Not reported
Max MTBE Soil ppb: Not reported
County: 09
Org Name: Not reported
Reg Board: 5S
Status: Pollution Characterization
Chemical: Gasoline
Contact Person: Not reported
Responsible Party: KESSELER, GEORGE
RP Address: 466 OLIVE ORCHARD DR,AUBURN,CA 95603
Interim: Not reported
Oversight Prgm: LUST
MTBE Class: *

SIERRA DOOR (Continued) **S101581227**

MTBE Conc: 0
MTBE Fuel: 1
MTBE Tested: Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
Staff: PGM
Staff Initials: JAR
Lead Agency: Regional Board
Local Agency: 09000
Hydr Basin #: UNNAMED BASIN
Beneficial: GWR
Priority: 1
Cleanup Fund Id: Not reported
Work Suspended: No
Local Case #: Not reported
Case Number: 090068
Qty Leaked: Not reported
Abate Method: Excavate and Treat - remove contaminated soil and treat (includes spreading or land farming)
Operator: Not reported
Water System Name: Not reported
Well Name: Not reported
Distance To Lust: 0
Waste Discharge Global ID: Not reported
Waste Disch Assigned Name: Not reported
Summary: SITE ASSESSMENT 12/91 UNREGISTERDED TANKS, HOLES IN TANKS, SIGNIFICANT CONTAMINATION

LUST:
Region: 5
Case Number: 090068
Staff Initials: PGM
Substance: GASOLINE
Case Type: Drinking Water Aquifer affected
Status: Pollution Characterization
Lead Agency: Regional
Program: LUST
MTBE Code: N/A

Cortese:
Region: CORTESE
Facility Addr2: 4415 MISSOURI FLAT RD

CA FID UST:
Facility ID: 09000030
Regulated By: UTNKI
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 9166263500
Mail To: Not reported
Mailing Address: 466 OLIVE ORCHARD DR
Mailing Address 2: Not reported
Mailing City,St,Zip: PLACERVILLE 95667
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported

SIERRA DOOR (Continued) **S101581227**

EPA ID: Not reported
Comments: Not reported
Status: Inactive

SWEEPS UST:
Status: Not reported
Comp Number: 464
Number: Not reported
Board Of Equalization: Not reported
Ref Date: Not reported
Act Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 09-000-000464-000001
Actv Date: Not reported
Capacity: 550
Tank Use: M.V. FUEL
Stg: PRODUCT
Content: LEADED
Number Of Tanks: 2

Status: Not reported
Comp Number: 464
Number: Not reported
Board Of Equalization: Not reported
Ref Date: Not reported
Act Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 09-000-000464-000002
Actv Date: Not reported
Capacity: 550
Tank Use: M.V. FUEL
Stg: PRODUCT
Content: DIESEL
Number Of Tanks: Not reported

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19 **OLD CALDOR LUMBER COMPANY YARD** **ENVIROSTOR** **S100350737**
WSW **180 INDUSTRIAL DRIVE** **N/A**
1/2-1 **DIAMOND SPRINGS, CA 95619**
3493 ft.

Relative: Higher

Actual: 1799 ft.

ENVIROSTOR:
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: James Tjosvold
Division Branch: Central California
Facility ID: 09730001
Site Code: Not reported
Assembly: 04

OLD CALDOR LUMBER COMPANY YARD (Continued) **S100350737**

Senate:	01
Special Program:	Not reported
Status:	**No Further Action**
Status Date:	1989-02-27 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.6985574325443
Longitude:	-120.828444358461
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	NONE SPECIFIED
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

20
SW
1/2-1
4600 ft.

FOOTHILL AUTO REPAIR **ENVIROSTOR** **S100714130**
6566-C COMMERCE WAY **N/A**
DIAMOND SPRINGS, CA 95619

Relative:
Higher

Actual:
1796 ft.

ENVIROSTOR:

Site Type:	Historical
Site Type Detailed:	* Historical
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Central California
Facility ID:	09750002
Site Code:	Not reported
Assembly:	Not reported
Senate:	Not reported
Special Program:	* Rural County Survey Program
Status:	**Refer: RWQCB**
Status Date:	1987-07-15 00:00:00

FOOTHILL AUTO REPAIR (Continued) **S100714130**

Restricted Use:	NO
Funding:	Not reported
Latitude:	0
Longitude:	0
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	10097, 10196, 10198, 10199
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
DIAMOND SPRINGS	1003878551	OLD CALDOR LUMBER CO YD	HWY 49 & FLAT RD	95619	CERC-NFRAP
DIAMOND SPRINGS	1000233629	OXYGEN SERVICE AND SUPPLY COMPANY	13 CHINA GARDEN ROAD	95619	ENVIROSTOR
DIAMOND SPRINGS	1003877982	OXYGEN SERVICE & SUPPLY CO	13 CHINA GARDEN RD	95619	CERC-NFRAP
PLACERVILLE	1000137193	PG & E CHILI BAR POWERHOUSE	HWY 193 3 MI N OF P VILLE	95667	RCRA-SQG, FINDS, HAZNET
PLACERVILLE	S106483515	CALTRANS- HIGHWAY 50	HIGHWAY 50, EAST BOUND	95667	SLIC
PLACERVILLE	S107473174	SIERRA PACIFIC INDUSTRIES - HAZEL CREEK MINE	HAZEL CREEK MINE RD, S OF HWY 50	95667	SLIC
PLACERVILLE	S100186970	SHAW MINE, NEAR INDIAN CREEK RANCH	NEAR HIGHWAY 50 / EL DORADO ROAD	95667	ENVIROSTOR
PLACERVILLE	S106934278	WAYNE I. QUEEN	4052 STAGE CT C	95667	SWEEPS UST
PLACERVILLE	S108540900	HANGTOWN MARINE LLC	4046 STAGE CT # D2	95667	CLEANERS
WHITE ROCK POWER HSI	1003878858	SMUD: EL DORADO COUNTY ROADS	VALE HOUSE RD AND OTHERS	95667	CERC-NFRAP

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/18/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 63

Source: EPA
Telephone: N/A
Last EDR Contact: 08/03/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 53

Source: EPA
Telephone: N/A
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/23/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 70

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 06/21/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/26/2007
Date Data Arrived at EDR: 08/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: (415) 495-8895
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/05/2007
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 27

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/18/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/20/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 63

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 07/16/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 44

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 08/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 69

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 06/19/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 36

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Varies

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 06/29/2007
Date Data Arrived at EDR: 07/02/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 58

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 06/22/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/29/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 08/01/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/05/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 30

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/09/2007
Date Data Arrived at EDR: 06/28/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 62

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 05/17/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 49

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Biennially

USGS WATER WELLS: National Water Information System (NWIS)

This database consists of well records in the United States. Available site descriptive information includes well location information (latitude and longitude, well depth, site use, water use, and aquifer).

Date of Government Version: 03/25/2005
Date Data Arrived at EDR: 03/25/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: USGS
Telephone: N/A
Last EDR Contact: 03/25/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PWS: Public Water System Data

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 02/24/2000
Date Data Arrived at EDR: 04/27/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA
Telephone: N/A
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: N/A

STATE AND LOCAL RECORDS

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: No Update Planned

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: No Update Planned

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/13/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 16

Source: Integrated Waste Management Board
Telephone: 916-341-6320
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 05/29/2001
Date Made Active in Reports: 07/26/2001
Number of Days to Update: 58

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/06/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Varies

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 8

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 08/01/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 07/10/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 08/03/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/03/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 07/17/2007
Date Data Arrived at EDR: 07/18/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 22

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 07/17/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/13/2007
Date Data Arrived at EDR: 03/14/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 23

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/10/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 14

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 06/25/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 29

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/07/2007
Date Data Arrived at EDR: 05/08/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 17

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 05/01/2007
Date Data Arrived at EDR: 05/01/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/23/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 07/02/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 07/31/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 9

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 24

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 07/27/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 03/07/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/20/2006
Date Made Active in Reports: 01/03/2007
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 23

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 07/20/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Varies

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 06/07/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 21

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2007
Date Data Arrived at EDR: 06/07/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 28

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

FEDERAL RECORDS

COLLEGES: Integrated Postsecondary Education Data

The National Center for Education Statistics' primary database on integrated postsecondary education in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/12/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PUBLIC SCHOOLS: Public Schools

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/13/2004
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education statistics
Telephone: 202-502-7300
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: N/A

PRIVATE SCHOOLS: Private Schools of the United States

The National Center for Education Statistics' primary database on private school locations in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/07/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

NURSING HOMES: Directory of Nursing Homes

Information on Medicare and Medicaid certified nursing homes in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/11/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: N/A
Telephone: 800-568-3282
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

MEDICAL CENTERS: Provider of Services Listing

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health & Human Services.

Date of Government Version: 06/01/1998
Date Data Arrived at EDR: 11/10/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
Last EDR Contact: 01/12/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

HOSPITALS: AHA Hospital Guide

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/19/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: American Hospital Association
Telephone: 800-242-2626
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 14

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 11

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 29

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 07/16/2007
Date Data Arrived at EDR: 07/17/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 23

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 08/06/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 06/21/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 34

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 07/07/1999
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/31/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 05/15/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 21

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 08/17/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 08/23/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/29/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 27

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 05/08/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 47

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/24/2007
Date Data Arrived at EDR: 07/27/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 13

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/24/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/24/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Annually

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 36

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 07/23/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 17

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 38

Source: Department of Public Health
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 34

Source: Health Services Agency
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Contaminated Sites

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/23/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 37

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

ML - Regulatory Compliance Master List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 36

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 06/27/2007
Date Data Arrived at EDR: 06/29/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 41

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2005
Date Data Arrived at EDR: 05/18/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 29

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 11/01/2006
Date Data Arrived at EDR: 01/03/2007
Date Made Active in Reports: 01/24/2007
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 06/27/2007
Date Data Arrived at EDR: 07/20/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 20

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 43
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 04/06/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/30/2007
Date Data Arrived at EDR: 07/30/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 10
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/10/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 30
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: City of San Jose Fire Department
Telephone: 408-277-4659
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 6

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 04/18/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 31

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/04/2007
Date Made Active in Reports: 05/24/2007
Number of Days to Update: 20

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 06/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 7

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 09/05/2006
Date Made Active in Reports: 10/05/2006
Number of Days to Update: 30

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/21/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 06/05/2007
Date Data Arrived at EDR: 06/21/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/28/2007
Date Data Arrived at EDR: 04/24/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 13

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 04/30/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/15/2007
Date Made Active in Reports: 08/20/2007
Number of Days to Update: 66

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 04/01/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 05/08/2007
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/05/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 81

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 06/08/2007
Number of Days to Update: 42

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

LYNDEMAN PROPERTY
THROWITA WAY
PLACERVILLE, CA 95667

TARGET PROPERTY COORDINATES

Latitude (North):	38.70080 - 38° 42' 2.9''
Longitude (West):	120.8159 - 120° 48' 57.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	689933.9
UTM Y (Meters):	4285631.5
Elevation:	1795 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38120-F7 PLACERVILLE, CA
Most Recent Revision:	1973

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

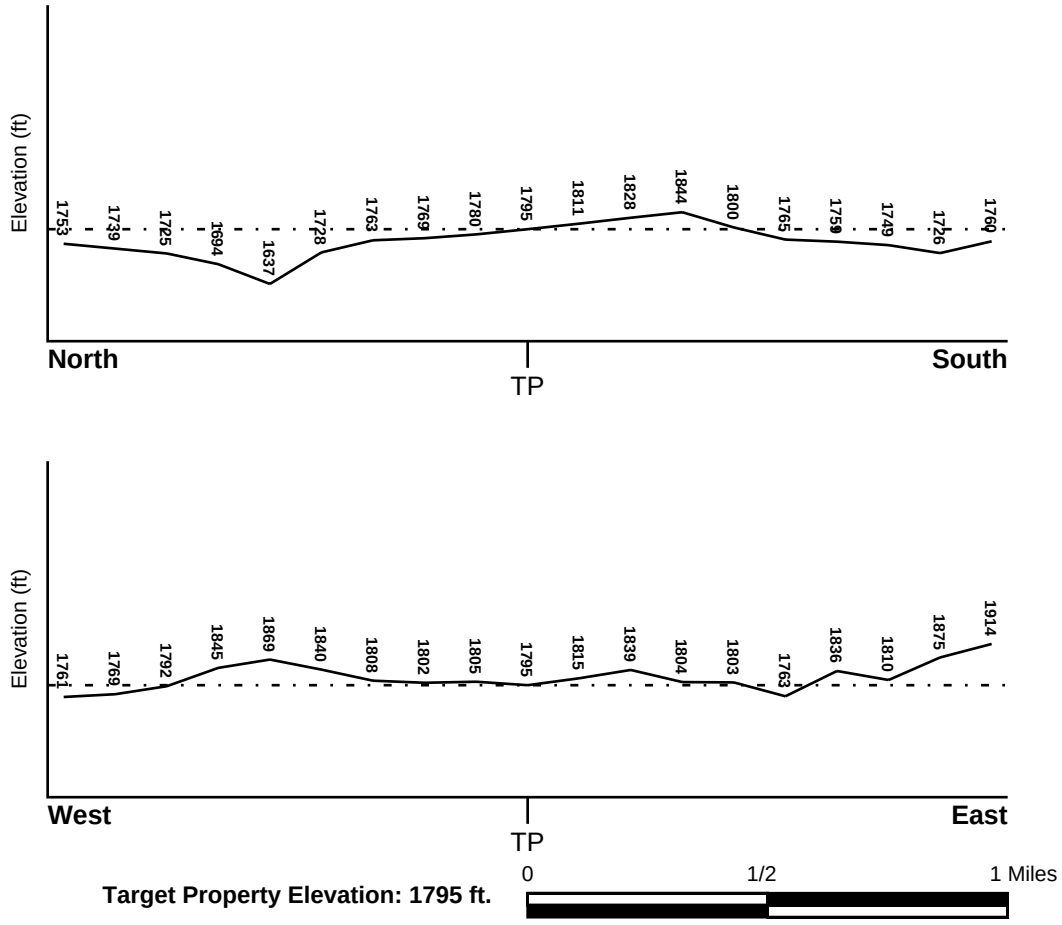
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
EL DORADO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0600400750B

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
PLACERVILLE	Not Available

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Mesozoic
System:	Lower Jurassic and Upper Triassic
Series:	Lower Mesozoic
Code:	lMze *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	MARIPOSA
Soil Surface Texture:	gravelly - loam
Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	HIGH
Depth to Bedrock Min:	> 12 inches
Depth to Bedrock Max:	> 35 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	8 inches	gravelly - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 6.50 Min: 5.60
2	8 inches	26 inches	gravelly - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 6.00 Min: 4.50
3	26 inches	30 inches	unweathered bedrock	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: unweathered bedrock
loam
very fine sandy loam

Surficial Soil Types: unweathered bedrock
loam
very fine sandy loam

Shallow Soil Types: clay loam
clay

Deeper Soil Types: weathered bedrock

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

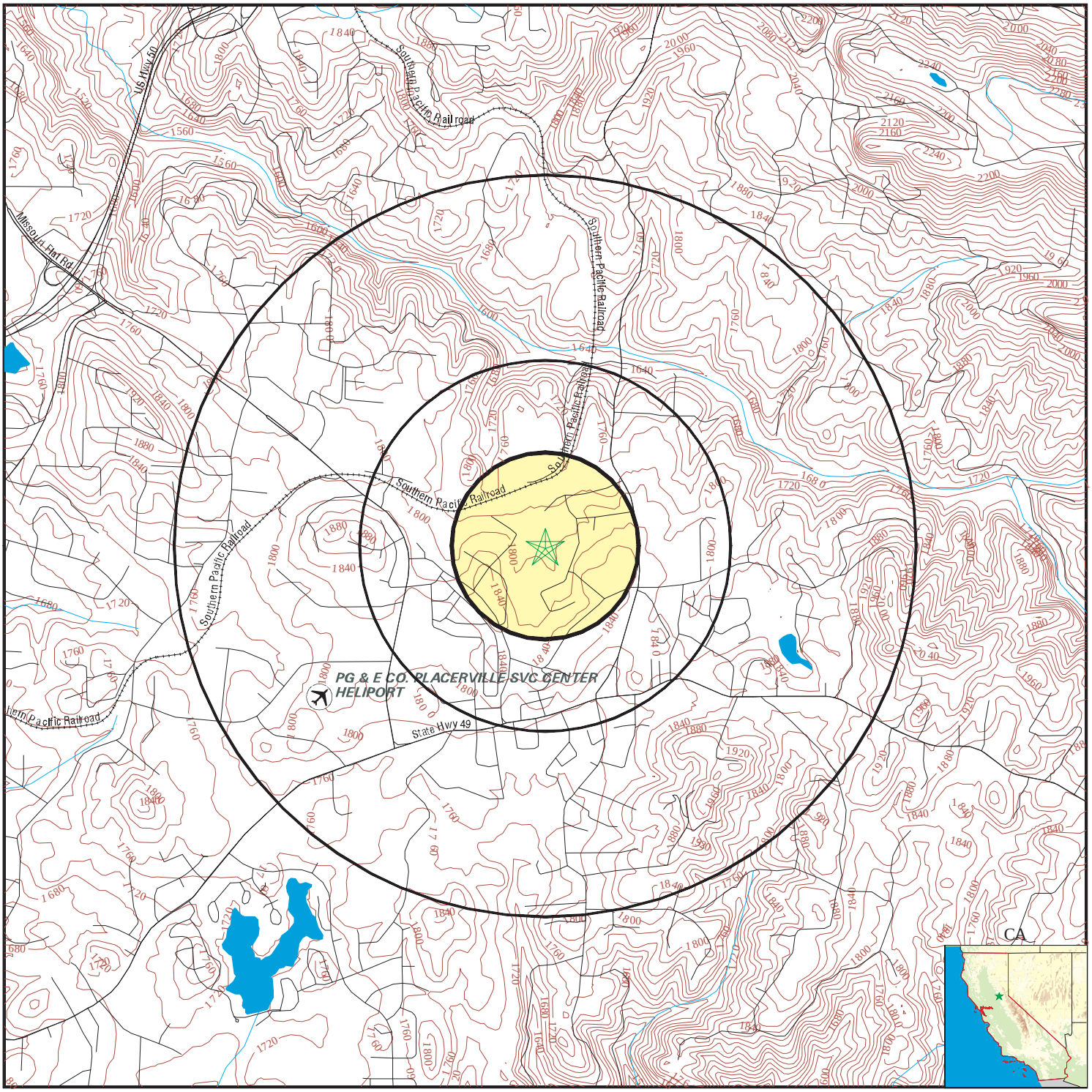
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 2018466.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Lyndeman Property	CLIENT:	Youngdahl Consulting Group
ADDRESS:	Throwita Way Placerville CA 95667	CONTACT:	Laurie Israel
LAT/LONG:	38.7008 / 120.8159	INQUIRY #:	2018466.2s
		DATE:	August 30, 2007 1:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zip	Total Sites	> 4 Pci/L	Pct. > 4 Pci/L
95667	26	2	7.69

Federal EPA Radon Zone for EL DORADO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95667

Number of sites tested: 10

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.850 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	5.700 pCi/L	0%	100%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

The EDR Aerial Photo Decade Package

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.5

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography August 30, 2007

Target Property:

Throwita Way

Placerville, CA 95667

Year	***Scale***	***Details***	***Source***
1935	Aerial Photograph. Scale: 1"=166'	Flight Year: 1935 Best Copy Available from original source	Wallace
1952	Aerial Photograph. Scale: 1"=555'	Flight Year: 1952	Robinson
1962	Aerial Photograph. Scale: 1"=555'	Flight Year: 1962	Cartwright
1984	Aerial Photograph. Scale: 1"=690'	Flight Year: 1984	WSA
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS


INQUIRY #: 2018466.5
YEAR: 1935
= 166'
N


INQUIRY #: 2018466.5
YEAR: 1952
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1962
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1984
= 690'
N


INQUIRY #: 2018466.5
YEAR: 1993
= 666'
N


INQUIRY #: 2018466.5
YEAR: 1998
= 666'
N

EDR Historical Topographic Map Report

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.4

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Historical Topographic Map Report

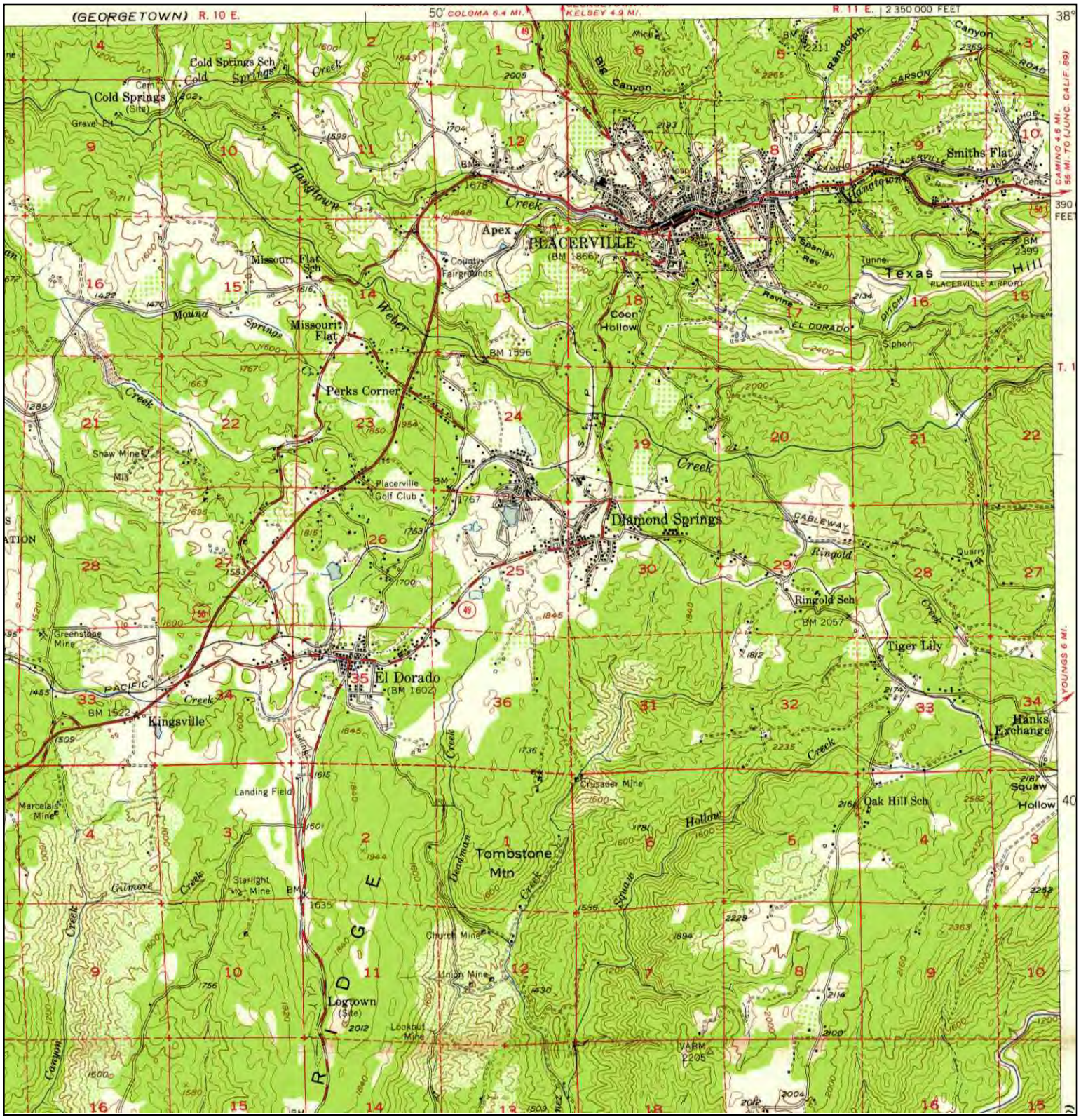
Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map

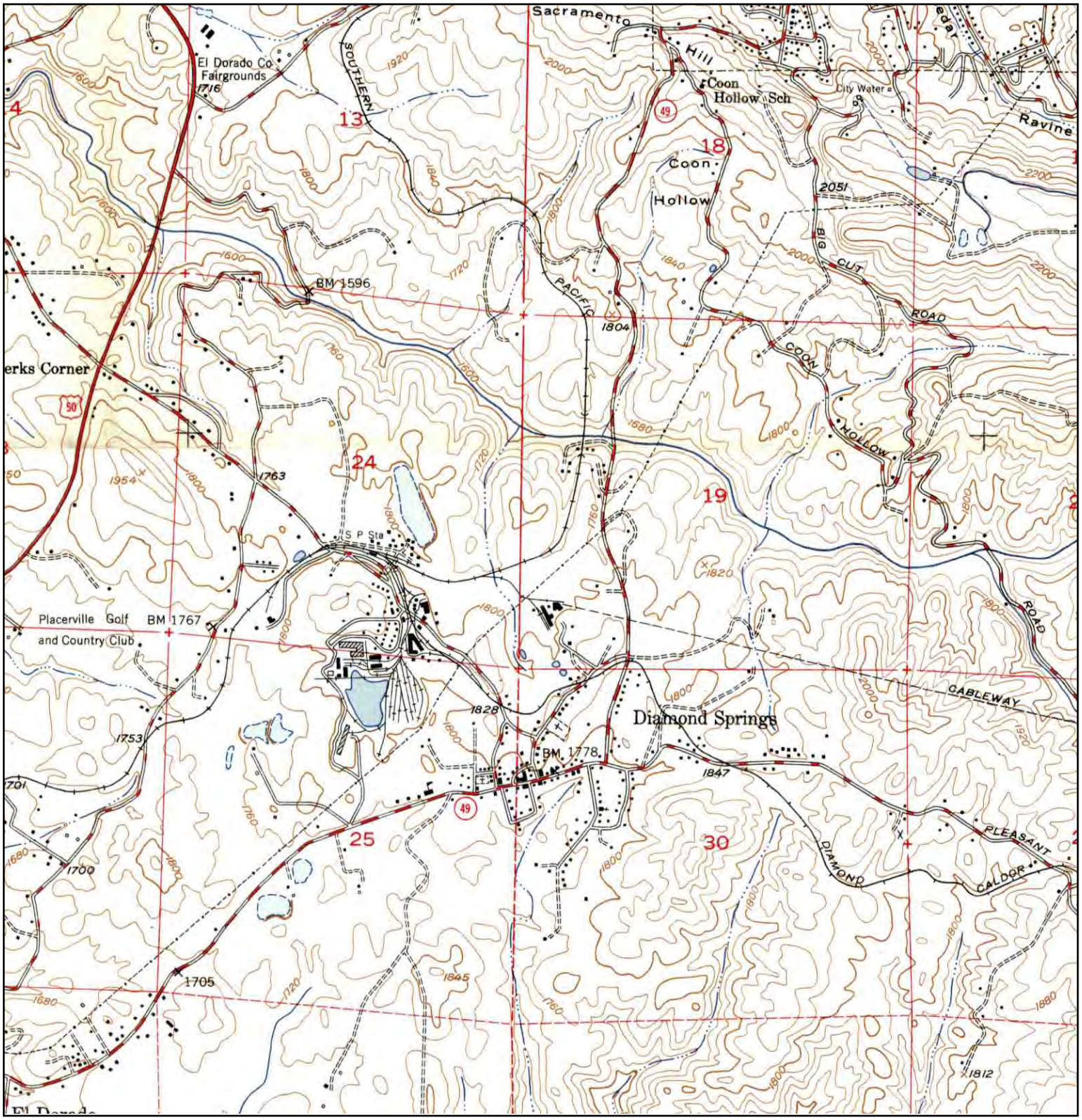
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1893 SERIES: 30 SCALE: 1:125000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



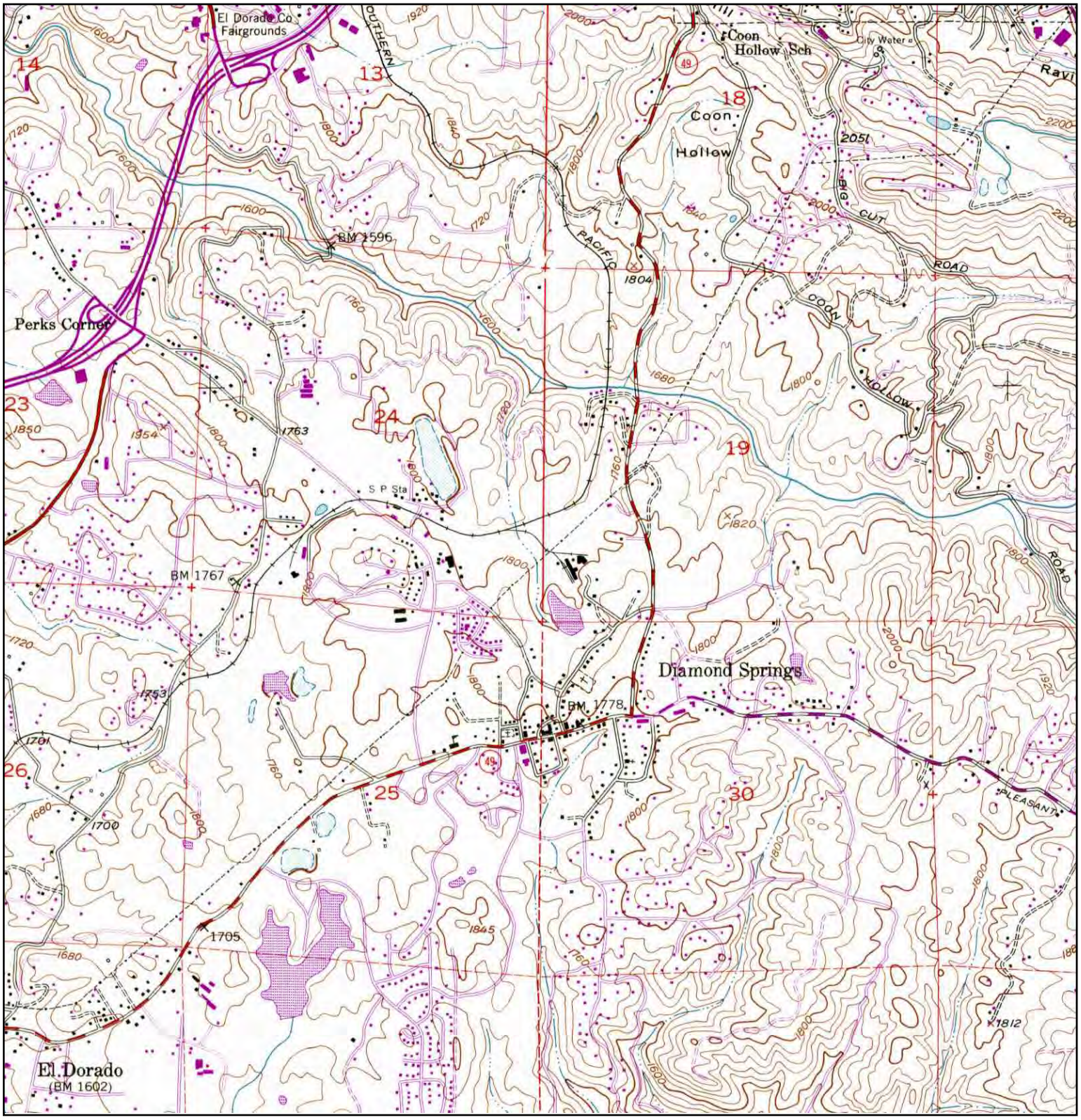
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1949 SERIES: 15 SCALE: 1:62500	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1973 PHOTOREVISED FROM:1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

The EDR-City Directory
Abstract

Lyndeman Property
4100 Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.6

Wednesday, September 12, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR City Directory Abstract

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening report designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

SUMMARY

- ***City Directories:***

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1972 through 2002. (These years are not necessarily inclusive.) A summary of the information obtained is provided in the text of this report.

Date EDR Searched Historical Sources: September 12, 2007

Target Property:
4100 Throwita Way
Placerville, CA 95667

Year	Uses	Source
1972	Street Not Listed in Research Source	Haines Criss-Cross Directory
1977	Street Not Listed in Research Source	Haines Criss-Cross Directory
1982	Street Not Listed in Research Source	Haines Criss-Cross Directory
1987	Street Not Listed in Research Source	Haines Criss-Cross Directory
1992	Street Not Listed in Research Source	Haines Criss-Cross Directory
1997	Street Not Listed in Research Source	Haines Criss-Cross Directory
2002	Street Not Listed in Research Source	Haines Criss-Cross Directory

Adjoining Properties

SURROUNDING

Multiple Addresses
Placerville, CA 95667

Year	Uses	Source
1972	Street Not Listed in Research Source	Haines Criss-Cross Directory
1977	Street Not Listed in Research Source	Haines Criss-Cross Directory
1982	Street Not Listed in Research Source	Haines Criss-Cross Directory
1987	Street Not Listed in Research Source	Haines Criss-Cross Directory
1992	Street Not Listed in Research Source	Haines Criss-Cross Directory
1997	Street Not Listed in Research Source	Haines Criss-Cross Directory
2002	Street Not Listed in Research Source	Haines Criss-Cross Directory

Certified Sanborn® Map Report

Sanborn® Library search results
Certification # F1DA-4C92-91CB

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number 2018466.3

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

Certified Sanborn® Map Report

8/30/07

Site Name:
Lyndeman Property
Throwita Way
Placerville, CA 95667

Client Name:
Youngdahl Consulting Group
1234 Glenhaven Court
El Dorado Hills, CA 95762

EDR Inquiry # 2018466.3

Contact: Laurie Israel

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Youngdahl Consulting Group were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Lyndeman Property
Address: Throwita Way
City, State, Zip: Placerville, CA 95667
Cross Street:
P.O. # NA
Project: P07-416
Certification # F1DA-4C92-91CB

Sanborn® Library search results
Certification # F1DA-4C92-91CB

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

Total Maps: 0

Limited Permission To Make Copies

Youngdahl Consulting Group (the client) is permitted to make up to THREE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

H.2 - Lindeman Property
APNs 051-250-51-100 and 051-250-54-100

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LINDEMAN PROPERTY
APNs 051-250-51-100 and 051-250-54-100
PLACERVILLE, EL DORADO COUNTY, CALIFORNIA

Prepared By

Youngdahl Consulting Group, Inc.
1234 Glenhaven Court
El Dorado Hills, California 95762

Prepared For

Palos Verdes Properties, Inc.
4330 Golden Circle Drive, Suite D
Placerville, California 95667

Project No. E07354
September 2007

YOUNGDAHL CONSULTING GROUP, INC.
Geotechnical ▪ Geoscience ▪ Materials Testing ▪ Storm Water Compliance

1234 Glenhaven Court, El Dorado Hills, CA 95762
PH 916.933.0633 FX 916.933.6482

502 Giuseppe Court, Suite 2, Roseville, CA 95678
PH 916.773.7633 FX 916.773.7833

EM mail@youngdahl.net

Project No. E07354.000
12 September 2007

Palos Verdes Properties, Inc.
Mr. Leonard Grado
4330 Golden Center Drive, Suite D
Placerville, California 95667

Subject: **LINDEMAN PROPERTY**
(APNs 051-250-51-100 and 051-250-54-100)
Throwita Way, Placerville, El Dorado County, California
Phase I Environmental Site Assessment

Reference: 1. Proposal and Contract for PE07-416; Prepared by Youngdahl Consulting Group, Inc.; 17 August 2007.

Dear Mr. Grado,

As requested, Youngdahl Consulting Group, Inc., has performed a Phase I Environmental Site Assessment for the Lindeman Property, two parcels west of Throwita Way (APNs 051-250-51-100 and 051-250-054-100) (subject property). The subject property is located in Placerville, El Dorado County, California (Figure 1 - Vicinity Map). The property is approximately 13 acres of undeveloped land used for stockpiling soil, concrete, rock, and lime for future rock crushing activities and road base manufacturing (Figure 2, Site Plan). Adjacent property includes: Throwita Way to the east; Truck Street, Symist Body Shop, 49er Mini Storage, and Yubacon's construction yard to the north; a seasonal drainage, Missouri Flat Self Storage and residential property to the west; and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the south.

Our study consisted of a review of environmental record sources, physical setting sources, review of site related documents, historical use information, and a site reconnaissance. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property. No additional investigation is recommended for the subject property at this time; however, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

This Phase I Environmental Site Assessment has been completed in accordance to the ASTM Practice E 1527-05. Youngdahl Consulting Group, Inc. (YCG) declares that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

Reviewed by:

Laurie B. Israel, R.E.A.
Senior Environmental Scientist

David C. Sederquist, C.HG., C.E.G.
Senior Engineering Geologist/Hydrogeologist

Distribution: Mr. Leonard Grado (3 copies)

Table of Contents

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PHASE I ENVIRONMENTAL SITE ASSESSMENT
LINDEMAN PROPERTY
APNs 051-250-51-100 and 051-250-54-100
PLACERVILLE, EL DORADO COUNTY, CALIFORNIA

EXECUTIVE SUMMARY

The property description referred to herein is based on a parcel map and on a site reconnaissance performed by a representatives of Youngdahl Consulting Group, Inc. These were also the basis for the "Vicinity Map" - Figure 1. The Lindeman Property is assigned El Dorado County APNs 051-250-51-100 and 051-250-054-100 and is situated in Section 19, Township 10 North, Range 11 East of the Mount Diablo Base and Meridian (Figure 1 - Vicinity Map). The subject property is located west of Throwita Way in Placerville, El Dorado County, California. The property is approximately 13 acres of undeveloped land used for stockpiling soil, concrete, rock, and lime for future rock crushing activities and road base manufacturing (Figure 2, Site Plan). Adjacent property includes: Throwita Way to the east; Truck Street, Symist Body Shop, 49er Mini Storage, and Yubacon's construction yard to the north; a seasonal drainage, Missouri Flat Self Storage and residential property to the west; and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the south.

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that there are no identified recognized environmental conditions. The rationale used for this opinion are the observations made during the site visit, the review of aerial photographs, and interviews with knowledgeable persons corroborate the conclusion that the subject property was the Diamond Lime Basic Mineral plant from at least 1935 until the early 1980s. Most recently the property has been used for stockpiling soil, concrete, and lime for future construction project use. No additional investigation is recommended for the subject property at this time; however, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

1.0 INTRODUCTION

This report presents the results of the Phase I Environmental Site Assessment (ESA) performed for the Lindeman Property (subject property). The Lindeman Property is two parcels located west of Throwita Way (APNs 051-250-51-100 and 051-250-054-100). The approximately 13-acre subject property is located in Placerville, El Dorado County, California. The property is approximately 13 acres of undeveloped land used for stockpiling soil, concrete, rock, and lime for future rock crushing activities and road base manufacturing. The user of this report, Palos Verdes Properties, Inc., may rely on the information contained herein for all purposes in connection with making a loan secured by, or investment in, the subject property. This report is valid as of the date stated on the document; the report should not be relied upon for information concerning changes in the condition of the property after the report was prepared.

1.1 Purpose

This Phase I ESA was conducted according to the American Society for Testing and Materials (ASTM) Designation E1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Phase I Standards). The ASTM E1527-05 standard is consistent with the requirement of the All Appropriate Inquiry (AAI) rule in Title 40 of the Code of Federal Regulations (40 C.F.R. § 312). The ASTM practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability. The purpose of this Phase I ESA was to identify recognized environmental conditions which may

affect the property. Recognized environmental conditions are defined in the ASTM Phase I Standards to mean "the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum product into structures on the property or into the ground, groundwater, or surface water of the property." The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

Controlled substances are not included within the scope of this standard. Petroleum products are included within the scope of this practice because they are of concern with respect to many parcels of commercial real estate and current custom and usage is to include an inquiry into the present of petroleum products when doing an ESA of commercial real estate. This practice does not address requirements of any state or local laws or of any federal laws other than the appropriate inquiry provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)'s landowner liability protection. Users are cautioned that federal, state, and local laws may impose environmental assessment obligations that are beyond the scope of this practice. Users should also be aware that there are likely to be other legal obligations with regard to hazardous substances or petroleum products discovered on the property that are not addressed in this practice and that may pose risks of civil and/or criminal sanctions for non-compliance. The scope of this practice includes research and reporting requirements that support the user's ability to qualify for landowner liability protection. As such, sufficient documentation of all sources, records, and resources utilized in conducting the inquiry required by this practice must be provided in the written report.

1.2 Detailed Scope of Services

This scope of services is site specific in that it relates to assessment of environmental conditions on a specific parcel of commercial real estate. The Phase I ESA will be performed by an environmental professional. An environmental professional is defined as a person meeting the education, training, and experience requirements set forth in 40 CFR § 312.10(b). We declare that, to the best of our professional knowledge and belief, we meet the definition of an Environmental Professional as defined in 40 CFR § 312.10(b). The scope of services for this Phase I ESA is as follows:

Government Records Review: Standard environmental record sources, including Federal, Tribal, and State lists as well as local sources of environmental records were reviewed. We authorized Environmental Data Resources (EDR), to conduct a search of specified government databases and produce a map-based radius search report which would identify sites within the approximate minimum distances pursuant to the ASTM E1527-05 Standard. A current USGS 7.5 Minute Topographic Map showing the area on which the property is located was reviewed.

Review of Historical Sources

Historical records that may have been reviewed include, but are not limited to, aerial photographs, fire insurance (Sanborn®) maps, building department records, chain-of-title documents, city directory abstracts, land use records, and USGS Topographic Maps. The AAI rule requires that historical documents be reviewed as far back in time as the property contained structures or the property was used for agricultural, residential, commercial, industrial, or governmental purposes. Under the AAI rule, historical sources of information must be reviewed as far back as 1960. The AAI rule does not specify a research interval for reviewing historical records.

Site Reconnaissance: During our visit to the property, we visually and physically observed the property and any structure(s) located on the property to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles. The AAI rule requires that a visual inspection of adjoining properties be performed from the subject property line, public rights-of-way, or another vantage point. The periphery of the property was also observed, as well as the periphery of all structures on the property, and the property was viewed from all adjacent public thoroughfares. Current and past uses of adjoining properties and properties in the surrounding area were also identified if they were likely to indicate recognized environmental conditions in connection with the adjoining properties or the property. The topographic conditions of the property were also noted to the extent visually and/or physically observed to evaluate whether hazardous substances or petroleum products are likely to migrate to the property, or within or from the property, into groundwater or soil.

Interviews: Prior to the site visit, the Client was asked to identify a person with good knowledge of the property (the key site manager). A Phase I ESA Questionnaire was completed by the Owner to facilitate the collection of information and is provided in Appendix A). The AAI rule requires interviews be conducted with the current owner(s) and occupant(s) of the subject property. The AAI rule also requires that additional interviews be conducted with current and past facility manager, past owners, operators or occupants of the property, and past employees, as necessary to meet the objectives of the AAI rule. The AAI rule allows the environmental professional to determine whether such interviews are necessary.

Identify Data Gaps: If data failure is encountered, the report shall document the failure and, if any of the standard historical sources were excluded, the environmental professional will give the reasons for their exclusion. If data failure represents a significant data gap, the report shall comment on the impact of the data gap on the ability of the environmental professional to identify recognized environmental conditions. If the data gaps are found, the Environmental professional can and does not warrant nor guarantee that no significant events, releases, or conditions arose during the periods of such data gaps.

Evaluation and Report Preparation: The findings, opinions, and conclusions in the Phase I ESA report are supported by documentation. The report: (1) describes all services performed; (2) has a findings section which summarized known or suspect environmental conditions associated with the property, and which may include recognized environmental conditions, historical recognized environmental conditions, and de minimis conditions; (3) includes Youngdahl Consulting Group Inc.'s opinion(s) of the impact on the property of the known or suspect environmental conditions identified in the findings section as well as the logic and reasoning used in evaluating information collected during the course of the investigation; and (4) includes a conclusions and recommendations section that summarizes the recognized environmental conditions connected with the property and presents recommendations to address those conditions. The report will include an analysis of the relationship of the purchase price of the subject property to the fair market value of the property, if it were not contaminated.

Report Shelf Life: Under the AAI rule, a prospective property owner may use a Phase I ESA Report without having to update any information collected as part of the inquiry: (1) if the all appropriate inquiries investigation was completed less than 180 days prior to the date of acquisition of the property or (2) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation and was completed less than 180 days prior to the date of acquisition of the property. A prospective property owner may

use a previously conducted Phase I ESA Report: (1) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation for the same property; and (2) if the information was collected or updated within one year prior to the date of acquisition of the property; and (3) certain aspects of the previously conducted report are conducted or updated within 180 days prior to the date of acquisition of the property. These aspects include the interviews, on-site visual inspection, the historical records review, and the search for environmental liens.

1.3 Significant Assumptions

This report and review of the subject property is limited in scope. All appropriate inquiry does not mean an exhaustive assessment of a clean property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of the ASTM 1527-05 practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an ESA and the reduction of uncertainty about unknown conditions resulting from additional information. The appropriate level of inquiry will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry.

This type of investigation is undertaken with the risk that the presence, full nature, and extent of contamination would not be revealed by visual observation and review of available data alone. The findings presented in this report were based on field observations and review of available data. Therefore, the data obtained is clear and accurate only to the degree implied by the sources and methods used. The information presented herewith was based on professional interpretation and on the data obtained. No other warranty, expressed or implied, is made.

1.4 Limitations and Exceptions

This study did not include an asbestos survey, or lead paint, or electric and magnetic field (EMF) studies and this study intentionally did not include inquiries with respect to those issues. Those issues are best addressed, where required in isolated studies, by specialty firms licensed or certified to evaluate such technically intricate issues in focused evaluations from a quantitative viewpoint. A review of regional radon values was performed as part of this study. Furthermore, it was not the intent of this report to address issues more appropriate to an Environmental Impact Report such as project feasibility, ecological concerns (such as wetlands delineations), or aesthetic concerns. No analysis of potential flood hazards, slope stability, or other geologic hazards was conducted.

1.5 Special Terms and Conditions and/or Additional Services

A Phase I ESA meeting or exceeding the ASTM 1527-05 practice and completed less than 180 days prior to the date of acquisition (the date on which a person acquires title to the subject property) or the date of the intended transaction is presumed to be valid. If within this period the assessment will be used by a different user than the user for whom the assessment was originally prepared, the subsequent user must also satisfy the User's Responsibilities set forth in Section 1.6. Users and environmental professionals may use information in prior environmental site assessments provided such information was generated as a result of procedures that meet or exceed the requirements of ASTM 1527-05.

1.6 User Responsibilities

The user should provide land title records and judicial records for review for the existence of environmental liens or activity and use limitations (AUL), if any, that are currently recorded against the property. AULs are an explicit recognition by a federal, tribal, state, or local regulatory agency that residual levels of hazardous substances or petroleum products may be present on a property, and that unrestricted use of the property may not be acceptable.

If the user is aware of any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate any information based on such specialized knowledge or experience in the environmental professional, and before the site reconnaissance is conducted. In a transaction involving the purchase of a parcel of commercial real estate, the user shall consider the relationship of the purchase price of the property to the fair market value of the property if the property was not affected by hazardous substances or petroleum products. The user should try to identify an explanation for a lower price which does not reasonably reflect fair market value if the property were not contaminated, and make a written record of such explanation. If the user is aware of any commonly known or reasonable ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate such information to the environmental professional before the site reconnaissance is conducted.

2.0 PROPERTY DESCRIPTION

2.1 Site Description and Current Uses of Adjoining Properties

The property description referred to herein is based on site maps and a site reconnaissance performed by a representative of Youngdahl Consulting Group, Inc. These were also the bases for the "Site Map" (Figure 2). The subject property is assigned El Dorado County APNs 051-250-51-100 and 051-250-54-100 and is situated in Section 19, Township 10 North, Range 11 East of the Mount Diablo Base and Meridian. The property is approximately 13 acres of undeveloped land used for stockpiling soil, concrete, rock, and lime for future rock crushing activities and road base manufacturing (Figure 2, Site Plan). Adjacent property includes: Throwita Way to the east; Truck Street, Symist Body Shop, 49er Mini Storage, and Yubacon's construction yard to the north; a seasonal drainage, Missouri Flat Self Storage and residential property to the west; and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the south.

2.2 Description of Structures, Roads, Other Improvements on the Site

There are no structures, roads, or other improvements on the property. A overhead power line exists in the northern portion of the property.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

Mr. Leonard Grado with Palos Verdes Properties, Inc., provided a preliminary title report for the subject property produced by Placer Title Company. The Preliminary Report is dated 7 August 2007. Title to said estate or interest is vested in Michael D. Lindeman and Lorraine D. Lindeman, Trustees of the Lindeman Family 2005 Trust dated October 17, 2005. A copy of the Preliminary Report is provided in Appendix A.

3.2 Environmental Liens or Activity and Use Limitations

The user, Mr. Leonard Grado with Palos Verdes Properties, Inc., did not identify any environmental liens, activity or use limitations. The EDR Environmental Lien Search Report was received on 13 June 2007. According to the Lien Search Report for APNs 051-250-100 and 051-250-54-100, title is vested in Michael D. Lindeman and Lorraine D. Lindeman, Trustees of the Lindeman Family 2005 Trust dated October 17, 2005. Title received from: Michael D. Lindeman. The Lien Search Report did not identify any environmental liens or other activity and use limitations (AULs) for APNs 051-250-100 and 051-250-54-100. The Quitclaim Deed identified the street address as 4021 Lime Plant Road, Diamond Springs, CA 95619. A copy is provided in Appendix A.

3.3 Specialized Knowledge and Commonly Known or Reasonably Ascertainable Information

The user, Mr. Leonard Grado with Palos Verdes Properties, Inc., did not identify any environmental lien or activity or use limitation encumbering the property or in connection with the property.

3.4 Valuation Reduction for Environmental Issues

According to the completed questionnaire, the purchase price or appraised value of the property is not significantly less than comparable properties in the vicinity.

3.5 Reasons for Performing the Phase I

The user, Mr. Leonard Grado with Palos Verdes Properties, Inc., requested the completion of the Phase I ESA per ASTM E1527-05 to satisfy the requirement of performing appropriate inquiry provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)'s landowner liability protection.

4.0 INTERVIEWS

Copies of the Phase I ESA Questionnaire and Project Contact Reports documenting the interviews conducted for this Phase I ESA are presented in Appendix A.

4.1 Interviews with Past and Present Owners, Key Site Manager, and or Occupants

Mr. Leonard Grado with Palos Verdes Properties, Inc., was interviewed during the site reconnaissance on 29 August 2007. Mr. Grado had no knowledge of any existing environmental conditions associated with the subject property. Mr. Grado stated that the approximately 50,000 cubic yards of soil on the property is overburden from the Walmart site. The soil was placed on the subject property under El Dorado County permit.

Mr. Larry Abel, an adjacent landowner and long-time resident of Placerville, was interviewed during the site reconnaissance on 29 August 2007. Mr. Abel recalled that Diamond Lime operated a lime plant on the subject property for over 50 years. In that time, rocks were crushed to form basic mineral piles for use in construction, road building, and concrete manufacturing. The facility closed in the 1970s. The white material present in the western portion of the property is lime sediment extracted from the settling pond that was formerly located to the south (current location of the WEDRS facility). Mr. Abel completed a Phase I ESA questionnaire (Appendix A). On the questionnaire, Mr. Abel identified that the subject property was used for an industrial use, as a lime crushing plant. Mr. Abel did not identify the existence of any previously conducted assessments of the subject property.

4.2 Interviews with State and/or Local Government Officials

The El Dorado County Environmental Management Department (EDCEMD) was contacted to evaluate the status of the subject property and nearby LUST listed sites. According to EDCEMD, there is no information regarding unauthorized releases or incidents involving hazardous materials on the subject property. This is no file for the Diamond Lime plant on Lime Kiln Road. According to EDCEMD, no known releases of hazardous materials have been identified on the subject property. The results of the EDCEMD file reviews for the nearby LUST sites are discussed in Section 5.0 Records Review.

5.0 RECORDS REVIEW

The records review consisted of a review of reasonable ascertainable environmental record sources, physical setting sources, and historical use information that will help identify recognized environmental conditions in connection with the property. Reasonably ascertainable record information must be publicly available, obtainable from its source within reasonable time and cost constraints, and be practically reviewable.

5.1 Environmental Record Source - EDR Report

A commercial database search of Federal, Tribal, State, and Local regulatory lists were conducted in order to assess whether documented environmental conditions exist on or near the property. In an effort to fulfill due diligence requirements, Youngdahl Consulting Group, Inc. employed the services of Environmental Data Resources, Inc. (EDR) to identify sites listed on regulatory agency databases within approximate minimum search distances from the subject property with potential of existing environmental problems. The term approximate minimum search distances means the distances within the area which government records must be reviewed pursuant to ASTM Phase I Standards. The term minimum search distance is used in lieu of radius as to include irregularly shaped properties.

The EDR Radius Map with GeoCheck® (EDR Report) for the area including the subject property and vicinity was received on 30 August 2007 and reviewed. A copy of the EDR Report is presented as Appendix B. Included in the report are the dates the original government sources were updated and the dates the sources were last updated by EDR, as well as a list of acronyms used by EDR and descriptions of the various lists searched.

The subject property was not identified in the EDR Report. The following listed sites within the minimum search distances were identified in the EDR Report: 1 CERCLIS-NFRAP, 3 RCRA-SQG, 3 SWF/LF sites, 3 Cortese sites, 3 SWRCY lists, 2 LUST sites, 1 CA FID UST site, 2 HIST UST, 1 SWEEPS UST site, and 4 ENVIROSTOR sites. Eldorado Disposal Service Inc. at 3940 Highway 49 is on the CERCLIS-NFRAP, SWRCY, HIST UST, and SWEEPS UST lists. The SWF/LF sites are all the same site, WEDRS-CDI, Green Waste, and Waste Management Inc. at 4100 Throwita Way, Placerville, California. This site is listed is the Western El Dorado Recycling Service (WEDRS) Green Waste Recycling Center as chipping and grinding composting facility and Waste Management Inc. Western El Dorado, a large volume transfer and processing facility for liquid or semisolid wastes from industrial facilities. The Cortese sites are D.M. and Patricia Gustafson at 3655 Chuckwagon, Sierra Door at 4415 Missouri Flat Road, and Former SS at 493 Main Street. Sierra Door and Former SS are also listed on the LUST list. Former SS is listed as a closed site. The Sierra Door facility has a status of “Pollution Characterization” for groundwater impacted by gasoline contamination. This site has been referred to the Regional Water Quality Control Board (RWQCB). The Geotracker web site did not provide any information not already provided in the EDR Report. The Celebrity Plating site is incorrectly listed on 4502 Missouri Flat Road in the EDR Report. Celebrity Plating is no longer doing business at this address. According to EDCEMD, Teters Auto Wreckers, listed on the ENVIROSTOR list, is a closed site. None of the listed sites appear to present a significant potential to impact the subject property.

Due to poor or inadequate information, EDR is unable to map certain sites. These sites are referred to by EDR as Orphans. The sites listed in the "Orphans List" of the EDR Report, are located beyond the minimum search distance from the subject property. According to the EDR Report, the subject property is not designated as a wetland, per the National Wetlands Inventory (1994).

5.2 Environmental Record Source - EDCEMD File Review

There are no records for the Diamond Lime facility at EDCEMD. According to EDCEMD, Sierra Door at 4415 Missouri Flat Road is located less than 0.5 miles to the west northwest of the subject property and is identified in the EDR Report as a site with groundwater contaminated with gasoline. The release was reported in 1991. The most recent document in the file is a June 2006 letter from the Regional Water Quality Control Board requesting additional soil and groundwater investigations. According to EDCEMD, the Sierra Door site is located over ¾ mile northwest of the property. Groundwater is contaminated at the site; however, groundwater flows to the northwest, away from the subject property.

5.3 Physical Setting Source(s)

The current U.S.G.S. topographic map of the Placerville Quadrangle (1949, photorevised 1973), a geologic map of the Placerville 15-Minute Quadrangle, and observations made during our site reconnaissance were used to make interpretations regarding the physical setting of the subject property and the surrounding area. The subject property is located in the western foothills of the Sierra Nevada mountain range in northern California. The property lies at an elevation of approximately 1,795 feet above mean sea level. The topography of the subject property has been altered by the addition of over 50,000 cubic yards of excess soil during construction activities at a nearby Walmart store.

5.3.1 Regional Geology and Soils

The project vicinity is located within the Sierra Nevada geomorphic province of California. Based upon a review of published geologic data the vicinity is mapped as Mesozoic-age granitic rocks (Mzg) (Loyd, 1984). Tectonic activity related to the Sierra Nevada mountain uplift resulted in a rock fabric consisting of northeast to northwest-trending fracturing and foliation. The regional structure and tectonic framework is dominated by the Foothills Fault system, which traverses the western side of the Sierra Nevada tectonic block. This fault system developed in the early Mesozoic during several episodes of continental accretion involving island arc belts. The fault system includes two major fault zones, the Bear Mountains Fault Zone in El Dorado Hills and the Melones Fault Zone in Placerville, both of which trend north-northwest and dip steeply easterly.

A review of the Fault Activity of California Map (Jennings, 1994) within 60 miles (about 100 Kilometers) of the boundaries of the site reveals numerous earthquake epicenters. These epicenters are generally located on the eastern flank of the Sierra Nevada Mountains and the eastern flank of the Diablo Range. According to the California Division of Mines and Geology (Jennings, 1994), the nearest known active fault to the site is the North Tahoe fault located approximately 40 miles northeast of the site, and the nearest potentially active fault is the Melones Fault - West branch, located about approximately 1.5 miles to the east.

The Soil Survey of El Dorado County (1974) notes the subject property to consist of Placer diggings (PrD). Placer diggings consist of areas of stony, cobbly, and gravelly material, commonly in beds of creeks and other streams, or of areas that have been placer mined and contain enough fine sand or silt to support some grass for grazing.

5.3.2 Regional Radon Values

According to the Geologic Controls on the Distribution of Radon in California by Ronald Churchill for the Department of Health Services (1991, revised 2003), elevated radon gas levels in indoor air are a result of radon moving into buildings from the soil, either by diffusion or flow due to air pressure differences. The ultimate source of radon gas in buildings is the uranium naturally present in rock, water, and soil. Some rock types are known to contain more uranium than others. In California, most uranium deposits are relatively small and are located in rural areas. Consequently, the chance of severe radon levels (>200 pCi/L) occurring in buildings in California should be very low. The following rock units contain uranium in concentrations above the crustal average: the Monterey Formation, asphaltic rocks, marine phosphatic rocks, granitic rocks, felsic volcanic rocks, and certain metamorphic rocks.

According to EPA publication 402-R-93-025, entitled EPA's Map of Radon Zones, California, dated September 1993, El Dorado County is shown to be in Zone 2. Zone 2 has a predicted average radon screening level of greater than 2 Pico Curies per Liter (pCi/l) but less than 4 pCi/l, this is considered to be a moderate or variable value of geologic radon potential. The State of California Department of Health Services California Statewide Radon Survey Screening Results (May 1990) indicated that El Dorado County (Region 5) had a value of 3.7% of homes

with predicted radon levels of over 4 pCi/L. The subject property is located within Zip Code 956667. Of the 26 test screening results for that Zip Code, two sites were identified with values over 4 pCi/L.

5.4 Historical Use Information on the Property and Adjoining Properties

All obvious uses of the property shall be identified from the present, back to the property's first developed use, or back to 1940, whichever is earlier. The term developed use includes agricultural uses and placement of fill dirt. Standard historical sources shall be reviewed at approximately five year intervals. Uses in the area surrounding the property shall also be identified. Standard historical sources may include: aerial photographs, fire insurance maps, recorded land title records, USGS topographic maps, local street directories, building department records, and zoning/land use records.

5.4.1 Aerial Photographic Review

EDR aerial photographs for 1935, 1952, 1962, 1984, 1993, and 1998 were provided in The EDR Aerial Photo Decade Package and reviewed. Photographs dated 1971, 1977, and 1989 were also reviewed. A 2006 digital image from terraserver.com was also reviewed. Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and to determine if any significant topographic or cultural changes have occurred. A summary of all of the aerial photographs reviewed is provided in Table 1. A copy of the EDR Aerial Photo Decade Package is provided in Appendix B following the EDR Report.

The **1935** aerial photograph shows the subject property to be developed with the lime processing facility. Several structures are present on the property. A railroad spur enters the property from the northwest corner and traverses the northern portion of the property and terminates on the property. A railroad car is present on the spur in the photograph reviewed. Orchards are adjacent to the north of the railroad spur and to the northeast of the lime plant. Property to the west, south, and south east appears to be undeveloped land or possibly rural residential property.

The **1952** and **1962** aerial photographs show the subject property to be developed with the lime plant. Adjacent property to the southwest appears to be part of the lime operation. Adjacent property to the north of the railroad spur is no longer orchard, but appears to still be agricultural property. Orchards are present to the northeast of the property. Adjacent property to the south and south east appears to be either undeveloped or rural residential land.

The **1971** and **1977** aerial photographs show the subject property to be developed with the lime plant. Adjacent property to the southwest appears to be part of the lime operation. Adjacent property to the north of the railroad spur is agricultural property to the northwest and industrial development to the northeast. Orchards are no longer present in the vicinity of the property. Adjacent property to the south and south east appears to be either undeveloped or rural residential land.

The **1984** aerial photograph shows the lime plant is no longer present on the subject property; however, the foundations/footings of the removed structures are present. One large structure is present in the northwest portion of the property. On the adjacent property to the south is a large structure (WEDRS facility). Property to the north, southwest, and northeast appears to be industrial. Undeveloped land is adjacent to the east and a storage facility is to the northwest.

The **1993** and **1998** aerial photographs the subject property appears to be similar to what was observed on the 1984 photograph. Adjacent property includes storage facilities to the north and northwest, industrial property to the northeast, WEDRS facility to the south, and undeveloped lots to the east.

The **2006** photograph shows the subject property to be similar to what was observed during the site visit. Adjacent property includes storage facilities to the north and northwest, industrial property to the northeast, WEDRS facility to the south, and undeveloped lots to the east.

5.4.2 Review of Historical and Current USGS Topographic Maps

A topographic map (topo) is a color coded line-and-symbol representation of natural and selected artificial features plotted to a scale. Topographic maps show the shape, elevation, and development of the terrain in precise detail by using contour lines and color coded symbols. The EDR - Historical Topographic Map Report provided maps dated 1893, 1949, 1950, and 1973 (revised from 1949). Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and determine if any significant topographic or cultural changes have occurred. A summary of the topographic maps review is provided below. A copy of the EDR - Historical Topographic Map Report is provided in Appendix B.

The 1893 Placerville 30 minute quadrangle map does not show specific details for the subject property. The nearest features are the Sacramento and Placerville Railroad line to the north and Highway 49 to the east.

The 1949 Placerville 15 minute quadrangle map shows the lime processing plant present on the subject property. A railroad spur is present in the northern portion of the property. A cable way is identified traversing between the lime plant (subject property) and a Quarry to the east in Section 28. The surrounding properties are a mix of rural residential and undeveloped land.

The 1950 Placerville 7.5 minute quadrangle map shows the lime processing plant present on the subject property. A railroad spur is present in the northern portion of the property. A cable way is identified traversing between the lime plant (subject property) and a Quarry to the east in Section 28. A surface water drainage is identified originating to the south of the subject property and flowing towards Weber Creek. Three small ponds are noted to the south of the subject property. Surrounding property is a mix of rural residential and undeveloped land.

The 1973 (revised from 1949) Placerville 7.5 minute quadrangle map shows the lime processing plant present on the subject property. A railroad spur is present in the northern portion of the property. The cable way is no longer identified on the map. A surface water drainage is identified originating to the south of the subject property from a large pond and flowing towards Weber Creek. The small ponds are no longer noted on the map. Surrounding property is a mix of rural residential and undeveloped land.

5.4.3 Historical City Directory Abstract Review

EDR provided the EDR-City Directory Abstract for review. Building directories including city, cross reference and telephone directories were reviewed, if available, as approximately five year intervals for the years spanning 1972 through 2002. A copy of the EDR-City Directory Abstract is provided in Appendix B, following the EDR Report. The subject property's address, 4100 Thowita Way, and multiple other addresses were not listed.

5.4.4 Review of Historical Sanborn® Maps

There are no Sanborn Maps that cover the subject property.

6.0 SITE RECONNAISSANCE

A reconnaissance of the subject property and a windshield survey of the surrounding area were conducted by Youngdahl Consulting Group, Inc. on 29 August 2007. Mr. Leonard Grado with Palos Verdes Properties, Inc. and Mr. Larry Abel, an adjacent landowner and long-time resident of Placerville accompanied the Youngdahl Consulting Group, Inc. representative during the during the site reconnaissance.

Typical views of the subject property at the time of the reconnaissance are presented as Figures 3 through 5. The site reconnaissance consisted of visual and physical observations of the periphery of the subject property and traverses throughout the property on foot to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles. The property is comprised of 13 acres of undeveloped land used for stockpiling soil, concrete, rock, and lime for future rock crushing activities and road base manufacturing (Figure 2, Site Plan). The approximately 50,000 cubic yards of soil on the property is excess soil from a nearby Walmart site on Missouri Flat Road to the northwest (Photos 1, 2, and 3). The soil was placed on the subject property under El Dorado County permit. The concrete and asphalt material on the property was generated from various sources and is material that will be crushed for use in construction activities and as road base material. Re-bar and other metallic debris were observed in the concrete/asphalt pile (Photos 4 and 5). No 55-gallon drums or containers of unknown substances, vehicle batteries, or other hazardous materials were observed on the subject property. White mounds of lime material observed in the south western portion of the property (Photo 6), is lime sediment extracted from the settling pond that was formerly located to the south (current location of the WEDRS facility). A seasonal creek was observed to be dry at the time of the site visit. Dense vegetation was observed in the vicinity of the dry creek bed.

Adjacent property includes: Throwita Way to the east; Truck Street, Symist Body Shop, 49er Mini Storage, and Yubacon's construction yard to the north; a seasonal drainage, Missouri Flat Self Storage and residential property to the west; and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the south.

7.0 FINDINGS AND CONCLUSIONS

The subject property is located two parcels west of Throwita Way (APNs 051-250-51-100 and 051-250-054-100) (subject property). The approximately 13-acre subject property is located in Placerville, El Dorado County, California. Based on our study the subject property was the Diamond Lime Basic Mineral plant from at least 1935 until the early 1980s. Most recently the property has been used for stockpiling soil, concrete, and lime for future construction project use. It is likely that hazardous materials and petroleum products were stored and used on the subject property when the lime crushing operations were ongoing. Due to the lack of information regarding the configuration of the lime plant, the former location of possible storage areas, shops, or disposal sites is unknown.

Youngdahl Consulting Group, Inc. has performed a Phase I Environmental Site Assessment in conformance with ASTM Practice E 1527-05 of the Lindeman Property on Throwita Way (APNs 051-250-51-100 and 051-250-054-100), the subject property. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property.

7.1 Data Gaps

No significant data gaps were identified during the course of this investigation that affected the environmental professional's ability to identify recognized environmental conditions.

8.0 OPINION

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that there are no identified recognized environmental conditions. The rationale used for this opinion are the observations made during the site visit, the review of aerial photographs, and interviews with knowledgeable persons corroborate the conclusion that the subject property was previously land used as a lime crushing plant and is currently undeveloped land used for the storage of stockpiled fill material. No additional investigation is recommended for the subject property at this time; however, it is recommended that during construction activities, the site be observed

for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

9.0 SELECTED REFERENCES

1. California Department of Water Resources (DWR) – Water Data Library, Groundwater Level Data (1953-2004): http//wdl.water.ca.gov/gw

2. Churchill, Ronald, Geologic Controls on the Distribution of Radon in California for the Department of Health Services, 25 January 1991, revised December 2003.

3. Jennings, C.W., (1994): "Fault Activity Map of California and Adjacent Areas", California Department of Conservation, Division of Mines and Geology, Geologic Data Map No. 6, Scale 1:750,000.

4. Loyd, R.C., et al., General Geology of the Placerville 15' Quadrangle OFR 83-29, 1984.

5. U.S. Department of Agriculture (USDA) Soil Conservation Service, Soil Survey of El Dorado County - Western Part, California (1974).

6. U.S. Geological Survey Topographic Map – Placerville, California Topographic Quadrangle, 7.5 minute series, 1949 (photorevised 1973).

10.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

David C. Sederquist Registered Geologist - California No. 4715
Bachelor of Arts in Geology, California State University,-Sacramento, 1980

Mr. Sederquist has performed Phase I and Phase II Environmental Site Assessments for commercial and residential projects since 1990. He has assessed, monitored, and closed soil and groundwater contamination sites. He is experienced in working closely with both regulatory officials and property owners/purchasers

Laurie B. Israel Registered Environmental Assessor - California No. 05557,
Bachelor of Science in Environmental Policy Analysis and Planning, University of California - Davis, 1988

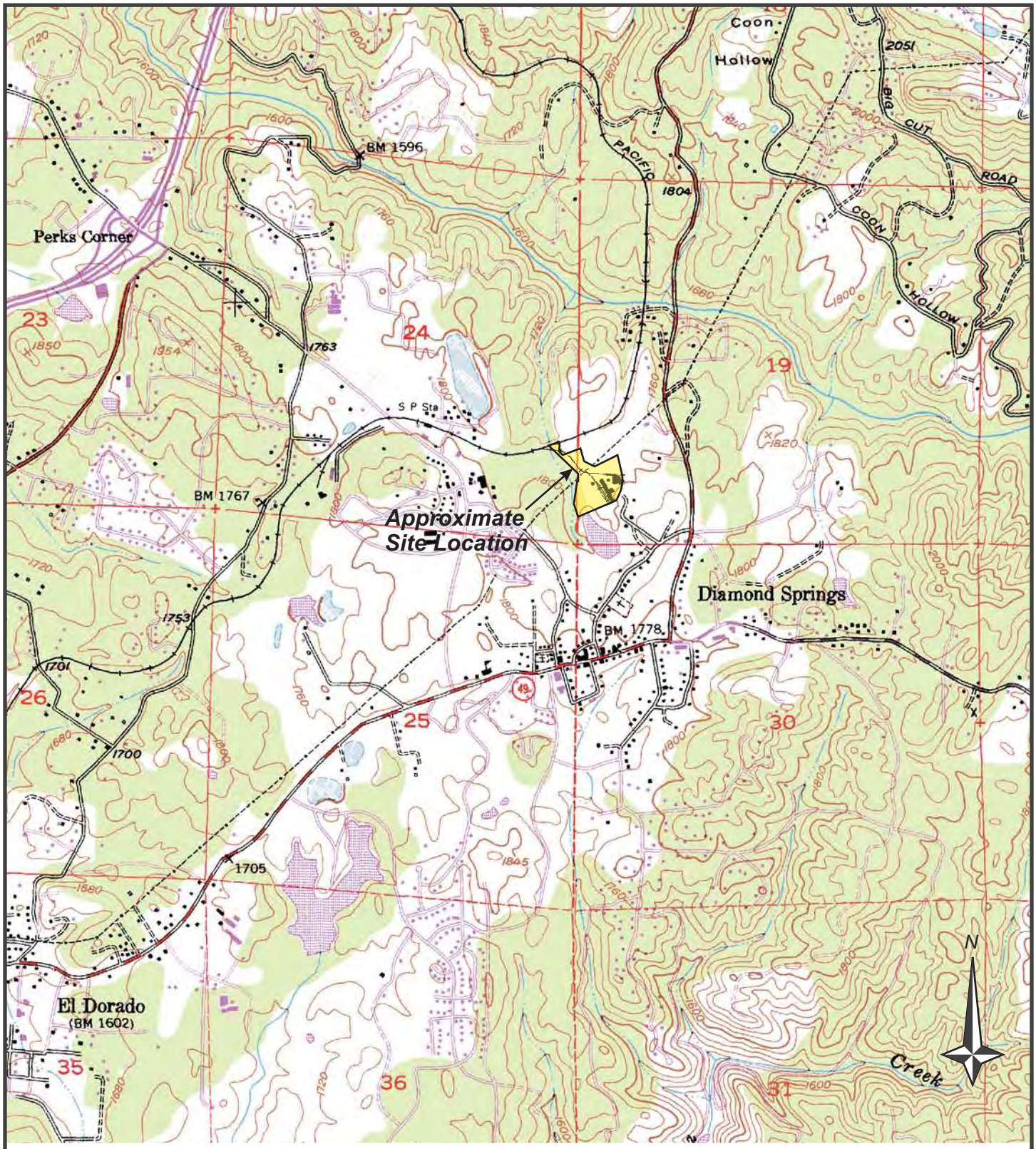
Ms. Israel has worked in the environmental field since 1988. She has been involved in all aspects of Phase I Environmental Site Assessments. Ms. Israel became a Registered Environmental Assessor with the State of California in 1994. Ms. Israel has also performed limited Phase II investigations

TABLE

TABLE 1: SUMMARY OF AERIAL PHOTOGRAPHS REVIEWED
LINDEMAN PROPERTY
APNs 051-250-51-100 and 051-250-54-100
THROWITA WAY, PLACERVILLE, EL DORADO COUNTY, CALIFORNIA
Project No. E07354.000

AERIAL PHOTOGRAPHS				
Date	**Provided By**	**Scale (±)**	**Type**	**Source**
1935	EDR	1" = 166'	B&W	Wallace
1935	USDA	Unknown	B&W	USDA SCS
1952	EDR	1" = 555'	B&W	Robinson
1962	EDR	1" = 555'	B&W	Cartwright
1971	Cartwright	1" = 2000'	B&W	Cartwright Flt. 2942-11-150
1977	Cartwright	1" = 2000'	B&W	Cartwright Flt. 7069, 14-8
1984	EDR	1" = 690'	B&W	WSA
1993	EDR	1" = 666'	B&W	USGS
1998	EDR	1" = 666'	B&W	USGS
2006	terraserver	Unknown	Color	Teraserver.com

FIGURES



Scale: 1:24,000

BASE MAP REFERENCE: U.S.G.S. 7.5 Minute Topographic Series, Placerville Quadrangle, Dated 1949 (Revised 1973)

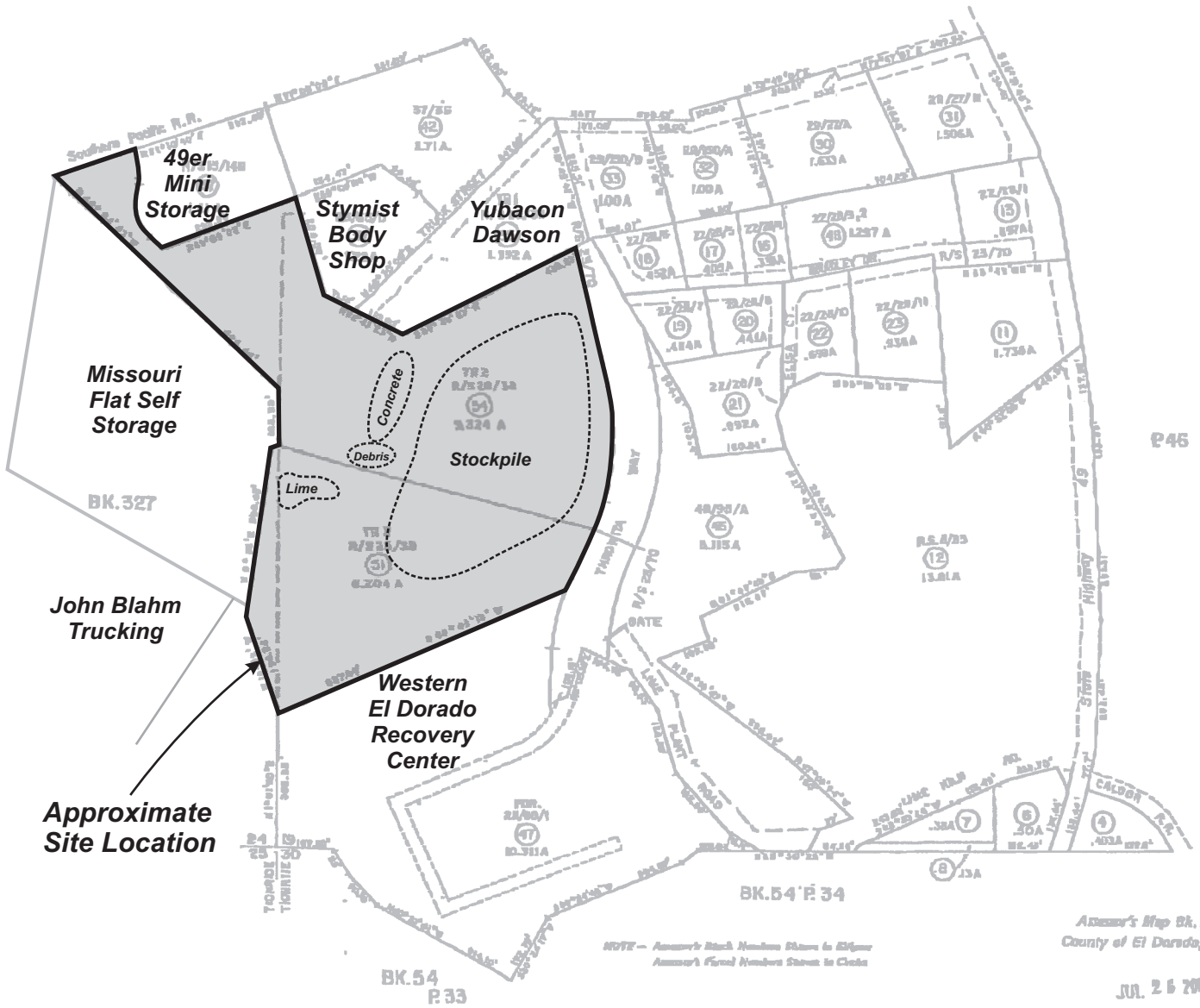
YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING

Project No.: E07354.000

September 2007

VICINITY MAP
Lindeman Property
Phase I ESA
Placerville, California

FIGURE 1



YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING

Project No.: E07354.000

September 2007

SITE PLAN
Lindeman Property
Phase I ESA
Placerville, California

FIGURE 2

Photo 1: Western portion of the subject property. View from the south to the west. WEDRS Facility is in the background to the south.

Photo 2: Northern portion of the property. Storage facility to the north.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07354.000 **September 2007**	**SITE PHOTOGRAPHS** **Lindeman Property** **Phase I ESA** Placerville, California	**FIGURE** **3**

Photo 3: Eastern portion of the property. Industrial property adjacent to the east.

Photo 4: Concrete rubble stockpile on the property.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07354.000 **September 2007**	**SITE PHOTOGRAPHS** **Lindeman Property** **Phase I ESA** Placerville, California	**FIGURE** **4**

Photo 5: Debris pile on the property.

Photo 6: Lime sediment stockpile in the western portion of the subject property.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07354.000	**SITE PHOTOGRAPHS** **Lindeman Property** **Phase I ESA** Placerville, California	**FIGURE** **5**
	September 2007		

APPENDICES

APPENDIX A: Interview Documentation
Telephone Conversations Records, Phase I ESA Questionnaire,
Preliminary Title Report, and EDR Environmental LienSearch Report

933-6482

Phase I Environmental Site Assessment

Project: **Site Name:** Lindeman Property (APNs 051-250-64-100 and 151-250-51-100)
Location: Placerville, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Amy Kelley as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482.)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use? IT WAS A LIME CRUSHING PLANT.	(Yes)	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	(No)	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	(No)	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	(No)	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	(No)	Unknown
6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	(No)	Unknown
7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	(No)	Unknown

8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	(No)	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	(No)	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors? EID WATER.	Yes	(No)	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	(No)	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	(No)	Unknown
13.	Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	No	(Unknown)
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	(No)	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	(No)	Unknown
16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	(No)	Unknown
17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	(No)	Unknown

18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	(No)	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	(No)	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): Larry Abel	**(SIGNATURE):**
TITLE: OPTIONEE	**ADDRESS:**
FIRM:	
PHONE NUMBER: 622 5682	**FAX NUMBER:** 621-3103
RELATIONSHIP TO SITE: Owner ____	**or Owner's Representative** ✓

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Leonardo Grado DATE 8/14/07 TIME 1:13

COMPANY NAME Palos Verdes Properties

TELEPHONE NO._____ FAX NO._____

MAILING ADDRESS lgrado@palosverdesproperties inc.com
~~9~~ 330 Golden Center Drive Ste D.

PROJECT NAME AND NUMBER P07-416 / Bradley Drive ESA

NOTES Placerville ESA
~13-acres; crushing, stockpile, Walmart to northeast
No rush fees

Diamond Springs connector - geotech
1½ miles of roadway. Cooper Thorne

left on Pleasant Valley
left on Bradley & Limekiln / Throwhaway

Quad: Placerville, CA

8/27/07 lm re site recon this week

3:30pm @ office behind Autozone on MF Rd
→ behind

Recorded by Laurie Israel

f:\wp51\reports\lbi\loncnt.rpt

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Larry Abel DATE 8/29/07 TIME 3:30pm

COMPANY NAME

TELEPHONE NO. (916) 761-6132 FAX NO.

MAILING ADDRESS

PROJECT NAME AND NUMBER

NOTES Diamond Lime Basic Minerals operated a crushing operation on the subject property for over 50 years.
The business closed over 30 years.

Electric Motors were used to power crusher

Lime rock onsite from pond sediment (crushed rock)

Lindeman has owned property for ~12 yrs

Material onsite currently to be crushed using a mobile crusher - powered by diesel (

Recorded by Laurie Israel

f:\wp51\reports\fbi\fonent.rpt

PLACER TITLE COMPANY

Preliminary Report

Issued By:

PLACER TITLE COMPANY
163 PLACERVILLE DR.
PLACERVILLE, CA 95667
Escrow Officer: Laraine Stefan
Phone: 530-621-3893
Fax: 530-621-2365
Escrow Officer Email: lstefan@placertitle.com
Email Loan Docs To: 206edocs@placertitle.com

Order No. 206-1000
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Version 2

Customer Reference:

Property Address: NO SITE ADDRESS , PLACERVILLE, CA 95667

In response to the above referenced application for a policy of title insurance, PLACER TITLE COMPANY hereby reports that it is prepared to issue, or cause to be issued, through one of its authorized underwriters, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said Policy or Policies are set forth in the attached. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in the attached. Copies of the Policy forms should be read. They are available from the office which issued this report.

PLEASE READ THE EXCEPTIONS SHOWN OR REFERRED TO BELOW AND THE EXCEPTIONS AND EXCLUSIONS SET FORTH IN THE ATTACHED CAREFULLY. THE EXCEPTIONS AND EXCLUSIONS ARE MEANT TO PROVIDE YOU WITH NOTICE OF MATTERS WHICH ARE NOT COVERED UNDER THE TERMS OF TITLE INSURANCE POLICY AND SHOULD BE CAREFULLY CONSIDERED.

IT IS IMPORTANT TO NOTE THAT THIS PRELIMINARY REPORT IS NOT A WRITTEN REPRESENTATION AS TO THE CONDITION OF TITLE AND MAY NOT LIST ALL LIENS, DEFECTS AND ENCUMBRANCES AFFECTING TITLE TO THE LAND.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of August 07, 2007 at 7:30 a.m.

Title Officer: Kelly Riddle

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The form of policy of title insurance contemplated by this report is:

CLTA Standard Coverage Policy

The estate or interest in the land hereinafter described or referred to covered by this Report is:

A FEE SIMPLE

Title to said estate or interest at the date hereof is vested in:

MICHAEL D. LINDEMAN AND LORRAINE D. LINDEMAN, TRUSTEES OF THE LINDEMAN FAMILY 2005 TRUST DATED OCTOBER 17, 2005

The land referred to herein is described as follows:

SEE EXHIBIT "A" ATTACHED

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EXHIBIT "A"
LEGAL DESCRIPTION

THE LAND DESCRIBED HEREIN IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF EL DORADO, UNINCORPORATED AREA, AND IS DESCRIBED AS FOLLOWS:

TRACTS 2 AND 3 AS SHOWN ON THE RECORD OF SURVEY MAP FILED APRIL 18, 2005, IN BOOK 28 OF SURVEY MAPS AT PAGE 38, EL DORADO COUNTY RECORDS.

A.P.N. 051-250-54-100 AND 051-250-51-100

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EXCEPTIONS

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. TAXES, SPECIAL AND GENERAL, ASSESSMENT DISTRICTS AND SERVICE AREAS FOR THE FISCAL YEAR 2007-2008, A LIEN, NOT YET DUE OR PAYABLE.

2. THE LIEN OF SUPPLEMENTAL TAXES, IF ANY, ASSESSED PURSUANT TO THE PROVISIONS OF CHAPTER 3.5, (COMMENCING WITH SECTION 75) OF THE REVENUE AND TAXATION CODE, OF THE STATE OF CALIFORNIA.

3. ANY TAXES OR ASSESSMENTS LEVIED BY:

   A. EL DORADO IRRIGATION DISTRICT

4. AN EASEMENT OVER SAID LAND FOR INSTALLATION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO WESTERN STATES GAS AND ELECTRIC COMPANY, IN DEED RECORDED APRIL 16, 1924, BOOK 99 OF DEEDS AT PAGE 113,

   AFFECTS A STRIP IN THE NORTHWESTERLY PORTION

   NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

   SAID EASEMENT WAS MODIFIED BY AN INSTRUMENT RECORDED JANUARY 4, 1938 IN BOOK 161 OF OFFICIAL RECORDS AT PAGE 129.

5. EASEMENT FOR ROAD AND UTILITIES AS SET FORTH IN DEED RECORDED JULY 27, 1927, IN BOOK 106 OF OFFICIAL RECORDS AT PAGE 459.
   NO EXACT LOCATION GIVEN

6. AN EASEMENT OVER SAID LAND FOR INSTALLATION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO WESTERN STATES GAS AND ELECTRIC COMPANY, IN DEED RECORDED FEBRUARY 08, 1928, BOOK 108 AT PAGE 211, OFFICIAL RECORDS.

   AFFECTS STRIPS IN THE NORTHERLY PORTION

   NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

7. AN EASEMENT OVER SAID LAND FOR INSTALLATION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO PACIFIC GAS AND ELECTRIC COMPANY, IN DEED RECORDED JANUARY 23, 1950, BOOK 274 AT PAGE 112, OFFICIAL RECORDS.

EXCEPTIONS
(Continued)

AFFECTS STRIPS IN THE NORTHERLY PORTION

NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

8. AN EASEMENT OVER SAID LAND FOR INSTALLATION, IPERATION AND MAINTENANCE OF ELECTRICAL COMMUNICATION TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO PACIFIC GAS AND ELECTRIC COMPANY, IN DEED RECORDED JANUARY 23, 1950, BOOK 274 AT PAGE 113, OFFICIAL RECORDS.

AFFECTS THE NORTHERLY PORTION

NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

9. AN EASEMENT OVER SAID LAND FOR INSTALLATION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO PACIFIC GAS AND ELECTRIC COMPANY, IN DEED RECORDED JANUARY 30, 1980, BOOK 1846 AT PAGE 296, OFFICIAL RECORDS.

AFFECTS THE NORTHERLY PORTION

NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

10. AN EASEMENT OVER SAID LAND FOR THE PURPOSE OF ROAD, AND INCIDENTAL PURPOSES AS SET FORTH ON PARCEL MAP FILED FEBRUARY 23, 1998, IN BOOK 46, PAGE 95 OF PARCEL MAPS.

AFFECTS: THE EASTERLY PORTION

11. AN EASEMENT OVER SAID LAND FOR PERMANENT EASEMENT FOR THE PUBLIC PURPOSE OF CONSTRUCTING AND MAINTAINING A ROAD AND INCIDENTAL PURPOSES, AS SET FORTH IN FINAL ORDER OF CONDEMNATION TO THE COUNTY OF EL DORADO RECORDED JANUARY 22, 1999, SERIES NO. 99-4479, OFFICIAL RECORDS.

AFFECTS THE EASTERLY PORTION

12. THE TERMS, PROVISIONS AND CONDITIONS OF THAT CERTAIN TRUST AGREEMENT REFERRED TO IN THE VESTING HEREIN. WE WILL REQUIRE THAT A COPY OF SAID TRUST AND ANY AMENDMENTS THERETO AND/OR A TRUST CERTIFICATION PURSUANT TO SECTION 18100.5 OF THE PROBATE CODE BE SUBMITTED FOR EXAMINATION.

NOTE: (FOR PRO-RATION PURPOSES ONLY)

TAXES, SPECIAL AND GENERAL, ASSESSMENT DISTRICTS AND SERVICE AREAS, FOR THE FISCAL YEAR 2006-2007:
1ST INSTALLMENT: $700.37 PAID

EXCEPTIONS
(Continued)

2ND INSTALLMENT: $700.37 PAID
ASSESSED VALUATIONS:
LAND: $136,913.00
IMPROVEMENTS: $0.00
EXEMPTION: $0.00
PARCEL NO.: 051-250-51-100 CODE AREA: 078-070

NOTE: (FOR PRO-RATION PURPOSES ONLY)

TAXES, SPECIAL AND GENERAL, ASSESSMENT DISTRICTS AND SERVICE AREAS, FOR THE FISCAL YEAR 2006-2007:
1ST INSTALLMENT: $1,052.59 PAID
2ND INSTALLMENT: $1,052.59 PAID
ASSESSED VALUATIONS:
LAND: $205,767.00
IMPROVEMENTS: $0.00
EXEMPTION: $0.00
PARCEL NO.: 051-250-54-100 CODE AREA: 078-070

*** NOTE: THIS TRANSACTION IS ELIGIBLE FOR THE SHORT TERM RATE.

*** CHAIN OF TITLE REPORT:

ACCORDING TO THE PUBLIC RECORDS, NO DEEDS CONVEYING THE PROPERTY DESCRIBED IN THIS REPORT HAVE BEEN RECORDED WITHIN A PERIOD OF 2 YEARS PRIOR TO THE DATE OF THIS REPORT, EXCEPT AS SHOWN HEREIN:

DEED RECORDED FEBRUARY 23, 2005, SERIES NO. 2005-0014466-00, OFFICIAL RECORDS.

DEED RECORDED JANUARY 06, 2006, 2006-769, OFFICIAL RECORDS.

*** NOTICE REGARDING FUNDS DEPOSITED IN ESCROW:

CALIFORNIA INSURANCE CODE SECTION 12413.1 REGULATES THE DISBURSEMENT OF ESCROW AND SUB-ESCROW FUNDS BY TITLE COMPANIES. THE LAW REQUIRES THAT FUNDS BE DEPOSITED IN THE TITLE COMPANY ESCROW ACCOUNT AND AVAILABLE FOR WITHDRAWAL PRIOR TO DISBURSEMENT. FUNDS DEPOSITED WITH THE COMPANY BY WIRE TRANSFER MAY BE DISBURSED UPON RECEIPT. FUNDS DEPOSITED WITH THE COMPANY VIA CASHIER'S OR TELLER'S CHECKS DRAWN ON A CALIFORNIA BASED BANK MAY BE DISBURSED THE NEXT BUSINESS DAY AFTER THE DAY OF DEPOSIT. IF FUNDS ARE DEPOSITED WITH THE COMPANY BY OTHER METHODS, RECORDING AND/OR DISBURSEMENT MAY BE DELAYED.

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EXCEPTIONS
(Continued)

****

THIS REPORT IS SUBJECT TO A MINIMUM CANCELLATION CHARGE OF $400.00 AS REQUIRED BY SECTION 12404 OF INSURANCE CODE AND RULE 2 OF BULLETIN NO. NS-35E.

****

LENDER'S NOTE:

APPROVAL FOR THE ISSUANCE OF THE 1970 ALTA LENDER'S POLICY FORM MUST BE REQUESTED AND APPROVED PRIOR TO CLOSE OF ESCROW. ALL OTHER FORMS OF FULL COVERAGE LOAN POLICIES THAT ARE AUTHORIZED TO BE ISSUED ARE THE 1992 AND 2006 POLICIES.

BUYER'S NOTE:

If an ALTA Residential Owner's Policy is requested and if the property described herein is determined to be eligible for this policy, the following Exceptions From Coverage will appear in the policy:

1. **Taxes or assessments which are not shown as liens by the public records or by the records of any taxing authority.**

2. **(a) Water rights, claims or title to water; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) unpatented mining claims; whether or not the matters excepted under (a), (b) or (c) are shown by the public records.**

3. **Any rights, interests or claims of parties in possession of the land which are not shown by the public records.**

4. **Any easements or liens not shown by the public records. This exception does not limit the lien coverage in Item 8 of the Covered Title Risks.**

5. **Any facts about the land which a correct survey would disclose and which are not shown by the public records. This exception does not limit the forced removal coverage in Item 12 of the Covered Title Risks.**

CLTA PRELIMINARY REPORT FORM
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS
(Revised 06/17/06)

CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY - 1990
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE
SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (10-22-03)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE
EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes ordinances, laws and regulations concerning: a. building; b. zoning; c. Land use; d. improvements on the Land; e. Land division; f. environmental protection
   This Exclusion does not apply to violations or the enforcement of these matters if notice of the violation or enforcement appears in the Public Records at the Policy Date.
   This Exclusion does not limit the coverage described in Covered Risk 14, 15, 16, 17 or 24.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at the Policy Date.
3. The right to take the Land by condemning it, unless: a. a notice of exercising the right appears in the Public Records at the Policy Date; or b. the taking happened before the Policy Date and is binding on You if You bought the Land without Knowing of the taking.
4. Risks: a. that are created, allowed, or agreed to by You, whether or not they appear in the Public Records; b. that are Known to You at the Policy Date, but not to Us, unless they appear in the Public Records at the Policy Date; c. that result in no loss to You; or d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.d, 22, 23, 24 or 25.
5. Failure to pay value for Your Title.
6. Lack of a right: a. to any Land outside the area specifically described and referred to in paragraph 3 of Schedule A; and b. in streets, alleys, or waterways that touch the Land. This Exclusion does not limit the coverage described in Covered Risk 11 or 18.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 14, 15, 16 and 18, Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 14:	1% of Policy Amount or $2,500.00 (whichever is less)	$ 10,000.00
Covered Risk 15:	1% of Policy Amount or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 16:	1% of Policy Amount or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 18:	1% of Policy Amount or $2,500.00 (whichever is less)	$ 5,000.00

AMERICAN LAND TITLE ASSOCIATION
RESIDENTIAL TITLE INSURANCE POLICY (6-1-87)
EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
   * Land use * Improvements on the land * Land division * Environmental protection
   This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at Policy Date.
   This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.
2. The right to take the land by condemning it, unless:
   * a notice of exercising the right appears in the public records
   * on the Policy Date
   * the taking happened prior to the Policy Date and is binding on you if you bought the land without knowing of the taking
3. Title Risks:
   * that are created, allowed, or agreed to by you
   * that are known to you, but not to us, on the Policy Date – unless they appeared in the public records
   * that result in no loss to you
   * that first affect your title after the Policy Date – this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks
4. Failure to pay value for your title.
5. Lack of a right:
   * to any land outside the area specifically described and referred to in Item 3 of Schedule A
     OR
   * in streets, alleys, or waterways that touch your land

This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

AMERICAN LAND TITLE ASSOCIATION LOAN POLICY (10-17-92)
WITH ALTA ENDORSEMENT - FORM 1 COVERAGE
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;

(d) attaching or created subsequent to Date of Policy (except to the extent that this policy insures the priority of the lien of the insured mortgage over any statutory lien for services, labor or material or to the extent insurance is afforded herein as to assessments for street improvements under construction or completed at Date of Policy); or

(e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage.

4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises our of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any statutory lien for services, labor or materials (or the claim of priority of any statutory lien for services, labor or materials over the lien of the insured mortgage) arising from an improvement or work related to the land which is contracted for and commenced subsequent to Date of Policy and is not financed in whole or in part by proceeds of the indebtedness secured by the insured mortgage which at Date of Policy the insured has advanced or is obligated to advance.
7. Any claim, which arises out of the transaction creating the interest of the mortgagee insured by this policy, by reason of the operation
of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:

(i) the transaction creating the interest of the insured mortgagee being deemed a fraudulent conveyance or fraudulent transfer; or

(ii) the subordination of the interest of the insured mortgagee as a result of the application of the doctrine or equitable subordination; or

(iii) the transaction creating the interest of the insured mortgagee being deemed a preferential transfer except where the preferential transfer results from the failure:

(a) to timely record the instrument of transfer; or

(b) of such recordation to impart notice to a purchaser for value or a judgement or lien creditor.

The above policy forms may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following General Exceptions:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

2006 ALTA LOAN POLICY (06/17/06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;

(iii) the subdivision of land; or
(iv) environmental protection;
or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
(a) created, suffered, assumed, or agreed to by the Insured Claimant;
(b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
(c) resulting in no loss or damage to the Insured Claimant;
(d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
(e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
(a) a fraudulent conveyance or fraudulent transfer, or
(b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY (10/17/92)
EXCLUSIONS FROM COVERAGE

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting

from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
(a) created, suffered, assumed or agreed to by the insured claimant;
(b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
(c) resulting in no loss or damage to the insured claimant;
(d) attaching or created subsequent to Date of Policy; or
(e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the estate or interest insured by this policy.
4. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:
(i) the transaction creating the estate or interest insured by this policy being deemed a fraudulent conveyance or fraudulent transfer; or
(ii) the transaction creating the estate or interest insured by this policy being deemed a preferential transfer except where the preferential transfer results from the failure:
(a) to timely record the instrument of transfer; or
(b) of such recordation to impart notice to a purchaser for value or a judgement or lien creditor.

The above policy forms may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage Policy will also include the following General Exceptions:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

2006 ALTA OWNER'S POLICY (06/17/06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
(i) the occupancy, use, or enjoyment of the Land;
(ii) the character, dimensions, or location of any improvement erected on the Land;
(iii) the subdivision of land; or
(iv) environmental protection;
or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (10/13/01)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the Land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the Land; (iii) a separation in ownership or a change in the dimensions or areas of the Land or any parcel of which the Land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that s notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the Land has been recorded in the Public Records at Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14, and 16 of this policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the Land has been recorded in the Public Records at Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14, and 16 of this policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the Public Records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without Knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) created, suffered, assumed or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (this paragraph does not limit the coverage provided under Covered Risks 8, 16, 18, 19, 20, 21, 22, 23, 24, 25 and 26); or
   (e) resulting in loss or damage which would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of the Insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable doing business laws of the state in which the Land is situated.
5. Invalidity or unenforceability of the lien of the Insured Mortgage, or claim thereof, which arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, except as provided in Covered Risk 27, or any consumer credit protection or truth in lending law.
6. Real property taxes or assessments of any governmental authority which become a lien on the Land subsequent to Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 7, 8(e) and 26.
7. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This exclusion does not limit the coverage provided in Covered Risk 8.
8. Lack of priority of the lien of the Insured Mortgage as to each and every advance made after Date of Policy, and all interest charged thereon, over liens, encumbrances and other matters affecting the title, the existence of which are Known to the Insured at:
   (a) The time of the advance; or
   (b) The time a modification is made to the terms of the Insured Mortgage which changes the rate of interest charged, if the rate of interest is greater as a result of the modification than it would have been before the modification. This exclusion does not limit the coverage provided in Covered Risk 8.
9. The failure of the residential structure, or any portion thereof to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at Date of Policy.

NOTICE
FEDERAL FOREIGN INVESTMENT IN REAL PROPERTY TAX ACT OF 1980 (FIRPTA)

Upon the sale of United States real property, by a non-resident alien, foreign corporation, partnership or trust, the Foreign Investment in Real Property Tax Act of 1980 (FIRPTA), and as revised by the Tax Reform Act of 1984 (26 USCA 897 (C)(1)(A)(1) and 26 USCA 1445) requires the transferee (Buyer) of real property to withhold Internal Revenue Service income taxes in an amount equal to ten (10%) percent of the sale price from seller's proceeds, if ANY of the following conditions are met:

(1) The selling price is greater than $300,000.00
(2) The selling price is less than $300,000 AND the purchaser does not intend to occupy the property as his residence for at least 50% of the time of the first two 12 month periods following the date of transfer.

Withholding is not required if both of the following conditions are met:

(1) The selling price is less than $300,000
and
(2) The Buyer is acquiring the property as his residence, and the buyer or other qualifying family member will occupy the property for at least 50% of the time during each of the first 12-month periods following transfer of title to the buyer.

If the purchaser who is required to withhold income tax from the seller fails to do so, the purchaser is subject to fines and penalties as provided under Internal Revenue Code Section 1445. The seller may request a waiver or a reduced withholding amount by submitting a written request for a "qualifying statement" or "withholding certificate" (Form 8288-B) to:

Director, Internal Revenue Service
Philadelphia Service Center
P.O. Box 21086
Philadelphia, PA 19114-0586

Escrow Holder will, upon written instructions from the purchaser, withhold Federal Income Tax from the seller and will deposit said tax with the Internal Revenue Service, together with IRS Forms 8288 and 8288-A. The fee charged for this service is $25.00 payable to the escrow holder.

CALIFORNIA WITHHOLDING

In accordance with Sections 18662 and 18668 of the Revenue and Taxation Code, a transferee (Buyer) may be required to withhold an amount equal to 3 1/3 percent of the sales price or an alternative withholding amount certified to by the seller in the case of a disposition of California real property interest by either:

1. A seller who is an individual or when the disbursement instructions authorize the proceeds to be sent to a financial intermediary or the seller, OR
2. A corporate seller that has no permanent place of business in California.

The buyer may become subject to penalty for failure to withhold an amount equal to the greater of 10 percent of the amount required to be withheld or five hundred dollars ($500).

However, notwithstanding any other provision included in the California statutes referenced above, no buyer will be required to withhold any amount or be subject to penalty for failure to withhold if:

1. The sales price of the California real property conveyed does not exceed one hundred thousand dollars ($100,000.00), OR
2. The seller executes a written certificate, under the penalty of perjury, of any of the following:
   - A. The property qualifies as the seller's (or decedent's, if being sold by the decedent's estate) principal residence within the meaning of Internal Revenue Code (IRC) Section 121; or
   - B. The seller is (or decedent, if being sold by the decedent's estate) last used the property as the seller's (decedent's) principal residence within the meaning of IRC Section 121 without regard to the two-year time period; or
   - C. The seller has a loss or zero gain for California income tax purposes on this sale; or
   - D. The property is being compulsorily or involuntarily converted and the seller intends to acquire property that is similar or related in service or use to qualify for non-recognition of gain for California income tax purposes under IRC Section 1033; or
   - E. If the transfer qualifies for non-recognition treatment under IRC Section 351 (transfer to a corporation controlled by the transferor) or IRC Section 721 (contribution to a partnership in exchange for a partnership interest); or
   - F. The seller is a corporation (or an LLC classified as a corporation for federal and California income tax purposes that is either qualified through the California Secretary of State or has a permanent place of Business in California; or
   - G. The seller is a partnership (or an LLC that is not a disregarded single member LLC and is classified as a partnership for federal and California income tax purposes) with recorded title to the property in the name of the partnership of LLC; or
   - H. The seller is a tax-exempt entity under either California or federal law; or
   - I. The seller is an insurance company, individual retirement account, qualified pension/profit sharing plan, or charitable remainder trust; or
   - J. The transfer qualifies as a simultaneous like-kind exchange within the meaning of IRC Section 1031; or
   - K. The transfer qualifies as a deferred like-kind exchange within the meaning of IRC Section 1031; or
   - L. The transfer of this property will be an installment sale that you will report as such for California tax purposes and the buyer has agreed to withhold on each principal payment instead of withholding the full amount at the time of transfer.

The Seller is subject to penalty for knowingly filing a fraudulent certificate for the purpose of avoiding the withholding requirement.

NOTICE
DEPOSIT OF FUNDS AND DISBURSEMENT DISCLOSURE

Unless you elect otherwise (as described below), all funds received by PLACER TITLE COMPANY (the "Company") in escrow will be deposited with other escrow funds in one or more non-interest bearing escrow accounts of the Company in a financial institution selected by the Company. The depositor acknowledges that the deposit of funds in a non-interest bearing demand account by Escrow Holder may result in said company receiving a range of economic benefits from the bank in the form of services, credits, considerations, or other things of value. The depositor hereby specifically waives any claim to such economic benefits payable to Escrow Holder resulting from non-interest bearing deposits. Unless you direct the Company to open an interest-bearing account (as described below), the Company shall have no obligation to account to you in any manner for the value of, or to compensate any party for, any benefit received by the Company and/or its affiliated company. Any such benefits shall be deemed additional compensation of the Company for its services in connection with the escrow.

If you elect, funds deposited by you prior to the close of escrow may be placed in an individual interest-bearing account arrangement that the Company has established with one of its financial institutions. You do not have an opportunity to earn interest on the funds deposited by a lender. If you elect to earn interest through this special account arrangement, the Company will charge you an additional fee of $30.00 for the establishment and maintenance of the account. This fee compensates the Company for the costs associated with opening and managing the interest-bearing account, preparing correspondence/documentation, transferring funds, maintaining appropriate records for audit/reconciliation purposes, and filing any required tax withholding statements. It is important that you consider this cost in your decision since the cost may exceed the interest you earn.

Funds deposited in an interest-bearing account will be withdrawn from such account and deposited in the Company's general escrow trust account approximately two business days prior to the scheduled close of escrow or other disbursement of such funds. **If you wish to have your funds placed in an interest bearing account (with an accompanying charge of $30.00), please mark below, sign and return this form to your escrow officer.** In addition, you must complete and return IRS Form W-9. If you do not not want to have your funds deposited in an interest-bearing account, you do not need to sign or return this notice and the Company will understand you to have elected to have your funds deposited in a non-interest bearing account. If you change your mind and later wish to have your funds placed in an interest-bearing account, please contact your escrow officer.

The funds you deposit are insured only to the limit provided by the Federal Deposit Insurance Corporation.

☐ PLEASE CONSIDER THIS MY/OUR INSTRUCTION TO PLACE MY/OUR DEPOSIT(S) IN A SEGREGATED, INTEREST-BEARING ACCOUNT. I/WE UNDERSTAND THAT AN ADDITIONAL FEE OF $30.00 WILL BE CHARGED FOR THIS SERVICE. I/WE HAVE READ AND UNDERSTAND ALL OF THE ABOVE INFORMATION.

Signature	Social Security Number	Date
Signature	Social Security Number	Date

PRIVACY POLICY NOTICE

Purpose Of This Notice

Title V of the Gramm-Leach-Bliley Act (GLBA) generally prohibits any financial institution, directly or through its affiliates, from sharing nonpublic personal information about you with a nonaffiliated third party unless the institution provides you with a notice of its privacy policies and practices, such as the type of information that it collects about you and the categories of a persons or entities to whom it may be disclosed. In compliance with the GLBA, we are providing you with this document, which notifies you of the privacy policies and practices of:

Commonwealth Land Title Insurance Company
Fidelity National Title Insurance Company
First American Title Insurance Company
First American Title Insurance Company of New York
Lawyers Title Insurance Corporation
Montana Title and Escrow Company
National Closing Solutions
National Closing Solutions of Alabama, LLC
NCS Exchange Professionals
North Idaho Title Insurance Company
Old Republic National Title Insurance Company
Placer Title Company
Placer Title Insurance Agency of Utah
Stewart Title Guaranty Company
Stewart Title Insurance Company
Targhee National Title
The Sterling Title Company
Ticor Title Insurance Company
Transnation Title Insurance Company
United General Title Insurance Company
Westcor Land Title Insurance Company
Wyoming Title and Escrow Company

We may collect nonpublic personal information about you from the following sources:

- Information we receive from you, such as on applications or other forms.
- Information about your transactions we secure from our files, our affiliates or others.
- Information we receive from a consumer reporting agency.
- Information we receive from others involved in your transaction, such as the real estate agent or lender.

Unless it is specifically stated otherwise in an amended Privacy Policy Notice, no additional nonpublic personal information will be collected about you.

We may disclose any of the above information that we collect about our customers or former customers to our affiliates or to nonaffiliated third parties as permitted by law.

We also may disclose this information about our customers or former customers to the following types of nonaffiliated companies that perform marketing services on our behalf or with whom we have joint marketing agreements:

- Financial service providers such as companies engaged in banking, consumer finances, securities and insurance.
- Nonfinancial companies such as envelope stuffers and other fulfillment service providers.

WE DO NOT DISCLOSE ANY NONPUBLIC PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT SPECIFICALLY PERMITTED BY LAW.

We restrict access to nonpublic personal information about you to those employees who need to know that information in order to provide products or services to you. We maintain physical, electronic and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

H3P-910

RECORD OF SURVEY

A PORTION OF THE S.E. 1/4 OF SECTION 24, T. 10 N., R. 10 E.M.D.M. & A PORTION OF THE S.W. 1/4 OF SECTION 19, T. 10 N., R. 11 E., M.D.M., BEING PARCELS C & D, P.M. 24-150 & PARCEL B, P.M. 46-45
COUNTY OF EL DORADO ~ STATE OF CALIFORNIA
APRIL, 2005 SCALE: 1"=100'
SHEET 2 OF 2

DAVID F. HADDELL - LAND SURVEYOR
PLACERVILLE, CALIFORNIA

LOT LINE ADJUSTMENT NOTES:

(A) THE NORTHERLY PORTION OF PARCEL B OF P.M. 46-45, OWNED BY MICHAEL D. LIEDEMAN GRANTED TO PHILIP DAWSON, AS A BOUNDARY LINE ADJUSTMENT WITH PARCEL D OF P.M. 24-150 PER DOC. NO. 2005-0022615

(B) TITLE TO THE NORTHERLY PORTION OF PARCEL B OF P.M. 46-45, TOGETHER WITH PARCEL D OF P.M. 24-150, OWNED BY PHILIP DAWSON, GRANTED TO MICHAEL D. LIEDEMAN PER DOC. NO. 2005-0022615.

(C) MICHAEL D. LIEDEMAN, OWNER OF THE NORTHERLY PORTION OF PARCEL B OF P.M. 46-45 AND PARCEL D OF P.M. 24-150, GRANTED PHILIP DAWSON PARCEL D OF P.M. 24-150 AS A BOUNDARY LINE ADJUSTMENT WITH PARCEL C OF P.M. 24-150 PER DOC. NO. 2005-0022617

OWNERS:
TRACT 1: PHILIP DAWSON
TRACT 2: MICHAEL D. LIEDEMAN
TRACT 3: MICHAEL D. LIEDEMAN

LEGEND
- ○ - RECORD POSITIONS OF MONUMENTS, PER P.M. 46-45, NOT LOCATED ON THIS SURVEY. (SEE NOTE 5)
- ● - FND. 1 1/2" G.I.P. STAMPED L.S. 5274-NEB.
- ● - FND. 3/4" G.I.P. STAMPED L.S. 5884.
- ● - FND. 5/8" REBAR W/ ALUM. CAP STAMPED R.C.E. 22860.
- ● - FND. 3/4" G.I.P. STAMPED L.S. 4814-NBL.
- ▲ - COMPUTATION POINT PER P.M. 46-45.
- △ - COMPUTATION POINT, NOTHING FOUND OR SET.
- ■ - SET 3/4" G.I.P. STAMPED LS 5526-2004.
- (R) - RECORD PER P.M. 46-45.
- (R) - RECORD PER P.M. 24-150.

BASIS OF BEARINGS

THE MERIDIAN OF THIS SURVEY IS IDENTICAL TO THAT OF P.M. 46-45, AS BASED UPON FOUND MONUMENTS Ⓐ & Ⓑ, AND IS TRUE NORTH.

NOTES:

(1) THE PURPOSE OF THIS SURVEY IS TO DELINEATE AND SHOW THE MONUMENTATION OF LOT LINE ADJUSTMENT B.L.A. 04-11, APPROVED FEBRUARY 27, 2004, AS REQUIRED BY SECTION 8762(b)(5) OF THE PROFESSIONAL LAND SURVEYORS' ACT.

(2) A COMPLAINT IN EMINENT DOMAIN HAS FILED IN EL DORADO COUNTY SUPERIOR COURT, CASE NO. PV 000715 BY THE COUNTY OF EL DORADO FOR AN EASEMENT OVER THRONITA WAY AND ADDITIONAL TAKE AS DELINEATED ON P.M. 46-45. THE FINAL ORDER OF CONDEMNATION RECORDED IN DOC. NO. 99-44791.

(3) THE ENTIRE BOUNDARY OF PARCEL B, P.M. 46-45 WAS NOT SURVEYED. THE BEARINGS, DISTANCES AND MONUMENTS ARE AS SHOWN ON P.M. 46-45.

(05-151) B.L.A. 04-11 APPROVED 2-21-04 EXISTING ASSESSOR'S PARCEL Nos. 091-250-54, 55 & 44 AI S

REFERENCES

The EDR Environmental Lien Search Report

LYNDEMAN PROPERTY
THROWITA WAY
PLACERVILLE, CALIFORNIA

Friday, September 7, 2007

Project Number: L07-07907

The Standard In Environmental Risk Management Information

440 Wheelers Farm Road
Milford, Connecticut 06460

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802

ENVIRONMENTAL LIEN REPORT

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied property information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' office, registries of deed, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved and description); and
- provide a copy of the deed or cite documents reviewed;

Thank you for your business
Please contact EDR at 1-800-352-0050
with any questions or comments

ENVIRONMENTAL LIEN REPORT

The EDR Environmental Lien Search Report is intended to assist in the search for environmental liens filed in land title records.

TARGET PROPERTY INFORMATION

ADDRESS

Lyndeman Property
Throwita Way
Placerville, California

RESEARCH SOURCE

Source: El Dorado County Assessor
El Dorado County Recorder

DEED INFORMATION

Type of Instrument: Quit Claim Deed

Title is vested in: Michael D. Lindeman and Lorraine D. Lindeman, Trustees of the Lindeman Family 2005 Trust dated 10/17/2005

Title received from: Michael D. Lindeman

Deed Dated: 10/17/2005
Deed Recorded: 10/24/2005
Instrument: 2005-0089203-00

LEGAL DESCRIPTION

All that certain piece or parcel of land being Parcel B as shown on Parcel Map filed 02/23/1998, according to the map or plat thereof, as filed of record in Book 46 of Parcel Maps, Page 95, El Dorado County, State of California

Assessor's Parcel Number(s): 051-250-51-100 and 051-250-54-100

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AULs: Found ☐ Not Found ☒

El Dorado, County Recorder
William Schultz Co Recorder Office
DOC- 2005-0089203-00
Check Number 5470
Monday, OCT 24, 2005 09:35:08
Ttl Pd $10.00 Nbr-0000790897
LJP/C1/1-2

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

Michael D. Lindeman
Lorraine D. Lindeman
27102 E. El Macero Drive
El Macero, CA 95618

MAIL TAX STATEMENTS TO:

Michael D. Lindeman and Lorraine D. Lindeman, Trustees
27102 E. El Macero Drive
El Macero, CA 95618

Documentary Transfer Tax:
NONE – See Notes 1 and 2
The undersigned transferor so states

PCOS FILED

QUITCLAIM DEED

Michael D. Lindeman, quitclaims to Michael D. Lindeman and Lorraine D. Lindeman, Trustees of the Lindeman Family 2005 Trust dated October 17, 2005, all that real property situated in the County of El Dorado, State of California, more particularly described as follows:

APN:	051-250-50-100 & 051-250-51-100
Street Address:	4021 Lime Plant Road, Diamond Springs, CA 95619
Legal Description:	PARCEL B, As shown on that certain Parcel Map filed February 23, 1998 in the office of the County Recorder of said County in Book 46 of Parcel Maps, at Page 95.

Dated: October 17, 2005

MICHAEL D. LINDEMAN

Note 1: This conveyance is to a trust for the benefit of the transferor, not pursuant to a sale, and is exempt from taxation pursuant to Revenue and Taxation Code section 11930.

Note 2: The transferor is the same person as the trustee of the transferee trust. This conveyance is to a revocable trust, does not constitute a change in ownership and is not subject to reassessment pursuant to Revenue and Taxation Code Section 62(d)(2).

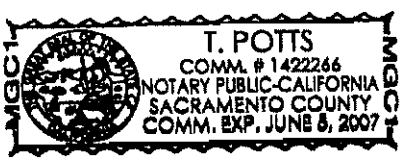
089203

CERTIFICATE OF ACKNOWLEDGMENT OF NOTARY PUBLIC

State Of California }
} ss.
County Of Sacramento }

On October 17, 2005, before me, T. Potts, a Notary Public, personally appeared Michael D. Lindeman, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.



10/24/2005,20050089203

APPENDIX B: Historical Record Documentation

EDR Radius Map Report with GeoCheck®
EDR Aerial Photo Decade Package
EDR Historical Topographic Map Report
EDR-City Directory Abstract
EDR-Sanborn Map Report (No Coverage)

The EDR Radius Map
with GeoCheck®

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.2s

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

THROWITA WAY
PLACERVILLE, CA 95667

COORDINATES

Latitude (North):	38.700800 - 38° 42' 2.9''
Longitude (West):	120.815900 - 120° 48' 57.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	689933.9
UTM Y (Meters):	4285631.5
Elevation:	1795 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	38120-F7 PLACERVILLE, CA
Most Recent Revision:	1973

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL National Priority List
Proposed NPL Proposed National Priority List Sites
Delisted NPL National Priority List Deletions
NPL LIENS Federal Superfund Liens
CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS Corrective Action Report
RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
LIENS 2 CERCLA Lien Information
RADINFO Radiation Information Database
US CDL Clandestine Drug Labs
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
ICIS Integrated Compliance Information System
LUCIS Land Use Control Information System
DOT OPS Incident and Accident Data
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

HIST Cal-Sites Historical Calsites Database
CA BOND EXP. PLAN Bond Expenditure Plan
SCH School Property Evaluation Program
Toxic Pits Toxic Pits Cleanup Act Sites
CA WDS Waste Discharge System
WMUDS/SWAT Waste Management Unit Database
SLIC Statewide SLIC Cases
UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
LIENS Environmental Liens Listing
CHMIRS California Hazardous Material Incident Report System
Notify 65 Proposition 65 Records
DEED Deed Restriction Listing
VCP Voluntary Cleanup Program Properties
CLEANERS Cleaner Facilities
WIP Well Investigation Program Case List
CDL Clandestine Drug Labs
RESPONSE State Response Sites
HAZNET Facility and Manifest Data
EMI Emissions Inventory Data
HAULERS Registered Waste Tire Haulers Listing

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

CERCLIS-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 06/21/2007 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
ELDORADO DISPOSAL SERVICE INC	***3940 HWY 49***	***1/4 - 1/2 NE***	***14***	***17***

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store , treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 3 RCRA-SQG sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
RACK IT TRUCK RACKS B C I INC	***521 TRUCK ST***	***1/8 - 1/4 NNE***	***B7***	***13***
SIERRA DESIGN AND WALLPAPER	***4060 STAGE CT BLDG G SE***	***1/8 - 1/4 WNW***	***C8***	***13***
ABE ARENS BROTHERS ENVIRONMENT	***4066 STAGE COURT***	***1/8 - 1/4 WNW***	***C9***	***14***

STATE AND LOCAL RECORDS

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 06/11/2007 has revealed that there are 3 SWF/LF sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WEDRS- CDI RECOVETY OPERATION	4100 THROWITA WAY	0 - 1/8 NE	A1	6
WEDRS-GREEN WASTE RECYCLING CE	4100 THROWITA WAY	0 - 1/8 NE	A3	8
WASTE MGT INC WESTERN EL DORAD	***4100 THROWITA WAY***	***0 - 1/8 NE***	***A4***	***9***

CORTESE: This database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration. The source is the California Environmental Protection Agency/Office of Emergency Information.

A review of the Cortese list, as provided by EDR, and dated 04/01/2001 has revealed that there are 3 Cortese sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
GUSTAFSON, D.M. & PATRICI	***3655 CHUCKWAGON***	***1/8 - 1/4 SW***	***5***	***12***
SIERRA DOOR	***4415 MISSOURI FLAT RD***	***1/4 - 1/2 WNW***	***18***	***22***

Lower Elevation	Address	Dist / Dir	Map ID	Page
FORMER SS	***493 MAIN ST***	***1/4 - 1/2 SSW***	***17***	***20***

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 07/09/2007 has revealed that there are 3 SWRCY sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WESTERN EL DORADO RECOVERY SYS	4100 THROWITA WY	0 - 1/8 NE	A2	7
E M RECYCLING	4040 #A-2 STAGE CT	1/8 - 1/4 W	11	15

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE	580 TRUCK ST	1/8 - 1/4 NNE	B6	12

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 07/10/2007 has revealed that there are 2 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
SIERRA DOOR	***4415 MISSOURI FLAT RD***	***1/4 - 1/2 WNW***	***18***	***22***
Facility Status: Pollution Characterization				

Lower Elevation	Address	Dist / Dir	Map ID	Page
FORMER SS	***493 MAIN ST***	***1/4 - 1/2 SSW***	***17***	***20***
Facility Status: Case Closed				

CA FID: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WAYNE I. QUEEN	4052 STAGE CT	1/8 - 1/4 W	10	14

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE INC	***3940 HIGHWAY 49***	***1/8 - 1/4 NNE***	***12***	***15***
ELDORADO DISPOSAL SERVICE INC.	3940 HIWAY 49	1/8 - 1/4 NE	13	16

SWEEPS: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE INC	***3940 HIGHWAY 49***	***1/8 - 1/4 NNE***	***12***	***15***

EXECUTIVE SUMMARY

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

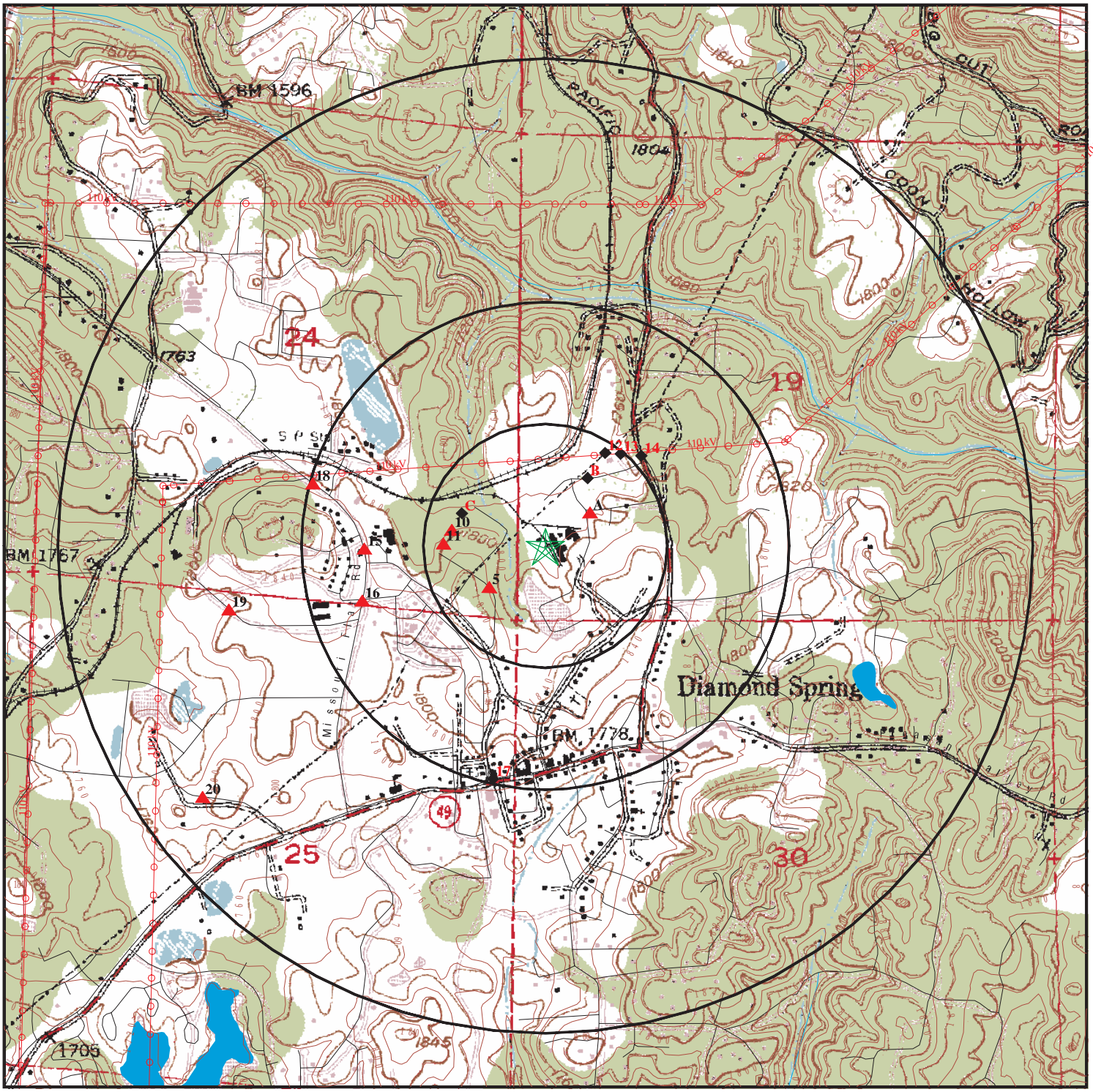
A review of the ENVIROSTOR list, as provided by EDR, and dated 05/29/2007 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
TETERS AUTO WRECKERS Facility Status: Refer: Other Agency	4487 MISSOURI FLAT ROAD	1/4 - 1/2 W	15	18
CELEBRITY PLATING Facility Status: Refer: RCRA	4502 MISSOURI FLAT ROAD	1/4 - 1/2 WSW	16	19
OLD CALDOR LUMBER COMPANY YARD Facility Status: No Further Action	180 INDUSTRIAL DRIVE	1/2 - 1 WSW	19	24
FOOTHILL AUTO REPAIR Facility Status: Refer: RWQCB	6566-C COMMERCE WAY	1/2 - 1 SW	20	25

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
WAYNE I. QUEEN	SWEEPS UST
HANGTOWN MARINE LLC	CLEANERS
OLD CALDOR LUMBER CO YD	CERC-NFRAP
OXYGEN SERVICE & SUPPLY CO	CERC-NFRAP
SMUD: EL DORADO COUNTY ROADS	CERC-NFRAP
PG & E CHILI BAR POWERHOUSE	RCRA-SQG, FINDS, HAZNET
CALTRANS- HIGHWAY 50	SLIC
SIERRA PACIFIC INDUSTRIES - HAZEL CREEK MINE	SLIC
OXYGEN SERVICE AND SUPPLY COMPANY	ENVIROSTOR
SHAW MINE, NEAR INDIAN CREEK RANCH	ENVIROSTOR

OVERVIEW MAP - 2018466.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Lyndeman Property	CLIENT: Youngdahl Consulting Group
ADDRESS: Throwita Way Placerville CA 95667	CONTACT: Laurie Israel
LAT/LONG: 38.7008 / 120.8159	INQUIRY #: 2018466.2s DATE: August 30, 2007 1:59 pm

DETAIL MAP - 2018466.2s

0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Lyndeman Property	CLIENT: Youngdahl Consulting Group
ADDRESS: Throwita Way Placerville CA 95667	CONTACT: Laurie Israel
LAT/LONG: 38.7008 / 120.8159	INQUIRY #: 2018466.2s DATE: August 30, 2007 1:59 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	1	NR	NR	1
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	3	NR	NR	NR	3
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
LIENS 2		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
Hist Cal-Sites		1.000	0	0	0	0	NR	0
CA Bond Exp. Plan		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0
State Landfill		0.500	3	0	0	NR	NR	3
CA WDS		TP	NR	NR	NR	NR	NR	0
WMUDS/SWAT		0.500	0	0	0	NR	NR	0
Cortese		0.500	0	1	2	NR	NR	3

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SWRCY		0.500	1	2	0	NR	NR	3
LUST		0.500	0	0	2	NR	NR	2
CA FID UST		0.250	0	1	NR	NR	NR	1
SLIC		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
HIST UST		0.250	0	2	NR	NR	NR	2
AST		0.250	0	0	NR	NR	NR	0
LIENS		TP	NR	NR	NR	NR	NR	0
SWEEPS UST		0.250	0	1	NR	NR	NR	1
CHMIRS		TP	NR	NR	NR	NR	NR	0
Notify 65		1.000	0	0	0	0	NR	0
DEED		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RESPONSE		1.000	0	0	0	0	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
ENVIROSTOR		1.000	0	0	2	2	NR	4
HAULERS		TP	NR	NR	NR	NR	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
NE
< 1/8
606 ft.

Relative:
Higher

Actual:
1798 ft.

WEDRS- CDI RECOVETY OPERATION (MVCDI)
4100 THROWITA WAY
SHINGLE SPRINGS, CA

Site 1 of 4 in cluster A

SWF/LF **S106800105**
N/A

LF:

Region:	STATE
Facility ID:	09-AA-0007
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69925 / -120.81581
Land Owner:	Not reported
Owner Name:	Western El Dorado Disposal Services, Inc
Owner Telephone:	5302953000
Owner Address:	Susan Farris, General Manager
Owner Address2:	P. O. Box 1270
Owner City,St,Zip:	Diamond Springs, CA 95619
Operator:	Western El Dorado Disposal Services, Inc
Operator Phone:	5302953000
Operator Address:	Susan Farris, General Manager
Operator Address2:	P. O. Box 1270
Operator City,St,Zip:	Diamond Springs, CA 95619
Operator's Status:	Active
Permit Date:	9/5/2006
Permit Status:	Permitted
Permitted Acreage:	3.00
Activity:	Medium Vol CD Wood Debris ChipGrind Fac.
Regulation Status:	Permitted
Land Use:	Not reported
Landuse Name:	Not reported
GIS Source:	Map
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Construction/demolition,Inert,Metals,Wood waste
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported

WEDRS- CDI RECOVETY OPERATION (MVCDI) (Continued) **S106800105**

Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	Not reported
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported
Permitted Throughput with Units:	175
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	63525
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/year
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

A2 **WESTERN EL DORADO RECOVERY SYSTEMS** **SWRCY** **S107138342**
NE **4100 THROWITA WY** **N/A**
< 1/8 **PLACERVILLE, CA 95667**
606 ft.

Site 2 of 4 in cluster A

Relative:
Higher

Actual:
1798 ft.

SWRCY:

Certification Status:	D
Facility Phone Number:	(530) 626-4141
Date facility became certified:	08/30/00
Date facility began operating:	10/01/00
Date facility ceased operating:	11/09/06
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

A3
NE
< 1/8
606 ft.

Relative:
Higher

Actual:
1798 ft.

WEDRS-GREEN WASTE RECYCLING CENTER
4100 THROWITA WAY
DIAMOND SPRINGS, CA

SWF/LF **S106800104**
N/A

Site 3 of 4 in cluster A

LF:

Region:	STATE
Facility ID:	09-AA-0006
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69887 / -120.81504
Land Owner:	Not reported
Owner Name:	Waste Connections, Inc.
Owner Telephone:	9166088200
Owner Address:	Not reported
Owner Address2:	35 Iron Point Circle, Suite 200
Owner City,St,Zip:	Folsom, CA 95630-8589
Operator:	Waste Connections of California, Inc.
Operator Phone:	9166088200
Operator Address:	Not reported
Operator Address2:	35 Iron Point Circle
Operator City,St,Zip:	Folsom, CA 95630
Operator's Status:	Active
Permit Date:	6/26/2006
Permit Status:	Notification
Permitted Acreage:	3.00
Activity:	Chipping and Grinding Activity Fac./ Op.
Regulation Status:	Notification
Land Use:	Not reported
Landuse Name:	Commercial
GIS Source:	Map
Category:	Composting
Unit Number:	01
Inspection Frequency:	Quarterly
Accepted Waste:	Green Materials
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported

WEDRS-GREEN WASTE RECYCLING CENTER (Continued) **S106800104**

Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	Not reported
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported
Permitted Throughput with Units:	200
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	72600
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/year
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

A4 **WASTE MGT INC WESTERN EL DORAD** **SWF/LF** **S105155530**
NE **4100 THROWITA WAY** **CA WDS** **N/A**
< 1/8 **PLACERVILLE, CA 95667**
606 ft.

Site 4 of 4 in cluster A

Relative: Higher

Actual: 1798 ft.

LF:

Region:	STATE
Facility ID:	09-AA-0004
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69920 / -120.81498
Land Owner:	Not reported
Owner Name:	Waste Connections of California, Inc.
Owner Telephone:	9166088200
Owner Address:	Not reported
Owner Address2:	35 Iron Point Circle
Owner City,St,Zip:	Folsom, CA 95630
Operator:	Western El Dorado Reg System
Operator Phone:	5306264141
Operator Address:	Not reported
Operator Address2:	P.O. Box 1270
Operator City,St,Zip:	Diamond Springs, CA 95619
Operator's Status:	Active
Permit Date:	2/23/2005

WASTE MGT INC WESTERN EL DORAD (Continued) **S105155530**

Permit Status:	Permitted
Permitted Acreage:	10.10
Activity:	Large Volume Transfer/Proc Facility
Regulation Status:	Permitted
Land Use:	Not reported
Landuse Name:	Not reported
GIS Source:	Map
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Mixed municipal
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported
Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	MRF
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported

WASTE MGT INC WESTERN EL DORAD (Continued) **S105155530**

Permitted Throughput with Units:	400
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	400
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/day
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

CA WDS:

Facility ID:	5S 09I017764
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	0
Facility Telephone:	5306420731
Facility Contact:	James Milton
Agency Name:	WASTE MANAGEMENT INC EL DORADO
Agency Address:	PO Box 1510
Agency City,St,Zip:	Diamond Springs 956191510
Agency Contact:	MILTON JAMES
Agency Telephone:	2302953002
Agency Type:	Private
SIC Code:	4953
SIC Code 2:	Not reported
Primary Waste:	Stormwater Runoff
Primary Waste Type:	Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

5
SW
1/8-1/4
752 ft.

Relative:
Higher

Actual:
1817 ft.

GUSTAFSON, D.M. & PATRICI
3655 CHUCKWAGON
PLACERVILLE, CA 95667

HAZNET
Cortese

1000294914
N/A

HAZNET:

Gepaid:	CAD982342073
Contact:	Not reported
Telephone:	0000000000
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	3655 CHUCKWAGON WAY
Mailing City,St,Zip:	PLACERVILLE, CA 956670000
Gen County:	9
TSD EPA ID:	CA0000084517
TSD County:	Sacramento
Waste Category:	Not reported
Disposal Method:	Recycler
Tons:	.0291
Facility County:	9

Cortese:

Region:	CORTESE
Facility Addr2:	Not reported

B6
NNE
1/8-1/4
850 ft.

Relative:
Lower

Actual:
1781 ft.

EL DORADO DISPOSAL SERVICE
580 TRUCK ST
PLACERVILLE, CA 95667

Site 1 of 2 in cluster B

SWRCY

S108086801
N/A

SWRCY:

Certification Status:	O
Facility Phone Number:	(530) 626-4141
Date facility became certified:	09/22/06
Date facility began operating:	10/12/06
Date facility ceased operating:	Still operating
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

B7
NNE
1/8-1/4
866 ft.

Relative:
Lower

Actual:
1781 ft.

RACK IT TRUCK RACKS B C I INC
521 TRUCK ST
DIAMOND SPRINGS, CA 95619

RCRA-SQG
FINDS

1004676293
CAR000083428

Site 2 of 2 in cluster B

RCRAInfo:
Owner: C A CORPORATION
(530) 621-0754
EPA ID: CAR000083428

Contact: GARY JONES
(530) 621-0754

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C8
WNW
1/8-1/4
969 ft.

Relative:
Lower

Actual:
1788 ft.

SIERRA DESIGN AND WALLPAPER
4060 STAGE CT BLDG G SECT 3
PLACERVILLE, CA 95667

RCRA-SQG
FINDS

1000686175
CAD983634106

Site 1 of 2 in cluster C

RCRAInfo:
Owner: HAZEN JOE
(916) 626-7136
EPA ID: CAD983634106

Contact: JOE HAZEN
(916) 626-7136

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C9
WNW
1/8-1/4
972 ft.

Relative:
Lower

Actual:
1788 ft.

ABE ARENS BROTHERS ENVIRONMENTAL
4066 STAGE COURT
PLACERVILLE, CA 95667

RCRA-SQG
HAZNET

1008372089
CAR000162636

Site 2 of 2 in cluster C

RCRAInfo:
Owner: ABE ARENS BROTHERS ENVIRONMENTAL
EPA ID: CAR000162636
Contact: CHERYL ARENS
530-621-3044
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

HAZNET:

Gepaid:	CAR000162636
Contact:	CHERYL L ARENS
Telephone:	5306213044
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	3987 MISSOURI FLAT RD ST 340 PMB107
Mailing City,St,Zip:	PLACERVILLE, CA 956670000
Gen County:	El Dorado
TSD EPA ID:	Not reported
TSD County:	Not reported
Waste Category:	Waste oil and mixed oil
Disposal Method:	Transfer Station
Tons:	1.66
Facility County:	Not reported

10
West
1/8-1/4
1028 ft.

Relative:
Higher

Actual:
1799 ft.

WAYNE I. QUEEN
4052 STAGE CT
PLACERVILLE, CA 95667

CA FID UST

S101627949
N/A

CA FID UST:

Facility ID:	09000446
Regulated By:	UTNKA
Regulated ID:	00052072
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9166266903
Mail To:	Not reported
Mailing Address:	BOX
Mailing Address 2:	Not reported
Mailing City,St,Zip:	PLACERVILLE 95667
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

11
West
1/8-1/4
1103 ft.

E M RECYCLING
4040 #A-2 STAGE CT
PLACERVILLE, CA 95667

SWRCY **S107136889**
N/A

Relative:
Higher

Actual:
1803 ft.

SWRCY:

Certification Status:	R
Facility Phone Number:	(916) 621-2027
Date facility became certified:	01/09/91
Date facility began operating:	01/09/91
Date facility ceased operating:	01/07/93
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

12
NNE
1/8-1/4
1198 ft.

EL DORADO DISPOSAL SERVICE INC
3940 HIGHWAY 49
DIAMOND SPRINGS, CA 95619

HIST UST **1000191344**
SWEEPS UST **N/A**

Relative:
Lower

Actual:
1767 ft.

HIST UST:

Region:	STATE
Facility ID:	00000050247
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00010000
Facility Type:	Other
Other Type:	Not reported
Total Tanks:	0002
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Tank Construction:	Not reported
Leak Detection:	Visual
Contact Name:	HARRY DE WOLF
Telephone:	9166224141
Owner Name:	EL DORADO DISPOSAL SERVICE, IN
Owner Address:	3940 HIGHWAY 49
Owner City,St,Zip:	DIAMOND SPRINGS, CA 95619

Region:	STATE
Facility ID:	00000050247
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00010000
Facility Type:	Other
Other Type:	Not reported
Total Tanks:	0002
Tank Used for:	PRODUCT

EL DORADO DISPOSAL SERVICE INC (Continued) **1000191344**

Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Visual
Contact Name: HARRY DE WOLF
Telephone: 9166224141
Owner Name: EL DORADO DISPOSAL SERVICE, IN
Owner Address: 3940 HIGHWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

SWEEPS UST:
Status: A
Comp Number: 16160
Number: 9
Board Of Equalization: 44-002936
Ref Date: 12-11-92
Act Date: 01-08-93
Created Date: 10-13-88
Tank Status: A
Owner Tank Id: D-1
Swrcb Tank Id: 09-000-016160-000001
Actv Date: 07-01-85
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: DIESEL
Number Of Tanks: 2

Status: A
Comp Number: 16160
Number: 9
Board Of Equalization: 44-002936
Ref Date: 12-11-92
Act Date: 01-08-93
Created Date: 10-13-88
Tank Status: A
Owner Tank Id: G02
Swrcb Tank Id: 09-000-016160-000002
Actv Date: 12-11-92
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: LEADED
Number Of Tanks: Not reported

---

13 **ELDORADO DISPOSAL SERVICE INC.** **HIST UST** **U001612635**
NE **3940 HIWAY 49** **N/A**
1/8-1/4 **DIAMOND SPRINGS, CA 95619**
1289 ft.

Relative:
Lower

Actual:
1763 ft.

HIST UST:
Region: STATE
Facility ID: 00000016160
Tank Num: 001
Container Num: D-1
Year Installed: Not reported
Tank Capacity: 00010000
Facility Type: Other

ELDORADO DISPOSAL SERVICE INC. (Continued) **U001612635**

Other Type: DISPOSAL SERVICE
Total Tanks: 0002
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor
Contact Name: Not reported
Telephone: 9166264141
Owner Name: ELDORADO DISPOSAL SERVICE INC.
Owner Address: 3940 HIWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

Region: STATE
Facility ID: 00000016160
Tank Num: 002
Container Num: G-1
Year Installed: Not reported
Tank Capacity: 00010000
Facility Type: Other
Other Type: DISPOSAL SERVICE
Total Tanks: 0002
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor
Contact Name: Not reported
Telephone: 9166264141
Owner Name: ELDORADO DISPOSAL SERVICE INC.
Owner Address: 3940 HIWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

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14 **ELDORADO DISPOSAL SERVICE INC** **RCRA-SQG 1000341016**
NE **3940 HWY 49** **FINDS CAD980637698**
1/4-1/2 **PLACERVILLE, CA 95667** **CERC-NFRAP**
1427 ft.

Relative: Lower

Actual: 1778 ft.

RCRAInfo:
Owner: DEWOLF & SCARIOT
(415) 555-1212
EPA ID: CAD980637698
Contact: ENVIRONMENTAL MANAGER
(916) 626-4141
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ELDORADO DISPOSAL SERVICE INC (Continued) **1000341016**

CERC-NFRAP:
Site ID: 0901913
Federal Facility: Not a Federal Facility
NPL Status: Not on the NPL
Non NPL Status: NFRAP

CERCLIS-NFRAP Site Contact Name(s):
Contact Name: Matt Mitguard
Contact Tel: (415) 972-3096
Contact Title: Site Assessment Manager (SAM)

Contact Name: Jere Johnson
Contact Tel: (415) 972-3094
Contact Title: Site Assessment Manager (SAM)

CERCLIS-NFRAP Site Alias Name(s):
Alias Name: EL DORADO DSPL SERV
Alias Address: 1/2 MI W OF WEBER CR BRG ON STATE HWY 49, CA 95619
Site Description: Not reported

CERCLIS-NFRAP Assessment History:
Action: DISCOVERY
Date Started: Not reported
Date Completed: 06/01/1981
Priority Level: Not reported

Action: PRELIMINARY ASSESSMENT
Date Started: 02/01/1985
Date Completed: 07/01/1985
Priority Level: High

Action: SITE INSPECTION
Date Started: Not reported
Date Completed: 03/01/1986
Priority Level: NFRAP (No Futher Remedial Action Planned

Action: ARCHIVE SITE
Date Started: Not reported
Date Completed: 03/01/1986
Priority Level: Not reported

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15 West 1/4-1/2 1959 ft.

Relative: Higher

Actual: 1822 ft.

TETERS AUTO WRECKERS **ENVIROSTOR** **S102860835**
4487 MISSOURI FLAT ROAD **N/A**
PLACERVILLE, CA 95667

ENVIROSTOR:
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Central California

TETERS AUTO WRECKERS (Continued) **S102860835**

Facility ID:	09500006
Site Code:	Not reported
Assembly:	04
Senate:	01
Special Program:	* Rural County Survey Program
Status:	**Refer: Other Agency**
Status Date:	1995-09-12 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.7
Longitude:	-120.822222222222
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	10097, 10196, 10199, 30013, 30018
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

---

16 **CELEBRITY PLATING** **ENVIROSTOR** **S100857925**
WSW **4502 MISSOURI FLAT ROAD** **N/A**
1/4-1/2 **PLACERVILLE, CA 95667**
2068 ft.

Relative:
Higher

Actual:
1822 ft.

ENVIROSTOR:

Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	HWMP, EL DORADO COUNTY
Lead Agency:	HWMP
Program Manager:	Not reported
Supervisor:	Steven Becker
Division Branch:	Central California

CELEBRITY PLATING (Continued) **S100857925**

Facility ID:	09340001
Site Code:	101525
Assembly:	04
Senate:	01
Special Program:	EPA - PASI
Status:	**Refer: RCRA**
Status Date:	2004-03-12 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.7
Longitude:	-120.822222222222
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	NONE SPECIFIED
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

---

17 **FORMER SS** **LUST** **S102423350**
SSW **493 MAIN ST** **Cortese** **N/A**
1/4-1/2 **DIAMOND SPRINGS, CA 95619**
2588 ft.

Relative:
Lower

Actual:
1787 ft.

LUST:

Region:	STATE
Case Type:	Soil only
Cross Street:	CHINA GARDEN
Enf Type:	None Taken
Funding:	R
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	Corrosion
Leak Source:	Tank
Global Id:	T0601700047
Stop Date:	Not reported
Confirm Leak:	1992-04-01 00:00:00
Workplan:	Not reported

FORMER SS (Continued) **S102423350**

Prelim Assess: Not reported
Pollution Char: Not reported
Remed Plan: Not reported
Remed Action: Not reported
Monitoring: Not reported
Close Date: 1992-06-22 00:00:00
Discover Date: 1992-02-28 00:00:00
Enforcement Dt: 1965-01-01 00:00:00
Release Date: 1992-04-01 00:00:00
Review Date: 1992-04-01 00:00:00
Enter Date: 1992-04-21 00:00:00
MTBE Date: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Max MTBE GW ppb: Not reported
Max MTBE Soil ppb: Not reported
County: 09
Org Name: Not reported
Reg Board: 5S
Status: Case Closed
Chemical: Gasoline
Contact Person: Not reported
Responsible Party: THORNTON, TOM
RP Address: 6441 OAKHILL RD, PLACERVILLE, CA 95667
Interim: Not reported
Oversight Prgm: LUST
MTBE Class: *
MTBE Conc: 0
MTBE Fuel: 1
MTBE Tested: Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
Staff: PGM
Staff Initials: JAR
Lead Agency: Regional Board
Local Agency: 09000
Hydr Basin #: UNNAMED BASIN
Beneficial: Not reported
Priority: 3
Cleanup Fund Id: Not reported
Work Suspended: No
Local Case #: Not reported
Case Number: 090065
Qty Leaked: Not reported
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site
Operator: Not reported
Water System Name: Not reported
Well Name: Not reported
Distance To Lust: 0
Waste Discharge Global ID: Not reported
Waste Disch Assigned Name: Not reported
Summary: 04/01/92 2,500GAL TANK IMPROPERLY ABANDONED PRIOR TO CURRENT OWNERSHIP FORMER SS ,TANKS FILLED W/ PEA GRAVEL & NOT CLEANED TANK BOTTOMS HAD NUMEROUS HOLES

LUST:
Region: 5
Case Number: 090065
Staff Initials: PGM

FORMER SS (Continued) **S102423350**

Substance: GASOLINE
Case Type: Soil only
Status: Case Closed
Lead Agency: Regional
Program: LUST
MTBE Code: N/A

Cortese:
Region: CORTESE
Facility Addr2: 493 MAIN ST

---

18 **SIERRA DOOR** **LUST** **S101581227**
WNW **4415 MISSOURI FLAT RD** **Cortese** **N/A**
1/4-1/2 **PLACERVILLE, CA 95667** **CA FID UST**
2607 ft. **SWEEPS UST**

Relative:
Higher

Actual:
1808 ft.

LUST:
Region: STATE
Case Type: Drinking Water Aquifer affected
Cross Street: FORNI RD
Enf Type: None Taken
Funding: Not reported
How Discovered: Subsurface Monitoring
How Stopped: Not reported
Leak Cause: Corrosion
Leak Source: Tank
Global Id: T0601700050
Stop Date: Not reported
Confirm Leak: Not reported
Workplan: Not reported
Prelim Assess: 1992-07-24 00:00:00
Pollution Char: 2006-06-23 00:00:00
Remed Plan: Not reported
Remed Action: Not reported
Monitoring: Not reported
Close Date: Not reported
Discover Date: 1992-07-22 00:00:00
Enforcement Dt: 1965-01-01 00:00:00
Release Date: 1992-07-24 00:00:00
Review Date: Not reported
Enter Date: Not reported
MTBE Date: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Max MTBE GW ppb: Not reported
Max MTBE Soil ppb: Not reported
County: 09
Org Name: Not reported
Reg Board: 5S
Status: Pollution Characterization
Chemical: Gasoline
Contact Person: Not reported
Responsible Party: KESSELER, GEORGE
RP Address: 466 OLIVE ORCHARD DR,AUBURN,CA 95603
Interim: Not reported
Oversight Prgm: LUST
MTBE Class: *

SIERRA DOOR (Continued) **S101581227**

MTBE Conc: 0
MTBE Fuel: 1
MTBE Tested: Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
Staff: PGM
Staff Initials: JAR
Lead Agency: Regional Board
Local Agency: 09000
Hydr Basin #: UNNAMED BASIN
Beneficial: GWR
Priority: 1
Cleanup Fund Id: Not reported
Work Suspended: No
Local Case #: Not reported
Case Number: 090068
Qty Leaked: Not reported
Abate Method: Excavate and Treat - remove contaminated soil and treat (includes spreading or land farming)
Operator: Not reported
Water System Name: Not reported
Well Name: Not reported
Distance To Lust: 0
Waste Discharge Global ID: Not reported
Waste Disch Assigned Name: Not reported
Summary: SITE ASSESSMENT 12/91 UNREGISTERDED TANKS, HOLES IN TANKS, SIGNIFICANT CONTAMINATION

LUST:
Region: 5
Case Number: 090068
Staff Initials: PGM
Substance: GASOLINE
Case Type: Drinking Water Aquifer affected
Status: Pollution Characterization
Lead Agency: Regional
Program: LUST
MTBE Code: N/A

Cortese:
Region: CORTESE
Facility Addr2: 4415 MISSOURI FLAT RD

CA FID UST:
Facility ID: 09000030
Regulated By: UTNKI
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 9166263500
Mail To: Not reported
Mailing Address: 466 OLIVE ORCHARD DR
Mailing Address 2: Not reported
Mailing City,St,Zip: PLACERVILLE 95667
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported

SIERRA DOOR (Continued) **S101581227**

EPA ID: Not reported
Comments: Not reported
Status: Inactive

SWEEPS UST:
Status: Not reported
Comp Number: 464
Number: Not reported
Board Of Equalization: Not reported
Ref Date: Not reported
Act Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 09-000-000464-000001
Actv Date: Not reported
Capacity: 550
Tank Use: M.V. FUEL
Stg: PRODUCT
Content: LEADED
Number Of Tanks: 2

Status: Not reported
Comp Number: 464
Number: Not reported
Board Of Equalization: Not reported
Ref Date: Not reported
Act Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 09-000-000464-000002
Actv Date: Not reported
Capacity: 550
Tank Use: M.V. FUEL
Stg: PRODUCT
Content: DIESEL
Number Of Tanks: Not reported

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19 **OLD CALDOR LUMBER COMPANY YARD** **ENVIROSTOR** **S100350737**
WSW **180 INDUSTRIAL DRIVE** **N/A**
1/2-1 **DIAMOND SPRINGS, CA 95619**
3493 ft.

Relative: Higher

Actual: 1799 ft.

ENVIROSTOR:
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: James Tjosvold
Division Branch: Central California
Facility ID: 09730001
Site Code: Not reported
Assembly: 04

OLD CALDOR LUMBER COMPANY YARD (Continued) **S100350737**

Senate:	01
Special Program:	Not reported
Status:	**No Further Action**
Status Date:	1989-02-27 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.6985574325443
Longitude:	-120.828444358461
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	NONE SPECIFIED
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

20
SW
1/2-1
4600 ft.

FOOTHILL AUTO REPAIR **ENVIROSTOR** **S100714130**
6566-C COMMERCE WAY **N/A**
DIAMOND SPRINGS, CA 95619

Relative:
Higher

Actual:
1796 ft.

ENVIROSTOR:

Site Type:	Historical
Site Type Detailed:	* Historical
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Central California
Facility ID:	09750002
Site Code:	Not reported
Assembly:	Not reported
Senate:	Not reported
Special Program:	* Rural County Survey Program
Status:	**Refer: RWQCB**
Status Date:	1987-07-15 00:00:00

FOOTHILL AUTO REPAIR (Continued) **S100714130**

Restricted Use:	NO
Funding:	Not reported
Latitude:	0
Longitude:	0
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	10097, 10196, 10198, 10199
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
DIAMOND SPRINGS	1003878551	OLD CALDOR LUMBER CO YD	HWY 49 & FLAT RD	95619	CERC-NFRAP
DIAMOND SPRINGS	1000233629	OXYGEN SERVICE AND SUPPLY COMPANY	13 CHINA GARDEN ROAD	95619	ENVIROSTOR
DIAMOND SPRINGS	1003877982	OXYGEN SERVICE & SUPPLY CO	13 CHINA GARDEN RD	95619	CERC-NFRAP
PLACERVILLE	1000137193	PG & E CHILI BAR POWERHOUSE	HWY 193 3 MI N OF P VILLE	95667	RCRA-SQG, FINDS, HAZNET
PLACERVILLE	S106483515	CALTRANS- HIGHWAY 50	HIGHWAY 50, EAST BOUND	95667	SLIC
PLACERVILLE	S107473174	SIERRA PACIFIC INDUSTRIES - HAZEL CREEK MINE	HAZEL CREEK MINE RD, S OF HWY 50	95667	SLIC
PLACERVILLE	S100186970	SHAW MINE, NEAR INDIAN CREEK RANCH	NEAR HIGHWAY 50 / EL DORADO ROAD	95667	ENVIROSTOR
PLACERVILLE	S106934278	WAYNE I. QUEEN	4052 STAGE CT C	95667	SWEEPS UST
PLACERVILLE	S108540900	HANGTOWN MARINE LLC	4046 STAGE CT # D2	95667	CLEANERS
WHITE ROCK POWER HSI	1003878858	SMUD: EL DORADO COUNTY ROADS	VALE HOUSE RD AND OTHERS	95667	CERC-NFRAP

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/18/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 63

Source: EPA
Telephone: N/A
Last EDR Contact: 08/03/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 53

Source: EPA
Telephone: N/A
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/23/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 70

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 06/21/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/26/2007
Date Data Arrived at EDR: 08/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: (415) 495-8895
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/05/2007
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 27

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/18/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/20/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 63

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 07/16/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 44

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 08/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 69

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 06/19/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 36

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Varies

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 06/29/2007
Date Data Arrived at EDR: 07/02/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 58

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 06/22/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/29/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 08/01/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/05/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 30

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/09/2007
Date Data Arrived at EDR: 06/28/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 62

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 05/17/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 49

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Biennially

USGS WATER WELLS: National Water Information System (NWIS)

This database consists of well records in the United States. Available site descriptive information includes well location information (latitude and longitude, well depth, site use, water use, and aquifer).

Date of Government Version: 03/25/2005
Date Data Arrived at EDR: 03/25/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: USGS
Telephone: N/A
Last EDR Contact: 03/25/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PWS: Public Water System Data

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 02/24/2000
Date Data Arrived at EDR: 04/27/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA
Telephone: N/A
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: N/A

STATE AND LOCAL RECORDS

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: No Update Planned

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: No Update Planned

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/13/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 16

Source: Integrated Waste Management Board
Telephone: 916-341-6320
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 05/29/2001
Date Made Active in Reports: 07/26/2001
Number of Days to Update: 58

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/06/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Varies

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 8

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 08/01/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 07/10/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 08/03/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/03/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 07/17/2007
Date Data Arrived at EDR: 07/18/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 22

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 07/17/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/13/2007
Date Data Arrived at EDR: 03/14/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 23

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/10/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 14

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 06/25/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 29

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/07/2007
Date Data Arrived at EDR: 05/08/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 17

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 05/01/2007
Date Data Arrived at EDR: 05/01/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/23/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 07/02/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 07/31/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 9

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 24

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 07/27/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 03/07/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/20/2006
Date Made Active in Reports: 01/03/2007
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 23

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 07/20/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Varies

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 06/07/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 21

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2007
Date Data Arrived at EDR: 06/07/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 28

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

FEDERAL RECORDS

COLLEGES: Integrated Postsecondary Education Data

The National Center for Education Statistics' primary database on integrated postsecondary education in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/12/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PUBLIC SCHOOLS: Public Schools

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/13/2004
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education statistics
Telephone: 202-502-7300
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: N/A

PRIVATE SCHOOLS: Private Schools of the United States

The National Center for Education Statistics' primary database on private school locations in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/07/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

NURSING HOMES: Directory of Nursing Homes

Information on Medicare and Medicaid certified nursing homes in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/11/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: N/A
Telephone: 800-568-3282
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

MEDICAL CENTERS: Provider of Services Listing

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health & Human Services.

Date of Government Version: 06/01/1998
Date Data Arrived at EDR: 11/10/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
Last EDR Contact: 01/12/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

HOSPITALS: AHA Hospital Guide

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/19/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: American Hospital Association
Telephone: 800-242-2626
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 14

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 11

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 29

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 07/16/2007
Date Data Arrived at EDR: 07/17/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 23

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 08/06/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 06/21/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 34

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 07/07/1999
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/31/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 05/15/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 21

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 08/17/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 08/23/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/29/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 27

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 05/08/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 47

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/24/2007
Date Data Arrived at EDR: 07/27/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 13

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/24/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/24/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Annually

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 36

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 07/23/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 17

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 38

Source: Department of Public Health
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 34

Source: Health Services Agency
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Contaminated Sites

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/23/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 37

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

ML - Regulatory Compliance Master List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 36

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 06/27/2007
Date Data Arrived at EDR: 06/29/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 41

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2005
Date Data Arrived at EDR: 05/18/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 29

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 11/01/2006
Date Data Arrived at EDR: 01/03/2007
Date Made Active in Reports: 01/24/2007
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 06/27/2007
Date Data Arrived at EDR: 07/20/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 20

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 43
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 04/06/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/30/2007
Date Data Arrived at EDR: 07/30/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 10
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/10/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 30
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: City of San Jose Fire Department
Telephone: 408-277-4659
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 6

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 04/18/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 31

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/04/2007
Date Made Active in Reports: 05/24/2007
Number of Days to Update: 20

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 06/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 7

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 09/05/2006
Date Made Active in Reports: 10/05/2006
Number of Days to Update: 30

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/21/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 06/05/2007
Date Data Arrived at EDR: 06/21/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/28/2007
Date Data Arrived at EDR: 04/24/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 13

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 04/30/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/15/2007
Date Made Active in Reports: 08/20/2007
Number of Days to Update: 66

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 04/01/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 05/08/2007
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/05/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 81

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 06/08/2007
Number of Days to Update: 42

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

LYNDEMAN PROPERTY
THROWITA WAY
PLACERVILLE, CA 95667

TARGET PROPERTY COORDINATES

Latitude (North):	38.70080 - 38° 42' 2.9''
Longitude (West):	120.8159 - 120° 48' 57.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	689933.9
UTM Y (Meters):	4285631.5
Elevation:	1795 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38120-F7 PLACERVILLE, CA
Most Recent Revision:	1973

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

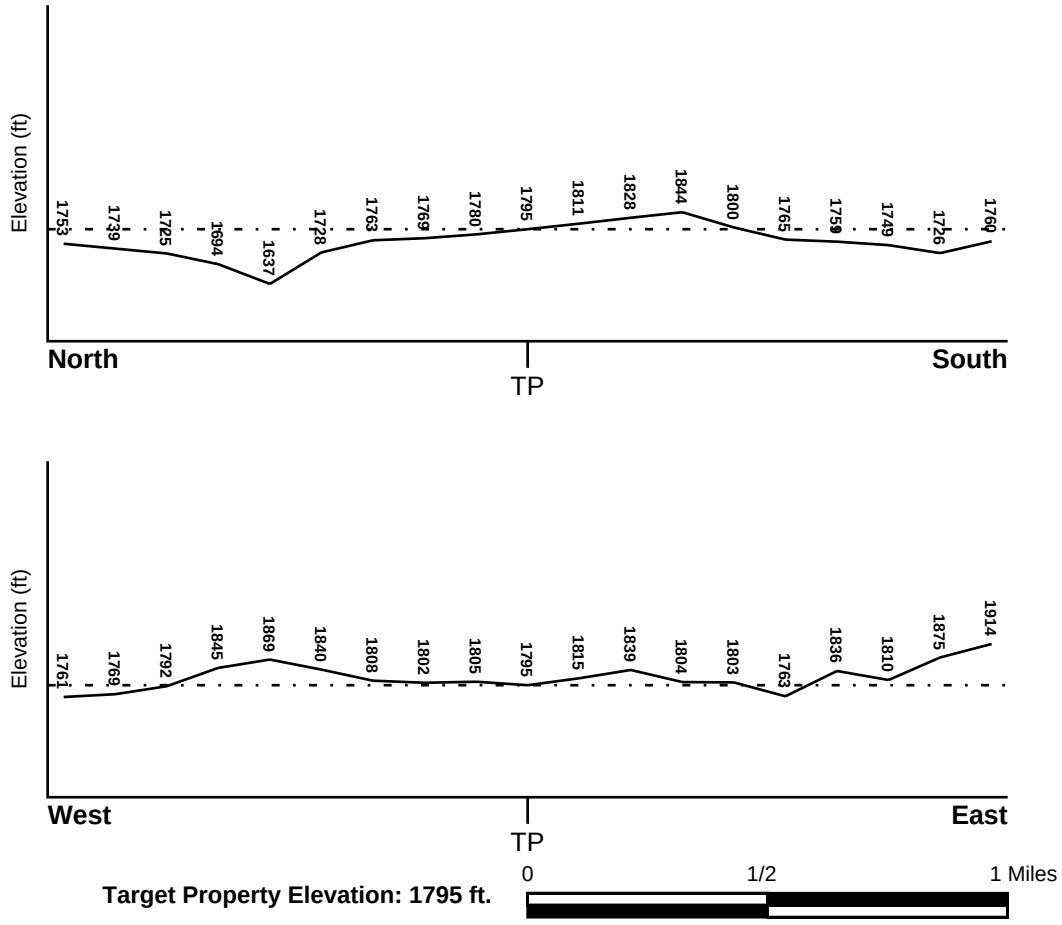
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
EL DORADO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0600400750B

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
PLACERVILLE	Not Available

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Mesozoic
System:	Lower Jurassic and Upper Triassic
Series:	Lower Mesozoic
Code:	lMze *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	MARIPOSA
Soil Surface Texture:	gravelly - loam
Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	HIGH
Depth to Bedrock Min:	> 12 inches
Depth to Bedrock Max:	> 35 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	8 inches	gravelly - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 6.50 Min: 5.60
2	8 inches	26 inches	gravelly - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 6.00 Min: 4.50
3	26 inches	30 inches	unweathered bedrock	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: unweathered bedrock
loam
very fine sandy loam

Surficial Soil Types: unweathered bedrock
loam
very fine sandy loam

Shallow Soil Types: clay loam
clay

Deeper Soil Types: weathered bedrock

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

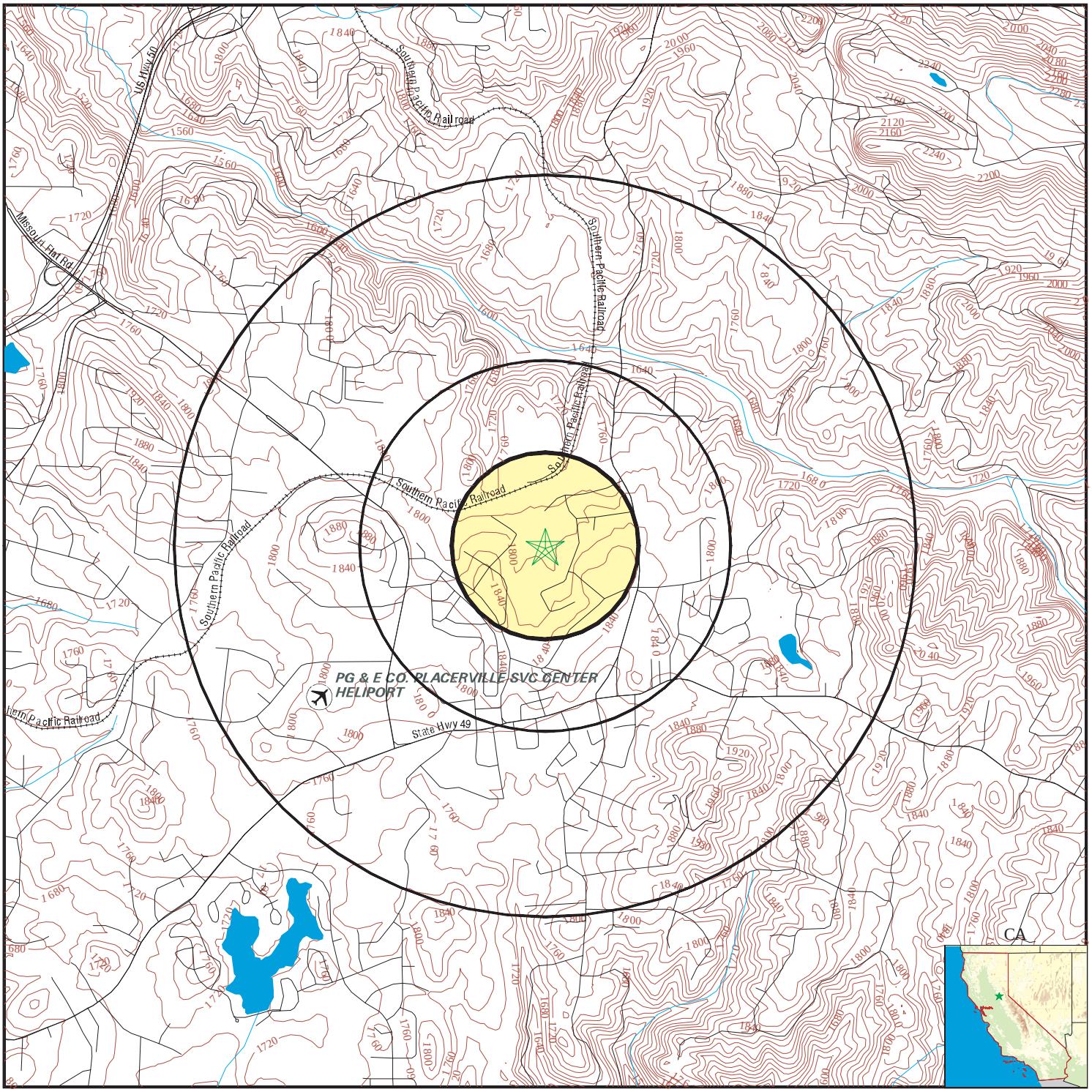
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 2018466.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Lyndeman Property	CLIENT:	Youngdahl Consulting Group
ADDRESS:	Throwita Way Placerville CA 95667	CONTACT:	Laurie Israel
LAT/LONG:	38.7008 / 120.8159	INQUIRY #:	2018466.2s
		DATE:	August 30, 2007 1:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zip	Total Sites	> 4 Pci/L	Pct. > 4 Pci/L
95667	26	2	7.69

Federal EPA Radon Zone for EL DORADO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95667

Number of sites tested: 10

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.850 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	5.700 pCi/L	0%	100%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

The EDR Aerial Photo Decade Package

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.5

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography August 30, 2007

Target Property:

Throwita Way

Placerville, CA 95667

Year	***Scale***	***Details***	***Source***
1935	Aerial Photograph. Scale: 1"=166'	Flight Year: 1935 Best Copy Available from original source	Wallace
1952	Aerial Photograph. Scale: 1"=555'	Flight Year: 1952	Robinson
1962	Aerial Photograph. Scale: 1"=555'	Flight Year: 1962	Cartwright
1984	Aerial Photograph. Scale: 1"=690'	Flight Year: 1984	WSA
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS


INQUIRY #: 2018466.5
YEAR: 1935
= 166'
N


INQUIRY #: 2018466.5
YEAR: 1952
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1962
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1984
= 690'
N


INQUIRY #: 2018466.5
YEAR: 1993
= 666'
N


INQUIRY #: 2018466.5
YEAR: 1998
= 666'
N

EDR Historical Topographic Map Report

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.4

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Historical Topographic Map Report

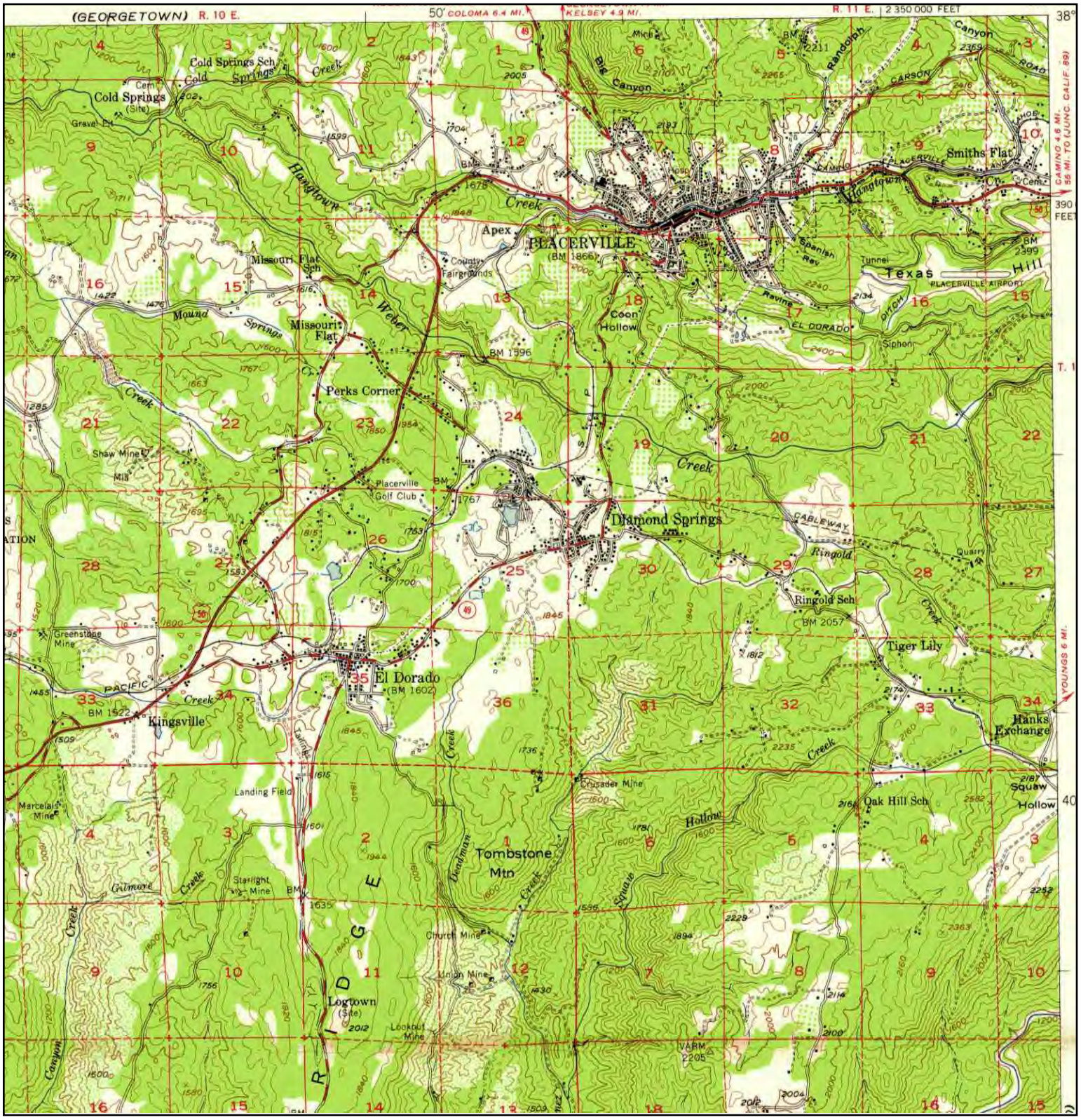
Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map

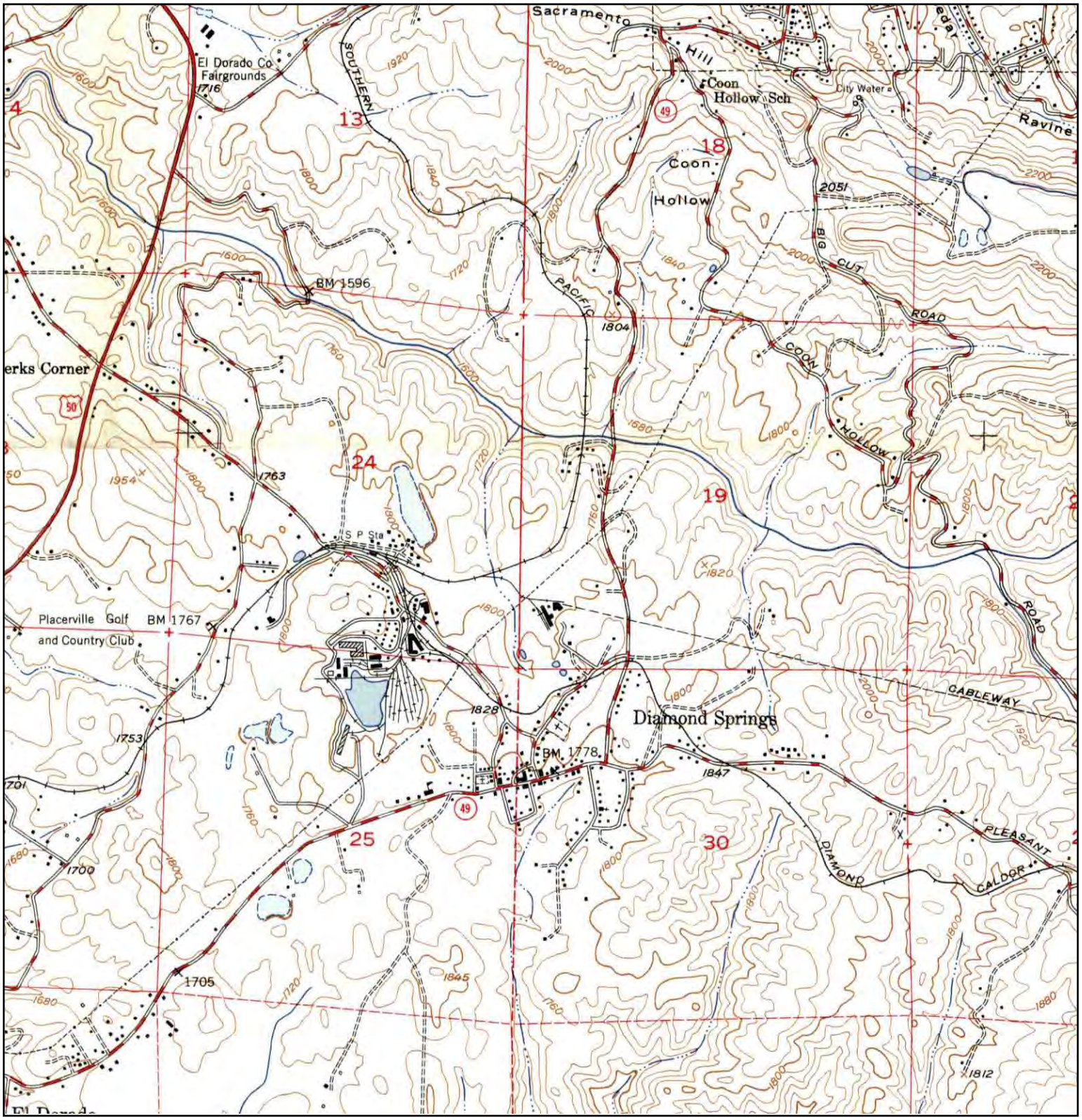
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1893 SERIES: 30 SCALE: 1:125000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



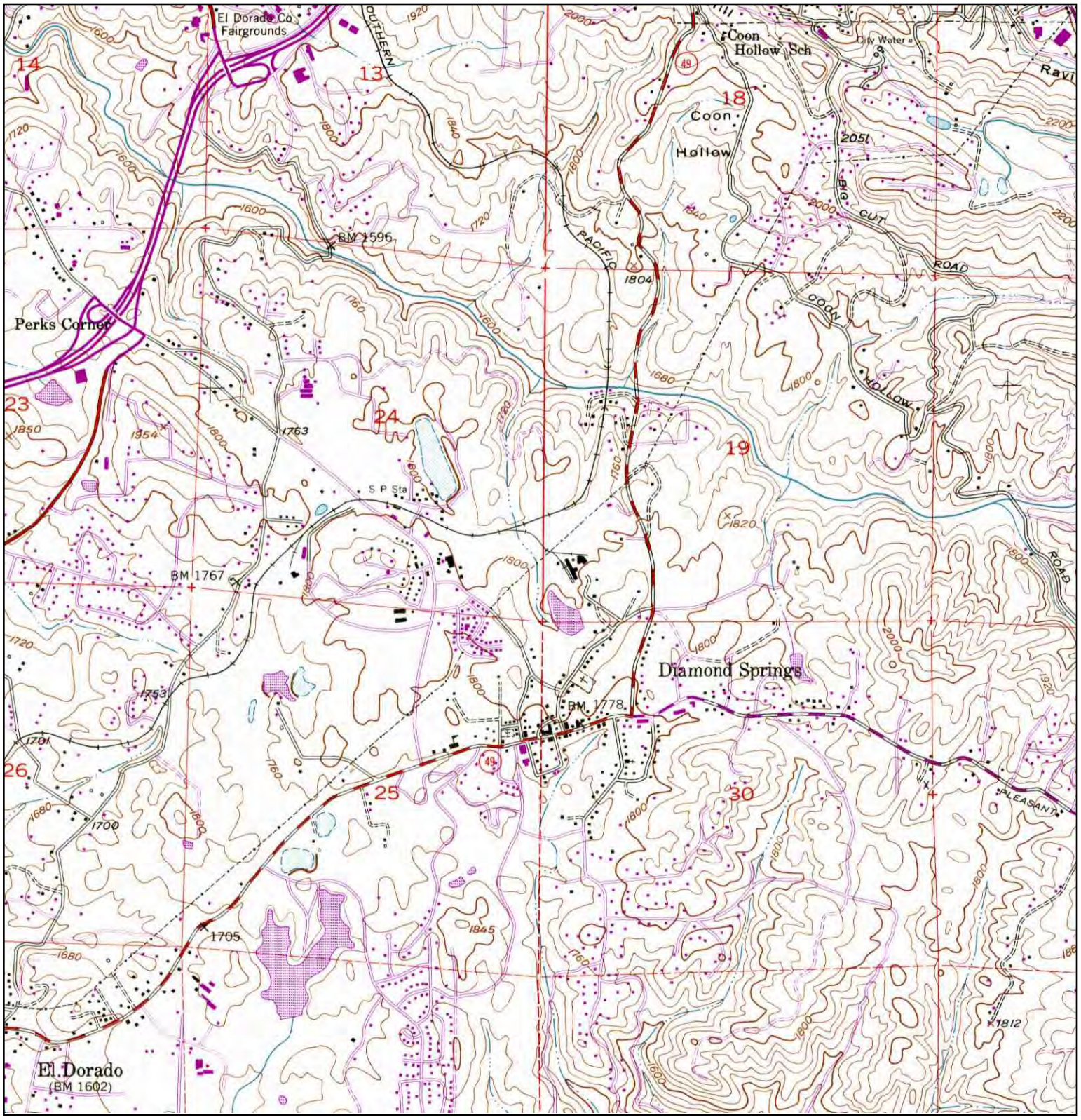
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1949 SERIES: 15 SCALE: 1:62500	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1973 PHOTOREVISED FROM:1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

The EDR-City Directory
Abstract

Lyndeman Property
4100 Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.6

Wednesday, September 12, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR City Directory Abstract

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening report designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

SUMMARY

- ***City Directories:***

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1972 through 2002. (These years are not necessarily inclusive.) A summary of the information obtained is provided in the text of this report.

Date EDR Searched Historical Sources: September 12, 2007

Target Property:
4100 Throwita Way
Placerville, CA 95667

Year	Uses	Source
1972	Street Not Listed in Research Source	Haines Criss-Cross Directory
1977	Street Not Listed in Research Source	Haines Criss-Cross Directory
1982	Street Not Listed in Research Source	Haines Criss-Cross Directory
1987	Street Not Listed in Research Source	Haines Criss-Cross Directory
1992	Street Not Listed in Research Source	Haines Criss-Cross Directory
1997	Street Not Listed in Research Source	Haines Criss-Cross Directory
2002	Street Not Listed in Research Source	Haines Criss-Cross Directory

Adjoining Properties

SURROUNDING

Multiple Addresses
Placerville, CA 95667

Year	Uses	Source
1972	Street Not Listed in Research Source	Haines Criss-Cross Directory
1977	Street Not Listed in Research Source	Haines Criss-Cross Directory
1982	Street Not Listed in Research Source	Haines Criss-Cross Directory
1987	Street Not Listed in Research Source	Haines Criss-Cross Directory
1992	Street Not Listed in Research Source	Haines Criss-Cross Directory
1997	Street Not Listed in Research Source	Haines Criss-Cross Directory
2002	Street Not Listed in Research Source	Haines Criss-Cross Directory

Certified Sanborn® Map Report

Sanborn® Library search results
Certification # F1DA-4C92-91CB

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number 2018466.3

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

Certified Sanborn® Map Report

8/30/07

Site Name:
Lyndeman Property
Throwita Way
Placerville, CA 95667

Client Name:
Youngdahl Consulting Group
1234 Glenhaven Court
El Dorado Hills, CA 95762

EDR Inquiry # 2018466.3

Contact: Laurie Israel

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Youngdahl Consulting Group were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Lyndeman Property
Address: Throwita Way
City, State, Zip: Placerville, CA 95667
Cross Street:
P.O. # NA
Project: P07-416
Certification # F1DA-4C92-91CB

Sanborn® Library search results
Certification # F1DA-4C92-91CB

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

Total Maps: 0

Limited Permission To Make Copies

Youngdahl Consulting Group (the client) is permitted to make up to THREE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

H.3 - Murray Property
APN 051-250-46-100

PHASE I ENVIRONMENTAL SITE ASSESSMENT
MURRAY PROPERTY
APN 051-250-46-100
4021 LIME PLANT ROAD
PLACERVILLE, EL DORADO COUNTY, CALIFORNIA

Prepared By

Youngdahl Consulting Group, Inc.
1234 Glenhaven Court
El Dorado Hills, California 95762

Prepared For

Palos Verdes Properties, Inc.
4330 Golden Center Drive, Suite D
Placerville, California 95667

Project No. E07443.000
November 2007

YOUNGDAHL CONSULTING GROUP, INC.
Geotechnical ▪ Geoscience ▪ Materials Testing ▪ Storm Water Compliance

1234 Glenhaven Court, El Dorado Hills, CA 95762
PH 916.933.0633 FX 916.933.6482

502 Giuseppe Court, Suite 2, Roseville, CA 95678
PH 916.773.7633 FX 916.773.7833
EM mail@youngdahl.net

Project No. E07443.000
15 November 2007

Palos Verdes Properties, Inc.
Mr. Leonard Grado
4330 Golden Center Drive, Suite D
Placerville, California 95667

Subject: **MURRAY PROPERTY (APN 051-250-46-100**
4021 Lime Plant Road, Placerville, El Dorado County, California
Phase I Environmental Site Assessment

Reference: 1. Proposal and Contract for PE07-555; Prepared by Youngdahl Consulting Group, Inc.; 6 November 2007.

Dear Mr. Grado,

As requested, Youngdahl Consulting Group, Inc., has performed a Phase I Environmental Site Assessment for the Murray Property, El Dorado County APN 051-250-46-100 (subject property). The subject property is located at 4021 Lime Plant Road in Placerville, El Dorado County, California (Figure 1 - Vicinity Map). The property is approximately 5 acres of industrial land. The northern portion of the property is utilized by Mabey Bridge & Shore, Inc. for the storage of bridge building construction material. The northern portion of the property includes a singe structure and land used for the stockpiling of concrete, rock, and lime for rock crushing activities and road base manufacturing (Figure 2, Site Plan). Adjacent property includes: industrial property to the east; Thowita Way and Lime Plant Road and property formerly occupied by the Diamond Lime Basic Mineral Plant construction yard and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the west; and a mix of residential, vacant, and industrial property to the north.

Our study consisted of a review of environmental record sources, physical setting sources, review of site related documents, historical use information, and a site reconnaissance. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property. No additional investigation is recommended for the subject property at this time; however, since it was formerly part of the Diamond Lime Basic Mineral Plant, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

This Phase I Environmental Site Assessment has been completed in accordance to the ASTM Practice E 1527-05. Youngdahl Consulting Group, Inc. (YCG) declares that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

Reviewed by:

Laurie B. Israel, R.E.A.
Senior Environmental Scientist

Roy C. Kroll, C.E.G., R.E.A.
Associate/Environmental Manager

Distribution: Mr. Leonard Grado (3 copies)

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PHASE I ENVIRONMENTAL SITE ASSESSMENT
MURRAY PROPERTY
APN 051-250-46-100
4021 LIME PLANT ROAD
PLACERVILLE, EL DORADO COUNTY, CALIFORNIA

EXECUTIVE SUMMARY

The property description referred to herein is based on a parcel map and on a site reconnaissance performed by a representatives of Youngdahl Consulting Group, Inc. These were also the basis for the "Vicinity Map" - Figure 1. The Murray Property is assigned El Dorado County APN 051-250-46-100 and is situated in Section 19, Township 10 North, Range 11 East of the Mount Diablo Base and Meridian (Figure 1 - Vicinity Map). The subject property is located at 4021 Lime Plant Road in Placerville, El Dorado County, California. The property is approximately 5 acres of industrial land. The northern portion of the property is utilized by Mabey Bridge & Shore, Inc. for the storage of bridge building construction material. An aboveground red diesel fuel tank was observed during the site visit. According to the property owner, Mr. Michael Murray, the AST was leased by Mabey Bridge & Shore, Inc. from Ramos Oil since approximately August 2007. Secondary containment was installed below the AST in November 2007. The AST is to be removed from the property by 1 December 2007. The northern portion of the property includes a singe structure and land used for the stockpiling of concrete, rock, and lime for rock crushing activities and road base manufacturing (Figure 2, Site Plan). Adjacent property includes: industrial property to the east; Thowita Way and Lime Plant Road and property formerly occupied by the Diamond Lime Basic Mineral Plant construction yard and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the to the west; and a mix of residential, vacant, and industrial property to the north.

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that there are no identified recognized environmental conditions. The rationale used for this opinion are the observations made during the site visit, the review of aerial photographs, and interviews with knowledgeable persons that corroborate the conclusion that the subject property was part of the Diamond Lime Basic Mineral plant from at least 1935 until the early 1980s. Most recently the property has been used by Mabey Bridge & Shore, Inc. for the storage of bridge building construction material, fuel storage, and for stockpiling concrete and rock for crushing and using for future construction project use. No additional investigation is recommended for the subject property at this time; however, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

1.0 INTRODUCTION

This report presents the results of the Phase I Environmental Site Assessment (ESA) performed for the Murray Property (subject property). The Murray Property is one parcel located east of Throwita Way and Lime Plant Road (APN 051-250-46-100). The approximately 5-acre subject property is located at 4021 Lime Plant Road in Placerville, El Dorado County, California. The property is approximately 5 acres of land used for been used by Mabey Bridge & Shore, Inc. for the storage of bridge building construction material, fuel storage, and for stockpiling concrete and rock for crushing and using for future construction project use. The user of this report, Palos Verdes Properties, Inc., may rely on the information contained herein for all purposes in connection with making a loan secured by, or investment in, the subject property. This report is valid as of the date stated on the document; the report should not be relied upon for information concerning changes in the condition of the property after the report was prepared.

1.1 Purpose

This Phase I ESA was conducted according to the American Society for Testing and Materials (ASTM) Designation E1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Phase I Standards). The ASTM E1527-05 standard is consistent with the requirement of the All Appropriate Inquiry (AAI) rule in Title 40 of the Code of Federal Regulations (40 C.F.R. § 312). The ASTM practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability. The purpose of this Phase I ESA was to identify recognized environmental conditions which may affect the property. Recognized environmental conditions are defined in the ASTM Phase I Standards to mean "the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum product into structures on the property or into the ground, groundwater, or surface water of the property." The term recognized environmental condition is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

Controlled substances are not included within the scope of this standard. Petroleum products are included within the scope of this practice because they are of concern with respect to many parcels of commercial real estate and current custom and usage is to include an inquiry into the present of petroleum products when doing an ESA of commercial real estate. This practice does not address requirements of any state or local laws or of any federal laws other than the appropriate inquiry provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)'s landowner liability protection. Users are cautioned that federal, state, and local laws may impose environmental assessment obligations that are beyond the scope of this practice. Users should also be aware that there are likely to be other legal obligations with regard to hazardous substances or petroleum products discovered on the property that are not addressed in this practice and that may pose risks of civil and/or criminal sanctions for non-compliance. The scope of this practice includes research and reporting requirements that support the user's ability to qualify for landowner liability protection. As such, sufficient documentation of all sources, records, and resources utilized in conducting the inquiry required by this practice must be provided in the written report.

1.2 Detailed Scope of Services

This scope of services is site specific in that it relates to assessment of environmental conditions on a specific parcel of commercial real estate. The Phase I ESA will be performed by an environmental professional. An environmental professional is defined as a person meeting the education, training, and experience requirements set forth in 40 CFR § 312.10(b). We declare that, to the best of our professional knowledge and belief, we meet the definition of an Environmental Professional as defined in 40 CFR § 312.10(b). The scope of services for this Phase I ESA is as follows:

> Government Records Review: Standard environmental record sources, including Federal, Tribal, and State lists as well as local sources of environmental records were reviewed. We authorized Environmental Data Resources (EDR), to conduct a search of specified government databases and produce a map-based radius search report which would identify sites within the approximate minimum distances pursuant to the ASTM E1527-05 Standard. A current USGS 7.5 Minute Topographic Map showing the area on which the property is located was reviewed.

Review of Historical Sources

Historical records that may have been reviewed include, but are not limited to, aerial photographs, fire insurance (Sanborn®) maps, building department records, chain-of-title documents, city directory abstracts, land use records, and USGS Topographic Maps. The AAI rule requires that historical documents be reviewed as far back in time as the property contained structures or the property was used for agricultural, residential, commercial, industrial, or governmental purposes. Under the AAI rule, historical sources of information must be reviewed as far back as 1960. The AAI rule does not specify a research interval for reviewing historical records.

Site Reconnaissance: During our visit to the property, we visually and physically observed the property and any structure(s) located on the property to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles. The AAI rule requires that a visual inspection of adjoining properties be performed from the subject property line, public rights-of-way, or another vantage point. The periphery of the property was also observed, as well as the periphery of all structures on the property, and the property was viewed from all adjacent public thoroughfares. Current and past uses of adjoining properties and properties in the surrounding area were also identified if they were likely to indicate recognized environmental conditions in connection with the adjoining properties or the property. The topographic conditions of the property were also noted to the extent visually and/or physically observed to evaluate whether hazardous substances or petroleum products are likely to migrate to the property, or within or from the property, into groundwater or soil.

Interviews: Prior to the site visit, the Client was asked to identify a person with good knowledge of the property (the key site manager). A Phase I ESA Questionnaire was completed by the Owner to facilitate the collection of information and is provided in Appendix A). The AAI rule requires interviews be conducted with the current owner(s) and occupant(s) of the subject property. The AAI rule also requires that additional interviews be conducted with current and past facility manager, past owners, operators or occupants of the property, and past employees, as necessary to meet the objectives of the AAI rule. The AAI rule allows the environmental professional to determine whether such interviews are necessary.

Identify Data Gaps: If data failure is encountered, the report shall document the failure and, if any of the standard historical sources were excluded, the environmental professional will give the reasons for their exclusion. If data failure represents a significant data gap, the report shall comment on the impact of the data gap on the ability of the environmental professional to identify recognized environmental conditions. If the data gaps are found, the Environmental professional can and does not warrant nor guarantee that no significant events, releases, or conditions arose during the periods of such data gaps.

Evaluation and Report Preparation: The findings, opinions, and conclusions in the Phase I ESA report are supported by documentation. The report: (1) describes all services performed; (2) has a findings section which summarized known or suspect environmental conditions associated with the property, and which may include recognized environmental conditions, historical recognized environmental conditions, and de minimis conditions; (3) includes Youngdahl Consulting Group Inc.'s opinion(s) of the impact on the property of the known or suspect environmental conditions identified in the findings section as well as the logic and reasoning used in evaluating information collected during the course of the investigation; and (4) includes a conclusions and recommendations section that summarizes the recognized environmental conditions

connected with the property and presents recommendations to address those conditions. The report will include an analysis of the relationship of the purchase price of the subject property to the fair market value of the property, if it were not contaminated.

Report Shelf Life: Under the AAI rule, a prospective property owner may use a Phase I ESA Report without having to update any information collected as part of the inquiry: (1) if the all appropriate inquiries investigation was completed less than 180 days prior to the date of acquisition of the property or (2) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation and was completed less than 180 days prior to the date of acquisition of the property. A prospective property owner may use a previously conducted Phase I ESA Report: (1) if the Phase I ESA report was prepared as part of a previous all appropriate inquiries investigation for the same property; and (2) if the information was collected or updated within one year prior to the date of acquisition of the property; and (3) certain aspects of the previously conducted report are conducted or updated within 180 days prior to the date of acquisition of the property. These aspects include the interviews, on-site visual inspection, the historical records review, and the search for environmental liens.

1.3 Significant Assumptions

This report and review of the subject property is limited in scope. All appropriate inquiry does not mean an exhaustive assessment of a clean property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of the ASTM 1527-05 practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an ESA and the reduction of uncertainty about unknown conditions resulting from additional information. The appropriate level of inquiry will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry.

This type of investigation is undertaken with the risk that the presence, full nature, and extent of contamination would not be revealed by visual observation and review of available data alone. The findings presented in this report were based on field observations and review of available data. Therefore, the data obtained is clear and accurate only to the degree implied by the sources and methods used. The information presented herewith was based on professional interpretation and on the data obtained. No other warranty, expressed or implied, is made.

1.4 Limitations and Exceptions

This study did not include an asbestos survey, or lead paint, or electric and magnetic field (EMF) studies and this study intentionally did not include inquiries with respect to those issues. Those issues are best addressed, where required in isolated studies, by specialty firms licensed or certified to evaluate such technically intricate issues in focused evaluations from a quantitative viewpoint. A review of regional radon values was performed as part of this study. Furthermore, it was not the intent of this report to address issues more appropriate to an Environmental Impact Report such as project feasibility, ecological concerns (such as wetlands delineations), or aesthetic concerns. No analysis of potential flood hazards, slope stability, or other geologic hazards was conducted.

1.5 Special Terms and Conditions and/or Additional Services

A Phase I ESA meeting or exceeding the ASTM 1527-05 practice and completed less than 180 days prior to the date of acquisition (the date on which a person acquires title to the subject property) or the date of the intended transaction is presumed to be valid. If within this period the assessment will be used by a different user than the user for whom the assessment was originally prepared, the subsequent user must also satisfy the User's Responsibilities set forth in

Section 1.6. Users and environmental professionals may use information in prior environmental site assessments provided such information was generated as a result of procedures that meet or exceed the requirements of ASTM 1527-05.

1.6 User Responsibilities

The user should provide land title records and judicial records for review for the existence of environmental liens or activity and use limitations (AUL), if any, that are currently recorded against the property. AULs are an explicit recognition by a federal, tribal, state, or local regulatory agency that residual levels of hazardous substances or petroleum products may be present on a property, and that unrestricted use of the property may not be acceptable.

If the user is aware of any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate any information based on such specialized knowledge or experience in the environmental professional, and before the site reconnaissance is conducted. In a transaction involving the purchase of a parcel of commercial real estate, the user shall consider the relationship of the purchase price of the property to the fair market value of the property if the property was not affected by hazardous substances or petroleum products. The user should try to identify an explanation for a lower price which does not reasonably reflect fair market value if the property were not contaminated, and make a written record of such explanation. If the user is aware of any commonly known or reasonable ascertainable information within the local community about the property that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate such information to the environmental professional before the site reconnaissance is conducted.

2.0 PROPERTY DESCRIPTION

2.1 Site Description and Current Uses of Adjoining Properties

The property description referred to herein is based on site maps and a site reconnaissance performed by a representative of Youngdahl Consulting Group, Inc. These were also the bases for the "Site Map" (Figure 2). The subject property is assigned El Dorado County APN 051-250-46-100 and is situated in Section 19, Township 10 North, Range 11 East of the Mount Diablo Base and Meridian. The property is approximately 5 acres. The northern portion of the property is leased to Mabey Bridge & Shore, Inc. for the storage of bridge building construction material. An aboveground red diesel fuel tank was observed during the site visit. According to the property owner, Mr. Michael Murray, the AST was leased by Mabey Bridge & Shore, Inc. from Ramos Oil in approximately August 2007. Secondary containment was installed below the AST in November 2007. The AST is to be removed from the property by 1 December 2007. The northern portion of the property includes a singe structure and land used for the stockpiling of concrete, rock, and lime for rock crushing activities and road base manufacturing.

2.2 Description of Structures, Roads, Other Improvements on the Site

There is one structure on the property. The property is serviced by municipal water and sewer service.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

Mr. Leonard Grado with Palos Verdes Properties, Inc., provided a Preliminary Title Report for the property at 4021 Lime Plant Road in Diamond Springs, California was produced by Placer Title Company. The Preliminary Title Report is dated 3 August 2007. Title to said estate or interest is vested in Michael Lance Murray and Susan M. Murray, Husband and Wife, as community Property. A copy of the Preliminary Report is provided in Appendix A.

3.2 Environmental Liens or Activity and Use Limitations

The user, Mr. Leonard Grado with Palos Verdes Properties, Inc., did not identify any environmental liens, activity or use limitations. The EDR Environmental Lien Search Report was ordered and has not yet been received. Once received and reviewed, a letter summarizing our findings and a copy of the Lien Search Report for APN 051-250-046-100 will be provided under separate cover.

3.3 Valuation Reduction for Environmental Issues

According to the questionnaire completed by the owner, Mr. Michael Murray, the purchase price or appraised value of the property is not significantly less than comparable properties in the vicinity.

3.4 Reasons for Performing the Phase I

The user, Mr. Leonard Grado with Palos Verdes Properties, Inc., requested the completion of the Phase I ESA per ASTM E1527-05 to satisfy the requirement of performing appropriate inquiry provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)'s landowner liability protection.

4.0 INTERVIEWS

Copies of the Phase I ESA Questionnaires and Project Contact Reports documenting the interviews conducted for this Phase I ESA are presented in Appendix A.

4.1 Interviews with Past and Present Owners, Key Site Manager, and or Occupants

Mr. Michael Murray, the property owner, was interviewed by telephone on 8 November 2007. Mr. Murray noted that he purchased the subject property in 2003. Mr. Murray stated that he has leased to Mabey Bridge and Shore, Inc. for the past six to seven months. The 500-gallon aboveground storage tank (AST) containing red diesel has been located on the property since August 2007. According to Mr. Murray, the AST is leased from Ramos Oil. Prior to the presence of Mabey Bridge & Shore, Inc., the property has been vacant land back until it was part of Diamond Lime. The subject property has been graded and no debris has ever been identified below the ground surface. The structure on the subject property was the Diamond Lime office. The structure has been remodeled.

Mr. Larry Abel, an adjacent landowner and long-time resident of Placerville, was interviewed during the site reconnaissance on 6 November 2007. Mr. Abel recalled that Diamond Lime operated a lime plant in the vicinity of the subject property for over 50 years. The existing structure on the subject property is where the Diamond Lime office was located. The structure has been remodeled, but the location is the same. While the Diamond Lime Basic Mineral Plant was in operation, rocks were crushed to form basic mineral piles for use in construction, road building, and concrete manufacturing. The facility closed in the 1970s. A settling pond was formerly located to the west of the subject property (current location of the WEDRS facility).

4.2 Interviews with State and/or Local Government Officials

The El Dorado County Environmental Management Department (EDCEMD) was contacted to evaluate the status of the subject property and nearby LUST listed sites. According to EDCEMD, there is no information regarding unauthorized releases or incidents involving hazardous materials on the subject property. There are no files for the Diamond Lime plant on Lime Kiln Road. According to EDCEMD, no known releases of hazardous materials have been identified on the subject property. The results of the EDCEMD file reviews for the nearby LUST sites are discussed in Section 5.0 Records Review.

5.0 RECORDS REVIEW

The records review consisted of a review of reasonably ascertainable environmental record sources, physical setting sources, and historical use information that will help identify recognized environmental conditions in connection with the property. Reasonably ascertainable record information must be publicly available, obtainable from its source within reasonable time and cost constraints, and be practically reviewable.

5.1 Environmental Record Source - EDR Report

A commercial database search of Federal, Tribal, State, and Local regulatory lists were conducted in order to assess whether documented environmental conditions exist on or near the property. In an effort to fulfill due diligence requirements, Youngdahl Consulting Group, Inc. employed the services of Environmental Data Resources, Inc. (EDR) to identify sites listed on regulatory agency databases within approximate minimum search distances from the subject property with potential of existing environmental problems. The term approximate minimum search distances means the distances within the area which government records must be reviewed pursuant to ASTM Phase I Standards. The term minimum search distance is used in lieu of radius as to include irregularly shaped properties.

The EDR Radius Map with GeoCheck® (EDR Report) for the area including the subject property and vicinity was received on 30 August 2007 and reviewed. A recently conducted EDR Report for the adjacent Lindeman Property, located west of Throwita Way, is included in this report, per the request of Mr. Leonard Grado. A copy of the EDR Report is presented as Appendix B. Included in the report are the dates the original government sources were updated and the dates the sources were last updated by EDR, as well as a list of acronyms used by EDR and descriptions of the various lists searched.

The subject property was not identified in the EDR Report. The following listed sites within the minimum search distances were identified in the EDR Report: 1 CERCLIS-NFRAP, 3 RCRA-SQG, 3 SWF/LF sites, 3 Cortese sites, 3 SWRCY lists, 2 LUST sites, 1 CA FID UST site, 2 HIST UST, 1 SWEEPS UST site, and 4 ENVIROSTOR sites. Eldorado Disposal Service Inc. at 3940 Highway 49 is on the CERCLIS-NFRAP, SWRCY, HIST UST, and SWEEPS UST lists. The SWF/LF sites are all the same site, WEDRS-CDI, Green Waste, and Waste Management Inc. at 4100 Throwita Way, Placerville, California. This site is listed is the Western El Dorado Recycling Service (WEDRS) Green Waste Recycling Center as chipping and grinding composting facility and Waste Management Inc. Western El Dorado, a large volume transfer and processing facility for liquid or semisolid wastes from industrial facilities. The Cortese sites are D.M. and Patricia Gustafson at 3655 Chuckwagon, Sierra Door at 4415 Missouri Flat Road, and Former SS at 493 Main Street. Sierra Door and Former SS are also listed on the LUST list. Former SS is listed as a closed site. The Sierra Door facility has a status of “Pollution Characterization” for groundwater impacted by gasoline contamination. This site has been referred to the Regional Water Quality Control Board (RWQCB). The Geotracker web site did not provide any information not already provided in the EDR Report. The Celebrity Plating site is incorrectly listed on 4502 Missouri Flat Road in the EDR Report. Celebrity Plating is no longer doing business at this address. According to EDCEMD, Teters Auto Wreckers, listed on the ENVIROSTOR list, is a closed site. None of the listed sites appear to present a significant potential to impact the subject property.

Due to poor or inadequate information, EDR is unable to map certain sites. These sites are referred to by EDR as Orphans. The sites listed in the "Orphans List" of the EDR Report, are located beyond the minimum search distance from the subject property. According to the EDR Report, the subject property is not designated as a wetland, per the National Wetlands Inventory (1994).

5.2 Environmental Record Source - EDCEMD File Review

There are no records for 4021 Lime Plant Road at EDCEMD. The only active CUPA (Certified Unified Program Agency) site adjacent to the subject property is Waste Management at 4100 Throwita Way. According to EDCEMD, Sierra Door at 4415 Missouri Flat Road is located less than 0.5 miles to the west northwest of the subject property and is identified in the EDR Report as a site with groundwater contaminated with gasoline. The release was reported in 1991. The most recent document in the file is a June 2006 letter from the Regional Water Quality Control Board requesting additional soil and groundwater investigations. According to EDCEMD, the Sierra Door site is located over ¾ mile northwest of the property. Groundwater is contaminated at the site; however, groundwater flows to the northwest, away from the subject property.

5.3 Physical Setting Source(s)

The current U.S.G.S. topographic map of the Placerville Quadrangle (1949, photorevised 1973), a geologic map of the Placerville 15-Minute Quadrangle, and observations made during our site reconnaissance were used to make interpretations regarding the physical setting of the subject property and the surrounding area. The subject property is located in the western foothills of the Sierra Nevada mountain range in northern California. The property lies at an elevation of approximately 1,795 feet above mean sea level.

5.3.1 Regional Geology and Soils

The project vicinity is located within the Sierra Nevada geomorphic province of California. Based upon a review of published geologic data the vicinity is mapped as Mesozoic-age granitic rocks (Mzg) (Loyd, 1984). Tectonic activity related to the Sierra Nevada mountain uplift resulted in a rock fabric consisting of northeast to northwest-trending fracturing and foliation. The regional structure and tectonic framework is dominated by the Foothills Fault system, which traverses the western side of the Sierra Nevada tectonic block. This fault system developed in the early Mesozoic during several episodes of continental accretion involving island arc belts. The fault system includes two major fault zones, the Bear Mountains Fault Zone in El Dorado Hills and the Melones Fault Zone in Placerville, both of which trend north-northwest and dip steeply easterly.

A review of the Fault Activity of California Map (Jennings, 1994) within 60 miles (about 100 Kilometers) of the boundaries of the site reveals numerous earthquake epicenters. These epicenters are generally located on the eastern flank of the Sierra Nevada Mountains and the eastern flank of the Diablo Range. According to the California Division of Mines and Geology (Jennings, 1994), the nearest known active fault to the site is the North Tahoe fault located approximately 40 miles northeast of the site, and the nearest potentially active fault is the Melones Fault - West branch, located about approximately 1.5 miles to the east.

The Soil Survey of El Dorado County (1974) notes the subject property to consist of Placer diggings (PrD). Placer diggings consist of areas of stony, cobbly, and gravelly material, commonly in beds of creeks and other streams, or of areas that have been placer mined and contain enough fine sand or silt to support some grass for grazing.

5.3.2 Regional Radon Values

According to the Geologic Controls on the Distribution of Radon in California by Ronald Churchill for the Department of Health Services (1991, revised 2003), elevated radon gas levels in indoor air are a result of radon moving into buildings from the soil, either by diffusion or flow due to air pressure differences. The ultimate source of radon gas in buildings is the uranium naturally present in rock, water, and soil. Some rock types are known to contain more uranium than others. In California, most uranium deposits are relatively small and are located in rural areas. Consequently, the chance of severe radon levels (>200 pCi/L) occurring in buildings in California should be very low. The following rock units contain uranium in concentrations above

the crustal average: the Monterey Formation, asphaltic rocks, marine phosphatic rocks, granitic rocks, felsic volcanic rocks, and certain metamorphic rocks.

According to EPA publication 402-R-93-025, entitled EPA's Map of Radon Zones, California, dated September 1993, El Dorado County is shown to be in Zone 2. Zone 2 has a predicted average radon screening level of greater than 2 Pico Curies per Liter (pCi/l) but less than 4 pCi/l, this is considered to be a moderate or variable value of geologic radon potential. The State of California Department of Health Services California Statewide Radon Survey Screening Results (May 1990) indicated that El Dorado County (Region 5) had a value of 3.7% of homes with predicted radon levels of over 4 pCi/L. The subject property is located within Zip Code 956667. Of the 26 test screening results for that Zip Code, two sites were identified with values over 4 pCi/L.

5.4 Historical Use Information on the Property and Adjoining Properties

All obvious uses of the property shall be identified from the present, back to the property's first developed use, or back to 1940, whichever is earlier. The term developed use includes agricultural uses and placement of fill dirt. Standard historical sources shall be reviewed at approximately five year intervals. Uses in the area surrounding the property shall also be identified. Standard historical sources may include: aerial photographs, fire insurance maps, recorded land title records, USGS topographic maps, local street directories, building department records, and zoning/land use records.

5.4.1 Aerial Photographic Review

EDR aerial photographs for 1935, 1952, 1962, 1984, 1993, and 1998 were provided in The EDR Aerial Photo Decade Package and reviewed. Photographs dated 1971 and 1977 from Cartwright Aerial were also reviewed. A 2006 digital image from terraserver.com was also reviewed. Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and to determine if any significant topographic or cultural changes have occurred. A summary of all of the aerial photographs reviewed is provided in Table 1. A copy of the EDR Aerial Photo Decade Package is provided in Appendix B following the EDR Report.

The **1935** aerial photograph shows the southern portion of the subject property to be developed with the structures associated with the lime processing facility, Diamond Lime Basic Mineral Plant. Several structures appear to be are present on the property. The lime processing plant is located to the west. The northern portion of the property appears to be a part of the lime plant; however, structures were not noted on the site. Orchards are located to the north and to the northeast of the lime plant. Property to the west, south, and southeast appears to be undeveloped land or possibly rural residential property.

The **1952** and **1962** aerial photographs show the subject property to be developed with lime plant structures. Adjacent property to the south and east appears to be partly undeveloped or rural residential. Orchards are present to the northeast of the lime plant facility.

The **1971** and **1977** aerial photographs show portions of the subject property to be developed with the lime plant structures and material storage. Adjacent property to the south and east appears to be partly undeveloped or rural residential. The lime plant is located to the west. Property to the north appears to be industrial.

The **1984** aerial photograph indicates that the lime plant structures are no longer present on the subject property. The foundations/footings of removed structures are present to the west. Due to the resolution of the photograph, specific structures could not be identified. On the adjacent property to the west, southwest is a large structure (WEDRS facility). Property to the north, southwest, and northeast appears to be industrial. Undeveloped land is adjacent to the east.

The **1993** and **1998** aerial photographs the subject property appears to be similar to what was observed on the 1984 photograph. Adjacent property includes the former lime plant location to the west, industrial property to the north, WEDRS facility to the southwest, and industrial property to the east.

The **2006** photograph shows the subject property to be similar to what was observed during the site visit. Adjacent property includes former lime facility to the west, industrial property to the north and east, and the WEDRS facility to the southwest.

5.4.2 Review of Historical and Current USGS Topographic Maps

A topographic map (topo) is a color coded line-and-symbol representation of natural and selected artificial features plotted to a scale. Topographic maps show the shape, elevation, and development of the terrain in precise detail by using contour lines and color coded symbols. The EDR - Historical Topographic Map Report provided maps dated 1893, 1949, 1950, and 1973 (revised from 1949). Interpretations were made in an effort to evaluate former uses of the subject property and adjacent areas, and determine if any significant topographic or cultural changes have occurred. A summary of the topographic maps review is provided below. A copy of the EDR - Historical Topographic Map Report is provided in Appendix B.

The 1893 Placerville 30 minute quadrangle map does not show specific details for the subject property. The nearest features are the Sacramento and Placerville Railroad line to the north and Highway 49 to the east.

The 1949 Placerville 15 minute quadrangle map shows two structures on the subject property, east of Lime Plant Road. The lime processing plant is present to the west of the subject property. A railroad spur is present to the north of the lime plant. A cable way is identified traversing across the northern portion of the subject property, between the lime plant and a Quarry to the east in Section 28. The surrounding properties are a mix of rural residential and undeveloped land.

The 1950 Placerville 7.5 minute quadrangle map shows two structures on the subject property, east of Lime Plant Road and the lime processing plant present to the north. A cable way is identified traversing between the lime plant and a Quarry to the east in Section 28. Two small ponds and a structure are noted to the west of the subject property. Surrounding property is a mix of rural residential and undeveloped land.

The 1973 (revised from 1949) Placerville 7.5 minute quadrangle map shows two structures on the subject property and the lime processing plant to the north. The cable way is no longer identified on the map. A large pond is noted to the west. The small ponds are no longer noted on the map. Surrounding property is a mix of rural residential and undeveloped land.

5.4.3 Historical City Directory Abstract Review

EDR provided the EDR-City Directory Abstract for review. Building directories including city, cross reference and telephone directories were reviewed, if available, as approximately five year intervals for the years spanning 1972 through 2002. A copy of the EDR-City Directory Abstract is provided in Appendix B, following the EDR Report. The subject property's address, 4021 Lime Plant Road, and multiple other addresses were not listed.

5.4.4 Review of Historical Sanborn® Maps

There are no Sanborn Maps that cover the subject property.

6.0 SITE RECONNAISSANCE

A reconnaissance of the subject property and a windshield survey of the surrounding area were conducted by Youngdahl Consulting Group, Inc. on 6 November 2007. Mr. Larry Abel, an adjacent landowner and long-time resident of Placerville accompanied the Youngdahl Consulting Group, Inc. representative during the during the site reconnaissance.

Typical views of the subject property at the time of the reconnaissance are presented as Figures 3 through 6. The site reconnaissance consisted of visual and physical observations of the periphery of the subject property and traverses throughout the property on foot to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles. The northern portion of the property is leased by Mabey Bridge & Shore, Inc. for the storage of bridge building construction material (Photo 1). During the site visit, the majority of the property was in use as a storage yard. An aboveground (AST) containing red diesel fuel tank was observed in the northern portion of the property (Photo 2). An empty tank and PVC pipe storage were observed at the southeast corner of the property (photo 3). The storm drain and various construction materials were observed on the subject property (Photo 4). Secondary containment was installed underneath the AST following the site reconnaissance and a photograph taken on 13 November 2007 by Larry Abel shows this addition (Photo 8).

The northern portion of the property includes a singe structure that was formerly the location of the Diamond Lime Basic Mineral Plant office (Photo 5) and land used for the stockpiling of concrete, rock, and lime for rock crushing activities and road base manufacturing (Photos 6 and 7). Adjacent property includes: industrial property to the east; Thowita Way and Lime Plant Road and property formerly occupied by the Diamond Lime Basic Mineral Plant construction yard and Waste Connections (Western El Dorado Recovery Systems – WEDRS) to the to the west; and a mix of residential, vacant, and industrial property (including Camps Propane) to the north.

7.0 FINDINGS AND CONCLUSIONS

The subject property is located at 4021 Lime Plant Road and is assigned El Dorado County APN 051-250-46-100 (subject property). The 5-acre subject property is located in Placerville, El Dorado County, California. Based on our study the subject property was part of the Diamond Lime Basic Mineral plant from at least 1935 until the early 1980s. Most recently the northern portion of the property has been leased to Mabey Bridge & Shore, Inc. for the storage of bridge building construction material and the storage of an AST containing red diesel. According to the property owner, Mr. Michael Murray, the AST was leased by Mabey Bridge & Shore, Inc. from Ramos Oil in approximately August 2007. Secondary containment was installed below the AST in November 2007. The AST is to be removed from the property by 1 December 2007. The single structure on the property was formerly the location of the Diamond Lime Basic Minerals office. The southern portion of the property is currently utilized for the stockpiling of concrete and rock for crushing into future construction base rock material. The subject property was a part of the Diamond Lime Basic Minerals plant. Due to the lack of information regarding the configuration of the lime plant, the former location of possible storage areas, shops, or disposal sites is unknown.

Youngdahl Consulting Group, Inc. has performed a Phase I Environmental Site Assessment in conformance with ASTM Practice E 1527-05 of the Murray Property at 4021 Lime Plant Road (APN 051-250-46-100), the subject property. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property.

7.1 Data Gaps

No significant data gaps were identified during the course of this investigation that affected the environmental professional's ability to identify recognized environmental conditions.

8.0 OPINION

It is the opinion of the Youngdahl Consulting Group Inc.'s environmental professional that there are no identified recognized environmental conditions. The rationale used for this opinion are the observations made during the site visit, the review of aerial photographs, and interviews with knowledgeable persons corroborate the conclusion that the subject property was part of the Diamond Lime Basic Mineral plant from at least 1935 until the early 1980s. According to the owner, Mr. Murray, the property was unused until it was recently leased to Mabey Bridge & Shore, Inc. for the storage of bridge building construction material, fuel storage. The southern portion of the property is used for stockpiling concrete and rock for crushing and for future construction project use. No additional investigation is recommended for the subject property at this time; however, it is recommended that during construction activities, the site be observed for the potential indication of hazardous materials releases or disposal areas. If suspect recognized environmental conditions are identified during future construction activities, please notify Youngdahl Consulting Group, Inc. for further evaluation.

9.0 SELECTED REFERENCES

1. California Department of Water Resources (DWR) – Water Data Library, Groundwater Level Data (1953-2004): http//wdl.water.ca.gov/gw

2. Churchill, Ronald, Geologic Controls on the Distribution of Radon in California for the Department of Health Services, 25 January 1991, revised December 2003.

3. Jennings, C.W., (1994): "Fault Activity Map of California and Adjacent Areas", California Department of Conservation, Division of Mines and Geology, Geologic Data Map No. 6, Scale 1:750,000.

4. Loyd, R.C., et al., General Geology of the Placerville 15' Quadrangle OFR 83-29, 1984.

5. U.S. Department of Agriculture (USDA) Soil Conservation Service, Soil Survey of El Dorado County - Western Part, California (1974).

6. U.S. Geological Survey Topographic Map – Placerville, California Topographic Quadrangle, 7.5 minute series, 1949 (photorevised 1973).

10.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Roy C. Kroll - Certified Engineering Geologist - California No. 1328, Registered Environmental Assessor - California No. 02266, Bachelor of Science in Earth Sciences, California State University - Long Beach, 1975, Certificate - Environmental Studies, California State University - Long Beach, 1975

Mr. Kroll has been involved in the Engineering Geology aspects of numerous public works, commercial, and residential projects throughout California since 1981. Mr. Kroll's experience has also included performing numerous Phase I Environmental Site Assessments, and coordinating limited Phase II investigations by others.

Laurie B. Israel Registered Environmental Assessor - California No. 05557,
Bachelor of Science in Environmental Policy Analysis and Planning, University of California - Davis, 1988

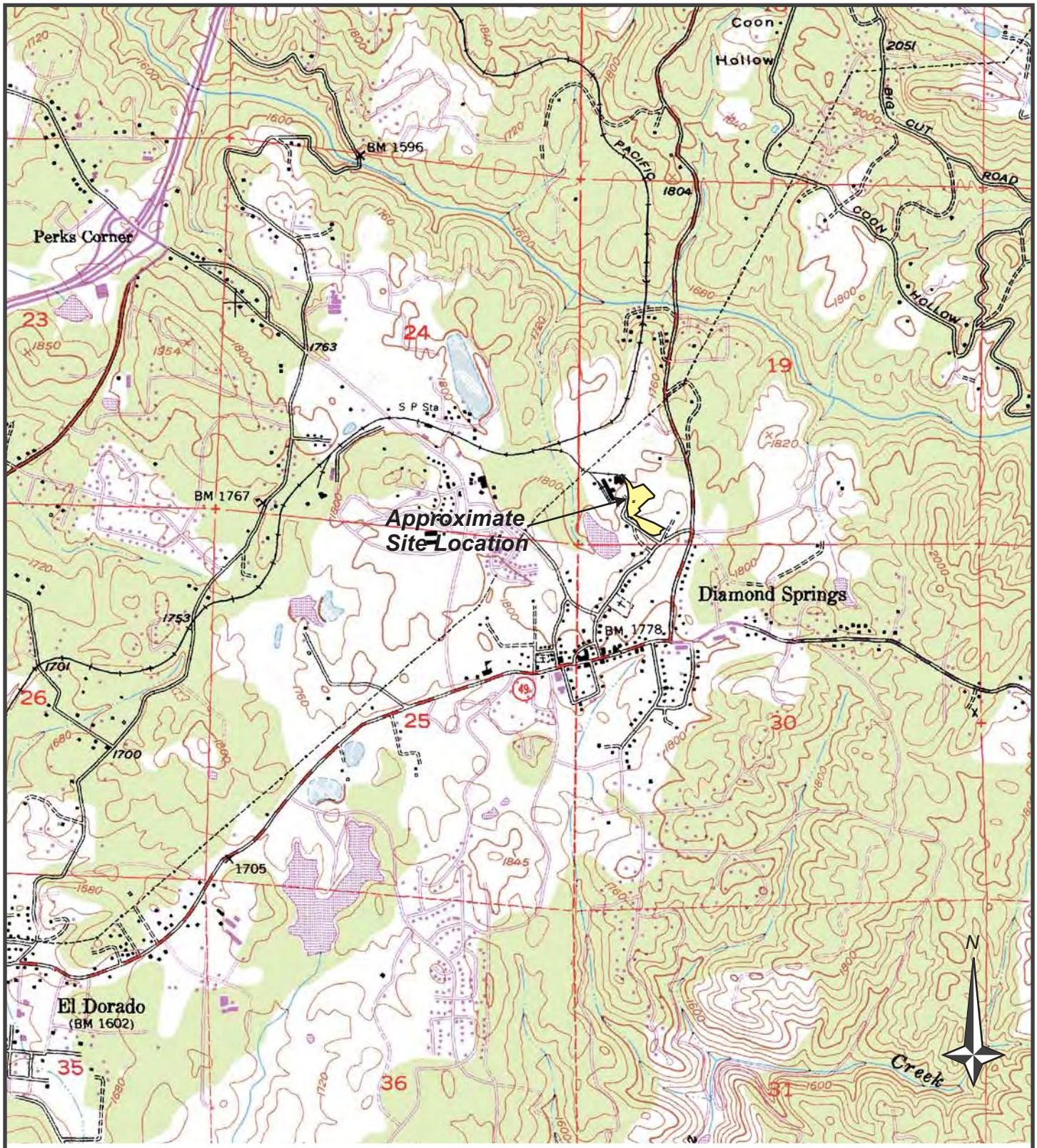
Ms. Israel has worked in the environmental field since 1988. She has been involved in all aspects of Phase I Environmental Site Assessments. Ms. Israel became a Registered Environmental Assessor with the State of California in 1994. Ms. Israel has also performed limited Phase II investigations

TABLE

TABLE 1: SUMMARY OF AERIAL PHOTOGRAPHS REVIEWED
MURRAY PROPERTY
APN 051-250-46-100
4021 LIME PLANT ROAD, PLACERVILLE, EL DORADO COUNTY, CALIFORNIA
Project No. E07443.000

AERIAL PHOTOGRAPHS				
Date	**Provided By**	**Scale (±)**	**Type**	**Source**
1935	EDR	1" = 166'	B&W	Wallace
1935	USDA	Unknown	B&W	USDA SCS
1952	EDR	1" = 555'	B&W	Robinson
1962	EDR	1" = 555'	B&W	Cartwright
1971	Cartwright	1" = 2000'	B&W	Cartwright Flt. 2942-11-150
1977	Cartwright	1" = 2000'	B&W	Cartwright Flt. 7069, 14-8
1984	EDR	1" = 690'	B&W	WSA
1993	EDR	1" = 666'	B&W	USGS
1998	EDR	1" = 666'	B&W	USGS
2006	Teraserver	Unknown	Color	Teraserver.com

FIGURES



Scale: 1:24,000

BASE MAP REFERENCE: U.S.G.S. 7.5 Minute Topographic Series, Placerville Quadrangle, Dated 1949 (Revised 1973)

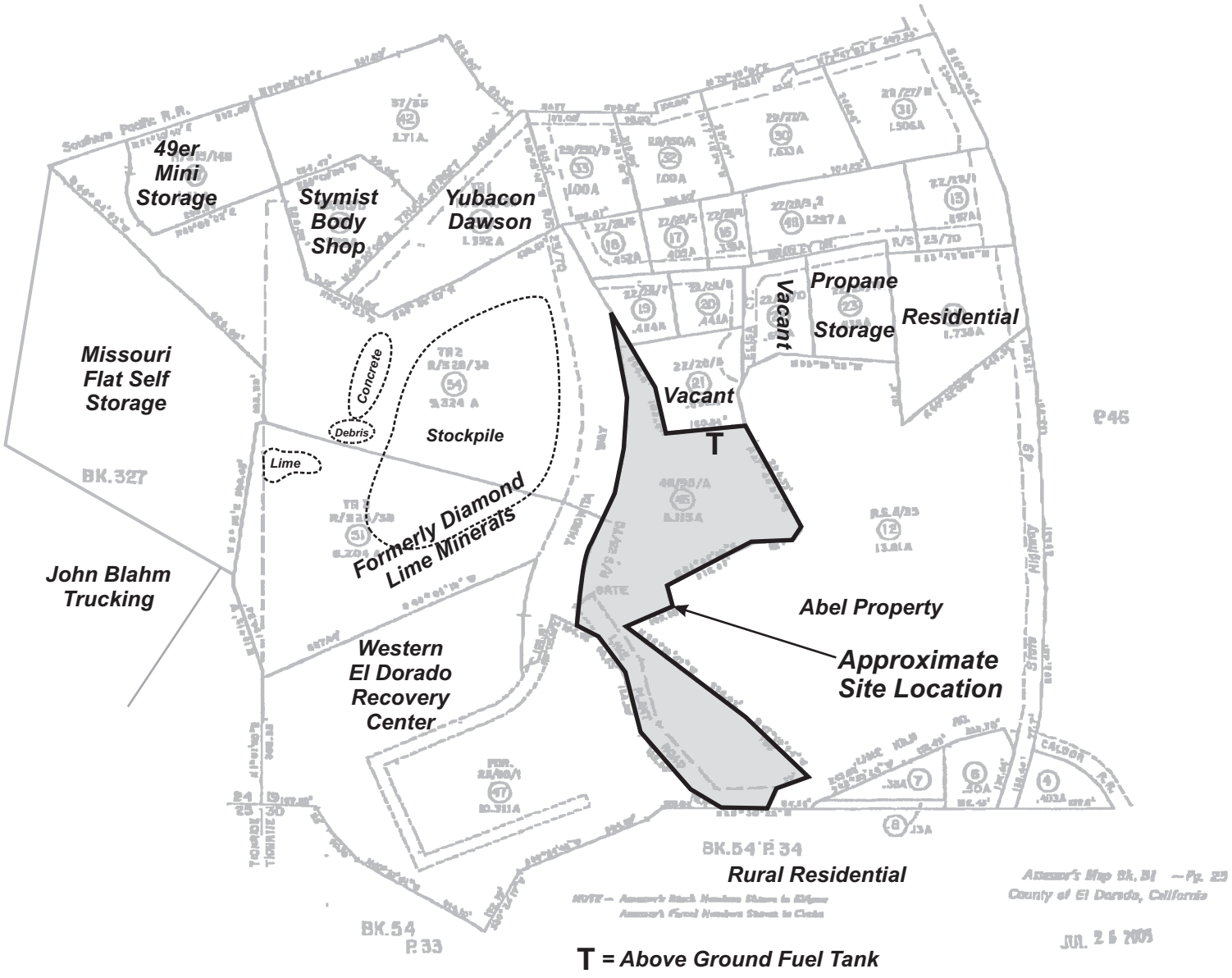
YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING

Project No.: E07443.000

November 2007

VICINITY MAP
Murray Property
Phase I ESA
Placerville, California

FIGURE 1



YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING

Project No.: E07443.000

November 2007

SITE PLAN

Murray Property - Phase I ESA
Placerville, California

FIGURE 2

Photo 1: Northern portion of APN 051-250-012. Murray Property leased by Mabey Bridge and Shore Inc. for the storage of bridge and shoring equipment and materials. View to the north, northwest.

Photo 2: Above ground red diesel fuel tank at the northern boundary of the property. View to the north.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 November 2007	**SITE PHOTOGRAPHS** **Murray Property - Phase I ESA** Placerville, California	**FIGURE** **3**

Photo 3: Empty tank and pipe storage at the southeast corner of the property. View to the west

Photo 4: Storm drain and storage of construction material on the subject property. View to the north

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000	**SITE PHOTOGRAPHS** **Murray Property - Phase I ESA** Placerville, California	**FIGURE 4**
	November 2007		

Photo 5: Remodeled structure that was formerly the location of the Diamond Lime Basic Mineral Plant office. View to the south.

Photo 6: Material to be crushed stored in the southwest portion of the property. View to the southwest.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 November 2007	**SITE PHOTOGRAPHS** **Murray Property - Phase I ESA** Placerville, California	FIGURE 5

Photo 7: Crushed material stored to the west of Lime Plant Road.
View to the northwest.

Photo 8: AST with secondary containment.
Photo taken 13 November 2007.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS TESTING	Project No.: E07443.000 November 2007	**SITE PHOTOGRAPHS** **Murray Property - Phase I ESA** Placerville, California	FIGURE 6

APPENDICES

APPENDIX A: Interview Documentation
Telephone Conversations Records, Phase I ESA Questionnaires,
and Preliminary Title Report

TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Mike Murray DATE 11/08/07 TIME 2pm

COMPANY NAME

TELEPHONE NO (530) 295-5890 x204 (cell (916) 417-9142) FAX NO.

MAILING ADDRESS

PROJECT NAME AND NUMBER E07443

NOTES Mabey Bridge + Shore, Inc
leases property since Spring 2007 (6-7 mo)
AST red diesel observed at
northern portion of property

lm on vm - AST on site for past 3 months
- red diesel for fork lifts
- 500 gals
- leasing from Ramos Oil
- Mabey leaving in 30 days

Occupants - vacant land since 1960s
- grading done in the past
only identified line
Bldg onsite was the office; added all new construc. to same footprint
Purchased property 4 years ago, 2003

Recorded by Laurie Israel

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TELEPHONE CONVERSATION RECORD

NAME OF CONTACT Todd Lincoln DATE 11/15/07 TIME 11:15

COMPANY NAME EDC EMD

TELEPHONE NO. (530) 621-5300 FAX NO. _____

MAILING ADDRESS (530) 621-6623

PROJECT NAME AND NUMBER ED7443.000

NOTES 4021 Lime Plant Road
- Murray owner
- no complaints, no facilities
- no listing for ~~Maybe~~ Mabey Bridge and Shore
- APN 051-250-46-100
- not contaminated site list

Abel property
051-250-12
- no records

Dimetrix / Waste Connections (-47) (-48)
4100 Throwita Way
→ CUPA file is active (Camps Propane)
→ CD (Certified Unified Program Agency)

$40 file review

Recorded by Laurie Israel

f:\wp51\reports\lbi\foncnt.rpt

Phase I Environmental Site Assessment

Project: **Site Name:** Michael Murray Property (APN 051-250-46)
Location: 5.12 acres east of Lime Plant Road and Throwita Way
Placerville, El Dorado County, California

The ASTM Standards require that you, or your representative who is knowledgeable regarding the use and condition of the property, answer the questions found on the following site assessment questionnaire.

Please answer these questions in good faith and to the extent of your actual knowledge. Circle the appropriate answer. For yes answers please provide additional explanation. We would appreciate it if you would FAX the completed questionnaire to Laurie Israel as soon as possible. (Youngdahl Consulting Group, Inc. FAX: 916-933-6482.)

1.	Currently is, or in the past has, the *property* or any *adjoining* property been used for an industrial use?	(Yes)	No	Unknown
2.	Currently is, or in the past has, the *property* or any *adjoining* property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes	(No)	Unknown
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal (19 L) in volume or 50 gal (208 L) in the aggregate, stored on or used at the *property*?	Yes	(No)	Unknown
4.	Are there currently, or have there been previously, any industrial *drums* (typically 55 gal (208 L)) or sacks of chemicals located on the property?	Yes	(No)	Unknown
5.	Has *fill dirt* been brought on to the property that originated from a contaminated site or that is of an unknown origin?	Yes	(No)	Unknown

6.	Are there currently, or have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?	Yes	No	Unknown
7.	Is there currently, or has there been previously, any stained soil on the *property*?	Yes	No	Unknown
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	Yes	No	Unknown
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property*?	Yes	No	Unknown
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting unusual odors?	Yes	No	Unknown
11.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes	No	Unknown
12.	Are you aware of any floor drains or sumps on the property?	Yes	No	Unknown
13.	Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	Yes	No	Unknown
14.	Are there any transformers, capacitors, or hydraulic equipment on the property which may contain PCBs?	Yes	No	Unknown
15.	Do you have any knowledge of *environmental liens* with respect to the *property*?	Yes	No	Unknown
16.	Have you been informed of the past or current existence of environmental violations with respect to the *property*?	Yes	No	Unknown

Phase I Environmental Site Assessment

17.	Do you have any knowledge of any *environmental site assessments* of the *property*?	Yes	(No)	Unknown
18.	Do you know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	Yes	(No)	Unknown
19.	Is the purchase price or appraised value of the property significantly less than comparable properties in the vicinity?	Yes	(No)	Unknown

To the best of the undersigned knowledge, the above statements and facts are true and correct and to the best of the undersigned's actual knowledge no material facts have been suppressed or misstated.

This questionnaire was completed by:

NAME (PRINT): Michael Murray **SIGNATURE:** [signature] **DATE:** 11/6/07

TITLE: Owner **ADDRESS:**

FIRM:

PHONE NUMBER: 916-417-9147 **FAX NUMBER:** 530-626-0200

RELATIONSHIP TO SITE: Owner _____ **or Owner's Representative** _____

PLACER TITLE COMPANY

Preliminary Report

Issued By: Order No. 206-1879

PLACER TITLE COMPANY
163 PLACERVILLE DR.
PLACERVILLE, CA 95667
Escrow Officer: Laraine Stefan
Phone: 530-621-3893
Fax: 530-621-2365
Escrow Officer Email: lstefan@placertitle.com
Email Loan Docs To: 206edocs@placertitle.com

Customer Reference:

Property Address: 4021 LIME PLANT ROAD, DIAMOND SPRINGS, CA 95619

In response to the above referenced application for a policy of title insurance, PLACER TITLE COMPANY hereby reports that it is prepared to issue, or cause to be issued, through one of its authorized underwriters, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said Policy or Policies are set forth in the attached. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in the attached. Copies of the Policy forms should be read. They are available from the office which issued this report.

PLEASE READ THE EXCEPTIONS SHOWN OR REFERRED TO BELOW AND THE EXCEPTIONS AND EXCLUSIONS SET FORTH IN THE ATTACHED CAREFULLY. THE EXCEPTIONS AND EXCLUSIONS ARE MEANT TO PROVIDE YOU WITH NOTICE OF MATTERS WHICH ARE NOT COVERED UNDER THE TERMS OF TITLE INSURANCE POLICY AND SHOULD BE CAREFULLY CONSIDERED.

IT IS IMPORTANT TO NOTE THAT THIS PRELIMINARY REPORT IS NOT A WRITTEN REPRESENTATION AS TO THE CONDITION OF TITLE AND MAY NOT LIST ALL LIENS, DEFECTS AND ENCUMBRANCES AFFECTING TITLE TO THE LAND.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of August 03, 2007 at 7:30 a.m.

Title Officer: Kelly Riddle

Order No. 206-1879

The form of policy of title insurance contemplated by this report is:

CLTA/ALTA Homeowner's Policy of Title Insurance

The estate or interest in the land hereinafter described or referred to covered by this Report is:

A FEE SIMPLE

Title to said estate or interest at the date hereof is vested in:

MICHAEL LANCE MURRAY AND SUSAN M. MURRAY , HUSBAND AND WIFE, AS COMMUNITY PROPERTY

The land referred to herein is described as follows:

SEE EXHIBIT "A" ATTACHED

EXHIBIT "A"
LEGAL DESCRIPTION

THE LAND DESCRIBED HEREIN IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF EL DORADO, UNINCORPORATED AREA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A, AS SHOWN ON THAT CERTAIN PARCEL MAP FILED FEBRUARY 23, 1998 IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY IN BOOK 46 OF PARCEL MAPS, AT PAGE 95.

ASSESSOR PARCEL NO.:051-250-46-100

Order No. 206-1879

EXCEPTIONS

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. TAXES, SPECIAL AND GENERAL, ASSESSMENT DISTRICTS AND SERVICE AREAS FOR THE FISCAL YEAR 2007-2008, A LIEN, NOT YET DUE OR PAYABLE.

2. THE LIEN OF SUPPLEMENTAL TAXES, IF ANY, ASSESSED PURSUANT TO THE PROVISIONS OF CHAPTER 3.5, (COMMENCING WITH SECTION 75) OF THE REVENUE AND TAXATION CODE, OF THE STATE OF CALIFORNIA.

3. ANY TAXES OR ASSESSMENTS LEVIED BY:

   A. EL DORADO IRRIGATION DISTRICT

4. AN EASEMENT OVER SAID LAND FOR INSTALLATION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO AMERICAN RIVER ELECTRIC COMPANY, IN DEED RECORDED DECEMBER 14, 1903, IN BOOK 62, PAGE 94, OFFICIAL RECORDS. AND RECORDED FEBRUARY 1, 1904, IN BOOK 62, PAGE 165

   AFFECTS THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD

   NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

5. AN EASEMENT OVER SAID LAND FOR INSTALLATION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO WESTERN STATES GAS AND ELECTRIC COMPANY, IN DEED RECORDED APRIL 16, 1924, IN BOOK 99, PAGE 113, OFFICIAL RECORDS.AND AMENDED BY DOCUMENT RECORDED JANUARY 4, 1938 IN BOOK 161 OF OFFICIAL RECORDS, PAGE 129

   AFFECTS THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD

   NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

6. COVENANTS, CONDITIONS AND RESTRICTIONS AS CONTAINED IN THE DEED FROM WILLIAM HENRY L. LOVEJOY, ET AL, RECORDED JULY 27, 1927, IN BOOK 106, PAGE 459, OFFICIAL RECORDS.

   NOTE: SECTION 12956.1 OF THE GOVERNMENT CODE PROVIDES THE FOLLOWING: "IF THIS DOCUMENT CONTAINS ANY RESTRICTION BASED ON

EXCEPTIONS
(Continued)

RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, NATIONAL ORIGIN, SOURCE OF INCOME AS DEFINED IN SUBDIVISION (P) OF SECTION 12955, OR ANCESTRY, THAT RESTRICTION VIOLATES STATE AND FEDERAL FAIR HOUSING LAWS AND IS VOID, AND MAY BE REMOVED PURSUANT TO SECTION 12956.2 OF THE GOVERNMENT CODE. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS."

7. AN EASEMENT OVER SAID LAND FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO PACIFIC GAS AND ELECTRIC COMPANY, IN DEED RECORDED JANUARY 30, 1980, IN BOOK 1846, PAGE 296, OFFICIAL RECORDS.

   AFFECTS AS DESCRIBED IN SAID INSTRUMENT

   NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

8. AN EASEMENT OVER SAID LAND FOR ROAD AND PUBLIC UTILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO LAURENCE ABEL AND JACQUELINE ABEL, HUSBAND AND WIFE, IN DEED RECORDED FEBRUARY 26, 1980, IN BOOK 1853, PAGE 572, OFFICIAL RECORDS.

   AFFECTS PORTION OF THE EAST BOUNDARY

   NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

9. AN EASEMENT OVER SAID LAND FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF ELECTRICAL TRANSMISSION FACILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO PACIFIC GAS AND ELECTRIC COMPANY, IN DEED RECORDED APRIL 30, 1981, IN BOOK 1975, PAGE 1, OFFICIAL RECORDS.

   AFFECTS SOUTHERLY PORTION

   NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

10. AN EASEMENT OVER SAID LAND FOR ROAD AND UTILITIES AND INCIDENTAL PURPOSES, AS GRANTED TO WESTERN EL DORADO RECOVERY SYSTEMS, INC., IN DEED RECORDED APRIL 26, 1994, IN BOOK 4261, PG 196, OFFICIAL RECORDS.

    AFFECTS THAT PORTION LYING WITHIN LIME PLANT ROAD

    NO REPRESENTATION IS MADE AS TO THE CURRENT OWNERSHIP OF SAID EASEMENT.

11. AN EASEMENT FOR ROADWAY PURPOSES IN FAVOR OF THE COUNTY OF EL DORADO, AS

EXCEPTIONS
(Continued)

DESCRIBED IN THAT "FINAL ORDER OF CONDEMNATION", FILED IN THE SUPERIOR COURT, COUNTY OF EL DORADO, AND A CERTIFIED COPY THEREOF RECORDED JANUARY 2, 1999, INSTRUMENT NO. 99-0004479-00

AFFECTS: A PORTION OF THE WEST BOUNDARY

12. DEED OF TRUST TO SECURE AN INDEBTEDNESS OF $1,000,000.00, DATED MAY 22, 2007, RECORDED JUNE 01, 2007, SERIES #2007-0036442, OFFICIAL RECORDS.

TRUSTOR: MICHAEL LANCE MURRAY AND SUSAN M. MURRAY
TRUSTEE: PLACER TITLE COMPANY
BENEFICIARY: FIRST NORTHERN BANK OF DIXON
LOAN NO.: NA

13. DEED OF TRUST TO SECURE AN INDEBTEDNESS OF $290,000.00, DATED MAY 17, 2006, RECORDED JUNE 20, 2006, INSTRUMENT NO. 2006-41211, OFFICIAL RECORDS.

TRUSTOR: MICHAEL LANCE MURRAY AND SUSAN M. MURRAY , HUSBAND AND WIFE, AS COMMUNITY PROPERTY
TRUSTEE: MURRAY LIVING TRUST DATED NOVEMBER 17, 1997
BENEFICIARY: KEITH MURRAY AND BARBARA MURRAY , HUSBAND AND WIFE, AS COMMUNITY PROPERTY
LOAN NO.:

SAID DEED OF TRUST WAS SUBORDINATED TO THE LIEN OF THE DEED OF TRUST IN ITEM 12 ABOVE, BY INSTRUMENT RECORDED JUNE 01, 2007, SERIES #2007-0036445, OFFICIAL RECORDS.

14. HAZARDOUS SUBSTANCES CERTIFICATE AND INDEMNITY AGREEMENT RECORDED JUNE 1, 2007, SERIES #2007-0036443 OFFICIAL RECORDS.

15. AN UNRECORDED LEASE AS DISCLOSED BY SUBORDINATION, NON DISTURBANCE AND ATTORNMENT AGREEMENT RECORDED JUNE 1, 2007 SERIES #2007-0036444 OFFICIAL RECORDS.

NOTE: (FOR PRO-RATION PURPOSES ONLY)

TAXES, SPECIAL AND GENERAL, ASSESSMENT DISTRICTS AND SERVICE AREAS, FOR THE FISCAL YEAR 2006-2007:
1ST INSTALLMENT: $2,129.47 PAID
2ND INSTALLMENT: $2,129.47 PAID
ASSESSED VALUATIONS:
LAND: $360,338.00
IMPROVEMENTS: $10,596.00

EXCEPTIONS
(Continued)

EXEMPTION: $0.00
PARCEL NO.: 051-250-46-100 CODE AREA: 078-070

********** SPECIAL INFORMATION **********

*** NOTE:

THIS PROPERTY IS ELIGIBLE FOR THE SHORT TERM RATE.

*** CHAIN OF TITLE REPORT:

ACCORDING TO THE PUBLIC RECORDS, NO DEEDS CONVEYING THE PROPERTY DESCRIBED IN THIS REPORT HAVE BEEN RECORDED WITHIN A PERIOD OF 2 YEARS PRIOR TO THE DATE OF THIS REPORT, EXCEPT AS SHOWN HEREIN: NONE

*** LENDER'S SUPPLEMENTAL ADDRESS REPORT:

THE ABOVE NUMBERED REPORT IS HEREBY MODIFIED AND/OR SUPPLEMENTED TO REFLECT THE FOLLOWING ADDITIONAL ITEMS RELATING TO THE ISSUANCE OF AN AMERICAN LAND TITLE ASSOCIATION LOAN FORM POLICY:

PLACER TITLE COMPANY STATES THAT THE HEREIN DESCRIBED PROPERTY IS A RESIDENCE AND THAT THE PROPERTY ADDRESS IS:

4021 LIME PLANT ROAD, DIAMOND SPRINGS, CA 95619

*** NOTICE REGARDING FUNDS DEPOSITED IN ESCROW:

CALIFORNIA INSURANCE CODE SECTION 12413.1 REGULATES THE DISBURSEMENT OF ESCROW AND SUB-ESCROW FUNDS BY TITLE COMPANIES. OF THE LAW REQUIRES THAT FUNDS BE DEPOSITED IN THE TITLE COMPANY ESCROW ACCOUNT AND AVAILABLE FOR WITHDRAWAL PRIOR TO DISBURSEMENT. FUNDS DEPOSITED WITH THE COMPANY BY WIRE TRANSFER MAY BE DISBURSED UPON RECEIPT. FUNDS DEPOSITED WITH THE COMPANY VIA CASHIER'S OR TELLER'S CHECKS DRAWN ON A CALIFORNIA BASED BANK MAY BE DISBURSED THE NEXT BUSINESS DAY AFTER THE DAY OF DEPOSIT. IF FUNDS ARE DEPOSITED WITH THE COMPANY BY OTHER METHODS, RECORDING AND/OR DISBURSEMENT MAY BE DELAYED.

*** CANCELLATION NOTE:

THIS REPORT IS SUBJECT TO A MINIMUM CANCELLATION CHARGE OF $400.00 AS

EXCEPTIONS
(Continued)

REQUIRED BY SECTION 12404 OF INSURANCE CODE AND RULE BULLETIN NO. NS-35E.

LENDER'S NOTE:

APPROVAL FOR THE ISSUANCE OF THE 1970 ALTA LENDER'S POLICY FORM MUST BE REQUESTED AND APPROVED PRIOR TO CLOSE OF ESCROW. ALL OTHER FORMS OF FULL COVERAGE LOAN POLICIES THAT ARE AUTHORIZED TO BE ISSUED ARE THE 1992 AND 2006 POLICIES.

BUYER'S NOTE:

If an ALTA Residential Owner's Policy is requested and if the property described herein is determined to be eligible for this policy, the following Exceptions From Coverage will appear in the policy:

1. Taxes or assessments which are not shown as liens by the public records or by the records of any taxing authority.

2. (a) Water rights, claims or title to water; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) unpatented mining claims; whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

3. Any rights, interests or claims of parties in possession of the land which are not shown by the public records.

4. Any easements or liens not shown by the public records. This exception does not limit the lien coverage in Item 8 of the Covered Title Risks.

5. Any facts about the land which a correct survey would disclose and which are not shown by the public records. This exception does not limit the forced removal coverage in Item 12 of the Covered Title Risks.

CLTA PRELIMINARY REPORT FORM
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS
(Revised 06/17/06)

CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY - 1990
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE
SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (10-22-03)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE
EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes ordinances, laws and regulations concerning: a. building; b. zoning; c. Land use; d. improvements on the Land; e. Land division; f. environmental protection
   This Exclusion does not apply to violations or the enforcement of these matters if notice of the violation or enforcement appears in the Public Records at the Policy Date.
   This Exclusion does not limit the coverage described in Covered Risk 14, 15, 16, 17 or 24.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at the Policy Date.
3. The right to take the Land by condemning it, unless: a. a notice of exercising the right appears in the Public Records at the Policy Date; or b. the taking happened before the Policy Date and is binding on You if You bought the Land without Knowing of the taking.
4. Risks: a. that are created, allowed, or agreed to by You, whether or not they appear in the Public Records; b. that are Known to You at the Policy Date, but not to Us, unless they appear in the Public Records at the Policy Date; c. that result in no loss to You; or d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.d, 22, 23, 24 or 25.
5. Failure to pay value for Your Title.
6. Lack of a right: a. to any Land outside the area specifically described and referred to in paragraph 3 of Schedule A; and b. in streets, alleys, or waterways that touch the Land. This Exclusion does not limit the coverage described in Covered Risk 11 or 18.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

* For Covered Risk 14, 15, 16 and 18, Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 14:	1% of Policy Amount or $2,500.00 (whichever is less)	$ 10,000.00
Covered Risk 15:	1% of Policy Amount or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 16:	1% of Policy Amount or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 18:	1% of Policy Amount or $2,500.00 (whichever is less)	$ 5,000.00

AMERICAN LAND TITLE ASSOCIATION
RESIDENTIAL TITLE INSURANCE POLICY (6-1-87)
EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
   * Land use * Improvements on the land * Land division * Environmental protection
   This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at Policy Date.
   This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.
2. The right to take the land by condemning it, unless:
   * a notice of exercising the right appears in the public records
   * on the Policy Date
   * the taking happened prior to the Policy Date and is binding on you if you bought the land without knowing of the taking
3. Title Risks:
   * that are created, allowed, or agreed to by you
   * that are known to you, but not to us, on the Policy Date – unless they appeared in the public records
   * that result in no loss to you
   * that first affect your title after the Policy Date – this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks
4. Failure to pay value for your title.
5. Lack of a right:
   * to any land outside the area specifically described and referred to in Item 3 of Schedule A
     OR
   * in streets, alleys, or waterways that touch your land

This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

AMERICAN LAND TITLE ASSOCIATION LOAN POLICY (10-17-92)
WITH ALTA ENDORSEMENT - FORM 1 COVERAGE
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;

(d) attaching or created subsequent to Date of Policy (except to the extent that this policy insures the priority of the lien of the insured mortgage over any statutory lien for services, labor or material or to the extent insurance is afforded herein as to assessments for street improvements under construction or completed at Date of Policy); or

(e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage.

4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any statutory lien for services, labor or materials (or the claim of priority of any statutory lien for services, labor or materials over the lien of the insured mortgage) arising from an improvement or work related to the land which is contracted for and commenced subsequent to Date of Policy and is not financed in whole or in part by proceeds of the indebtedness secured by the insured mortgage which at Date of Policy the insured has advanced or is obligated to advance.
7. Any claim, which arises out of the transaction creating the interest of the mortgagee insured by this policy, by reason of the operation

of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:

(i) the transaction creating the interest of the insured mortgagee being deemed a fraudulent conveyance or fraudulent transfer; or

(ii) the subordination of the interest of the insured mortgagee as a result of the application of the doctrine or equitable subordination; or

(iii) the transaction creating the interest of the insured mortgagee being deemed a preferential transfer except where the preferential transfer results from the failure:

(a) to timely record the instrument of transfer; or

(b) of such recordation to impart notice to a purchaser for value or a judgement or lien creditor.

The above policy forms may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following General Exceptions:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

2006 ALTA LOAN POLICY (06/17/06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to

(i) the occupancy, use, or enjoyment of the Land;

(ii) the character, dimensions, or location of any improvement erected on the Land;

(iii) the subdivision of land; or
(iv) environmental protection;
or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY (10/17/92)
EXCLUSIONS FROM COVERAGE

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting

from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
(a) created, suffered, assumed or agreed to by the insured claimant;
(b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
(c) resulting in no loss or damage to the insured claimant;
(d) attaching or created subsequent to Date of Policy; or
(e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the estate or interest insured by this policy.
4. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by this policy, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that is based on:
(i) the transaction creating the estate or interest insured by this policy being deemed a fraudulent conveyance or fraudulent transfer; or
(ii) the transaction creating the estate or interest insured by this policy being deemed a preferential transfer except where the preferential transfer results from the failure:
(a) to timely record the instrument of transfer; or
(b) of such recordation to impart notice to a purchaser for value or a judgement or lien creditor.

The above policy forms may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage Policy will also include the following General Exceptions:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

2006 ALTA OWNER'S POLICY (06/17/06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
(i) the occupancy, use, or enjoyment of the Land;
(ii) the character, dimensions, or location of any improvement erected on the Land;
(iii) the subdivision of land; or
(iv) environmental protection;
or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (10/13/01)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use, or enjoyment of the Land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the Land; (iii) a separation in ownership or a change in the dimensions or areas of the Land or any parcel of which the Land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that s notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the Land has been recorded in the Public Records at Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14, and 16 of this policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the Land has been recorded in the Public Records at Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 12, 13, 14, and 16 of this policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the Public Records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without Knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) created, suffered, assumed or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting In no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (this paragraph does not limit the coverage provided under Covered Risks 8, 16, 18, 19, 20, 21, 22, 23, 24, 25 and 26); or
   (e) resulting in loss or damage which would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of the Insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with applicable doing business laws of the state in which the Land is situated.
5. Invalidity or unenforceability of the lien of the Insured Mortgage, or claim thereof, which arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, except as provided in Covered Risk 27, or any consumer credit protection or truth in lending law.
6. Real property taxes or assessments of any governmental authority which become a lien on the Land subsequent to Date of Policy. This exclusion does not limit the coverage provided under Covered Risks 7, 8(e) and 26.
7. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This exclusion does not limit the coverage provided in Covered Risk 8.
8. Lack of priority of the lien of the Insured Mortgage as to each and every advance made after Date of Policy, and all interest charged thereon, over liens, encumbrances and other matters affecting the title, the existence of which are Known to the Insured at:
   (a) The time of the advance; or
   (b) The time a modification is made to the terms of the Insured Mortgage which changes the rate of interest charged, if the rate of Interest is greater as a result of the modification than it would have been before the modification. This exclusion does not limit the coverage provided in Covered Risk 8.
9. The failure of the residential structure, or any portion thereof to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This exclusion does not apply to violations of building codes if notice of the violation appears in the Public Records at Date of Policy.

NOTICE
FEDERAL FOREIGN INVESTMENT IN REAL PROPERTY TAX ACT OF 1980 (FIRPTA)

Upon the sale of United States real property, by a non-resident alien, foreign corporation, partnership or trust, the Foreign Investment in Real Property Tax Act of 1980 (FIRPTA), and as revised by the Tax Reform Act of 1984 (26 USCA 897 (C)(1)(A)(1) and 26 USCA 1445) requires the transferee (Buyer) of real property to withhold Internal Revenue Service income taxes in an amount equal to ten (10%) percent of the sale price from seller's proceeds, if ANY of the following conditions are met:

(1) The selling price is greater than $300,000.00
(2) The selling price is less than $300,000 AND the purchaser does not intend to occupy the property as his residence for at least 50% of the time of the first two 12 month periods following the date of transfer.

Withholding is not required if both of the following conditions are met:

(1) The selling price is less than $300,000
and
(2) The Buyer is acquiring the property as his residence, and the buyer or other qualifying family member will occupy the property for at least 50% of the time during each of the first 12-month periods following transfer of title to the buyer.

If the purchaser who is required to withhold income tax from the seller fails to do so, the purchaser is subject to fines and penalties as provided under Internal Revenue Code Section 1445. The seller may request a waiver or a reduced withholding amount by submitting a written request for a "qualifying statement" or "withholding certificate" (Form 8288-B) to:

Director, Internal Revenue Service
Philadelphia Service Center
P.O. Box 21086
Philadelphia, PA 19114-0586

Escrow Holder will, upon written instructions from the purchaser, withhold Federal Income Tax from the seller and will deposit said tax with the Internal Revenue Service, together with IRS Forms 8288 and 8288-A. The fee charged for this service is $25.00 payable to the escrow holder.

CALIFORNIA WITHHOLDING

In accordance with Sections 18662 and 18668 of the Revenue and Taxation Code, a transferee (Buyer) may be required to withhold an amount equal to 3 1/3 percent of the sales price or an alternative withholding amount certified to by the seller in the case of a disposition of California real property interest by either:

1. A seller who is an individual or when the disbursement instructions authorize the proceeds to be sent to a financial intermediary or the seller, OR
2. A corporate seller that has no permanent place of business in California.

The buyer may become subject to penalty for failure to withhold an amount equal to the greater of 10 percent of the amount required to be withheld or five hundred dollars ($500).

However, notwithstanding any other provision included in the California statutes referenced above, no buyer will be required to withhold any amount or be subject to penalty for failure to withhold if:

1. The sales price of the California real property conveyed does not exceed one hundred thousand dollars ($100,000.00), OR
2. The seller exceutes a written certificate, under the penalty of perjury, of any of the following:
   A. The property qualifies as the seller's (or decedent's, if being sold by the decedent's estate) principal residence within the meaning of Internal Revenue Code (IRC) Section 121; or
   B. The seller is (or decedent, if being sold by the decedent's estate) last used the property as the seller's (decedent's) principal residence within the meaning of IRC Section 121 without regard to the two-year time period; or
   C. The seller has a loss or zero gain for California income tax purposes on this sale; or
   D. The property is being compulsorily or involuntarily converted and the seller intends to acquire property that is similar or related in service or use to qualify for non-recognition of gain for California income tax purposes under IRC Section 1033; or
   E. If the transfer qualifies for non-recognition treatment under IRC Section 351 (transfer to a corporation controlled by the transferor) or IRC Section 721 (contribution to a partnership in exchange for a partnership interest); or
   F. The seller is a corporation (or an LLC classified as a corporation for federal and California income tax purposes that is either qualified through the California Secretary of State or has a permanent place of Business in California; or
   G. The seller is a partnership (or an LLC that is not a disregarded single member LLC and is classified as a partnership for federal and California income tax purposes) with recorded title to the property in the name of the partnership of LLC; or
   H. The seller is a tax-exempt entity under either California or federal law; or
   I. The seller is an insurance company, individual retirement account, qualified pension/profit sharing plan, or charitable remainder trust; or
   J. The transfer qualifies as a simultaneous like-kind exchange within the meaning of IRC Section 1031; or
   K. The transfer qualifies as a deferred like-kind exchange within the meaning of IRC Section 1031; or
   L. The transfer of this property will be an installment sale that you will report as such for California tax purposes and the buyer has agreed to withhold on each principal payment instead of withholding the full amount at the time of transfer.

The Seller is subject to penalty for knowingly filing a fraudulent certificate for the purpose of avoiding the withholding requirement.

NOTICE
DEPOSIT OF FUNDS AND DISBURSEMENT DISCLOSURE

Unless you elect otherwise (as described below), all funds received by PLACER TITLE COMPANY (the "Company") in escrow will be deposited with other escrow funds in one or more non-interest bearing escrow accounts of the Company in a financial institution selected by the Company. The depositor acknowledges that the deposit of funds in a non-interest bearing demand account by Escrow Holder may result in said company receiving a range of economic benefits from the bank in the form of services, credits, considerations, or other things of value. The depositor hereby specifically waives any claim to such economic benefits payable to Escrow Holder resulting from non-interest bearing deposits. Unless you direct the Company to open an interest-bearing account (as described below), the Company shall have no obligation to account to you in any manner for the value of, or to compensate any party for, any benefit received by the Company and/or its affiliated company. Any such benefits shall be deemed additional compensation of the Company for its services in connection with the escrow.

If you elect, funds deposited by you prior to the close of escrow may be placed in an individual interest-bearing account arrangement that the Company has established with one of its financial institutions. You do not have an opportunity to earn interest on the funds deposited by a lender. If you elect to earn interest through this special account arrangement, the Company will charge you an additional fee of $30.00 for the establishment and maintenance of the account. This fee compensates the Company for the costs associated with opening and managing the interest-bearing account, preparing correspondence/documentation, transferring funds, maintaining appropriate records for audit/reconciliation purposes, and filing any required tax withholding statements. It is important that you consider this cost in your decision since the cost may exceed the interest you earn.

Funds deposited in an interest-bearing account will be withdrawn from such account and deposited in the Company's general escrow trust account approximately two business days prior to the scheduled close of escrow or other disbursement of such funds. **If you wish to have your funds placed in an interest bearing account (with an accompanying charge of $30.00), please mark below, sign and return this form to your escrow officer.** In addition, you must complete and return IRS Form W-9. If you do not not want to have your funds deposited in an interest-bearing account, you do not need to sign or return this notice and the Company will understand you to have elected to have your funds deposited in a non-interest bearing account. If you change your mind and later wish to have your funds placed in an interest-bearing account, please contact your escrow officer.

The funds you deposit are insured only to the limit provided by the Federal Deposit Insurance Corporation.

☐ PLEASE CONSIDER THIS MY/OUR INSTRUCTION TO PLACE MY/OUR DEPOSIT(S) IN A SEGREGATED, INTEREST-BEARING ACCOUNT. I/WE UNDERSTAND THAT AN ADDITIONAL FEE OF $30.00 WILL BE CHARGED FOR THIS SERVICE. I/WE HAVE READ AND UNDERSTAND ALL OF THE ABOVE INFORMATION.

Signature	Social Security Number	Date
Signature	Social Security Number	Date

PRIVACY POLICY NOTICE

Purpose Of This Notice

Title V of the Gramm-Leach-Bliley Act (GLBA) generally prohibits any financial institution, directly or through its affiliates, from sharing nonpublic personal information about you with a nonaffiliated third party unless the institution provides you with a notice of its privacy policies and practices, such as the type of information that it collects about you and the categories of a persons or entities to whom it may be disclosed. In compliance with the GLBA, we are providing you with this document, which notifies you of the privacy policies and practices of:

Commonwealth Land Title Insurance Company
Fidelity National Title Insurance Company
First American Title Insurance Company
First American Title Insurance Company of New York
Lawyers Title Insurance Corporation
Montana Title and Escrow Company
National Closing Solutions
National Closing Solutions of Alabama, LLC
NCS Exchange Professionals
North Idaho Title Insurance Company
Old Republic National Title Insurance Company
Placer Title Company
Placer Title Insurance Agency of Utah
Stewart Title Guaranty Company
Stewart Title Insurance Company
Targhee National Title
The Sterling Title Company
Ticor Title Insurance Company
Transnation Title Insurance Company
United General Title Insurance Company
Westcor Land Title Insurance Company
Wyoming Title and Escrow Company

We may collect nonpublic personal information about you from the following sources:

* Information we receive from you, such as on applications or other forms.
* Information about your transactions we secure from our files, our affiliates or others.
* Information we receive from a consumer reporting agency.
* Information we receive from others involved in your transaction, such as the real estate agent or lender.

Unless it is specifically stated otherwise in an amended Privacy Policy Notice, no additional nonpublic personal information will be collected about you.

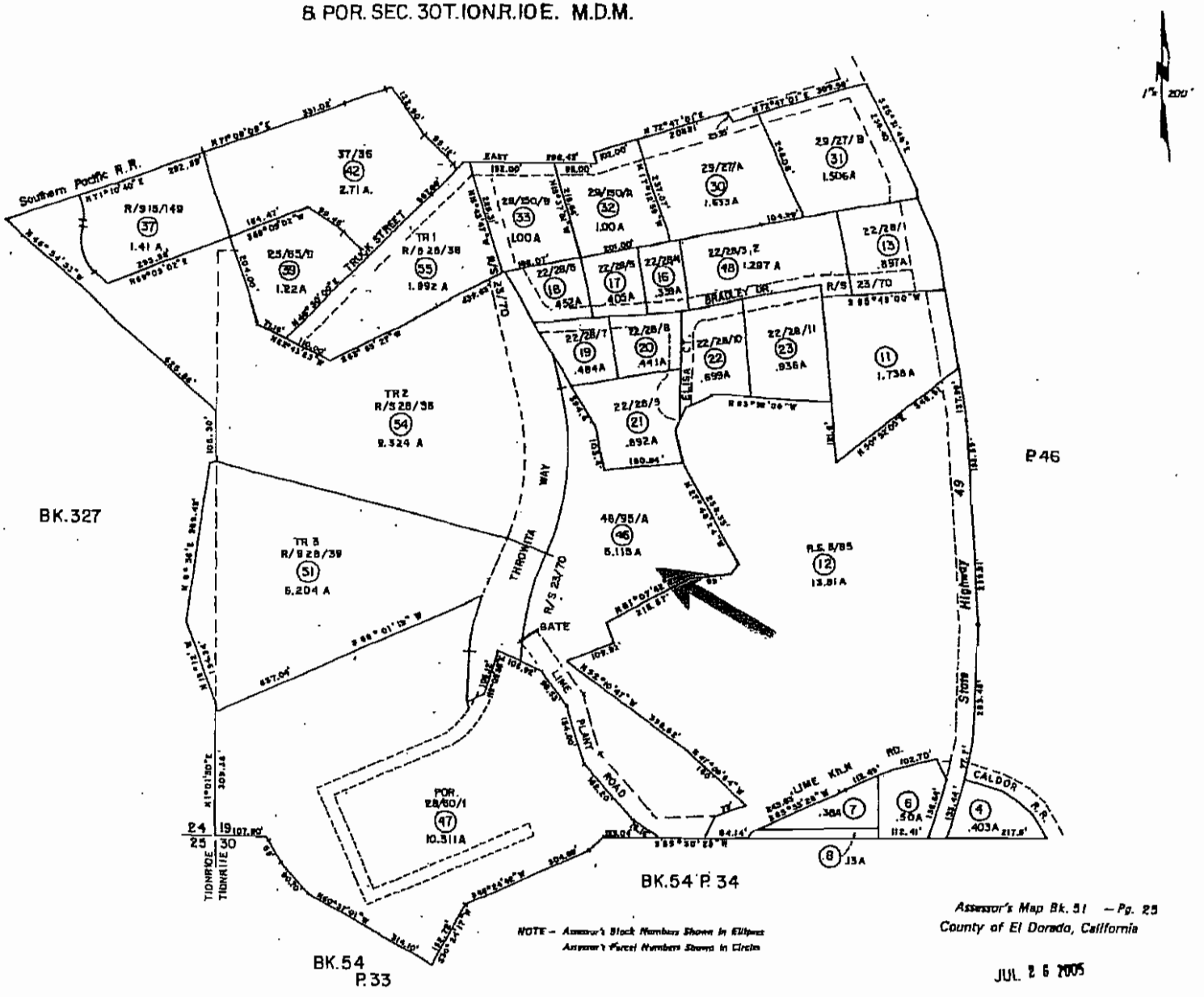
We may disclose any of the above information that we collect about our customers or former customers to our affiliates or to nonaffiliated third parties as permitted by law.

We also may disclose this information about our customers or former customers to the following types of nonaffiliated companies that perform marketing services on our behalf or with whom we have joint marketing agreements:

* Financial service providers such as companies engaged in banking, consumer finances, securities and insurance.
* Nonfinancial companies such as envelope stuffers and other fulfillment service providers.

WE DO NOT DISCLOSE ANY NONPUBLIC PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT SPECIFICALLY PERMITTED BY LAW.

We restrict access to nonpublic personal information about you to those employees who need to know that information in order to provide products or services to you. We maintain physical, electronic and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.


& POR. SEC. 30 T.10N R.10E. M.D.M.
1" = 200'
Southern Pacific R.R.
37/36 (42) 2.71 A.
R/S 15/149 (37) 1.41 A
25/65/B (39) 1.22A
TR 1 R/S 28/38 (35) 1.892 A
TRUCK STREET
28/50/B (33) 1.00A
29/50/A (32) 1.00A
29/27/A (30) 1.633A
29/27/B (31) 1.506A
22/28/6 (18) .452A
22/28/5 (17) .409A
22/28/4 (16) .359A
22/28/3,2 (48) 1.297 A
22/28/1 (13) .897A
BRADLEY DR.
R/S 23/70
22/28/7 (19) .484A
22/28/8 (20) .441A
22/28/10 (22) .699A
22/28/11 (23) .936A
(11) 1.738 A
ELISA LN.
22/28/9 (21) .892A
TR 2 R/S 28/38 (34) 9.324 A
TR 3 R/S 28/39 (51) 5.204 A
THROWITA WAY
48/35/A (46) 5.115A
R.S. B/85 (12) 13.81A
P 46
BK. 327
GATE
LIME PLANT ROAD
POR. 28/60/1 (47) 10.311A
LIME KILN RD.
(7) .38A
(6) .50A
(4) .403A
CALDOR R.R.
Stone Highway 49
(8) 13A
BK. 54 P. 34
BK. 54 P. 33
NOTE – Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles
Assessor's Map Bk. 51 – Pg. 25
County of El Dorado, California
JUL 2 6 2005

APPENDIX B: Historical Record Documentation

EDR Radius Map Report with GeoCheck®
EDR Aerial Photo Decade Package
EDR Historical Topographic Map Report
EDR-City Directory Abstract
EDR-Sanborn Map Report (No Coverage)

The EDR Radius Map
with GeoCheck®

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.2s

August 30, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

THROWITA WAY
PLACERVILLE, CA 95667

COORDINATES

Latitude (North):	38.700800 - 38° 42' 2.9''
Longitude (West):	120.815900 - 120° 48' 57.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	689933.9
UTM Y (Meters):	4285631.5
Elevation:	1795 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	38120-F7 PLACERVILLE, CA
Most Recent Revision:	1973

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL National Priority List
Proposed NPL Proposed National Priority List Sites
Delisted NPL National Priority List Deletions
NPL LIENS Federal Superfund Liens
CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS Corrective Action Report
RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
LIENS 2 CERCLA Lien Information
RADINFO Radiation Information Database
US CDL Clandestine Drug Labs
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
ICIS Integrated Compliance Information System
LUCIS Land Use Control Information System
DOT OPS Incident and Accident Data
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

HIST Cal-Sites Historical Calsites Database
CA BOND EXP. PLAN Bond Expenditure Plan
SCH School Property Evaluation Program
Toxic Pits Toxic Pits Cleanup Act Sites
CA WDS Waste Discharge System
WMUDS/SWAT Waste Management Unit Database
SLIC Statewide SLIC Cases
UST Active UST Facilities
AST Aboveground Petroleum Storage Tank Facilities
LIENS Environmental Liens Listing
CHMIRS California Hazardous Material Incident Report System
Notify 65 Proposition 65 Records
DEED Deed Restriction Listing
VCP Voluntary Cleanup Program Properties
CLEANERS Cleaner Facilities
WIP Well Investigation Program Case List
CDL Clandestine Drug Labs
RESPONSE State Response Sites
HAZNET Facility and Manifest Data
EMI Emissions Inventory Data
HAULERS Registered Waste Tire Haulers Listing

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

CERCLIS-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 06/21/2007 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
ELDORADO DISPOSAL SERVICE INC	***3940 HWY 49***	***1/4 - 1/2 NE***	***14***	***17***

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store , treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 3 RCRA-SQG sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
RACK IT TRUCK RACKS B C I INC	***521 TRUCK ST***	***1/8 - 1/4 NNE***	***B7***	***13***
SIERRA DESIGN AND WALLPAPER	***4060 STAGE CT BLDG G SE***	***1/8 - 1/4 WNW***	***C8***	***13***
ABE ARENS BROTHERS ENVIRONMENT	***4066 STAGE COURT***	***1/8 - 1/4 WNW***	***C9***	***14***

STATE AND LOCAL RECORDS

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 06/11/2007 has revealed that there are 3 SWF/LF sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WEDRS- CDI RECOVETY OPERATION	4100 THROWITA WAY	0 - 1/8 NE	A1	6
WEDRS-GREEN WASTE RECYCLING CE	4100 THROWITA WAY	0 - 1/8 NE	A3	8
WASTE MGT INC WESTERN EL DORAD	***4100 THROWITA WAY***	***0 - 1/8 NE***	***A4***	***9***

CORTESE: This database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration. The source is the California Environmental Protection Agency/Office of Emergency Information.

A review of the Cortese list, as provided by EDR, and dated 04/01/2001 has revealed that there are 3 Cortese sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
GUSTAFSON, D.M. & PATRICI	***3655 CHUCKWAGON***	***1/8 - 1/4 SW***	***5***	***12***
SIERRA DOOR	***4415 MISSOURI FLAT RD***	***1/4 - 1/2 WNW***	***18***	***22***

Lower Elevation	Address	Dist / Dir	Map ID	Page
FORMER SS	***493 MAIN ST***	***1/4 - 1/2 SSW***	***17***	***20***

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 07/09/2007 has revealed that there are 3 SWRCY sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WESTERN EL DORADO RECOVERY SYS	4100 THROWITA WY	0 - 1/8 NE	A2	7
E M RECYCLING	4040 #A-2 STAGE CT	1/8 - 1/4 W	11	15

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE	580 TRUCK ST	1/8 - 1/4 NNE	B6	12

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 07/10/2007 has revealed that there are 2 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
SIERRA DOOR	***4415 MISSOURI FLAT RD***	***1/4 - 1/2 WNW***	***18***	***22***
Facility Status: Pollution Characterization				

Lower Elevation	Address	Dist / Dir	Map ID	Page
FORMER SS	***493 MAIN ST***	***1/4 - 1/2 SSW***	***17***	***20***
Facility Status: Case Closed				

CA FID: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WAYNE I. QUEEN	4052 STAGE CT	1/8 - 1/4 W	10	14

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE INC	***3940 HIGHWAY 49***	***1/8 - 1/4 NNE***	***12***	***15***
ELDORADO DISPOSAL SERVICE INC.	3940 HIWAY 49	1/8 - 1/4 NE	13	16

SWEEPS: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EL DORADO DISPOSAL SERVICE INC	***3940 HIGHWAY 49***	***1/8 - 1/4 NNE***	***12***	***15***

EXECUTIVE SUMMARY

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

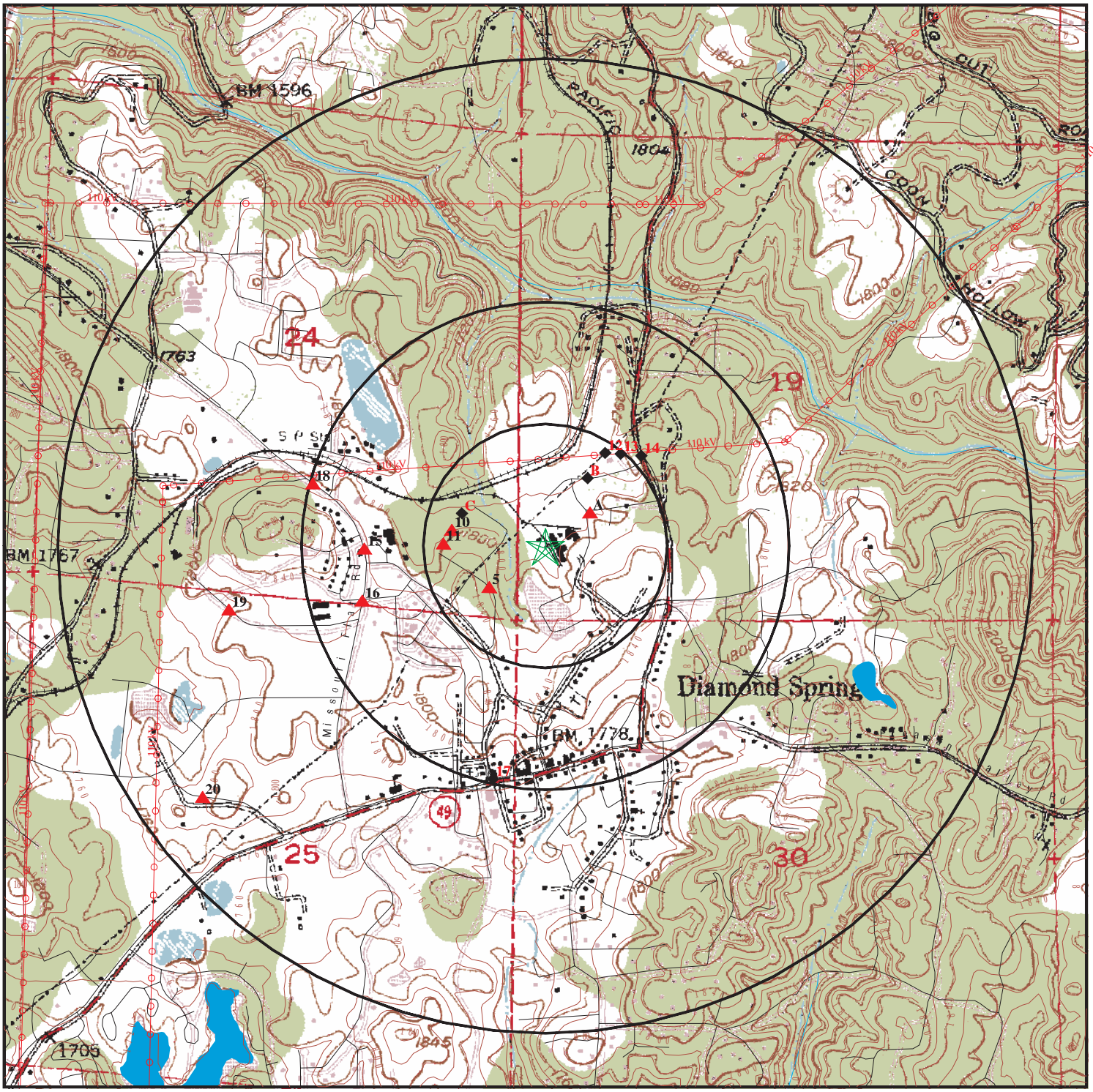
A review of the ENVIROSTOR list, as provided by EDR, and dated 05/29/2007 has revealed that there are 4 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
TETERS AUTO WRECKERS Facility Status: Refer: Other Agency	4487 MISSOURI FLAT ROAD	1/4 - 1/2 W	15	18
CELEBRITY PLATING Facility Status: Refer: RCRA	4502 MISSOURI FLAT ROAD	1/4 - 1/2 WSW	16	19
OLD CALDOR LUMBER COMPANY YARD Facility Status: No Further Action	180 INDUSTRIAL DRIVE	1/2 - 1 WSW	19	24
FOOTHILL AUTO REPAIR Facility Status: Refer: RWQCB	6566-C COMMERCE WAY	1/2 - 1 SW	20	25

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
WAYNE I. QUEEN	SWEEPS UST
HANGTOWN MARINE LLC	CLEANERS
OLD CALDOR LUMBER CO YD	CERC-NFRAP
OXYGEN SERVICE & SUPPLY CO	CERC-NFRAP
SMUD: EL DORADO COUNTY ROADS	CERC-NFRAP
PG & E CHILI BAR POWERHOUSE	RCRA-SQG, FINDS, HAZNET
CALTRANS- HIGHWAY 50	SLIC
SIERRA PACIFIC INDUSTRIES - HAZEL CREEK MINE	SLIC
OXYGEN SERVICE AND SUPPLY COMPANY	ENVIROSTOR
SHAW MINE, NEAR INDIAN CREEK RANCH	ENVIROSTOR

OVERVIEW MAP - 2018466.2s



0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY #: 2018466.2s DATE: August 30, 2007 1:59 pm

DETAIL MAP - 2018466.2s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY #: 2018466.2s DATE: August 30, 2007 1:59 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	1	NR	NR	1
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	3	NR	NR	NR	3
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
LIENS 2		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
Hist Cal-Sites		1.000	0	0	0	0	NR	0
CA Bond Exp. Plan		1.000	0	0	0	0	NR	0
SCH		0.250	0	0	NR	NR	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0
State Landfill		0.500	3	0	0	NR	NR	3
CA WDS		TP	NR	NR	NR	NR	NR	0
WMUDS/SWAT		0.500	0	0	0	NR	NR	0
Cortese		0.500	0	1	2	NR	NR	3

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SWRCY		0.500	1	2	0	NR	NR	3
LUST		0.500	0	0	2	NR	NR	2
CA FID UST		0.250	0	1	NR	NR	NR	1
SLIC		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
HIST UST		0.250	0	2	NR	NR	NR	2
AST		0.250	0	0	NR	NR	NR	0
LIENS		TP	NR	NR	NR	NR	NR	0
SWEEPS UST		0.250	0	1	NR	NR	NR	1
CHMIRS		TP	NR	NR	NR	NR	NR	0
Notify 65		1.000	0	0	0	0	NR	0
DEED		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
WIP		0.250	0	0	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RESPONSE		1.000	0	0	0	0	NR	0
HAZNET		TP	NR	NR	NR	NR	NR	0
EMI		TP	NR	NR	NR	NR	NR	0
ENVIROSTOR		1.000	0	0	2	2	NR	4
HAULERS		TP	NR	NR	NR	NR	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **WEDRS- CDI RECOVETY OPERATION (MVCDI)** **SWF/LF** **S106800105**
NE **4100 THROWITA WAY** **N/A**
< 1/8 **SHINGLE SPRINGS, CA**
606 ft.

Site 1 of 4 in cluster A

Relative:
Higher

Actual:
1798 ft.

LF:

Region:	STATE
Facility ID:	09-AA-0007
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69925 / -120.81581
Land Owner:	Not reported
Owner Name:	Western El Dorado Disposal Services, Inc
Owner Telephone:	5302953000
Owner Address:	Susan Farris, General Manager
Owner Address2:	P. O. Box 1270
Owner City,St,Zip:	Diamond Springs, CA 95619
Operator:	Western El Dorado Disposal Services, Inc
Operator Phone:	5302953000
Operator Address:	Susan Farris, General Manager
Operator Address2:	P. O. Box 1270
Operator City,St,Zip:	Diamond Springs, CA 95619
Operator's Status:	Active
Permit Date:	9/5/2006
Permit Status:	Permitted
Permitted Acreage:	3.00
Activity:	Medium Vol CD Wood Debris ChipGrind Fac.
Regulation Status:	Permitted
Land Use:	Not reported
Landuse Name:	Not reported
GIS Source:	Map
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Construction/demolition,Inert,Metals,Wood waste
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported

WEDRS- CDI RECOVETY OPERATION (MVCDI) (Continued) **S106800105**

Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	Not reported
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported
Permitted Throughput with Units:	175
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	63525
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/year
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

A2 **WESTERN EL DORADO RECOVERY SYSTEMS** **SWRCY** **S107138342**
NE **4100 THROWITA WY** **N/A**
< 1/8 **PLACERVILLE, CA 95667**
606 ft.

Site 2 of 4 in cluster A

Relative: Higher

Actual: 1798 ft.

SWRCY:

Certification Status:	D
Facility Phone Number:	(530) 626-4141
Date facility became certified:	08/30/00
Date facility began operating:	10/01/00
Date facility ceased operating:	11/09/06
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

A3
NE
< 1/8
606 ft.

Relative:
Higher

Actual:
1798 ft.

WEDRS-GREEN WASTE RECYCLING CENTER
4100 THROWITA WAY
DIAMOND SPRINGS, CA

SWF/LF **S106800104**
N/A

Site 3 of 4 in cluster A

LF:

Region:	STATE
Facility ID:	09-AA-0006
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69887 / -120.81504
Land Owner:	Not reported
Owner Name:	Waste Connections, Inc.
Owner Telephone:	9166088200
Owner Address:	Not reported
Owner Address2:	35 Iron Point Circle, Suite 200
Owner City,St,Zip:	Folsom, CA 95630-8589
Operator:	Waste Connections of California, Inc.
Operator Phone:	9166088200
Operator Address:	Not reported
Operator Address2:	35 Iron Point Circle
Operator City,St,Zip:	Folsom, CA 95630
Operator's Status:	Active
Permit Date:	6/26/2006
Permit Status:	Notification
Permitted Acreage:	3.00
Activity:	Chipping and Grinding Activity Fac./ Op.
Regulation Status:	Notification
Land Use:	Not reported
Landuse Name:	Commercial
GIS Source:	Map
Category:	Composting
Unit Number:	01
Inspection Frequency:	Quarterly
Accepted Waste:	Green Materials
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported

WEDRS-GREEN WASTE RECYCLING CENTER (Continued) **S106800104**

Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	Not reported
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported
Permitted Throughput with Units:	200
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	72600
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/year
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

A4 **WASTE MGT INC WESTERN EL DORAD** **SWF/LF** **S105155530**
NE **4100 THROWITA WAY** **CA WDS** **N/A**
< 1/8 **PLACERVILLE, CA 95667**
606 ft.

Site 4 of 4 in cluster A

Relative: Higher

Actual: 1798 ft.

LF:

Region:	STATE
Facility ID:	09-AA-0004
Facility Telephone:	Not reported
Facility Telephone 2:	Not reported
Lat/Long:	38.69920 / -120.81498
Land Owner:	Not reported
Owner Name:	Waste Connections of California, Inc.
Owner Telephone:	9166088200
Owner Address:	Not reported
Owner Address2:	35 Iron Point Circle
Owner City,St,Zip:	Folsom, CA 95630
Operator:	Western El Dorado Reg System
Operator Phone:	5306264141
Operator Address:	Not reported
Operator Address2:	P.O. Box 1270
Operator City,St,Zip:	Diamond Springs, CA 95619
Operator's Status:	Active
Permit Date:	2/23/2005

WASTE MGT INC WESTERN EL DORAD (Continued) **S105155530**

Permit Status:	Permitted
Permitted Acreage:	10.10
Activity:	Large Volume Transfer/Proc Facility
Regulation Status:	Permitted
Land Use:	Not reported
Landuse Name:	Not reported
GIS Source:	Map
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Mixed municipal
Year Opened:	Not reported
Year Closed:	Not reported
Closure Date:	/ /
Closure Type:	Not reported
Closure Approve:	Not reported
Disposal Acreage:	Not reported
Status:	Not reported
Swisnumber:	Not reported
Aka:	Not reported
Type Of Waste:	Not reported
Disposal Area:	Not reported
SWFP Date:	Not reported
WDR Number:	Not reported
Dates Operation:	Not reported
Dt Of Field Units:	Not reported
Surface Condition:	Not reported
Landfill Gas:	Not reported
Leachate:	Not reported
Emrgncy Response:	Not reported
Lea Date:	Not reported
Restrictions:	Not reported
Fill Area:	Not reported
Type Of Refuse:	Not reported
Avg Depth Of Fill:	Not reported
Addtl Expansion Area:	Not reported
Site Size:	Not reported
Site Type:	Not reported
Site Description:	Not reported
Reassess Site:	Not reported
Location:	Not reported
Parcel Num:	Not reported
Issue & Observations:	Not reported
Other Observations:	Not reported
Date:	Not reported
Address:	Not reported
Prep By:	Not reported
DOHS Number:	Not reported
CUP Number:	Not reported
CIWMB:	Not reported
Program Type:	MRF
Public Notice:	Not reported
PERMTIER:	Not reported
Recommendations:	Not reported
Othr Recommendation:	Not reported
Sig. Change Since Last Visit:	Not reported
Priority For Site Assessment:	Not reported

WASTE MGT INC WESTERN EL DORAD (Continued) **S105155530**

Permitted Throughput with Units:	400
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	400
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/day
Last Waste Tire Inspection Count:	Not reported
Last Waste Tire Inspection Date:	Not reported
Original Waste Tire Count:	Not reported
Original Waste Tire Count Date:	Not reported

CA WDS:

Facility ID:	5S 09I017764
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	0
Facility Telephone:	5306420731
Facility Contact:	James Milton
Agency Name:	WASTE MANAGEMENT INC EL DORADO
Agency Address:	PO Box 1510
Agency City,St,Zip:	Diamond Springs 956191510
Agency Contact:	MILTON JAMES
Agency Telephone:	2302953002
Agency Type:	Private
SIC Code:	4953
SIC Code 2:	Not reported
Primary Waste:	Stormwater Runoff
Primary Waste Type:	Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

5
SW
1/8-1/4
752 ft.

Relative:
Higher

Actual:
1817 ft.

GUSTAFSON, D.M. & PATRICI
3655 CHUCKWAGON
PLACERVILLE, CA 95667

HAZNET
Cortese

1000294914
N/A

HAZNET:

Gepaid:	CAD982342073
Contact:	Not reported
Telephone:	0000000000
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	3655 CHUCKWAGON WAY
Mailing City,St,Zip:	PLACERVILLE, CA 956670000
Gen County:	9
TSD EPA ID:	CA0000084517
TSD County:	Sacramento
Waste Category:	Not reported
Disposal Method:	Recycler
Tons:	.0291
Facility County:	9

Cortese:

Region:	CORTESE
Facility Addr2:	Not reported

B6
NNE
1/8-1/4
850 ft.

Relative:
Lower

Actual:
1781 ft.

EL DORADO DISPOSAL SERVICE
580 TRUCK ST
PLACERVILLE, CA 95667

Site 1 of 2 in cluster B

SWRCY

S108086801
N/A

SWRCY:

Certification Status:	O
Facility Phone Number:	(530) 626-4141
Date facility became certified:	09/22/06
Date facility began operating:	10/12/06
Date facility ceased operating:	Still operating
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

B7
NNE
1/8-1/4
866 ft.

Relative:
Lower

Actual:
1781 ft.

RACK IT TRUCK RACKS B C I INC
521 TRUCK ST
DIAMOND SPRINGS, CA 95619

RCRA-SQG
FINDS

1004676293
CAR000083428

Site 2 of 2 in cluster B

RCRAInfo:
Owner: C A CORPORATION
(530) 621-0754
EPA ID: CAR000083428

Contact: GARY JONES
(530) 621-0754

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C8
WNW
1/8-1/4
969 ft.

Relative:
Lower

Actual:
1788 ft.

SIERRA DESIGN AND WALLPAPER
4060 STAGE CT BLDG G SECT 3
PLACERVILLE, CA 95667

RCRA-SQG
FINDS

1000686175
CAD983634106

Site 1 of 2 in cluster C

RCRAInfo:
Owner: HAZEN JOE
(916) 626-7136
EPA ID: CAD983634106

Contact: JOE HAZEN
(916) 626-7136

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C9
WNW
1/8-1/4
972 ft.

Relative:
Lower

Actual:
1788 ft.

ABE ARENS BROTHERS ENVIRONMENTAL
4066 STAGE COURT
PLACERVILLE, CA 95667

RCRA-SQG
HAZNET

1008372089
CAR000162636

Site 2 of 2 in cluster C

RCRAInfo:
Owner: ABE ARENS BROTHERS ENVIRONMENTAL
EPA ID: CAR000162636
Contact: CHERYL ARENS
530-621-3044
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

HAZNET:

Gepaid:	CAR000162636
Contact:	CHERYL L ARENS
Telephone:	5306213044
Facility Addr2:	Not reported
Mailing Name:	Not reported
Mailing Address:	3987 MISSOURI FLAT RD ST 340 PMB107
Mailing City,St,Zip:	PLACERVILLE, CA 956670000
Gen County:	El Dorado
TSD EPA ID:	Not reported
TSD County:	Not reported
Waste Category:	Waste oil and mixed oil
Disposal Method:	Transfer Station
Tons:	1.66
Facility County:	Not reported

10
West
1/8-1/4
1028 ft.

Relative:
Higher

Actual:
1799 ft.

WAYNE I. QUEEN
4052 STAGE CT
PLACERVILLE, CA 95667

CA FID UST

S101627949
N/A

CA FID UST:

Facility ID:	09000446
Regulated By:	UTNKA
Regulated ID:	00052072
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	9166266903
Mail To:	Not reported
Mailing Address:	BOX
Mailing Address 2:	Not reported
Mailing City,St,Zip:	PLACERVILLE 95667
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

11
West
1/8-1/4
1103 ft.

Relative:
Higher

Actual:
1803 ft.

E M RECYCLING
4040 #A-2 STAGE CT
PLACERVILLE, CA 95667

SWRCY **S107136889**
N/A

SWRCY:

Certification Status:	R
Facility Phone Number:	(916) 621-2027
Date facility became certified:	01/09/91
Date facility began operating:	01/09/91
Date facility ceased operating:	01/07/93
Whether The Facility Is Grandfathered:	Not reported
Convenience Zone Where Faciltiy Located:	0
Convenience Zone Where Faciltiy Located 2:	0
Convenience Zone Where Faciltiy Located 3:	0
Convenience Zone Where Faciltiy Located 4:	0
Convenience Zone Where Faciltiy Located 5:	0
Convenience Zone Where Faciltiy Located 6:	0
Convenience Zone Where Faciltiy Located 7:	0
Aluminum Beverage Containers Redeemed:	AL
Glass Beverage Containers Redeemed:	GL
Plastic Beverage Containers Redeemed:	PL
Other mat beverage containers redeemed:	Not reported
Refillable Beverage Containers Redeemed:	Not reported

12
NNE
1/8-1/4
1198 ft.

Relative:
Lower

Actual:
1767 ft.

EL DORADO DISPOSAL SERVICE INC
3940 HIGHWAY 49
DIAMOND SPRINGS, CA 95619

HIST UST **1000191344**
SWEEPS UST **N/A**

HIST UST:

Region:	STATE
Facility ID:	00000050247
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00010000
Facility Type:	Other
Other Type:	Not reported
Total Tanks:	0002
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Tank Construction:	Not reported
Leak Detection:	Visual
Contact Name:	HARRY DE WOLF
Telephone:	9166224141
Owner Name:	EL DORADO DISPOSAL SERVICE, IN
Owner Address:	3940 HIGHWAY 49
Owner City,St,Zip:	DIAMOND SPRINGS, CA 95619

Region:	STATE
Facility ID:	00000050247
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00010000
Facility Type:	Other
Other Type:	Not reported
Total Tanks:	0002
Tank Used for:	PRODUCT

EL DORADO DISPOSAL SERVICE INC (Continued) **1000191344**

Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Visual
Contact Name: HARRY DE WOLF
Telephone: 9166224141
Owner Name: EL DORADO DISPOSAL SERVICE, IN
Owner Address: 3940 HIGHWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

SWEEPS UST:
Status: A
Comp Number: 16160
Number: 9
Board Of Equalization: 44-002936
Ref Date: 12-11-92
Act Date: 01-08-93
Created Date: 10-13-88
Tank Status: A
Owner Tank Id: D-1
Swrcb Tank Id: 09-000-016160-000001
Actv Date: 07-01-85
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: DIESEL
Number Of Tanks: 2

Status: A
Comp Number: 16160
Number: 9
Board Of Equalization: 44-002936
Ref Date: 12-11-92
Act Date: 01-08-93
Created Date: 10-13-88
Tank Status: A
Owner Tank Id: G02
Swrcb Tank Id: 09-000-016160-000002
Actv Date: 12-11-92
Capacity: 10000
Tank Use: M.V. FUEL
Stg: P
Content: LEADED
Number Of Tanks: Not reported

---

13 **ELDORADO DISPOSAL SERVICE INC.** **HIST UST** **U001612635**
NE **3940 HIWAY 49** **N/A**
1/8-1/4 **DIAMOND SPRINGS, CA 95619**
1289 ft.

Relative:
Lower

Actual:
1763 ft.

HIST UST:
Region: STATE
Facility ID: 00000016160
Tank Num: 001
Container Num: D-1
Year Installed: Not reported
Tank Capacity: 00010000
Facility Type: Other

ELDORADO DISPOSAL SERVICE INC. (Continued) **U001612635**

Other Type: DISPOSAL SERVICE
Total Tanks: 0002
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor
Contact Name: Not reported
Telephone: 9166264141
Owner Name: ELDORADO DISPOSAL SERVICE INC.
Owner Address: 3940 HIWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

Region: STATE
Facility ID: 00000016160
Tank Num: 002
Container Num: G-1
Year Installed: Not reported
Tank Capacity: 00010000
Facility Type: Other
Other Type: DISPOSAL SERVICE
Total Tanks: 0002
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor
Contact Name: Not reported
Telephone: 9166264141
Owner Name: ELDORADO DISPOSAL SERVICE INC.
Owner Address: 3940 HIWAY 49
Owner City,St,Zip: DIAMOND SPRINGS, CA 95619

---

14 **ELDORADO DISPOSAL SERVICE INC** **RCRA-SQG** **1000341016**
NE **3940 HWY 49** **FINDS** **CAD980637698**
1/4-1/2 **PLACERVILLE, CA 95667** **CERC-NFRAP**
1427 ft.

Relative:
Lower

Actual:
1778 ft.

RCRAInfo:
Owner: DEWOLF & SCARIOT
(415) 555-1212
EPA ID: CAD980637698
Contact: ENVIRONMENTAL MANAGER
(916) 626-4141
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ELDORADO DISPOSAL SERVICE INC (Continued) **1000341016**

CERC-NFRAP:
Site ID: 0901913
Federal Facility: Not a Federal Facility
NPL Status: Not on the NPL
Non NPL Status: NFRAP

CERCLIS-NFRAP Site Contact Name(s):
Contact Name: Matt Mitguard
Contact Tel: (415) 972-3096
Contact Title: Site Assessment Manager (SAM)

Contact Name: Jere Johnson
Contact Tel: (415) 972-3094
Contact Title: Site Assessment Manager (SAM)

CERCLIS-NFRAP Site Alias Name(s):
Alias Name: EL DORADO DSPL SERV
Alias Address: 1/2 MI W OF WEBER CR BRG ON STATE HWY 49, CA 95619
Site Description: Not reported

CERCLIS-NFRAP Assessment History:
Action: DISCOVERY
Date Started: Not reported
Date Completed: 06/01/1981
Priority Level: Not reported

Action: PRELIMINARY ASSESSMENT
Date Started: 02/01/1985
Date Completed: 07/01/1985
Priority Level: High

Action: SITE INSPECTION
Date Started: Not reported
Date Completed: 03/01/1986
Priority Level: NFRAP (No Futher Remedial Action Planned

Action: ARCHIVE SITE
Date Started: Not reported
Date Completed: 03/01/1986
Priority Level: Not reported

---

15 **TETERS AUTO WRECKERS** **ENVIROSTOR** **S102860835**
West **4487 MISSOURI FLAT ROAD** **N/A**
1/4-1/2 **PLACERVILLE, CA 95667**
1959 ft.

Relative:
Higher

Actual:
1822 ft.

ENVIROSTOR:
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Central California

TETERS AUTO WRECKERS (Continued) **S102860835**

Facility ID:	09500006
Site Code:	Not reported
Assembly:	04
Senate:	01
Special Program:	* Rural County Survey Program
Status:	**Refer: Other Agency**
Status Date:	1995-09-12 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.7
Longitude:	-120.822222222222
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	10097, 10196, 10199, 30013, 30018
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

---

16 **CELEBRITY PLATING** **ENVIROSTOR** **S100857925**
WSW **4502 MISSOURI FLAT ROAD** **N/A**
1/4-1/2 **PLACERVILLE, CA 95667**
2068 ft.

Relative:
Higher

Actual:
1822 ft.

ENVIROSTOR:

Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	HWMP, EL DORADO COUNTY
Lead Agency:	HWMP
Program Manager:	Not reported
Supervisor:	Steven Becker
Division Branch:	Central California

CELEBRITY PLATING (Continued) **S100857925**

Facility ID:	09340001
Site Code:	101525
Assembly:	04
Senate:	01
Special Program:	EPA - PASI
Status:	**Refer: RCRA**
Status Date:	2004-03-12 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.7
Longitude:	-120.822222222222
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	NONE SPECIFIED
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

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17 **FORMER SS** **LUST** **S102423350**
SSW **493 MAIN ST** **Cortese** **N/A**
1/4-1/2 **DIAMOND SPRINGS, CA 95619**
2588 ft.

Relative:
Lower

Actual:
1787 ft.

LUST:

Region:	STATE
Case Type:	Soil only
Cross Street:	CHINA GARDEN
Enf Type:	None Taken
Funding:	R
How Discovered:	Tank Closure
How Stopped:	Not reported
Leak Cause:	Corrosion
Leak Source:	Tank
Global Id:	T0601700047
Stop Date:	Not reported
Confirm Leak:	1992-04-01 00:00:00
Workplan:	Not reported

FORMER SS (Continued) **S102423350**

Prelim Assess: Not reported
Pollution Char: Not reported
Remed Plan: Not reported
Remed Action: Not reported
Monitoring: Not reported
Close Date: 1992-06-22 00:00:00
Discover Date: 1992-02-28 00:00:00
Enforcement Dt: 1965-01-01 00:00:00
Release Date: 1992-04-01 00:00:00
Review Date: 1992-04-01 00:00:00
Enter Date: 1992-04-21 00:00:00
MTBE Date: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Max MTBE GW ppb: Not reported
Max MTBE Soil ppb: Not reported
County: 09
Org Name: Not reported
Reg Board: 5S
Status: Case Closed
Chemical: Gasoline
Contact Person: Not reported
Responsible Party: THORNTON, TOM
RP Address: 6441 OAKHILL RD, PLACERVILLE, CA 95667
Interim: Not reported
Oversight Prgm: LUST
MTBE Class: *
MTBE Conc: 0
MTBE Fuel: 1
MTBE Tested: Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
Staff: PGM
Staff Initials: JAR
Lead Agency: Regional Board
Local Agency: 09000
Hydr Basin #: UNNAMED BASIN
Beneficial: Not reported
Priority: 3
Cleanup Fund Id: Not reported
Work Suspended: No
Local Case #: Not reported
Case Number: 090065
Qty Leaked: Not reported
Abate Method: Excavate and Dispose - remove contaminated soil and dispose in approved site
Operator: Not reported
Water System Name: Not reported
Well Name: Not reported
Distance To Lust: 0
Waste Discharge Global ID: Not reported
Waste Disch Assigned Name: Not reported
Summary: 04/01/92 2,500GAL TANK IMPROPERLY ABANDONED PRIOR TO CURRENT OWNERSHIP FORMER SS ,TANKS FILLED W/ PEA GRAVEL & NOT CLEANED TANK BOTTOMS HAD NUMEROUS HOLES

LUST:
Region: 5
Case Number: 090065
Staff Initials: PGM

FORMER SS (Continued) **S102423350**

Substance: GASOLINE
Case Type: Soil only
Status: Case Closed
Lead Agency: Regional
Program: LUST
MTBE Code: N/A

Cortese:
Region: CORTESE
Facility Addr2: 493 MAIN ST

---

18 **SIERRA DOOR** **LUST** **S101581227**
WNW **4415 MISSOURI FLAT RD** **Cortese** **N/A**
1/4-1/2 **PLACERVILLE, CA 95667** **CA FID UST**
2607 ft. **SWEEPS UST**

Relative:
Higher

Actual:
1808 ft.

LUST:
Region: STATE
Case Type: Drinking Water Aquifer affected
Cross Street: FORNI RD
Enf Type: None Taken
Funding: Not reported
How Discovered: Subsurface Monitoring
How Stopped: Not reported
Leak Cause: Corrosion
Leak Source: Tank
Global Id: T0601700050
Stop Date: Not reported
Confirm Leak: Not reported
Workplan: Not reported
Prelim Assess: 1992-07-24 00:00:00
Pollution Char: 2006-06-23 00:00:00
Remed Plan: Not reported
Remed Action: Not reported
Monitoring: Not reported
Close Date: Not reported
Discover Date: 1992-07-22 00:00:00
Enforcement Dt: 1965-01-01 00:00:00
Release Date: 1992-07-24 00:00:00
Review Date: Not reported
Enter Date: Not reported
MTBE Date: Not reported
GW Qualifier: Not reported
Soil Qualifier: Not reported
Max MTBE GW ppb: Not reported
Max MTBE Soil ppb: Not reported
County: 09
Org Name: Not reported
Reg Board: 5S
Status: Pollution Characterization
Chemical: Gasoline
Contact Person: Not reported
Responsible Party: KESSELER, GEORGE
RP Address: 466 OLIVE ORCHARD DR,AUBURN,CA 95603
Interim: Not reported
Oversight Prgm: LUST
MTBE Class: *

SIERRA DOOR (Continued) **S101581227**

MTBE Conc: 0
MTBE Fuel: 1
MTBE Tested: Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
Staff: PGM
Staff Initials: JAR
Lead Agency: Regional Board
Local Agency: 09000
Hydr Basin #: UNNAMED BASIN
Beneficial: GWR
Priority: 1
Cleanup Fund Id: Not reported
Work Suspended: No
Local Case #: Not reported
Case Number: 090068
Qty Leaked: Not reported
Abate Method: Excavate and Treat - remove contaminated soil and treat (includes spreading or land farming)
Operator: Not reported
Water System Name: Not reported
Well Name: Not reported
Distance To Lust: 0
Waste Discharge Global ID: Not reported
Waste Disch Assigned Name: Not reported
Summary: SITE ASSESSMENT 12/91 UNREGISTERDED TANKS, HOLES IN TANKS, SIGNIFICANT CONTAMINATION

LUST:
Region: 5
Case Number: 090068
Staff Initials: PGM
Substance: GASOLINE
Case Type: Drinking Water Aquifer affected
Status: Pollution Characterization
Lead Agency: Regional
Program: LUST
MTBE Code: N/A

Cortese:
Region: CORTESE
Facility Addr2: 4415 MISSOURI FLAT RD

CA FID UST:
Facility ID: 09000030
Regulated By: UTNKI
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 9166263500
Mail To: Not reported
Mailing Address: 466 OLIVE ORCHARD DR
Mailing Address 2: Not reported
Mailing City,St,Zip: PLACERVILLE 95667
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported

SIERRA DOOR (Continued) **S101581227**

EPA ID: Not reported
Comments: Not reported
Status: Inactive

SWEEPS UST:
Status: Not reported
Comp Number: 464
Number: Not reported
Board Of Equalization: Not reported
Ref Date: Not reported
Act Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 09-000-000464-000001
Actv Date: Not reported
Capacity: 550
Tank Use: M.V. FUEL
Stg: PRODUCT
Content: LEADED
Number Of Tanks: 2

Status: Not reported
Comp Number: 464
Number: Not reported
Board Of Equalization: Not reported
Ref Date: Not reported
Act Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 09-000-000464-000002
Actv Date: Not reported
Capacity: 550
Tank Use: M.V. FUEL
Stg: PRODUCT
Content: DIESEL
Number Of Tanks: Not reported

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19 **OLD CALDOR LUMBER COMPANY YARD** **ENVIROSTOR** **S100350737**
WSW **180 INDUSTRIAL DRIVE** **N/A**
1/2-1 **DIAMOND SPRINGS, CA 95619**
3493 ft.

Relative: Higher

Actual: 1799 ft.

ENVIROSTOR:
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: James Tjosvold
Division Branch: Central California
Facility ID: 09730001
Site Code: Not reported
Assembly: 04

OLD CALDOR LUMBER COMPANY YARD (Continued) **S100350737**

Senate:	01
Special Program:	Not reported
Status:	**No Further Action**
Status Date:	1989-02-27 00:00:00
Restricted Use:	NO
Funding:	Not reported
Latitude:	38.6985574325443
Longitude:	-120.828444358461
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	NONE SPECIFIED
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

20
SW
1/2-1
4600 ft.

FOOTHILL AUTO REPAIR **ENVIROSTOR** **S100714130**
6566-C COMMERCE WAY **N/A**
DIAMOND SPRINGS, CA 95619

Relative:
Higher

Actual:
1796 ft.

ENVIROSTOR:

Site Type:	Historical
Site Type Detailed:	* Historical
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Central California
Facility ID:	09750002
Site Code:	Not reported
Assembly:	Not reported
Senate:	Not reported
Special Program:	* Rural County Survey Program
Status:	**Refer: RWQCB**
Status Date:	1987-07-15 00:00:00

FOOTHILL AUTO REPAIR (Continued) **S100714130**

Restricted Use:	NO
Funding:	Not reported
Latitude:	0
Longitude:	0
Alias Name:	Not reported
Alias Type:	Not reported
APN:	NONE SPECIFIED
APN Description:	Not reported
Comments:	Not reported
Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Confirmed:	NONE SPECIFIED
Confirmed Description:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Media Affected:	10097, 10196, 10198, 10199
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Media Affected Desc:	Not reported
Management Required:	NONE SPECIFIED
Management Required Desc:	Not reported
Potential:	NONE SPECIFIED
Potenital Description:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported
PastUse:	NONE SPECIFIED

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
DIAMOND SPRINGS	1003878551	OLD CALDOR LUMBER CO YD	HWY 49 & FLAT RD	95619	CERC-NFRAP
DIAMOND SPRINGS	1000233629	OXYGEN SERVICE AND SUPPLY COMPANY	13 CHINA GARDEN ROAD	95619	ENVIROSTOR
DIAMOND SPRINGS	1003877982	OXYGEN SERVICE & SUPPLY CO	13 CHINA GARDEN RD	95619	CERC-NFRAP
PLACERVILLE	1000137193	PG & E CHILI BAR POWERHOUSE	HWY 193 3 MI N OF P VILLE	95667	RCRA-SQG, FINDS, HAZNET
PLACERVILLE	S106483515	CALTRANS- HIGHWAY 50	HIGHWAY 50, EAST BOUND	95667	SLIC
PLACERVILLE	S107473174	SIERRA PACIFIC INDUSTRIES - HAZEL CREEK MINE	HAZEL CREEK MINE RD, S OF HWY 50	95667	SLIC
PLACERVILLE	S100186970	SHAW MINE, NEAR INDIAN CREEK RANCH	NEAR HIGHWAY 50 / EL DORADO ROAD	95667	ENVIROSTOR
PLACERVILLE	S106934278	WAYNE I. QUEEN	4052 STAGE CT C	95667	SWEEPS UST
PLACERVILLE	S108540900	HANGTOWN MARINE LLC	4046 STAGE CT # D2	95667	CLEANERS
WHITE ROCK POWER HSI	1003878858	SMUD: EL DORADO COUNTY ROADS	VALE HOUSE RD AND OTHERS	95667	CERC-NFRAP

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/18/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 63

Source: EPA
Telephone: N/A
Last EDR Contact: 08/03/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 05/03/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 53

Source: EPA
Telephone: N/A
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/23/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 70

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 06/21/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/26/2007
Date Data Arrived at EDR: 08/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: (415) 495-8895
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/05/2007
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 27

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/18/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 04/20/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/20/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 63

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 51

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 07/16/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 44

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 08/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 69

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 06/19/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/13/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 71

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 36

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Varies

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 06/29/2007
Date Data Arrived at EDR: 07/02/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 58

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 06/22/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 06/15/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/29/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 08/01/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/05/2007
Date Data Arrived at EDR: 04/25/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 30

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/09/2007
Date Data Arrived at EDR: 06/28/2007
Date Made Active in Reports: 08/29/2007
Number of Days to Update: 62

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/12/2007
Date Data Arrived at EDR: 05/17/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 49

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Biennially

USGS WATER WELLS: National Water Information System (NWIS)

This database consists of well records in the United States. Available site descriptive information includes well location information (latitude and longitude, well depth, site use, water use, and aquifer).

Date of Government Version: 03/25/2005
Date Data Arrived at EDR: 03/25/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: USGS
Telephone: N/A
Last EDR Contact: 03/25/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PWS: Public Water System Data

This Safe Drinking Water Information System (SDWIS) file contains public water systems name and address, population served and the primary source of water

Date of Government Version: 02/24/2000
Date Data Arrived at EDR: 04/27/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA
Telephone: N/A
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: N/A

STATE AND LOCAL RECORDS

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: No Update Planned

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: No Update Planned

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/13/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 16

Source: Integrated Waste Management Board
Telephone: 916-341-6320
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

CA WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 06/20/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites). This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 05/29/2001
Date Made Active in Reports: 07/26/2001
Number of Days to Update: 58

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/06/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Varies

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2007
Date Data Arrived at EDR: 08/01/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 8

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 08/01/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 07/10/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 08/03/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/03/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 07/17/2007
Date Data Arrived at EDR: 07/18/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 22

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 07/17/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/13/2007
Date Data Arrived at EDR: 03/14/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 23

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/10/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 14

Source: SWRCB
Telephone: 916-480-1028
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 06/25/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 29

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/07/2007
Date Data Arrived at EDR: 05/08/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 17

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 05/01/2007
Date Data Arrived at EDR: 05/01/2007
Date Made Active in Reports: 05/25/2007
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 916-341-5712
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1980's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/23/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 42

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

NOTIFY 65: Proposition 65 Records

Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 07/02/2007
Date Data Arrived at EDR: 07/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 07/31/2007
Date Data Arrived at EDR: 07/31/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 9

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 24

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 07/27/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 03/07/2007
Date Made Active in Reports: 04/06/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Varies

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/20/2006
Date Made Active in Reports: 01/03/2007
Number of Days to Update: 44

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 23

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 07/20/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Varies

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 06/07/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 21

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/30/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 30

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/29/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Quarterly

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/09/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/14/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 21
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2007
Date Data Arrived at EDR: 06/07/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 28

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/18/2007
Date Data Arrived at EDR: 06/18/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 17

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 05/23/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 42

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 07/05/2007
Number of Days to Update: 35

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

FEDERAL RECORDS

COLLEGES: Integrated Postsecondary Education Data

The National Center for Education Statistics' primary database on integrated postsecondary education in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/12/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

PUBLIC SCHOOLS: Public Schools

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/13/2004
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education statistics
Telephone: 202-502-7300
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: N/A

PRIVATE SCHOOLS: Private Schools of the United States

The National Center for Education Statistics' primary database on private school locations in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/07/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: National Center for Education Statistics
Telephone: 202-502-7300
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

NURSING HOMES: Directory of Nursing Homes

Information on Medicare and Medicaid certified nursing homes in the United States.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/11/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: N/A
Telephone: 800-568-3282
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

MEDICAL CENTERS: Provider of Services Listing

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health & Human Services.

Date of Government Version: 06/01/1998
Date Data Arrived at EDR: 11/10/2005
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
Last EDR Contact: 01/12/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

HOSPITALS: AHA Hospital Guide

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Date of Government Version: N/A
Date Data Arrived at EDR: 10/19/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: American Hospital Association
Telephone: 800-242-2626
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/10/2007
Number of Days to Update: 14

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/24/2007
Date Data Arrived at EDR: 04/26/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 11

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 07/23/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/31/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 29

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Semi-Annually

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 07/16/2007
Date Data Arrived at EDR: 07/17/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 23

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 08/06/2007
Next Scheduled EDR Contact: 11/05/2007
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 06/20/2007
Date Data Arrived at EDR: 06/21/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 34

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 07/07/1999
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/31/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 05/15/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 21

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 08/17/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 06/11/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 07/11/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 29

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 05/14/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 08/23/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 05/29/2007
Date Data Arrived at EDR: 05/29/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 27

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 08/27/2007
Next Scheduled EDR Contact: 11/12/2007
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 05/08/2007
Date Data Arrived at EDR: 06/08/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 47

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 07/24/2007
Date Data Arrived at EDR: 07/27/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 13

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/24/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Semi-Annually

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 07/24/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Annually

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 10

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 06/01/2007
Date Data Arrived at EDR: 06/19/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 36

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 06/06/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 07/23/2007
Date Data Arrived at EDR: 07/23/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 17

Source: Placer County Health and Human Services
Telephone: 530-889-7312
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 38

Source: Department of Public Health
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 05/21/2007
Date Data Arrived at EDR: 05/22/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 34

Source: Health Services Agency
Telephone: 951-358-5055
Last EDR Contact: 07/16/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Contaminated Sites
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/23/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 37

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

ML - Regulatory Compliance Master List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/24/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 36

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/31/2007
Next Scheduled EDR Contact: 10/29/2007
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 06/27/2007
Date Data Arrived at EDR: 06/29/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 41

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2005
Date Data Arrived at EDR: 05/18/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 29

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 07/05/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 11/01/2006
Date Data Arrived at EDR: 01/03/2007
Date Made Active in Reports: 01/24/2007
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 08/20/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 06/27/2007
Date Data Arrived at EDR: 07/20/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 20

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Varies

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 06/08/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 07/25/2007
Number of Days to Update: 43
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 04/06/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 04/24/2007
Number of Days to Update: 14
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/30/2007
Date Data Arrived at EDR: 07/30/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 10
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/10/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 30
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/25/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Varies

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 06/11/2007
Date Data Arrived at EDR: 06/12/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 17

Source: City of San Jose Fire Department
Telephone: 408-277-4659
Last EDR Contact: 06/04/2007
Next Scheduled EDR Contact: 09/03/2007
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 08/03/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 6

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 04/18/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 09/24/2007
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/09/2007
Date Data Arrived at EDR: 07/09/2007
Date Made Active in Reports: 08/09/2007
Number of Days to Update: 31

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/22/2007
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/04/2007
Date Data Arrived at EDR: 05/04/2007
Date Made Active in Reports: 05/24/2007
Number of Days to Update: 20

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 07/02/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/30/2007
Date Data Arrived at EDR: 06/22/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 7

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 09/05/2006
Date Made Active in Reports: 10/05/2006
Number of Days to Update: 30

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/21/2007
Next Scheduled EDR Contact: 11/19/2007
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 06/05/2007
Date Data Arrived at EDR: 06/21/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 03/28/2007
Date Data Arrived at EDR: 04/24/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 13

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/11/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 04/30/2007
Date Data Arrived at EDR: 05/15/2007
Date Made Active in Reports: 06/25/2007
Number of Days to Update: 41

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 07/30/2007
Next Scheduled EDR Contact: 10/15/2007
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/15/2007
Date Made Active in Reports: 08/20/2007
Number of Days to Update: 66

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 06/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 04/01/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 05/08/2007
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/03/2007
Next Scheduled EDR Contact: 10/01/2007
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/05/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2007
Next Scheduled EDR Contact: 11/26/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 81

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 08/13/2007
Next Scheduled EDR Contact: 09/10/2007
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 06/18/2007
Next Scheduled EDR Contact: 09/17/2007
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 04/27/2007
Date Made Active in Reports: 06/08/2007
Number of Days to Update: 42

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 07/09/2007
Next Scheduled EDR Contact: 10/08/2007
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

LYNDEMAN PROPERTY
THROWITA WAY
PLACERVILLE, CA 95667

TARGET PROPERTY COORDINATES

Latitude (North):	38.70080 - 38° 42' 2.9''
Longitude (West):	120.8159 - 120° 48' 57.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	689933.9
UTM Y (Meters):	4285631.5
Elevation:	1795 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38120-F7 PLACERVILLE, CA
Most Recent Revision:	1973

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

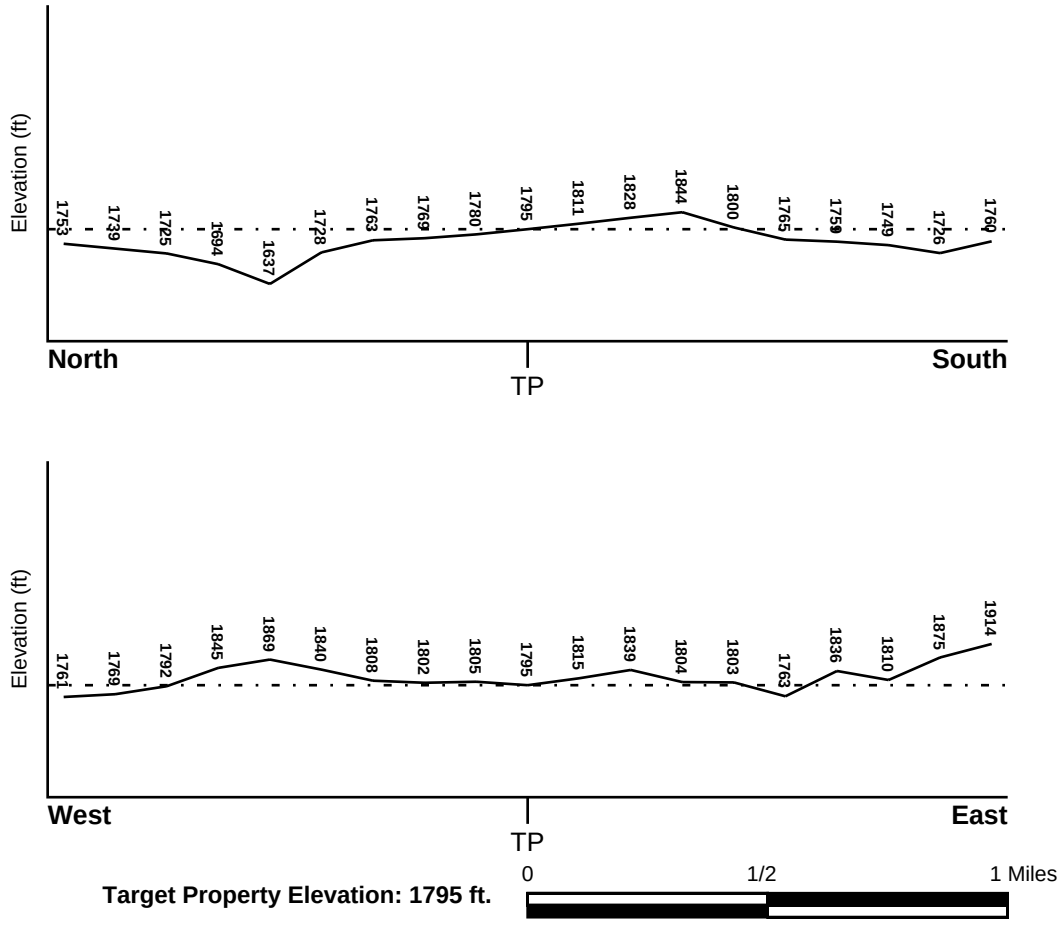
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
EL DORADO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0600400750B

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
PLACERVILLE	Not Available

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Mesozoic
System:	Lower Jurassic and Upper Triassic
Series:	Lower Mesozoic
Code:	lMze *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	MARIPOSA
Soil Surface Texture:	gravelly - loam
Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	HIGH
Depth to Bedrock Min:	> 12 inches
Depth to Bedrock Max:	> 35 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	8 inches	gravelly - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 6.50 Min: 5.60
2	8 inches	26 inches	gravelly - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 6.00 Min: 4.50
3	26 inches	30 inches	unweathered bedrock	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: unweathered bedrock
loam
very fine sandy loam

Surficial Soil Types: unweathered bedrock
loam
very fine sandy loam

Shallow Soil Types: clay loam
clay

Deeper Soil Types: weathered bedrock

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

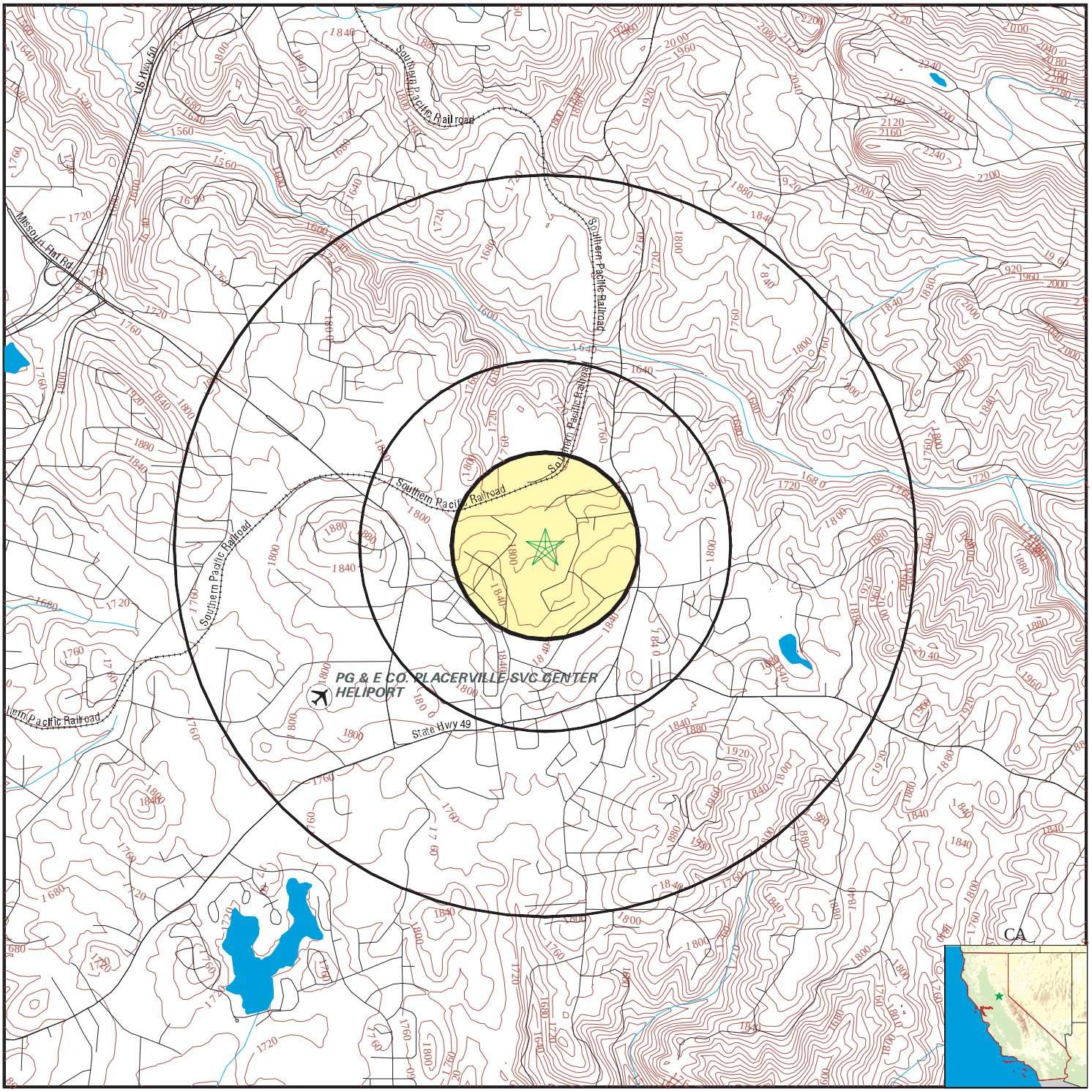
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 2018466.2s



0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Lyndeman Property	CLIENT:	Youngdahl Consulting Group
ADDRESS:	Throwita Way Placerville CA 95667	CONTACT:	Laurie Israel
LAT/LONG:	38.7008 / 120.8159	INQUIRY #:	2018466.2s
		DATE:	August 30, 2007 1:59 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zip	Total Sites	> 4 Pci/L	Pct. > 4 Pci/L
95667	26	2	7.69

Federal EPA Radon Zone for EL DORADO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95667

Number of sites tested: 10

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.850 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	5.700 pCi/L	0%	100%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

The EDR Aerial Photo Decade Package

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.5

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography August 30, 2007

Target Property:

Throwita Way

Placerville, CA 95667

Year	***Scale***	***Details***	***Source***
1935	Aerial Photograph. Scale: 1"=166'	Flight Year: 1935 Best Copy Available from original source	Wallace
1952	Aerial Photograph. Scale: 1"=555'	Flight Year: 1952	Robinson
1962	Aerial Photograph. Scale: 1"=555'	Flight Year: 1962	Cartwright
1984	Aerial Photograph. Scale: 1"=690'	Flight Year: 1984	WSA
1993	Aerial Photograph. Scale: 1"=666'	Flight Year: 1993	USGS
1998	Aerial Photograph. Scale: 1"=666'	Flight Year: 1998	USGS


INQUIRY #: 2018466.5
YEAR: 1935
= 166'
N


INQUIRY #: 2018466.5
YEAR: 1952
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1962
= 555'
N


INQUIRY #: 2018466.5
YEAR: 1984
= 690'
N


INQUIRY #: 2018466.5
YEAR: 1993
= 666'
N


INQUIRY #: 2018466.5
YEAR: 1998
= 666'
N

EDR Historical Topographic Map Report

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.4

August 30, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Historical Topographic Map Report

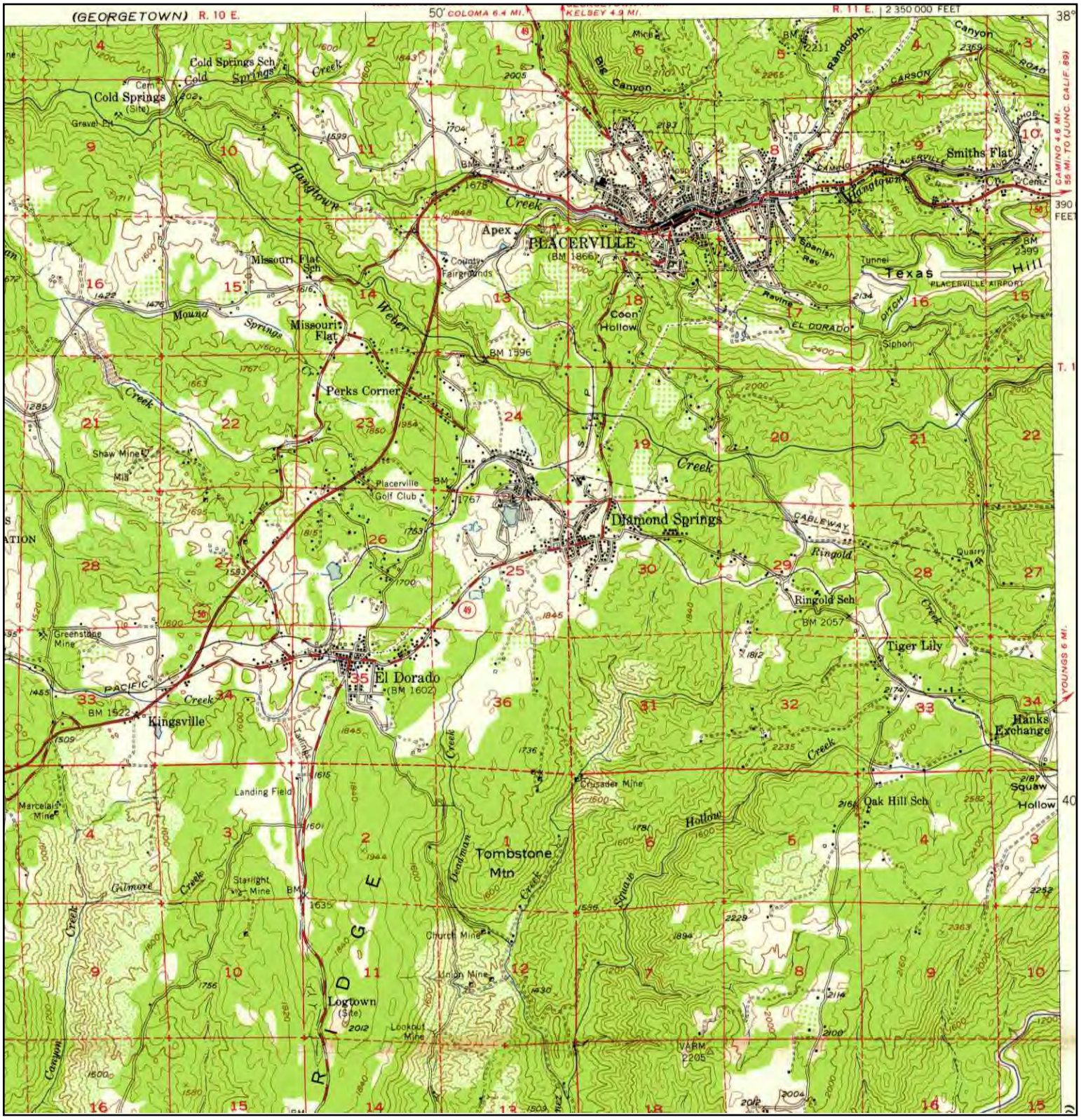
Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map

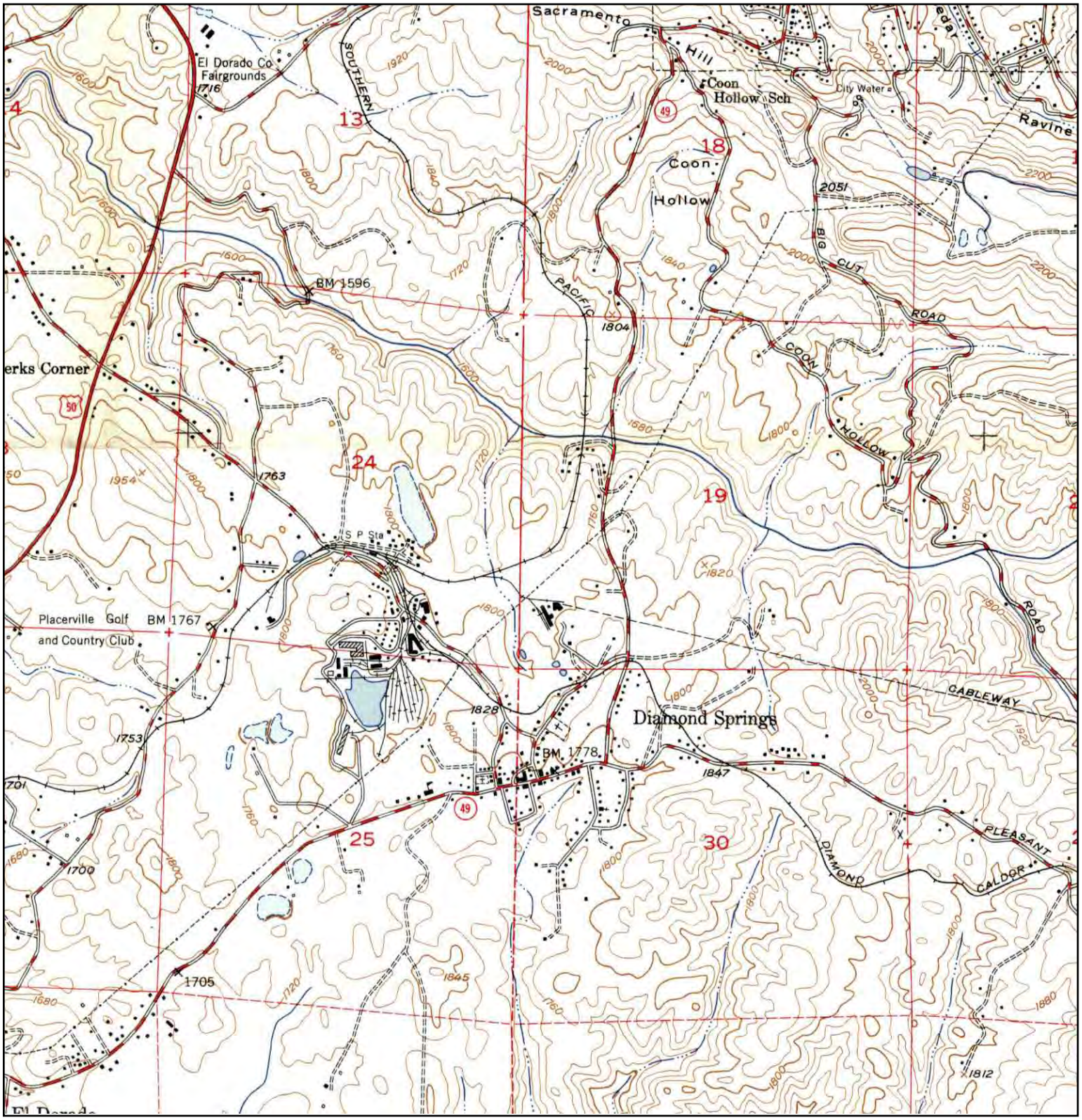
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1893 SERIES: 30 SCALE: 1:125000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



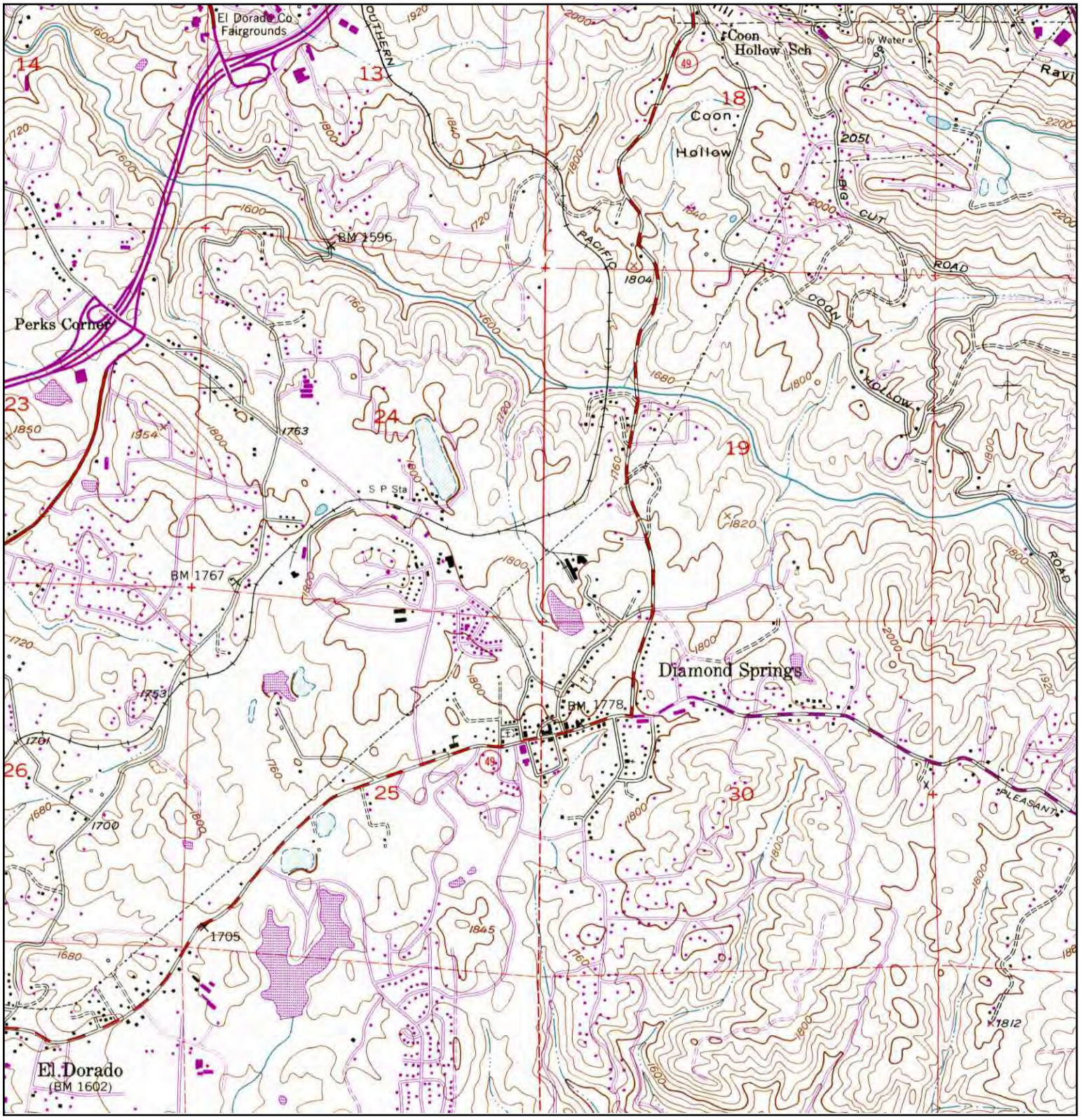
N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1949 SERIES: 15 SCALE: 1:62500	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PLACERVILLE MAP YEAR: 1973 PHOTOREVISED FROM:1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lyndeman Property ADDRESS: Throwita Way Placerville, CA 95667 LAT/LONG: 38.7008 / 120.8159	CLIENT: Youngdahl Consulting Group CONTACT: Laurie Israel INQUIRY#: 2018466.4 RESEARCH DATE: 08/30/2007

The EDR-City Directory
Abstract

Lyndeman Property
4100 Throwita Way
Placerville, CA 95667

Inquiry Number: 2018466.6

Wednesday, September 12, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR City Directory Abstract

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening report designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

SUMMARY

- ***City Directories:***

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1972 through 2002. (These years are not necessarily inclusive.) A summary of the information obtained is provided in the text of this report.

Date EDR Searched Historical Sources: September 12, 2007

Target Property:
4100 Throwita Way
Placerville, CA 95667

Year	Uses	Source
1972	Street Not Listed in Research Source	Haines Criss-Cross Directory
1977	Street Not Listed in Research Source	Haines Criss-Cross Directory
1982	Street Not Listed in Research Source	Haines Criss-Cross Directory
1987	Street Not Listed in Research Source	Haines Criss-Cross Directory
1992	Street Not Listed in Research Source	Haines Criss-Cross Directory
1997	Street Not Listed in Research Source	Haines Criss-Cross Directory
2002	Street Not Listed in Research Source	Haines Criss-Cross Directory

Adjoining Properties

SURROUNDING

Multiple Addresses
Placerville, CA 95667

Year	Uses	Source
1972	Street Not Listed in Research Source	Haines Criss-Cross Directory
1977	Street Not Listed in Research Source	Haines Criss-Cross Directory
1982	Street Not Listed in Research Source	Haines Criss-Cross Directory
1987	Street Not Listed in Research Source	Haines Criss-Cross Directory
1992	Street Not Listed in Research Source	Haines Criss-Cross Directory
1997	Street Not Listed in Research Source	Haines Criss-Cross Directory
2002	Street Not Listed in Research Source	Haines Criss-Cross Directory

Certified Sanborn® Map Report

Sanborn® Library search results
Certification # F1DA-4C92-91CB

Lyndeman Property
Throwita Way
Placerville, CA 95667

Inquiry Number 2018466.3

August 30, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

Certified Sanborn® Map Report

8/30/07

Site Name:
Lyndeman Property
Throwita Way
Placerville, CA 95667

Client Name:
Youngdahl Consulting Group
1234 Glenhaven Court
El Dorado Hills, CA 95762

EDR Inquiry # 2018466.3

Contact: Laurie Israel

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Youngdahl Consulting Group were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Lyndeman Property
Address: Throwita Way
City, State, Zip: Placerville, CA 95667
Cross Street:
P.O. # NA
Project: P07-416
Certification # F1DA-4C92-91CB

Sanborn® Library search results
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Appendix I:
Preliminary Drainage Study

cta Engineering & Surveying
Civil Engineering ▪ Land Surveying ▪ Land Planning

ENGINEERING SOLUTIONS ▪ 30 years

TRANSMITTAL LETTER

TO: Kerry Mikkelsen-Rose
MBA
2000 O Street, Suite 200
Sacramento, CA 95811-5299

Via USPS

FROM: Aaron Brusatori, PE

DATE: March 22, 2010

Project N^{o}: 07-072-002 – Diamond Dorado Retail Center

Subject: Revised Drainage Study

REMARKS: As requested, enclosed is one (1) copy of the above mentioned item.

Please call if you have any questions.

3233 Monier Circle ▪ Rancho Cordova, CA 95742 ▪ T (916) 638-0919 ▪ F (916) 638-2479 ▪ www.ctaes.net

DRAINAGE STUDY

Diamond Dorado Retail Center

Diamond Springs, CA

March 2010

cta Engineering & Surveying

Civil Engineering ▪ Land Surveying ▪ Land Planning

REVISED DRAINAGE STUDY
FOR
DIAMOND DORADO RETAIL CENTER
El Dorado County

INTRODUCTION

This revision replaces the drainage study prepared in 2008. The key differences are reduced size of the project, initial assumptions of soil condition and land use (see Youngdahl Consulting Memo) and the updated software used in preparation of this study. At the time of this study, the proposed Diamond Dorado Retail Center encompasses 25.5 acres. The project is located on the west side of Hwy 49, between Bradley Drive and Lime Kiln Road in Diamond Springs, California. The project area has limited vegetation and consists of graded un- vegetated pads for industrial and commercial purposes. The project will add additional impervious surface area to the parcel.

A majority of the area runoff generally flows from south to north. A smaller portion of the site runoff flows west to east. The majority of the surrounding areas contribute to local unnamed channels, resulting in runoff in the form of concentrated flow. Those unnamed channels run along the western boundary of the project to the north and along Hwy 49 to the north east and ultimately reach Webber Creek. The Pre-Construction shed map describes the sheds in the vicinity of the project.

The proposed Diamond Springs Parkway is referenced on the enclosed maps but it is not a part of Diamond Dorado Retail Center project or this study. The triangular area at the northwest corner of Shed #1 is allocated for a potential detention pond if needed.

CATCHMENT DISCRIPTION

- Shed #1 has a contributing area of 69.5 acres. An unnamed channel flows to the northwest collecting the runoff generated within the shed. The channel leaves the site by crossing an existing unimproved bike trail through an existing 36" CMP located at the northwest corner of the project. Downstream the runoff from this shed becomes tributary to the Webber Creek. Shed 1A is characterized by bare lands with lack of vegetation and impervious surfaces of parking lots, storage building roofs and the Material Recovery Facility's impervious areas.

- Shed #2 has a contributing area of approximately 6.2 acres. The runoff generated within this shed becomes concentrated along HWY 49 and crosses the roadway through an existing 12" CMP. The runoff becomes tributary to a large natural channel running northeast along HWY 49. This shed is characterized by graded pads with a lack of vegetation. Post-construction runoff from this shed will be directed to the same channel. The point of discharge for this area will be established at the improvement plans stage.

For the purpose of this study we assume that post-construction discharge for this shed is at the same location, as the existing 12" CMP.

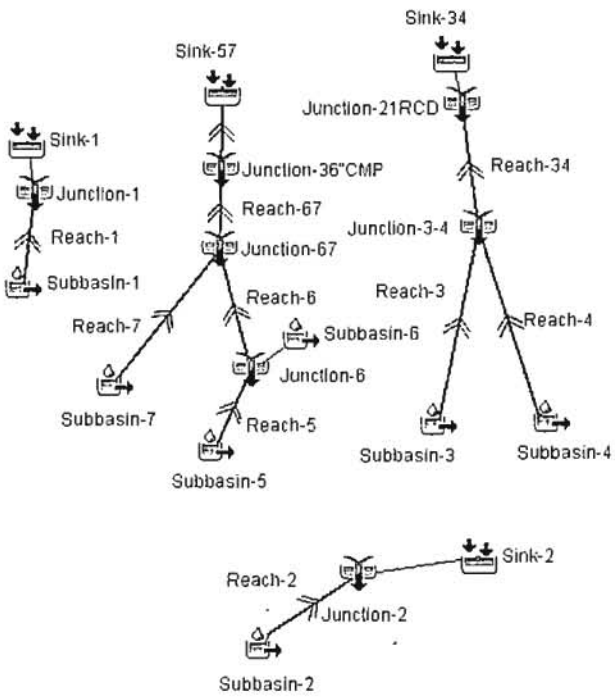
- Shed #3. The sheet runoff from approximately 4.5 acres exits the site through a well defined steep swale and enters the existing Bradley Drive storm drain system through an existing 21" PVC. This storm drain system runs to the north.

- Shed #4. The sheet runoff from approximately 1 acre (Shed #4) contributes to an existing road side ditch and crosses Bradley drive through an existing 18" CMP, and enters the existing 21" RCP storm drain to the north thus combining Sheds 3 and 4 (Junction 34). In the post-construction scenario, the runoff from this shed will become a part of shed #3.

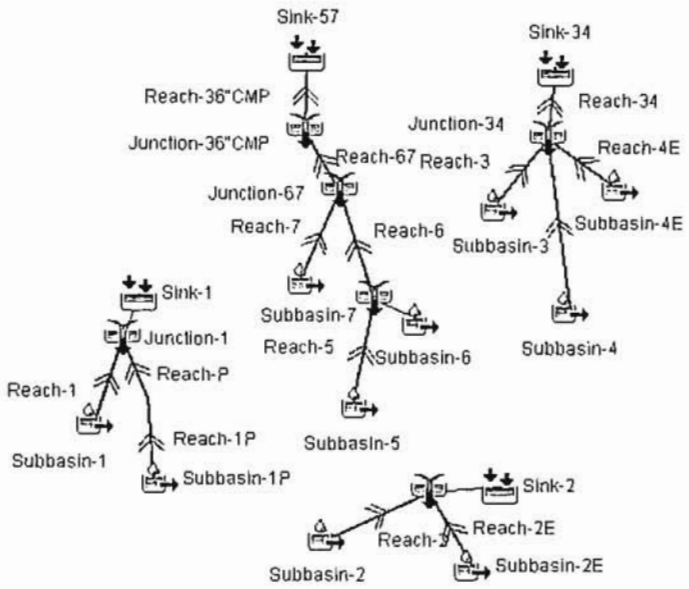
- Shed #5. The sheet runoff from approximately 2.3 acres (Shed #5) contributes to the portion of the existing Throwita Way runoff and enters an existing storm drain system through an existing drain inlet and 12" pipe. In the post-construction scenario the runoff from this shed will be combined with portions of Sheds 6 and 7. See Shed Map.

- Shed #6. The sheet runoff from approximately 8 acres (Shed #6) contributes to the existing Throwita Way road side ditch and crosses the road through an existing 24" PVC. A combined post-construction runoff from this sheds 5, 6 and 7 will be directed to the point of discharge through 36"CMP beyond Shed #7. See Shed Map.

- The sheet runoff from approximately 1.3 acres (Shed #7) contributes to Throwita Way minor road runoff and enters the existing storm drain system through an existing drainage inlet and 12" pipe. A portion of the post-construction runoff from this shed will be directed to the point of discharge for 36" CMP beyond Shed #7. See Shed Map.



Pre-Development Shed Schematic



Post-Development Shed Schematic

PROCEDURES

The Drainage Study for the project was carried out in conformance with the guidelines and procedures of the *County of El Dorado Drainage Manual*, adopted March 14, 1995. Watershed delineations and key points in the runoff analyses are shown on enclosed Shed Maps.

The Hydrograph method of runoff computation was used to evaluate the capacity of the existing crossings, due to storms of 10- and 100-year recurrence intervals.

A. WATERSHED AREAS
The watershed under study was broken into smaller sheds, shown on the accompanying Shed Maps.

B. PRECIPITATION
Mean annual precipitation over the study area averages approximately 37 inches. 24-hour rainfall depths for an average event (2.33years), 10- and 100-year design storms are 3.27", 4.81" and 6.82", respectively. The study area is above elevation 1640', where the temporal distribution of the precipitation total is characterized as an SCS Type 1A storm.

C. SOILS
A review of the soil classifications for the project area identified two soil types, Diamond Springs (DfC and DfB) very fine sandy loam, 3% to 9% and 9% to 15% slopes, and Placer Diggings (PrD), each with hydrologic group classifications of C (medium surface runoff) and A (low surface runoff), respectively.

Observations made by Youngdahl Consulting Group (YC) representative during a site visit on 9 March 2010 found that no Placer Diggings remain on the project site. Most of the drainage area for the project site has been graded. Grading improvements range from areas where the soil has been stripped and any original soil surfaces have been leveled to areas surfaced with aggregate base rock or asphalt concrete.

The area bounded by Throwita Way, Truck Street and a by a drainage to the west of the MRF Facility is covered by stockpiles of soils and is crossed by a drainage that was observed to be conveying water. Very little native soil is present in the project area. Most areas have been substantially disturbed by past earthwork activities. The areas that have been graded appear to have undergone sufficient surface compaction to dramatically reduce infiltrative capacities, many of which appear to have been graded to promote drainage.

Evidence of surface runoff was observed by YC in the drainage in the area of the soil stockpiles. YC initially formulated an opinion that the NRCS soil classifications were no longer applicable to most of the site (Group A). When a NRCS Representative at the NRSC Placerville office was contacted, they indicated that they were in agreement with that opinion and that the existing conditions would likely be a condition of high surface runoff potential. Based on YC review and site observations, the existing conditions at the project site appear to have a medium to high runoff potential, possibly equivalent to hydrologic soil groups C or D. Based on these recommendations and the purpose of this study, we selected group C. This selection will provide more conservative approach in estimating post construction impacts. See attached YC memo.

D. RUNOFF CURVE NUMBER

The SCS runoff curve number, CN, is an index of land use and soil type. Soils underlying the majority of the study area are in the Placer Diggings series, soils of a small portion of the site are in the Diamond Springs series characterized by moderately slow permeability. CN's were assigned according to the following land use descriptions from Table 2-2a in the *Drainage Manual*:

- Paved parking lots, roofs, driveways: CN=98
- Newly graded areas with no vegetation : CN=91
- Industrial : CN=91
- Commercial and Business (85%) : CN=94
- Open Space in poor condition: CN=86

E. ESTIMATE OF RUNOFF TRAVEL TIMES

A runoff travel time for flow from the most hydraulically distant point in a shed to its discharge point was computed according to Section 2.4.2 of the *Drainage Manual*, for pre- and post- development conditions. Travel time was broken into three components:

- Sheet flow:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} S^{0.4}}$$ (Eq. 2.4.7)

- Shallow concentrated flow:

$$V = 16.1345\sqrt{S_o}$$ (Eq. 2.4.8)
For unpaved surfaces

- Channel Flow:

$$V = Q/A$$

Uniform flow depth was used as a measure of the project impact on channels. Computations were based on trapezoidal and triangular cross sections observed during the site visits in March, 2008, Manning's "n" of 0.036 (per table 6.2.1), and channel gradient estimated from Aerial Topographic Survey map. The computations are included in Appendix C. The velocity was estimated based on discharge estimated equal the average annual value (2-year event). Appendix 2.4 USGS Regional Frequency Estimates was used to estimate the rural and urban peak discharge using USGS Regional Flood frequency Equation and estimate a velocity of the channel flow.

$$Q = 0.24A^{0.93}P^{1.56}H^{-0.48}$$ (Table A2.4.1)

$$Q = 13.2A^{0.21}(13 - BDF)^{-0.13}RQ^{0.71}$$

Where A is a drainage area, in sq mi; P is a mean annual precipitation in in. (37in); H is an altitude index, in thousands of feet, BDF is a basin development factor, and RQ is a respective rural peak.

F. SHED PARAMETERS

See Appendix A for Shed Parameters and Time of Concentration calculations.

SHED#1

Pre-development

A_{total}=69.5ac

21.4ac @ CN=98

17.4ac @ CN=86

8.3ac @ CN=98

22.4ac @ CN=91

$CN_{composite}$=92.8 with n=0.4 (woods w/light underbrush)

Post-development

SHED 1 A_{total}=58.9ac

21.4ac @ CN=98

17.4ac @ CN=86

8.3ac @ CN=98

11.8ac @ CN=91

$CN_{composite}$=93.1
SHED 1P A=11.6 @CN=94

SHED#2
Pre-development
6.2ac @ CN=91
n=0.011 (concrete, asphalt, gravel, or bare soil)
Post-development
5.7ac @ CN=94

SHED#3
Pre-development
4.5ac @ CN=91
n=0.011 (concrete, asphalt, gravel, or bare soil)
Post-development
5.7ac @ CN=91

SHED#4
Pre-development
1.1ac @ CN=91
n=0.011 (concrete, asphalt, gravel, or bare soil)
Post-development
3.7ac @ CN=94

SHED#5
Pre-development
2.3ac @ CN=91
n=0.011 (concrete, asphalt, gravel, or bare soil)
Post-development
6.4ac @ CN=94

SHED#6
Pre-development
8ac @ CN=91
n=0.011 (concrete, asphalt, or bare soil)
Post-development
3.9ac @ CN=91
n=0.015 (short grass)

SHED#7
Pre-development
1.3ac @ CN=91
n=0.011 (concrete, asphalt, or bare soil)
Post-development
0.9ac @ CN=91

G. TIME OF CONCENTRATION

Time of concentration was estimated as described in Section 2.4, as suggested by the Design Manual and summarized in Appendix A.

H. BASE FLOW

Base flow is precipitation water that has fallen, infiltrated, percolated, and traveled as interflow or groundwater flow to a channel. This flow enters the stream course via seepage and springs. It appears the on-site channel has a negligible base flow by observation.

RESULTS AND RECOMENDATIONS

Table 1 Computed Flows at project discharge points (cfs)

	PRE-DEVELOPMENT		POST-DEVELOPMENT	
	10 YEAR	100 YEAR	10 YEAR	100 YEAR
1	55.4	82.4	56.3	83.3
2	5.9	8.9	5.8	8.6
34	5.6	8.3	5.4	8
57	11.7	17.6	11.2	16.5

- The flows in discharge point 1 (Shed 1 / 36"CMP) have increase by 1% (0.9cfs for the 10- and 0.9 cfs for the 100-year event). Considering small increase in the run-off and close proximity of the large Weber Creek tributary (north of 36"CMP), it is not necessary to detain the post-construction runoffs. The assumption was made that a new 36" drainage pipe will provide storm drain conveyance to the discharge point. The pipe will cross a future road way (Diamond Springs Parkway) and discharge a run-off from Shed 1P to the existing drainage channel. If in the future a detention for this area becomes unavoidable, a small pond may be placed at the north corner of the property (see Shed Map). Details pertaining to a potential detention pond are described in the next section DETENTION STORAGE below.

- The flows at discharge point 2 (Shed 2 / 12"CMP) show no change in the 10-year Post-Construction scenario and decrease at the 100-year event due to reduced post development areas. The assumption was made that a new 24" drainage pipe will provide storm drain conveyance to the discharge point in the large unnamed channel along HW49

(tributary to Weber Creek). Shed 2E represents future HW49 improvements and widening.

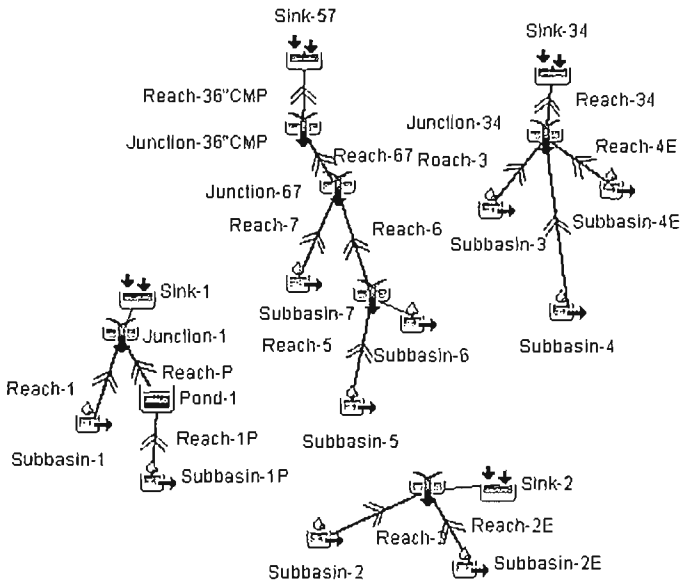
- Discharge point 34 shows decrease in Post-Construction run-off for 10- and 100-year storms due to reduced post development areas. The assumption was made that a new 24" drainage pipe will provide storm drain conveyance to the discharge point 34. The shed run off will be conveyed through an existing 21"RCP. This 21"RCP channel flows less than half full.

- Discharge point 57 (36"CMP) will see small decrease in run off due to the reduced shed area. Junction 6 (24"PVC) shows slight increase in run off (0.2cfs) for 10-year event however the pipe has a sufficient capacity to adequately convey the increased flow. The depth difference is negligible.

DETENTION STORAGE

Detention storage can be an effective means for controlling peak runoff from a parcel subject to development. In general, the goal of on-site storage is the reduction of post-development peak runoff to levels that do not exceed pre-project peak discharges for selected storms. Table 2 reflects the post development results with detention for Shed 1.

It is recommended that any increases in Post-Construction run-off be directed to the Shed 1 to take an advantage of the area allocated for the detention storage. The following recommendation can be used if detention pond is necessary.



Post-Development Shed Schematic with Detention

An iterative procedure was used to determine optimal placement and sizing of onsite detention storage serving the project. The HEC-HMS 3.3 computer program was used to apply a 24-hour

Type 1A storm for 10- or 100-year storms over the watershed area contributing to the Diamond Dorado Retail Center onsite storm drainage system.

It was determined that a single detention basin, located in the northwest corner of the project (shown on the Shed Map), is an effective means reducing post-development runoff leaving the site to existing levels. The proposed detention pond features 3:1 interior slopes. A steeper interior slopes (2:1) is subject to the county approval and geotechnical engineer review at the design stage. The embankment width is a subject to El Dorado County Drainage Manual recommendations. Any deviation from the Drainage Manual requirements is a subject to the County engineer approval.

Table 2 Computed Flows at Project's Northwest Property Line (Shed #1)

	10 YEAR		100 YEAR	
	PRE-	POST-	PRE-	POST-
Shed 1	55.4	56.3	82.4	83.3
Shed 1 with Detention		55.2		80.9

The proposed detention consists of approximately 0.7 acre-feet +/- of volume storage, with a stage-storage relationship as shown in Table 3. Drainage system details will be developed during the improvement plan stage and adhere to standards set forth in the County's Drainage Manual. The primary discharge is through a low level 48" outlet. A 20-foot wide spillway will provide a release of excess flows to drain to the north of the boundary through an existing 36"CMP.

Table 3 Stage-Storage Relationship for Onsite Detention

ELEVATION	STORAGE VOLUME (AC-FT)
1769.0	
1769.5	0.01
1770.0	0.05
1770.5	0.12
1771.0	0.24
1771.5	0.39
1772.0	0.54
1772.5	0.70*
1773.0	0.86
1773.5	1.03
1774.0	1.21
1774.5	1.39
1775.0	1.58

*The 100-year flow water surface elevation for the proposed detention is 1772.5
Peak storage is 0.7 ac-ft for a 100-year event.

CONCLUSIONS

As demonstrated by this report the impact of the proposed development on the existing drainage system is negligible (1% for Shed #1). However this balance was reached by a careful allocation of the development areas to the designated discharge points/features. If detention is warranted or/and there are changes in post-construction run-off at the improvement plans stage, the above detention storage recommendations can be implemented to mitigate the increases in the resulting run-off.

APPENDIX A

SHED PARAMETERS & GEOTECHNICAL MEMO

DRAINAGE STUDY SHED PARAMETERS FOR DIAMOND DORADO RETAIL CENTER

SHED ID	Shed Area (ac)	Shed Area (mi^2)	CN	SHEET FLOW TRAVEL TIME					SHALLOW CONCENTRATED FLOW				CHANNEL FLOW TIME						SUM Tc (min)
				L1 (ft)	n	P (in)	S1	Tc1 (min)	Unpaved Length (ft)	S2	V2 (ft/sec)	Tc2 (min)	Channel Length (ft)	S2	V2 (ft/sec)	Altitude index H (0.001ft)	Peak discharge Q (cfs)	Tc3 (min)	
PRE-DEVELOPMENT																			
1 Pre-Project	69.5	0.1086	92.8	130	0.4	3.27	0.090	14.36	270	0.09	4.84	0.9	2200	0.020	2.50	1.784	5.984	14.7	30.0
2 Pre-Project	6.2	0.0097	91.2	360	0.011	3.27	0.03	2.86	420	0.004	1.02	6.9	270	0.040	1.90	1.832	0.698	2.4	12.1
3 Pre-Project	4.5	0.0070	91.8	360	0.011	3.27	0.007	5.08	460	0.06	3.95	2.0	370	0.049	2.54	1.817	0.530	2.4	9.5
4 Pre-Project	1.1	0.0017	92.8	230	0.011	3.27	0.028	2.04	100	0.06	3.78	0.4	355	0.042	1.70	1.828	0.153	3.5	6.0
5 Pre-Project	2.3	0.0036	91.0	200	0.011	3.27	0.20	0.83	300	0.07	4.21	1.2	150	0.033	2.20	1.800	0.296	1.1	3.2
6 Pre-Project	8.0	0.0125	91.5	100	0.011	3.27	0.21	0.47	460	0.055	3.78	2.1	155	0.040	3.13	1.794	0.889	0.8	3.4
7 Pre-Project	1.3	0.0020	91.0	100	0.011	3.27	0.08	0.70					500	0.086	2.37	1.799	0.179	3.5	4.2
POST-DEVELOPMENT																			
1 Post-Project	58.90	0.0920	93.1	130	0.4	3.27	0.090	14.36	270	0.09	4.84	0.9	2200	0.020	2.50	1.784	5.173	14.7	30.0
1P Post-Project	11.60	0.0181	94.0																12.0
2 Post-Project	4.46	0.0070	94.0																11.0
2E Post-Project	1.33	0.0021	92.1	100	0.011	3.27	0.020	1.20	335	0.020	2.28	2.4	0	0.000	0.00		3.311	0.0	3.6
3 Post-Project	2.30	0.0036	92.5	100	0.011	3.27	0.070	0.73	270	0.07	4.27	1.1	147	0.005	4.40	na	2.3	0.6	2.3
4 Post-Project	2.46	0.0038	94.0																11.0
4E Post-Project	0.61	0.0010	94.1	50	0.011	3.27	0.060	0.44	365	0.044	3.38	1.8	0	0.000	0.00		0.000	0.0	2.2
5 Post-Project	6.50	0.0102	94.0																11.0
6 Post-Project	3.90	0.0061	91.9	100	0.15	3.27	0.100	5.09	410	0.100	5.10	1.3	0	0.040	10.50	na	3.9	0.0	6.4
7 Post-Project	0.90	0.0014	91.0	100	0.011	3.27	0.090	0.66	290	0.090	4.84	1.0	0	0.000	0.00		0.000	0.0	1.7

YOUNGDAHL CONSULTING GROUP, INC.
Geotechnical • Geoscience • Materials Testing • Storm Water Compliance
1234 Glenhaven Court, El Dorado Hills, CA 95762
P: 916.933.0633 F: 916.933.6482
E: mail@youngdahl.net

MAR 1 1 2010

TECHNICAL MEMORANDUM

To: Olga Sciorelli, P.E., CTA Engineering, Inc. Project No. E08072.000

10 March 2010

From: David C. Sederquist, C.E.G.
Senior Engineering Geologist

CERTIFIED ENGINEERING GEOLOGIST
DAVID C. SEDERQUIST
NO. 2133
EXPIRATION DATE
9/30/2010
STATE OF CALIFORNIA

Subject: **DIAMOND DORADO COMMERCIAL CENTER**
Diamond Springs, California
CLASSIFICATION OF SOILS FOR USDA HYDROLOGIC SOIL GROUP EQUIVALENTS

Reference:
1. Geotechnical Engineering Study for Diamond Dorado Commercial Center and future Diamond Springs Parkway, prepared by Youngdahl Consulting Group, Inc., dated 9 June 2008 (Project No. E08072.000).

Dear Ms. Sciorelli:

At your request, Youngdahl Consulting Group has reviewed the referenced geotechnical study, United States Department of Agriculture Natural Resources Conservation Service (NRCS) soil data available for the Web Soil Survey, and made additional site observations in order to develop information to assist CTA Engineering, Inc. in selecting equivalent hydrologic soil group classifications for the design of drainage improvements.

A review of the soil classifications for the project area identified two soil types, Diamond Springs very fine sandy loam, 9 to 15 slopes, and Placer Diggings, each with hydrologic group classifications of C (medium surface runoff) and A (low surface runoff), respectively. Observations made during a site visit on 9 March 2010 found that no Placer Diggings remain on the project site. Most of the drainage area for the project site has been graded. Grading improvements range from areas where the soil has been stripped and any original soil surfaces have been leveled to areas surfaced with aggregate base rock or asphaltic concrete. The area bounded by Throwita Way, Truck Street and a by a drainage to the west of the MRF Facility is covered by stockpiles of soils and is crossed by a drainage that was observed to be conveying water.

Very little native soil is present in the project area. Most areas have been substantially disturbed by past earthwork activities. The areas that have been graded appear to have undergone sufficient surface compaction to dramatically reduce infiltrative capacities, many of which appear to have been graded to promote drainage. Evidence of surface runoff was observed in the drainage in the area of the soil stockpiles. We initially formulated an opinion that the NRCS soil classifications were no longer applicable to most of the site. When a NRCS Representative at the NRSC Placerville office was contacted, they indicated that they were in agreement with that opinion and that the existing conditions would likely be a condition of high surface runoff potential. Based on our review and site observations, the existing conditions at the project site appear to have a medium to high runoff potential, possibly equivalent to hydrologic soil groups C or D. If there are any questions, please feel free to contact our office at your convenience.

APPENDIX B

DETAIL OUTPUT OF HEC-HMS 3.3 ANALYSIS

Project: DDRC Simulation Run: Existing 10

Start of Run: 01Mar2010, 01:00
End of Run: 02Mar2010, 01:01
Compute Time: 18Mar2010, 10:06:25

Basin Model: Existing
Meteorologic Model: SCS 1A 10y
Control Specifications: 24 hour

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	0.1085	55.4	01Mar2010, 09:20	3.93
Junction-2	0.0097	5.9	01Mar2010, 09:03	3.80
Junction-21RCD	0.0087	5.6	01Mar2010, 09:01	3.89
Junction-3-4	0.0087	5.6	01Mar2010, 09:01	3.89
Junction-36"CMP	0.0181	11.7	01Mar2010, 08:58	3.83
Junction-6	0.0161	10.4	01Mar2010, 08:57	3.83
Junction-67	0.0181	11.7	01Mar2010, 08:57	3.83
Reach-1	0.1085	55.4	01Mar2010, 09:20	3.93
Reach-2	0.0097	5.9	01Mar2010, 09:03	3.80
Reach-3	0.0070	4.5	01Mar2010, 09:01	3.87
Reach-34	0.0087	5.6	01Mar2010, 09:01	3.89
Reach-36"CMP	0.0181	11.7	01Mar2010, 08:58	3.83
Reach-4	0.0017	1.1	01Mar2010, 08:59	3.98
Reach-5	0.0036	2.3	01Mar2010, 08:57	3.79
Reach-6	0.0161	10.4	01Mar2010, 08:57	3.83
Reach-67	0.0181	11.7	01Mar2010, 08:58	3.83
Reach-7	0.0020	1.3	01Mar2010, 08:58	3.79
Sink-1	0.1085	55.4	01Mar2010, 09:20	3.93
Sink-2	0.0097	5.9	01Mar2010, 09:03	3.80
Sink-34	0.0087	5.6	01Mar2010, 09:01	3.89
Sink-57	0.0181	11.7	01Mar2010, 08:58	3.83
Subbasin-1	0.1085	55.4	01Mar2010, 09:20	3.93
Subbasin-2	0.0097	5.9	01Mar2010, 09:03	3.80
Subbasin-3	0.0070	4.5	01Mar2010, 09:01	3.87
Subbasin-4	0.0017	1.1	01Mar2010, 08:59	3.98

Project: DDRC Simulation Run: Proposed 10

Start of Run: 01Mar2010, 01:00 Basin Model: Proposed
End of Run: 02Mar2010, 01:01 Meteorologic Model: SCS 1A 10y
Compute Time: 18Mar2010, 10:57:47 Control Specifications: 24 hour

Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	0.11010	55.2	01Mar2010, 09:20	3.96
Junction-2	0.00887	5.8	01Mar2010, 09:00	4.06
Junction-34	0.00819	5.4	01Mar2010, 08:58	4.04
Junction-36"CMP	0.01710	11.2	01Mar2010, 09:00	4.01
Junction-6	0.01610	10.6	01Mar2010, 09:01	4.02
Junction-67	0.01710	11.2	01Mar2010, 09:00	4.01
Pond-1	0.01810	7.9	01Mar2010, 09:20	3.96
Reach-1	0.09200	47.3	01Mar2010, 09:20	3.97
Reach-1P	0.01810	11.9	01Mar2010, 09:03	4.10
Reach-2	0.00687	4.6	01Mar2010, 09:02	4.10
Reach-2E	0.00200	1.3	01Mar2010, 08:58	3.91
Reach-3	0.00359	2.4	01Mar2010, 08:57	3.95
Reach-34	0.00819	5.4	01Mar2010, 08:58	4.04
Reach-36"CMP	0.01710	11.2	01Mar2010, 09:00	4.00
Reach-4	0.00370	2.5	01Mar2010, 09:02	4.10
Reach-4E	0.00090	0.6	01Mar2010, 08:57	4.13
Reach-5	0.01010	6.7	01Mar2010, 09:02	4.10
Reach-6	0.01610	10.6	01Mar2010, 09:01	4.02
Reach-67	0.01710	11.2	01Mar2010, 09:00	4.01
Reach-7	0.00100	0.6	01Mar2010, 08:56	3.80
Reach-P	0.01810	7.9	01Mar2010, 09:22	3.95
Sink-1	0.11010	55.2	01Mar2010, 09:20	3.96
Sink-2	0.00887	5.8	01Mar2010, 09:00	4.06
Sink-34	0.00819	5.4	01Mar2010, 08:58	4.04
Sink-57	0.01710	11.2	01Mar2010, 09:00	4.00

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Subbasin-1	0.09200	47.3	01Mar2010, 09:20	3.97
Subbasin-1P	0.01810	11.9	01Mar2010, 09:03	4.10
Subbasin-2	0.00687	4.6	01Mar2010, 09:02	4.10
Subbasin-2E	0.00200	1.3	01Mar2010, 08:57	3.91
Subbasin-3	0.00359	2.4	01Mar2010, 08:57	3.96
Subbasin-4	0.00370	2.5	01Mar2010, 09:02	4.10
Subbasin-4E	0.00090	0.6	01Mar2010, 08:57	4.13
Subbasin-5	0.01010	6.7	01Mar2010, 09:02	4.10
Subbasin-6	0.00600	3.9	01Mar2010, 08:59	3.88
Subbasin-7	0.00100	0.6	01Mar2010, 08:56	3.80

Project: DDRC Simulation Run: Existing 100

Start of Run: 01Mar2010, 01:00
End of Run: 02Mar2010, 01:01
Compute Time: 17Mar2010, 13:07:47

Basin Model: Existing
Meteorologic Model: SCS 1A 100y
Control Specifications: 24 hour

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
Junction-1	0.1085	82.4	01Mar2010, 09:20	34.1
Junction-2	0.0097	8.9	01Mar2010, 09:03	3.0
Junction-21RCB	0.0087	8.3	01Mar2010, 09:01	2.7
Junction-3-4	0.0087	8.3	01Mar2010, 09:01	2.7
Junction-36"CMP	0.0181	17.6	01Mar2010, 08:57	5.6
Junction-6	0.0161	15.7	01Mar2010, 08:57	5.0
Junction-67	0.0181	17.6	01Mar2010, 08:57	5.6
Reach-1	0.1085	82.4	01Mar2010, 09:20	34.1
Reach-2	0.0097	8.9	01Mar2010, 09:03	3.0
Reach-3	0.0070	6.7	01Mar2010, 09:01	2.2
Reach-34	0.0087	8.3	01Mar2010, 09:01	2.7
Reach-36"CMP	0.0181	17.6	01Mar2010, 08:58	5.6
Reach-4	0.0017	1.7	01Mar2010, 08:59	0.5
Reach-5	0.0036	3.5	01Mar2010, 08:57	1.1
Reach-6	0.0161	15.7	01Mar2010, 08:57	5.0
Reach-67	0.0181	17.6	01Mar2010, 08:57	5.6
Reach-7	0.0020	1.9	01Mar2010, 08:58	0.6
Sink-1	0.1085	82.4	01Mar2010, 09:20	34.1
Sink-2	0.0097	8.9	01Mar2010, 09:03	3.0
Sink-34	0.0087	8.3	01Mar2010, 09:01	2.7
Sink-57	0.0181	17.6	01Mar2010, 08:58	5.6
Subbasin-1	0.1085	82.4	01Mar2010, 09:20	34.1
Subbasin-2	0.0097	8.9	01Mar2010, 09:03	3.0
Subbasin-3	0.0070	6.7	01Mar2010, 09:01	2.2
Subbasin-4	0.0017	1.7	01Mar2010, 08:58	0.5

Project: DDRC Simulation Run: Proposed 100

Start of Run: 01Mar2010, 01:00 Basin Model: Proposed
End of Run: 02Mar2010, 01:01 Meteorologic Model: SCS 1A 100y
Compute Time: 18Mar2010, 12:28:13 Control Specifications: 24 hour

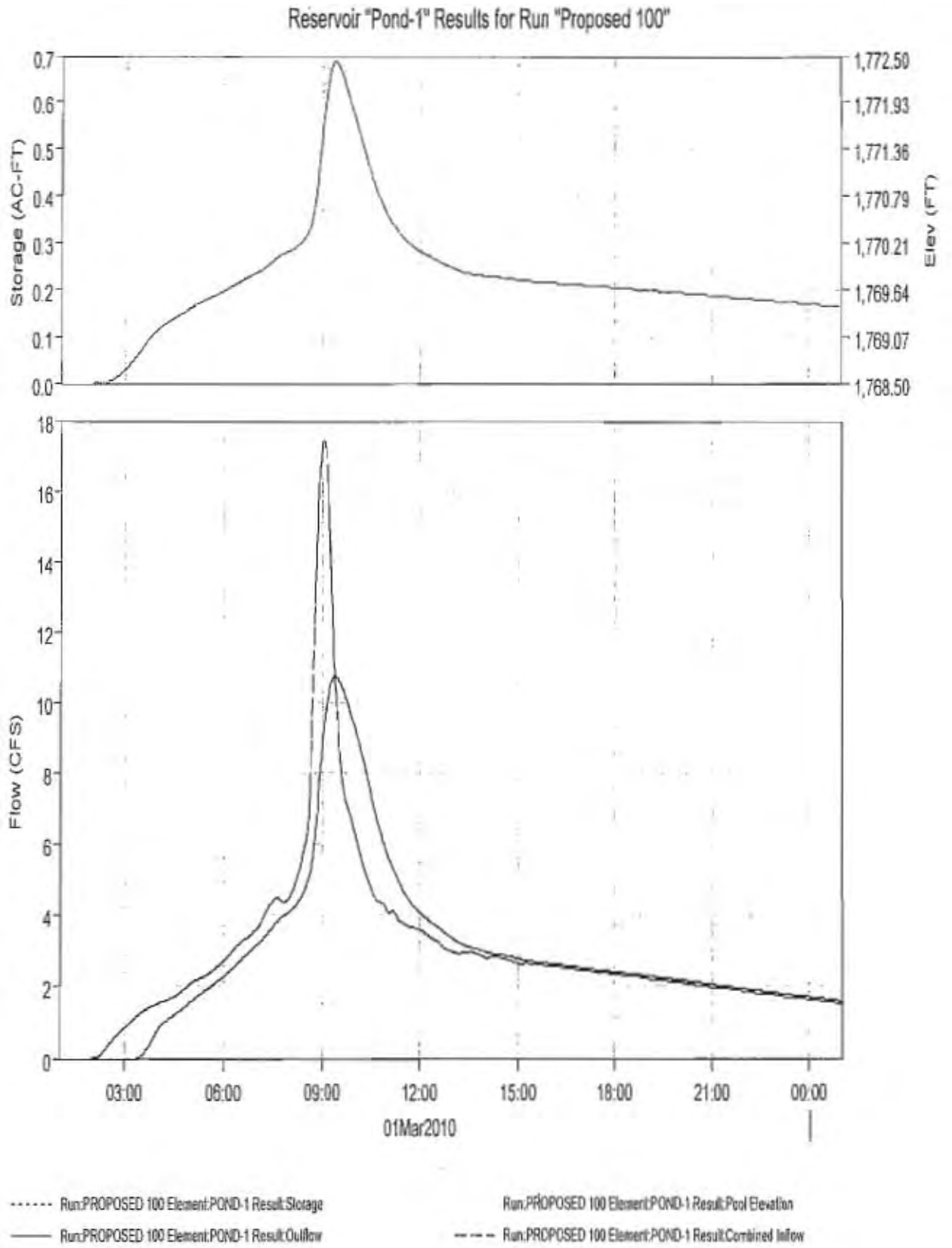
Volume Units: IN

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Junction-1	0.11010	80.9	01Mar2010, 09:20	5.92
Junction-2	0.00887	8.6	01Mar2010, 09:00	6.03
Junction-34	0.00819	8.0	01Mar2010, 08:58	6.02
Junction-36"CMP	0.01710	16.5	01Mar2010, 09:00	5.98
Junction-6	0.01610	15.6	01Mar2010, 09:00	5.99
Junction-67	0.01710	16.5	01Mar2010, 09:00	5.98
Pond-1	0.01810	10.8	01Mar2010, 09:22	5.91
Reach-1	0.09200	70.2	01Mar2010, 09:20	5.92
Reach-1P	0.01810	17.4	01Mar2010, 09:03	6.08
Reach-2	0.00687	6.7	01Mar2010, 09:02	6.08
Reach-2E	0.00200	2.0	01Mar2010, 08:57	5.88
Reach-3	0.00359	3.6	01Mar2010, 08:57	5.93
Reach-34	0.00819	8.0	01Mar2010, 08:58	6.02
Reach-36"CMP	0.01710	16.5	01Mar2010, 09:00	5.98
Reach-4	0.00370	3.6	01Mar2010, 09:02	6.08
Reach-4E	0.00090	0.9	01Mar2010, 08:49	6.12
Reach-5	0.01010	9.8	01Mar2010, 09:02	6.08
Reach-6	0.01610	15.6	01Mar2010, 09:00	5.99
Reach-67	0.01710	16.5	01Mar2010, 09:00	5.98
Reach-7	0.00100	1.0	01Mar2010, 08:56	5.76
Reach-P	0.01810	10.8	01Mar2010, 09:24	5.90
Sink-1	0.11010	80.9	01Mar2010, 09:20	5.92
Sink-2	0.00887	8.6	01Mar2010, 09:00	6.03
Sink-34	0.00819	8.0	01Mar2010, 08:58	6.02
Sink-57	0.01710	16.5	01Mar2010, 09:00	5.98

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Subbasin-1	0.09200	70.2	01Mar2010, 09:20	5.92
Subbasin-1P	0.01810	17.4	01Mar2010, 09:03	6.08
Subbasin-2	0.00687	6.7	01Mar2010, 09:02	6.08
Subbasin-2E	0.00200	2.0	01Mar2010, 08:57	5.88
Subbasin-3	0.00359	3.6	01Mar2010, 08:49	5.93
Subbasin-4	0.00370	3.6	01Mar2010, 09:02	6.08
Subbasin-4E	0.00090	0.9	01Mar2010, 08:49	6.12
Subbasin-5	0.01010	9.8	01Mar2010, 09:02	6.08
Subbasin-6	0.00600	5.8	01Mar2010, 08:59	5.85
Subbasin-7	0.00100	1.0	01Mar2010, 08:56	5.76

APPENDIX C

DETENTION STORAGE DETAILS


Reservoir "Pond-1" Results for Run "Proposed 100"
Storage (AC-FT)
Elev (FT)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
1,768.50
1,769.07
1,769.64
1,770.21
1,770.79
1,771.36
1,771.93
1,772.50
Flow (CFS)
0
2
4
6
8
10
12
14
16
18
03:00
06:00
09:00
12:00
15:00
18:00
21:00
00:00
01Mar2010
Run:PROPOSED 100 Element:POND-1 Result:Storage
Run:PROPOSED 100 Element:POND-1 Result:Outflow
Run:PROPOSED 100 Element:POND-1 Result:Pool Elevation
Run:PROPOSED 100 Element:POND-1 Result:Combined Inflow

Project: DDRC

Simulation Run: Proposed 100 Reservoir: Pond-1

Start of Run:	01Mar2010, 01:00	Basin Model:	Proposed
End of Run:	02Mar2010, 01:01	Meteorologic Model:	SCS 1A 100y
Compute Time:	18Mar2010, 10:56:31	Control Specifications:	24 hour

Volume Units: IN

Computed Results

Peak Inflow :	17.4 (CFS)	Date/Time of Peak Inflow :	01Mar2010, 09:03
Peak Outflow :	10.8 (CFS)	Date/Time of Peak Outflow :	01Mar2010, 09:22
Total Inflow :	6.08 (IN)	Peak Storage :	0.7 (AC-FT)
Total Outflow :	5.91 (IN)	Peak Elevation :	1772.5 (FT)

APPENDIX D

MAP EXHIBIT

Appendix J: Noise

Environmental Noise Assessment

Diamond Dorado Retail Center

El Dorado County, California

BAC Job #2007-142

Prepared For:

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August 10, 2010

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INTRODUCTION

The following presents relevant acoustical terminology and addresses ambient noise conditions in the project area. Relevant acoustical criteria are provided, and project-related noise exposure associated with construction, traffic, and daily operations are assessed for impact. Mitigation measures are provided where required.

As presented in the Setting section of the project EIR, the proposed Diamond Dorado Retail Center (project) is located on the west side of California State Route 49/Diamond Road (SR 49) between Lime Kiln Road and the future Diamond Springs Parkway in the community of Diamond Springs, California (El Dorado County). The project proposes the development of up to nine commercial uses including one large one-story retail store (Major 1), one medium-sized retail store (Major 2), and up to seven smaller one-story retail/office buildings and fuel station. The project would also re-route the access point for the adjacent El Dorado Materials Recovery Facility (MRF) to Lime Kiln Road south of the project site since the Throwita Way access would be eliminated. Appendix A shows the project site plan and vicinity.

The project site is primarily vacant land, and has been used for storage by neighboring industrial uses. Currently, Throwita Way traverses the project site from north to south, and Lime Plant Road connects Lime Kiln Road and Throwita Way.

Existing land uses to the north include industrial, commercial, and one single-family residence. To the South, the project will be adjacent to the MRF and single-family residential uses along Lime Kiln Road. East of the project site there currently is vacant land and scattered rural residences. There is a single-family residential development on the east side of SR 49 to the southeast. Immediately west of the project site are industrial and commercial uses. The primary noise-sensitive uses adjacent to the site include the single-family residences to the north, south, and southeast; however, only the residence immediately south of the project (APN 054-341-04) is expected to see significant project-related noise level increases due to its location relative to major on-site noise sources and the proposed MRF access. Please see Appendix A.

ACOUSTICAL TERMINOLOGY

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human hearing can detect. If the pressure variations occur frequently enough (at least 20 times per second), they may be heard, and are designated as sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, or Hertz (Hz). Definitions of acoustical terminology are presented in Appendix B of this report.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the threshold of human hearing (generally 20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers within a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness.

Table 1 illustrates common noise levels associated with various sources. The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by filtering the sound signal using the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels.

Table 1
Typical A-Weighted Sound Levels of Common Sources

Level, dB	Noise Description
130	Threshold of pain
120	Jet aircraft take-off at 100 feet
110	Riveting machine at operator's position
100	Shotgun blast at 200 feet
90	Bulldozer at 50 feet
80	Diesel locomotive at 300 feet
70	Commercial jet aircraft interior during flight
60	Normal conversational speech at 5-10 feet
50	Open office background level
40	Background level within a residence
30	Soft whisper at 2 feet
20	Interior of recording studio

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level

(L_{eq}). The Hourly L_{eq} is the foundation of the day/night average noise descriptor, L_{dn}, and shows very good correlation with community response to noise. The L_{dn} is based on the average noise level over a 24-hour day, with a +10 decibel weighting (penalty) applied to noise occurring during nighttime hours (10 p.m.-7 a.m.). The nighttime "penalty" is based on the assumption that people react to nighttime noise exposures as though they are twice as loud as daytime exposures.

Because the L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. For this reason, the City of Livingston utilizes performance standards for non-transportation noise sources. Specifically, performance standards in terms of instantaneous maximum levels (L_{max}) and hourly average levels (L_{eq}) are used to assess noise generated on the project site. Although definitions of acoustical terminology are provided in Appendix B of this report, the following additional explanations are provided for terms or concepts used extensively throughout this report.

Transportation Noise Sources: Transportation noise sources are commonly considered to be traffic on public roadways, train operations, or aircraft overflights. The El Dorado County noise standards applicable to transportation noise sources are specified in terms of L_{dn}. It is important to note, however, that although trucks delivering materials to the project site are subject to the County's L_{dn} standards while on public roadways, once those trucks enter the project site and are no longer on a public roadway, the County's noise performance criteria (for stationary, non-transportation sources) become applicable.

Non-Transportation Noise Sources: Non-transportation noise sources are commonly considered to be any source of noise on private property. El Dorado County utilizes the performance standards of the County's Noise Element of the General Plan to assess impacts for non-transportation noise sources, including all sources of noise originating from the project site (e.g., loading dock activities, mechanical equipment, on-site truck circulation).

Performance Standards: The El Dorado County performance standards applicable to noise sources originating from the project site are expressed in terms of hourly average (L_{eq}), and instantaneous maximum (L_{max}) descriptors. The County's specific standards are described later in this section, but each on-site noise source associated with this project must not generate noise levels in excess of these criteria at the closest noise-sensitive receiver(s) (property line). While both average and maximum noise standards apply, one will typically be more restrictive than the other for a given noise source.

For steady-state noise sources, such as those generating continuous noise which does not vary appreciably in intensity over the course of an hour (e.g., HVAC equipment), the L_{eq} (average) criterion is more applicable. Conversely, for a noise source which is intermittent and may only be present for a very small percentage of an hour (e.g., air-brake release of a heavy-truck before backing into the loading dock area), the L_{max} (maximum) criterion is generally more applicable.

By way of example, a hypothetical HVAC system which generates a continuous level of 57 dB at a noise sensitive receiver for an entire afternoon hour without fluctuation would result in an hourly average noise level of 57 dB L_{eq}. For that same equipment, the instantaneous maximum at any time during that hour would also be 57 dB L_{max} because the noise level of this source is

assumed to be constant and does not fluctuate. If the County's daytime maximum noise level standard of 70 dB L_{max} were applied to this source, it would be well within compliance, as the maximum noise level of the HVAC equipment is 18 dB below the standard. However, if the County's daytime average noise level standard of 55 dB L_{eq} were applied to this same source, it would be 2 dB higher than the standard, which may constitute a significant noise impact.

If instead of the steady-state HVAC noise source in the theoretical example above, the noise source was the release of airbrakes associated with a heavy-truck backing into the loading dock, it would be more appropriate to assess the impact relative to the County's maximum noise level standard due to the very short duration of the noise event.

For the reasons cited above, noise events of generally short duration, such as an airbrake release or brief passby of the parking lot sweeper, are evaluated relative to the County's maximum noise standards in this assessment. Sources of a more continuous nature, such as mechanical equipment, are evaluated relative to the County's average noise level standards.

EXISTING (AMBIENT) NOISE ENVIRONMENT

The ambient noise environment in the immediate project vicinity is defined primarily by noise from SR 49 and the industrial uses in the area, including the MRF. To quantify existing ambient noise levels in the project vicinity, two continuous (24-hour) ambient noise level surveys were conducted on February 7-8, 2008 at 4150 Lime Kiln Road (Site 1) and 4000 SR 49 (Site 2). Measurements were collected within the backyard patio of Site 1 and in the front yard landscaping, approximately 40 feet from the centerline of SR 49, at Site 2. Please see the measurement locations in Appendix A. The noise measurement sites were selected to represent the potentially affected residential land uses adjacent to the project site.

Larson-Davis Laboratories (LDL) Model 820 precision integrating sound level meters equipped with LDL Model 2560 ½" microphones were used for the ambient noise level measurement surveys. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 (precision) sound level meters (ANSI S1.4). The results of the continuous measurements are presented in Table 2. Detailed results are shown in Appendix C.

Table 2
Ambient Noise Measurement Results
February 7-8, 2008
Diamond Dorado Retail Center – El Dorado County, California

Site	CNEL	Average Noise Levels (Range), dB					
		Daytime (7 a.m.-7 p.m.)		Evening (7 p.m.-10 p.m.)		Nighttime (10 p.m.-7 a.m.)	
		Hourly L_{eq}	Hourly L_{max}	Hourly L_{eq}	Hourly L_{max}	Hourly L_{eq}	Hourly L_{max}
1	64	54 (52-56)	73 (67-81)	48 (45-49)	61 (58-63)	58 (39-63)	66 (54-83)
2	70	71 (66-77)	90 (83-109)	64 (63-65)	83 (82-83)	60 (52-66)	82 (78-86)

Note: See Appendix A for noise measurement locations.

Source: Bollard Acoustical Consultants, Inc.

The ambient noise level survey results shown in Table 2 indicate that existing noise conditions at the nearest residential property to the north (Site 2) are elevated due to significant SR 49 traffic and MRF traffic on Bradley Drive. As a result of the project, some of this noise will be eliminated due to re-routing of MRF traffic. At Site 1 nighttime/early morning noise exposure is elevated due to operations at the adjacent MRF. Otherwise, noise exposure at this residence was relatively typical for a residential setting.

Existing Traffic Noise Environment (Surface Roadways)

To describe existing noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The Model is based on the Calveno reference noise factors for automobiles, medium trucks, and heavy-trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. The hourly traffic volume input to the Model may be adjusted to reflect the weighted day/night distribution of traffic in order to estimate L_{dn} noise

exposure. A day/night traffic distribution of 83%/17% was assumed for the computation of traffic noise levels in terms of L_{dn}.

No traffic noise modeling calibration measurements were completed for this portion of the project analysis since there are no significant characteristics of the project-area roadways and receiver lands that would be expected to affect the accuracy of traffic noise modeling. It is noted that the following project traffic noise modeling does not account for shielding from existing noise barriers or other structures, and is specific to a source to receiver distance of 50 feet.

Traffic volumes for existing conditions were obtained from the Traffic Impact Analysis (TIA) prepared for the project by Kimley-Horn and Associates, Inc. (June 24, 2010). Truck usage on the area roadways were estimated from field observations and assumptions based on roadway type. The data within the TIS is in the form of AM/PM peak-hour intersection turning movements, which was converted to ADT by Bollard Acoustical Consultants, Inc. assuming ADT = 5·(AM Peak Hour + PM Peak Hour).

Table 3 shows the existing traffic noise levels in terms of L_{dn} at a reference distance of 50 feet from the centerlines of existing project-area roadways. Table 3 also includes the distances to existing traffic noise level contours. Detailed analysis inputs are presented in Appendix D.

Table 3
Existing Traffic Noise Levels and Contour Distances
Diamond Dorado Retail Center – El Dorado County, California

Roadway	Section	L_{dn} (dB) @ 50 feet	Distance to Noise Contour (feet)		
			70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}
Missouri Flat Rd.	North of Plaza Dr.	66	28	60	129
	Plaza Dr. to WB US-50 Ramps	70	49	106	228
	WB US-50 Ramps to EB US-50 Ramps	71	58	125	269
	EB US-50 Ramps to Mother Lode Dr.	73	74	159	342
	Mother Lode Dr. to Forni Rd.	72	70	150	324
	Forni Rd. to Golden Center Dr.	71	62	134	290
	Golden Center Dr. to Diamond Springs Pkwy.	71	57	123	265
	Diamond Springs Pkwy. to China Garden Rd.	69	44	94	203
	China Garden Rd. to Industrial Dr.	70	47	101	217
	Industrial Dr. to Enterprise Dr.	70	53	114	245
	Enterprise Dr. to Pleasant Valley Rd. (SR-49)	70	50	108	233
SR-49	North of Pacific St.	65	24	52	112
	Pacific St. to Fiske St.	69	41	88	190
	Fiske St. to Skyline Dr.	69	41	88	189
	Skyline Dr. to Truck St.	69	42	91	196
	Truck St. to Bradley Dr.	68	38	82	176
	Bradley Dr. to Diamond Springs Pkwy.	68	39	84	181
	Diamond Springs Pkwy. to Project Driveway #3	68	39	84	181

Roadway	Section	L_{dn} (dB) @ 50 feet	Distance to Noise Contour (feet)		
			70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}
	Project Driveway #3 to Black Rice Rd.	68	39	84	181
	Black Rice Rd. to Pleasant Valley Rd.	68	38	82	176
	Pleasant Valley Rd. to China Garden Rd.	72	69	148	318
	China Garden Rd. to Missouri Flat Rd.	73	74	160	344
	Missouri Flat Rd. to Patterson Dr.	71	62	134	289
	Patterson Dr. to Oro Ln./Koki Ln.	71	57	122	264
	Oro Ln./Koki Ln. to Forni Rd.	70	51	110	237
	Forni Rd. to Pleasant Valley Rd.	70	53	113	244
	South of Pleasant Valley Rd.	69	44	94	203
Pleasant Valley Rd.	SR-49 to Racquet Way	67	32	68	147
	Racquet Way to Canyon Valley Rd.	67	29	63	136
	East of Canyon Valley Rd.	66	29	62	134
Mother Lode Dr.	West of Missouri Flat	62	16	34	73
Forni Rd.	East of Missouri Flat	61	12	27	58
	West of Missouri Flat	63	18	39	85
	North of Pleasant Valley Rd.	62	15	32	69
Golden Center Dr.	East of Missouri Flat	59	10	21	46
Industrial Dr.	West of Missouri Flat	56	6	12	26
Enterprise Dr.	West of Missouri Flat	59	9	20	43
Oro Ln.	North of SR-49	48	2	4	8
Koki Ln.	South of SR-49	62	15	32	68
Patterson Dr.	South of SR-49	60	11	23	49
China Garden Rd.	Missouri Flat Rd. to SR-49	60	11	24	51
Lime Kiln Rd.	West of SR-49	55	5	12	25
Black Rice Rd.	East of SR-49	51	3	5	12
Racquet Way	North of Pleasant Valley Rd.	54	4	9	19
Throwita Way	North of Diamond Springs Pkwy	n/a	n/a	n/a	n/a
	South of Diamond Springs Pkwy	n/a	n/a	n/a	n/a
Truck St.	West of SR-49	52	3	7	14
Bradley Dr.	West of SR-49	55	5	11	23
Diamond Springs Pkwy	Missouri Flat Rd. to Project Driveway #1	n/a	n/a	n/a	n/a
	Project Driveway #1 to Project Driveway #2	n/a	n/a	n/a	n/a
	Project Driveway #2 to Throwita Way	n/a	n/a	n/a	n/a
	Throwita Way to SR-49	n/a	n/a	n/a	n/a

Source: Bollard Acoustical Consultants Inc. using FHWA RD-77-108 with inputs from the project TIA (Kimley-Horn and Associates, Inc., June 24, 2010).

CRITERIA FOR ACCEPTABLE NOISE EXPOSURE

El Dorado County General Plan Noise Element

The El Dorado County General Plan was adopted in July 2004 and serves as the overall guiding policy document for land use, development, and environmental quality for the County. The Public Health, Safety, and Noise Element of the General Plan (amended March 2009) contains noise standards for transportation, non-transportation (stationary), and construction noise sources. The transportation noise standards, shown in Table 4, apply to off-site traffic on public roadways. The non-transportation criteria, shown in Table 5, apply to all on-site noise sources such as loading dock activities, and the construction criteria, shown in Table 6, apply to the construction phase(s) of the project.

Table 4
Maximum Allowable Noise Exposure – Residential Receivers
Transportation Noise Sources

Center of Outdoor Activity Areas, dB L_{dn}	Interior Spaces, dB L_{dn}
60 (65)	45

Notes: Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied at the property line of the noise-sensitive uses. For residential uses with front yards facing the noise source, a standard of 65 dB L_{dn} will be applied at the building façade.

Source: Table 6-1 of the El Dorado County General Plan (Public Health, Safety, and Noise Element)

Table 5
Noise Level Performance Standards – Community Residential Receivers
Stationary Noise Sources

Noise Level Descriptor	Daytime (7 a.m.-10 p.m.)	Evening (7 p.m.-10 p.m.)	Nighttime (10 p.m.-7 a.m.)
Hourly L_{eq}, dB	55	50	45
Maximum Level, dB L_{max}	70	60	55

Notes: As determined at the residential property line. Each of the levels shall be reduced by 5 dB for simple-tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

Source: Table 6-2 of the El Dorado County General Plan (Public Health, Safety, and Noise Element)

Table 6
Maximum Allowable Noise Exposure – Residential Receivers
Construction Noise Sources
Daytime Hours (7 a.m.-7 p.m.)

Hourly L_{eq}, dB	Maximum Level, dB L_{max}
55	75

Notes: As determined at the residential property line. Each of the levels shall be reduced by 5 dB for simple-tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

Source: Table 6-1 of the El Dorado County General Plan (Public Health, Safety, and Noise Element)

Criteria for Assessing Significance of Off-Site Traffic Noise Level Increases

Based on studies of test subject's reactions to changes in environmental noise levels for similar noise sources, the Federal Interagency Commission on Noise (FICON) developed the following recommendations for thresholds to be used in assessing the significance of project-related noise level increases for transportation noise sources. These criteria are repeated as Policy 6.5.1.12 in the El Dorado County General Plan.

- Where background noise levels without the project would be less than 60 dB L_{dn}, a 5 dB or greater noise level increase due to the project would be considered significant.

- Where background noise levels without the project would be in the range of 60-65 dB L_{dn}, a 3 dB or greater noise level increase due to the project would be considered significant.

- Where background noise levels without the project would exceed 65 dB L_{dn}, a 1.5 dB or greater noise level increase due to the project would be considered significant.

This graduated scale is based on findings that people in quieter noise environments would tolerate larger increases in noise levels without adverse effects, whereas people already exposed to elevated noise levels exhibited adverse reactions to noise for smaller increases.

Because the project area noise environment is already defined by noise from surface traffic, any additional increase in traffic noise levels which results from the project would not affect the tonal character of that existing noise environment. As a result, the use of more restrictive noise level thresholds to account for changes in the tonal character of the ambient noise environment are not warranted for this project.

Criteria for Assessing Significance of Noise Generated by On-Site Activities

As presented in Policy 6.5.1.13, project-related noise exposure increases of 5 dB or more above the ambient, where the ambient is below the thresholds presented in Table 5 (Table 6-2 of the General Plan), would be considered significant. Project-related noise exposure increases of 3 dB or more above the ambient, where the ambient exceeds the thresholds presented in Table 5, would be considered significant. Therefore, the standards presented in Table 5 do not represent established limits, but rather thresholds for determination of significant project-related increase relative to the measured ambient noise level.

Criteria for Assessing Sleep Disturbance

The El Dorado County General Plan does not contain noise level standards regarding the effects of single-event noise on sleep. However, since a recent court case in Berkeley, California (*Berkeley Keep Jets Over the Bay Com. v. Bd of Port Comrs. of Oakland, 2001*), there has been increased attention to the evaluation of single-event noise levels and their effects on sleep. Because the Berkeley case involved aircraft and this project involves commercial activities the situations are considerably different. Nonetheless, single-event noise levels are evaluated in this noise assessment.

Extensive studies have been conducted regarding the effects of single-event noise on sleep disturbance, but due to the wide variation in test subjects reactions to noises of various levels (some test subjects were awakened by indoor SEL values of 50 dB, whereas others slept through indoor SEL values exceeding 80 dB), no definitive consensus has been reached with respect to an appropriate, universal criterion.

The Federal Interagency Committee on Aviation Noise (FICAN) has provided estimates of the percentage of people expected to be awakened when exposed to specific SELs inside a home (FICAN 1997). However, FICAN did not recommend a threshold of significance based on the percent of people awakened. According to the FICAN study, 10% of the population is estimated to be awakened when the interior noise level is 81 dBA SEL. An estimated 5 to 10 percent of the population is affected when the interior noise level is 65-81 dBA SEL, and few sleep awakenings (less than 5 percent) are predicted if the interior noise exposure is less than 65 dBA SEL.

As mentioned above, the threshold for sleep disturbance is not absolute since there is a high degree of variability from one person to another. Thus, the means of applying such research to land use decisions is not yet clear. As a result, no government agency has suggested what frequencies of awakenings (% awakened) are acceptable (California Division of Aeronautics 2002). For these reasons, the Federal Interagency Committee on Noise (FICON) and the California Airport and Land Use Planning Handbook continue to use CNEL as the primary tool for the purpose of land use compatibility planning (California Division of Aeronautics 2002). Since the CNEL/L_{dn} represents the cumulative exposure to all single events – or the exposure of all SELs taken together, weighed to add penalties for nighttime occurrences, and averaged over a 24-hour period – it can be argued that the L_{dn}-based standards already account for the individual impacts associated with single events.

However, because the recent Berkeley case drew concerns due to interior SEL values in excess of 65 dB, this analysis utilizes a similar threshold of 65 dB SEL within residences. Given this threshold, a chance of sleep disturbance would be less than 5%. This is estimated to be a conservative means of assessing project-related noise impacts.

Applicable Significance Criteria

Based on Appendix G of the CEQA Guidelines, a project may have significant impacts with respect to noise if it results in any of the following:

1) Exposure of persons to or generation of noise levels in excess of the standards established in the local general plan or noise ordinance, or applicable standards of other agencies. For off-site transportation noise sources (i.e., project traffic), the noise level standards of Table 4 would apply. For noise generated by on-site, non-transportation noise sources (e.g., loading docks, HVAC), the thresholds of Table 5 would apply. For noise generated by project construction, the criteria of Table 6 would apply. For the evaluation of sleep disturbance, an interior noise level of 65 dB SEL is applied with windows and exterior doors closed.

2) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. This project does not propose any significant sources of groundborne vibration, so this provision would not apply.

3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. For off-site traffic noise level increases, the threshold of significance is +5, +3 or +1.5 dB depending on pre-project ambient conditions. For on-site sources, a project-related increase of 5 dB or more and 3 dB or more would be required for significance when ambient noise levels are below the Table 5 thresholds and above the Table 5 thresholds, respectively.

4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. This provision would normally apply to short-term increases in local noise environments due to project construction, in which case the Table 6 criteria would apply. As noted in Table 2, daytime maximum noise levels at the nearest residence (Site 1) were measured to be as high as 81 dB with an average of 70 dB (L_{max}). Therefore, provided that maximum noise levels associated with project construction would not exceed this ambient noise exposure, adverse short-term noise impacts would not be expected.

5) Exposure of people to excessive aircraft noise levels within an airport land use plan or within two miles of a public airport or public use airport. Because the project uses are not considered noise-sensitive, this provision would not apply.

6) Exposure of people to excessive noise levels associated with a private air strip. Because the project uses are not considered noise-sensitive, this provision would not apply.

REFERENCE NOISE LEVELS FOR MAJOR PROJECT NOISE SOURCES

The major noise-producing components of the project include off-site traffic increases due to the project (including MRF access relocation), on-site truck circulation, loading dock activities (e.g., air-brakes, trucks backing into dock bays with back-up beepers, trailer coupling and decoupling), rooftop mechanical equipment, and parking lot sweeping activities. The locations of the primary truck turnaround area and loading dock form Major 1 are identified in Appendix A. The reference noise levels associated with each of the identified noise sources are described separately below.

Reference Heavy-Truck Passby Noise Levels & Frequency Content

To quantify the noise generation of slow-moving, tractor-trailer truck passbys (and turnarounds), such as those which will occur on the south side of the project site near the closest residences, BAC conducted single-event passby noise tests at the West El Camino truck stop in Sacramento, California on June 25, 2008 (mid-afternoon) and on August 12, 2008 (morning). The June measurements focused on heavy-truck passbys without refrigeration units on their trailers, whereas the August measurements focused on trucks which had refrigeration units operating on their trailers. Both sets of measurements were conducted at a reference distance of 50 feet perpendicular to the passby route, at a location suitable for isolation of individual

passby events (relatively low background noise exposure). The truck stop measurement site in Sacramento was an ideal location for the collection of this single-event data. LDL Model 820 and 2900 sound level meters were used to quantify overall noise levels and frequency content for each truck passby event, respectively.

Heavy-truck passby events resulted in noise exposure of 69-77 dB L_{max} with a mean of 74 dB L_{max}. Truck passby levels measured in terms of Single Event Level/Sound Exposure Level (SEL) ranged from 77-85 dB with a mean of 84 dB SEL. Again, all reference noise level measurements were completed at a distance of 50 feet perpendicular to the passing noise source. This data does not include noise from air-brakes, back-up alarms (beepers), or truck docking noise. These sources are included within the reference noise level data for loading docks (see below), and would not be expected for normal truck movements on the project site.

To convert the SEL for an individual truck passage into an hourly average noise level (L_{eq}), the number of hourly truck passbys must be known. Based on information provided by the applicant and operations data used for similar projects, daily truck activity at the proposed Major 1 store would consist of as many as 10 tractor-trailer truck deliveries per day. Based on this level of daily activity and the assumed limit of the loading docks for the Major 1 store, it was conservatively assumed that a busy hour would include the arrival and departure of 2 semi-trailer trucks (4 truck trips).

Using the average SEL data per heavy-truck passbys with the operational assumptions cited above, the average hourly noise level associated with on-site heavy-truck circulation during a typical busy hour was calculated to be 51 dB L_{eq} at a reference distance of 50 feet from the truck lane.

The frequency data collected during the heavy-truck passbys described above indicates that, although heavy-truck noise emissions are of lower frequency content than automobiles, they do not contain pure tones while operating at project-vicinity speeds. This finding is true regardless of whether or not they have refrigeration units on their trailers. The following explanation is provided in support of this conclusion.

For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source in question to “stand out” against other noise sources. The specific definition of a “Pure Tone” as contained in the State of California Model Community Noise Control Ordinance is as follows:

> *A pure tone shall exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two contiguous one-third octave bands by 5 dB for center frequencies of 500 Hz and above, by 8 dB for center frequencies between 160 and 400 Hz, and by 15 dB for center frequencies less than or equal to 125 Hz.*

The collected heavy-truck passby frequency data does not exhibit “pure tone” character as described above.

Reference Medium Duty (Vendor) Truck Passby Noise Levels

Medium duty truck passbys typically generate SEL and L_{max} values of approximately 5 dB lower than heavy-truck noise levels. Specifically, SEL and L_{max} noise levels for medium duty trucks were assumed to be 79 dB and 69 dB, respectively, at a reference distance of 50 feet.

As noted above, to convert the SEL for an individual truck passage into an hourly average noise level (L_{eq}), the number of hourly truck passbys must be known. Based on information for similar projects, as many as 12 daily medium truck deliveries may service the Major 1 store. Based on this level of service, it was conservatively assumed that a busy hour would consist of the arrival and departure of 3 medium duty trucks (6 trips) during a given hour.

Using the SEL data per heavy and medium truck passbys with the operational assumptions cited above, the reference average noise level associated with on-site, medium-duty truck circulation during a typical busy hour on the south side of the project was computed to be 51 dB L_{eq} at a reference distance of 50 feet.

Reference Loading Docks Noise Levels

The primary noise sources associated with the loading dock area of the project, which is located on the south side of the proposed Major 1 store (see Appendix A) will be the heavy-trucks stopping (air brakes), backing into the loading docks (back-up alarms), trailer coupling and decoupling, pulling out of the loading docks (engines accelerating) and refrigeration unit operation (alone or with truck idling).

Trailer unloading will occur directly from the inside of the trailer while docked in the recessed bay, and sealed rubber gaskets will be provided at the truck docks to reduce noise from those inside loading and unloading activities. Medium-duty truck unloading will be accomplished at all store sites with dollies or hand-carts.

To determine typical loading dock noise levels associated with the proposed project, noise level measurement data collected for a similar loading dock were used. Specifically, noise level data was collected at the Citrus Heights Super Walmart during continuous noise level measurement surveys spanning August 15-18, 2008. These noise level measurements were conducted at a distance of 100 feet from the effective noise center of the truck unloading area, although passbys of trucks to and from the unloading area were within 50 feet of the noise measurement site.

During the loading dock noise level surveys, typical daytime and nighttime loading dock activities were monitored, including truck arrivals and departures, trucks backing into the docks (with beepers), trailer uncoupling, refrigerated trailer units, etc. The results of the loading dock noise level measurements indicate that typical busy daytime hour activities generated a maximum level of approximately 75 dB L_{max} and an average noise level of 55 dB L_{eq} at a reference distance of 100 feet (center of dock activity). A typical busy nighttime hour of loading dock activities yielded average noise levels 5 dB lower than those measured during daytime hours, or approximately 50 dB L_{eq} at 100 feet for nighttime activity. Maximum noise levels measured during nighttime hours were similar to those measured during daytime hours, as expected.

Reference Mechanical Equipment Noise Levels

The HVAC systems for maintaining comfortable shopping temperatures within the Major 1 store will consist of packaged rooftop air conditioning systems. It is expected that HVAC units will be relatively evenly distributed across the roof of the building, typically starting about 30 feet from the edges. These HVAC units, which typically stand about 4-5 feet tall, will be shielded from view of nearby sensitive uses by the building's parapet. Such rooftop HVAC units were measured at a reference distance of 100 feet from the building façade of the Red Bluff Walmart store to be approximately 45 dB L_{eq}, including shielding by the building parapet. At the Citrus Height Walmart, where the loading reference noise level data was collected, rooftop HVAC equipment was not audible or distinguishable over daytime background noise exposure.

Reference Parking Lot Sweeper Noise Levels

The proposed parking lot areas would require the use of a sweeper truck for routine cleaning. As a means of determining the noise levels associated with sweeper truck activities, Bollard Acoustical Consultants conducted field measurements of a sweeper truck during normal operation at a Home Depot Store on Howe Avenue in Sacramento, California (2007). Sweeper truck noise levels were measured to be up to 75 dB L_{max} at a reference distance of 50 feet. This noise exposure confirmed the noise level measurements documented by Jones & Stokes for the City of Redding Walmart Expansion project in 2005. Noise exposure from their April 26, 2005 reference noise level measurement session was 76 dB L_{max} and approximately 72 dB L_{eq} at a distance of 50 feet from the sweeper route. In this case, the hourly average noise level (L_{eq}) associated with parking lot sweeping operations is difficult to predict since it depends on the location of the sweeper truck throughout the hour, which tends to be highly variable. Since the parking lot/pavement area of the project site near the closet residence to the south is relatively small, and will require little time to clean, it is expected that the L_{max} criteria would be most applicable to this noise source.

Reference Construction Noise Levels

During the construction of the project, noise from construction-related activities would add to the noise environment in the immediate project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 7, ranging from 77 to 85 dB at a distance of 50 feet.

Table 7
Construction Equipment Noise Levels at 50 Feet

Type of Equipment	L_{max}, dB	Hourly L_{eq}, dB/% Use
Backhoe	78	74/40%
Concrete Mixer Truck	79	75/40%
Dump Truck	77	73/40%
Front End Loader	79	75/40%
Pneumatic Tools	85	82/50%
Air Compressor	78	74/40%

Source: Federal Highway Administration's Construction Noise Model, V1.1, December 8, 2008.

Project-Related Traffic Noise

Traffic noise levels were predicted in terms of the Day/Night Average Level (L_{dn}) at a representative distance (50 feet from roadway centerlines) for the Near-Term (2015) and Long-Term (2025), project and no-project conditions using the FHWA Model. These predictions used the same modeling methodology used for the existing scenario described earlier in this report with one major change. Each assessment was completed in two parts: 1) traffic without the MRF trucks, and 2) the MRF trucks alone. The two parts were then added together to determine total noise exposure.

Results of these analyses are summarized in Tables 8 and 9 for the Near-Term (2015) and Long-Term (2025) conditions, respectively. Table 10 represents the cumulative traffic noise exposure changes in the project area. Detailed inputs for the analyses are presented in Appendices D-G.

Table 8
Predicted "Near-Term" Traffic Noise Levels at 50 feet from Roadway Centerlines

Roadway	Section	L_{dn}, dB		
		NT (2015)	NT (2015) +Project	Change
Missouri Flat Rd.	North of Plaza Dr.	68	68	0
	Plaza Dr. to WB US-50 Ramps	71	71	0
	WB US-50 Ramps to EB US-50 Ramps	72	72	0
	EB US-50 Ramps to Mother Lode Dr.	72	73	0
	Mother Lode Dr. to Forni Rd.	73	74	0
	Forni Rd. to Golden Center Dr.	72	73	+1
	Golden Center Dr. to Diamond Springs Pkwy.	73	73	0
	Diamond Springs Pkwy. to China Garden Rd.	69	69	0
	China Garden Rd. to Industrial Dr.	69	70	0
	Industrial Dr. to Enterprise Dr.	70	71	+1
	Enterprise Dr. to Pleasant Valley Rd. (SR-49)	70	71	+1
SR-49	North of Pacific St.	66	66	0
	Pacific St. to Fiske St.	69	69	0
	Fiske St. to Skyline Dr.	69	69	0
	Skyline Dr. to Truck St.	70	70	0
	Truck St. to Bradley Dr.	70	70	0
	Bradley Dr. to Diamond Springs Pkwy.	70	70	0
	Diamond Springs Pkwy. to Project Driveway #3	70	71	+1
	Project Driveway #3 to Black Rice Rd.	72	73	+1
	Black Rice Rd. to Pleasant Valley Rd.	72	73	+1
	Pleasant Valley Rd. to China Garden Rd.	70	71	+1
	China Garden Rd. to Missouri Flat Rd.	70	71	+1
	Missouri Flat Rd. to Patterson Dr.	71	71	0

Roadway	Section	L_{dn}, dB		
		NT (2015)	NT (2015) +Project	Change
	Patterson Dr. to Oro Ln./Koki Ln.	71	71	0
	Oro Ln./Koki Ln. to Forni Rd.	70	71	0
	Forni Rd. to Pleasant Valley Rd.	71	71	0
	South of Pleasant Valley Rd.	70	70	0
Pleasant Valley Rd.	SR-49 to Racquet Way	68	68	0
	Racquet Way to Canyon Valley Rd.	67	66	-1
	East of Canyon Valley Rd.	67	66	-1
Mother Lode Dr.	West of Missouri Flat	63	63	0
Forni Rd.	East of Missouri Flat	62	62	0
	West of Missouri Flat	64	64	0
	North of Pleasant Valley Rd.	63	63	0
Golden Center Dr.	East of Missouri Flat	60	60	0
Industrial Dr.	West of Missouri Flat	56	56	0
Enterprise Dr.	West of Missouri Flat	59	59	0
Oro Ln.	North of SR-49	48	50	+1
Koki Ln.	South of SR-49	62	62	0
Patterson Dr.	South of SR-49	60	60	0
China Garden Rd.	Missouri Flat Rd. to SR-49	60	60	0
Lime Kiln Rd.	West of SR-49	55	67	+12
Black Rice Rd.	East of SR-49	54	54	0
Racquet Way	North of Pleasant Valley Rd.	54	54	0
Throwita Way	North of Diamond Springs Pkwy	54	55	0
	South of Diamond Springs Pkwy	67	61	-6
Truck St.	West of SR-49	50	50	0
Bradley Dr.	West of SR-49	44	44	0
Diamond Springs Pkwy	Missouri Flat Rd. to Project Driveway #1	70	70	0
	Project Driveway #1 to Project Driveway #2	70	71	+1
	Project Driveway #2 to Throwita Way	70	71	+1
	Throwita Way to SR-49	68	69	+1

Source: Bollard Acoustical Consultants Inc. using FHWA RD-77-108 with inputs from the project TIA (Kimley-Horn and Associates, Inc., June 24, 2010).

Note: Highlighted level represents potential noise impact.

Table 9
Predicted "Long-Term" Traffic Noise Levels at 50 feet from Roadway Centerlines

Roadway	Section	L_{dn}, dB		
		LT (2025)	LT (2025) +Project	Change
Missouri Flat Rd.	North of Plaza Dr.	69	69	0
	Plaza Dr. to WB US-50 Ramps	72	72	0
	WB US-50 Ramps to EB US-50 Ramps	73	74	0
	EB US-50 Ramps to Mother Lode Dr.	73	74	0
	Mother Lode Dr. to Forni Rd.	74	74	0
	Forni Rd. to Golden Center Dr.	74	74	0
	Golden Center Dr. to Diamond Springs Pkwy.	74	74	0
	Diamond Springs Pkwy. to China Garden Rd.	70	70	0
	China Garden Rd. to Industrial Dr.	71	71	0
	Industrial Dr. to Enterprise Dr.	71	72	+1
	Enterprise Dr. to Pleasant Valley Rd. (SR-49)	71	72	+1
SR-49	North of Pacific St.	67	67	0
	Pacific St. to Fiske St.	70	70	0
	Fiske St. to Skyline Dr.	70	70	0
	Skyline Dr. to Truck St.	71	71	0
	Truck St. to Bradley Dr.	71	71	0
	Bradley Dr. to Diamond Springs Pkwy.	71	71	0
	Diamond Springs Pkwy. to Project Driveway #3	71	71	+1
	Project Driveway #3 to Black Rice Rd.	73	73	+1
	Black Rice Rd. to Pleasant Valley Rd.	73	73	+1
	Pleasant Valley Rd. to China Garden Rd.	71	72	+1
	China Garden Rd. to Missouri Flat Rd.	71	72	+1
	Missouri Flat Rd. to Patterson Dr.	71	71	0
	Patterson Dr. to Oro Ln./Koki Ln.	72	72	0
	Oro Ln./Koki Ln. to Forni Rd.	71	71	0
	Forni Rd. to Pleasant Valley Rd.	72	72	0
	South of Pleasant Valley Rd.	70	70	0
Pleasant Valley Rd.	SR-49 to Racquet Way	69	69	0
	Racquet Way to Canyon Valley Rd.	68	68	0
	East of Canyon Valley Rd.	68	68	0
Mother Lode Dr.	West of Missouri Flat	65	65	0
Forni Rd.	East of Missouri Flat	63	63	0
	West of Missouri Flat	66	66	0
	North of Pleasant Valley Rd.	66	66	0
Golden Center Dr.	East of Missouri Flat	61	61	0

Roadway	Section	L_{dn}, dB		
		LT (2025)	LT (2025) +Project	Change
Industrial Dr.	West of Missouri Flat	57	57	0
Enterprise Dr.	West of Missouri Flat	60	60	0
Oro Ln.	North of SR-49	49	49	0
Koki Ln.	South of SR-49	63	63	0
Patterson Dr.	South of SR-49	61	61	0
China Garden Rd.	Missouri Flat Rd. to SR-49	61	61	0
Lime Kiln Rd.	West of SR-49	56	67	+12
Black Rice Rd.	East of SR-49	55	55	0
Racquet Way	North of Pleasant Valley Rd.	55	55	0
Throwita Way	North of Diamond Springs Pkwy	55	56	0
	South of Diamond Springs Pkwy	67	61	-6
Truck St.	West of SR-49	51	51	0
Bradley Dr.	West of SR-49	45	45	0
Diamond Springs Pkwy	Missouri Flat Rd. to Project Driveway #1	71	71	0
	Project Driveway #1 to Project Driveway #2	71	71	0
	Project Driveway #2 to Throwita Way	71	71	0
	Throwita Way to SR-49	69	70	+1

Source: Bollard Acoustical Consultants Inc. using FHWA RD-77-108 with inputs from the project TIA (Kimley-Horn and Associates, Inc., June 24, 2010).

Note: Highlighted level represents potential noise impact.

Table 10
Cumulative Traffic Noise Assessment – 50 feet from Roadway Centerlines

Roadway	Section	L_{dn}, dB		
		Existing (2010)	LT (2025) +Project	Change
Missouri Flat Rd.	North of Plaza Dr.	66	69	+3
	Plaza Dr. to WB US-50 Ramps	70	72	+2
	WB US-50 Ramps to EB US-50 Ramps	71	74	+3
	EB US-50 Ramps to Mother Lode Dr.	73	74	+1
	Mother Lode Dr. to Forni Rd.	72	74	+2
	Forni Rd. to Golden Center Dr.	71	74	+3
	Golden Center Dr. to Diamond Springs Pkwy.	71	74	+3
	Diamond Springs Pkwy. to China Garden Rd.	69	70	+1
	China Garden Rd. to Industrial Dr.	70	71	+1
	Industrial Dr. to Enterprise Dr.	70	72	+2
SR-49	Enterprise Dr. to Pleasant Valley Rd. (SR-49)	70	72	+2

Roadway	Section	L_{dn}, dB		
		Existing (2010)	LT (2025) +Project	Change
	North of Pacific St.	65	67	+2
	Pacific St. to Fiske St.	69	70	+1
	Fiske St. to Skyline Dr.	69	70	+1
	Skyline Dr. to Truck St.	69	71	+2
	Truck St. to Bradley Dr.	68	71	+3
	Bradley Dr. to Diamond Springs Pkwy.	68	71	+3
	Diamond Springs Pkwy. to Project Driveway #3	68	71	+3
	Project Driveway #3 to Black Rice Rd.	68	73	+5
	Black Rice Rd. to Pleasant Valley Rd.	68	73	+5
	Pleasant Valley Rd. to China Garden Rd.	72	72	0
	China Garden Rd. to Missouri Flat Rd.	73	72	-1
	Missouri Flat Rd. to Patterson Dr.	71	71	0
	Patterson Dr. to Oro Ln./Koki Ln.	71	72	+1
	Oro Ln./Koki Ln. to Forni Rd.	70	71	+1
	Forni Rd. to Pleasant Valley Rd.	70	72	+2
	South of Pleasant Valley Rd.	69	70	+1
Pleasant Valley Rd.	SR-49 to Racquet Way	67	69	+2
	Racquet Way to Canyon Valley Rd.	67	68	+1
	East of Canyon Valley Rd.	66	68	+2
Mother Lode Dr.	West of Missouri Flat	62	65	+3
Forni Rd.	East of Missouri Flat	61	63	+2
	West of Missouri Flat	63	66	+3
	North of Pleasant Valley Rd.	62	66	+4
Golden Center Dr.	East of Missouri Flat	59	61	+2
Industrial Dr.	West of Missouri Flat	56	57	+1
Enterprise Dr.	West of Missouri Flat	59	60	+1
Oro Ln.	North of SR-49	48	49	+1
Koki Ln.	South of SR-49	62	63	+1
Patterson Dr.	South of SR-49	60	61	+1
China Garden Rd.	Missouri Flat Rd. to SR-49	60	61	+1
Lime Kiln Rd.	West of SR-49	55	67	+12
Black Rice Rd.	East of SR-49	51	55	+4
Racquet Way	North of Pleasant Valley Rd.	54	55	+1
Throwita Way	North of Diamond Springs Pkwy	n/a	56	n/a
	South of Diamond Springs Pkwy	n/a	61	n/a
Truck St.	West of SR-49	52	51	-1
Bradley Dr.	West of SR-49	55	45	-10

Roadway	Section	L_{dn}, dB		
		Existing (2010)	LT (2025) +Project	Change
Diamond Springs Pkwy	Missouri Flat Rd. to Project Driveway #1	n/a	71	n/a
	Project Driveway #1 to Project Driveway #2	n/a	71	n/a
	Project Driveway #2 to Throwita Way	n/a	71	n/a
	Throwita Way to SR-49	n/a	70	n/a

Source: Bollard Acoustical Consultants Inc. using FHWA RD-77-108 with inputs from the project TIA (Kimley-Horn and Associates, Inc., June 24, 2010).

Note: Highlighted level represents potential noise impact.

PROJECT NOISE IMPACTS AND MITIGATION MEASURES

Noise Impact Assessment Methodology

Distances from the major on-site project noise sources to the nearest potentially-affected noise-sensitive uses (residences) were scaled using both project site plans and aerial photographs. Those distances, which may be determined from Appendix A, were used to project the reference noise level data cited in the previous section for each source to the locations of the sensitive receivers to the south and southeast of the project site. Project related noise exposure at the closest residence to the north (4000 SR 49) is not expected to be significant given the distances from the primary noise sources and the relatively high ambient noise condition.

For a source of noise which radiates from a fixed location, such as the noise generated by stationary mechanical equipment, sound levels decrease at a rate of 6 dB per doubling of distance (spherical spreading or divergence). This sound decay rate also applies to maximum noise levels (L_{max}) generated by both stationary and mobile noise sources, such as the airbrake release of a heavy-truck. For example, a hypothetical reference level of 70 dB measured at a distance of 50 feet from a fixed location would decrease to a level of approximately 64 dB at a distance of 100 feet from that location (6 dB decrease per doubling of distance), and further decrease to approximately 58 dB at a distance of 200 feet (another 6 dB per doubling of distance from 100 to 200 feet).

For mobile noise sources, such as truck passages, the sound decay rate used for computation of average noise levels (L_{eq}) is 4.5 dB per doubling of distance from the source. For example, a hypothetical reference level of 60 dB measured at a reference distance of 50 feet from a truck passby route would decrease to a level of approximately 55.5 dB at a distance of 100 feet from that fixed location (4.5 dB decrease per doubling of distance), and further decrease to 51 dB at a distance of 200 feet (another 4.5 dB per doubling of distance from 100 to 200 feet).

The reference noise levels cited in the previous section were projected to the noise-sensitive areas of the nearest residences to the project site using the appropriate decay rates cited above. Those levels were then compared to the project standards of significance described above. Where project-generated noise levels were found to exceed those standards, or where noise levels with the project would substantially exceed noise levels without the project, a finding of significant noise impact was made. Noise mitigation options were developed for each identified significant noise impact associated with the Diamond Dorado Retail Center project.

A discussion of specific noise impacts and mitigation measures for each major noise-producing component of the project are provided in the next section. A cumulative noise assessment is also provided.

Specific Project-Related Noise Impacts and Mitigation Measures

Traffic Noise

Impact 1 **The project will generate additional traffic in the project area in the near-term (2015) which will lead to higher day/night average (L_{dn}) traffic noise levels on the local roadway network.**

Based on the traffic assessment results shown in Table 8, project-related noise level increases on individual roadway segments will range from 0-12 dB over existing local roadway noise levels without the project. Specifically, traffic noise on Lime Kiln Road west of SR 49 (between the Highway and the new MRF access point) would be expected to increase significantly due to the re-routing of MRF traffic.

Resulting traffic noise levels at a reference distance of 50 feet would be approximately 67 dB L_{dn} along Lime Kiln Road between SR 49 and the MRF access point. This noise exposure exceeds the applicable 60 dB L_{dn} criterion and the applicable +5 dB significance threshold. **This increase is considered significant**.

Mitigation: Construct a permanent noise barrier along the north property line of the impacted residence (APN 054-341-04). This barrier should be no less than 8 feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide no less than 8 dB of insertion loss for traffic noise on Lime Kiln Road, reducing the expected noise exposure to 59 dB L_{dn} or less and the project-related increase to 4 dB or less. Additionally, this barrier would be expected to reduce noise exposure from future on-site project noise sources (see below).

After mitigation, this impact would be **less than significant.**

Impact 2 **The project will generate additional traffic in the project area in the long-term (2025) which will lead to higher day/night average (L_{dn}) traffic noise levels on the local roadway network.**

Based on the traffic assessment results shown in Table 9, project-related noise level increases on individual roadway segments will range from 0-12 dB over existing local roadway noise levels without the project. Specifically, traffic noise on Lime Kiln Road west of SR 49 (between the Highway and the new MRF access point) would be expected to increase significantly due to the re-routing of MRF traffic.

Resulting traffic noise levels at a reference distance of 50 feet would be approximately 67 dB L_{dn} along Lime Kiln Road between SR 49 and the MRF access point. This noise exposure exceeds the applicable 60 dB L_{dn} criterion and the applicable +5 dB significance threshold. **This increase is considered significant**.

Mitigation: Construct a permanent noise barrier along the north property line of the impacted residence (APN 054-341-04). This barrier should be no less than 8

feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide no less than 8 dB of insertion loss for traffic noise on Lime Kiln Road, reducing the expected noise exposure to 59 dB L_{dn} or less and the project-related increase to 4 dB or less. Additionally, this barrier would be expected to reduce noise exposure from future on-site project noise sources (see below).

After mitigation, this impact would be **less than significant.**

Impact 3 **Single-event noise levels generated by re-routed MRF trucks on public roadways could cause sleep disturbance for nearby residences.**

Re-routed MRF trucks on Lime Kiln Road west of SR 49 would be expected to produce an SEL of approximately 75 dB at the closest residential building façade (APN 054-341-04). Assuming a minimum building façade noise level reduction of 25 dB with windows closed, exterior single event levels of 75 dB SEL would be reduced to 50 dB SEL within the residence. The estimated 25 dB noise level reduction of the existing residence with windows and doors in the closed position is based on testing of similar residential building façades by Bollard Acoustical Consultants, Inc. (BAC) staff in recent years. Because predicted single-event noise levels within the residence during passages of heavy-trucks at the new MRF access are predicted to be approximately 15 dB below the project significance criterion of 65 dB SEL, **this impact is considered less than significant.**

Mitigation: None Required

Construction Noise

Impact 4 **Implementation of the proposed project would result in increased noise levels in the vicinity of the project site during the construction of the project.**

The nearest existing residences to the project site are located approximately 100 feet or more from the project boundary. At this distance, maximum noise levels would be expected to be as high as 80 dB L_{max} from construction operations. This noise exposure is likely to significantly exceed the existing ambient noise exposure (Table 2) and the criteria presented in Table 6 at the closest residences to the south (Site 1 area). Although project construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours only, **the impact of this noise source is considered significant.**

Mitigation: Construct a temporary or permanent noise barrier along the north property line of the residential parcel at APN 054-341-04. This barrier should be no less than 8 feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide approximately 7-8 dB of insertion loss for most construction noise sources, more than satisfying the applicable construction noise exposure limits. Additionally, if this barrier is permanent, it would be expected to reduce noise exposure from future MRF traffic and on-site project noise sources (see below).

After mitigation, this impact would be **less than significant.**

On-Site Truck Circulation Noise

Impact 5 **Implementation of the proposed project would result in on-site truck circulation noise associated with truck deliveries to the Major 1 store.**

According to the provided on-site truck route maps, truck traffic for the Major 1 store would be routed to the rear (south end) of the store via the main project access off of Diamond Springs Parkway. Project trucks would enter the project site at the main access, travel north-to-south bisecting the project site, use the truck turnaround for docking, and back into the loading dock. After unloading, the trucks would then exit the property to the north via the main access onto Diamond Springs Parkway. Project heavy trucks are not expected to use the smaller access points off of Diamond Springs Parkway (northwest corner) or SR 49 (east side). The nearest existing residential property line to the on-site truck turn-around area is located approximately 140 feet south. The future Major 1 store building pad is expected to be approximately 10 feet below the pad elevation of the residence.

In the reference noise level section, noise generated by medium- and heavy-truck passbys was recorded at a reference distance of 50 feet. Those data were extrapolated to the distance of the nearest residence (140 feet), with the results provided in Table 11. The Table 11 data are based on 2 heavy-truck arrivals and departures, and 3 medium truck arrivals and departures in any given hour, and do not account for any shielding of on-site truck circulation which may result from future noise barriers.

The L_{max} and SEL values shown in Table 11 are not considered additive as the likelihood that the noise generation of one truck passby would coincide exactly with the noise generation of another is very minute. As a result, the reported levels for the combined L_{max} and SEL of medium and heavy trucks are the noise levels generated by a single heavy truck operation.

Table 11
Predicted Noise Levels at the Nearest Residence (140 Feet South of Truck Turnaround)
On-Site Circulation of Medium and Heavy Trucks (Major 1 Store)

Noise Sources and Criteria	L_{eq}, dB	L_{max}, dB	SEL, dB
Heavy Trucks	44	65	75
Medium Trucks	44	60	70
Combined Heavy and Medium Trucks	47	65	75
Average Measured Ambient (Day/Evening/Night)	54/48/58	73/61/66	NA
Ambient + Project (Day/Evening/Night)	55/51/58	73/65/66	NA
Project Standard of Significance (Day/Evening/Night)	**59/53/61**	**76/64/69**	**90**

Notes: An exterior SEL of 90 dB would be reduced to the 65 dB SEL objective within residences through normal building façade noise level reduction with windows and exterior doors closed (25 dB exterior-to-interior noise level reduction assumed). Highlighted level represents noise impact.

Source: Bollard Acoustical Consultants, Inc.

As shown above in Table 11, the predicted noise levels associated with a typical busy hour of on-site truck circulation satisfy the applicable noise exposure limits with the exception of the evening L_{max}, which exceeds the criterion by 1 dB. **This impact is considered significant.**

Mitigation: Construct a permanent noise barrier along the north property line of the impacted residence (APN 054-341-04). This barrier should be no less than 8 feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide approximately 8-9 dB of insertion loss for the on-site project truck source, more than satisfying the applicable noise exposure limits. Additionally, this barrier would be expected to reduce noise exposure from future MRF traffic and other on-site project noise sources (see below).

After mitigation, this impact would be **less than significant.**

Loading Dock Area Noise – Major 1 Store

Impact 6 **Implementation of the proposed project would result in increased noise at existing residences due to the delivery of goods to the Major 1 store.**

The proposed loading dock configuration for the Major 1 store would locate the effective noise center of the loading dock approximately 240 feet from the closest to the south (See Appendix A).

The primary noise sources associated with the truck unloading area are the heavy-trucks stopping (air brakes), backing into the loading dock (back-up alarms), pulling out of the loading dock (engines accelerating) and short-term refrigeration unit operation. Heavy truck unloading will occur directly from the truck to the building, and sealed rubber gaskets will be provided at the truck docks to reduce noise from loading and unloading activities. Medium duty truck unloading using hand-carts will also contribute to truck unloading noise levels, and those operations are included in the reference noise levels cited in the reference noise level section above.

In the reference noise level section, reference noise level data for loading dock activities were provided at a reference distance of 100 feet. Those data were extrapolated to the distance of the nearest residences (240 feet), with the results provided in Table 12. The Table 12 data are based on a typical busy hour of loading dock activity, and do not account for any shielding of loading dock activities which may result from future noise barriers. The Table 12 data do include noise generated by unloading of medium duty trucks using handcarts.

Table 12
Predicted Noise Levels at the Nearest Residence to the South (240 Feet)
Major 1 Store Loading Dock Operations

Noise Sources and Criteria	L_{eq}, dB	L_{max}, dB
Loading Dock Sources (Day/Evening/Night)	47/47/42	67
Average Measured Ambient (Day/Evening/Night)	54/48/58	73/61/66
Ambient + Project (Day/Evening/Night)	55/51/58	73/67/67
Project Standard of Significance (Day/Evening/Night)	**59/53/61**	**76/64/69**

Note: Highlighted level represents noise impact.

Source: Bollard Acoustical Consultants, Inc.

Table 12 indicates that the predicted average noise level associated with a typical busy hour of loading dock activity at the Major 1 store loading dock area could exceed the applicable evening L_{max} criterion by 3 dB. As a result**, this impact is considered significant.**

Mitigation: Construct a permanent noise barrier along the north property line of the impacted residence (APN 054-341-04). This barrier should be no less than 8 feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide approximately 8-9 dB of insertion loss for the Major 1 store loading dock source, more than satisfying the applicable noise exposure limits. Additionally, this barrier would be expected to reduce noise exposure from future MRF traffic and other on-site project noise sources (see below).

After mitigation, this impact would be **less than significant.**

Rooftop Mechanical Equipment Noise – Major 1 Store

Impact 7 **Implementation of the proposed project would result in increased noise levels due to the operation of rooftop mechanical equipment at the Major 1 store.**

In the reference noise level section, reference noise level data for mechanical equipment indicated HVAC system operation can be expected to generate noise levels of 45 dB L_{eq} at 100 feet from the project building facades, accounting for shielding provided by the building's parapet. The reference data was extrapolated to the nearest residence and the results are provided in Table 13. A distance of 190 feet between source and receiver was assumed for this assessment (i.e., edge of project building to residential property line) since no rooftop mechanical plan was available. The Table 13 data assume continuous steady-state operation of the HVAC equipment for an entire hour.

Table 13
Predicted Noise Levels at the Nearest Residences
Major 1 Store Rooftop Mechanical Equipment Operation

Noise Sources and Criteria	L_{eq}, dB	L_{max}, dB
Rooftop HVAC Equipment	39	39
Average Measured Ambient (Day/Evening/Night)	54/48/58	73/61/66
Ambient + Project (Day/Evening/Night)	54/49/58	73/61/66
Project Standard of Significance (Day/Evening/Night)	**59/53/61**	**76/64/69**

Source: Bollard Acoustical Consultants, Inc.

Table 13 indicates that the predicted noise levels associated with operation of rooftop mechanical equipment at the Major 1 store would satisfy the project noise standards. As a result, **this impact is considered less than significant**.

Mitigation: None Required

Parking Lot Sweeping Noise

Impact 8 **Implementation of the proposed project would result in increased noise levels due to parking lot sweeping/cleaning activities.**

As noted in the reference noise level section of this report, sweeper truck operations are predicted to generate noise levels of approximately 76 dB L_{max} at a reference distance of 50 feet. It is expected that parking lot sweeping will be within 100 feet of the closest residences to the south for short periods during the cleaning services.

Application of a 6 dB reduction due to distance results in expected noise exposure of approximately 70 dB L_{max} at the closest existing residential property line to the south. This noise exposure would be expected to exceed the applicable evening and nighttime noise exposure criteria of 64 dB L_{max} and 69 dB L_{max}, respectively. Therefore, **this impact is considered significant.**

Mitigation: Construct a permanent noise barrier along the north property line of the impacted residence (APN 054-341-04). This barrier should be no less than 8 feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide approximately 8-9 dB of insertion loss for the parking lot sweeper source, more than satisfying the applicable noise exposure limits. Additionally, this barrier would be expected to reduce noise exposure from future MRF traffic and other on-site project noise sources (see below).

After mitigation, this impact would be **less than significant.**

Impact 9 **Implementation of the project would result in increased noise exposure at the closest existing residential neighbors from combined on-sight project noise sources.**

The project will increase environmental noise in the project vicinity from a combination of the on-site noise sources discussed independently above. Specifically, Major 1 store operations could result in combined noise exposure from on-site truck movements, loading dock operations, and roof-top mechanical equipment (HVAC) within a given hour at the closest existing residence to the south of the store. This noise exposure is described in Table 14. As shown, maximum evening noise exposure from store loading dock may exceed the applicable 64 dB L_{max} criterion by as much as 3 dB. **This impact is considered significant.**

Table 14
Summary of Cumulative Noise Exposure from Major 1 Sources
At Closest Existing Residence to the South

Noise Sources and Criteria	L_{eq}, dB	L_{max}, dB
On-Site Truck Movements	47	65
Loading Dock Sources	47/47/42	67
Rooftop HVAC Equipment	39	39
Average Measured Ambient (Day/Evening/Night)	54/48/58	73/61/66
Ambient + Project (Day/Evening/Night)	56/52/59	73/67/67
Project Standard of Significance (Day/Evening/Night)	**59/53/61**	**76/64/69**

Source: Bollard Acoustical Consultants, Inc.

Mitigation: Construct a permanent noise barrier along the north property line of the impacted residence (APN 054-341-04). This barrier should be no less than 8 feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide approximately 8-9 dB of insertion loss for Major 1 store noise sources, more than satisfying the applicable noise exposure limits. Additionally, this barrier would be expected to reduce noise exposure from future MRF traffic and other on-site project noise sources (see below).

After mitigation, this impact would be **less than significant.**

CUMULATIVE SETTING, IMPACTS, AND MITIGATION

The future noise environment including the cumulative contributions of noise from buildout of the project area will continue to be dominated by surface traffic noise, especially along SR 49. Noise from individual projects, such as the proposed Diamond Dorado Retail Center will contribute to the cumulative noise environment, but in a highly localized manner.

Impact 10 **The project will generate additional traffic in the project area in the long-term (2025) which will lead to higher day/night average (L_{dn}) traffic noise levels on the local roadway network.**

According to Table 10, traffic noise exposure will increase significantly along many roadways in the project-area relative to existing traffic conditions. However, as shown in Table 9, the project-related contribution to these increases is 1 dB or less except along Lime Kiln Road between SR 49 and the new MRF access point. Therefore, although the traffic noise exposure increases in the project area are cumulatively significant, the project-related noise exposure increases are not cumulatively considerable except at the residence at APN 054-341-04. **This impact is considered significant.**

Mitigation: Construct a permanent noise barrier along the north property line of the impacted residence (APN 054-341-04). This barrier should be no less than 8 feet high relative to the residential building pad elevation. An 8-foot high barrier would be expected to provide no less than 8 dB of insertion loss for traffic noise on Lime Kiln Road, reducing the project-related noise exposure increase to 4 dB.

After mitigation, this impact would be **less than significant.**

REFERENCES

- El Dorado County General Plan – Public Health, Safety, and Noise Element, Adopted July 2004 (Amended March 2009)
- Federal highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108)
- Diamond Dorado Retail Center (WO#14) Traffic Impact Analysis – Kimley-Horn and Associates, Inc., June 24, 2010
- Federal Highway Administration's Roadway Construction Noise Model, V1.1, December 8, 2008

Appendix A
Diamond Dorado Retail Center – El Dorado County, CA

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#: 24-Hour Noise Measurement Site

100' 300'
0 200' 400'

Appendix B
General Acoustics Terminology

Acoustics	The physics of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human auditory response.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 – 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Impulsive	Sound of short duration, usually less than one second with an abrupt onset and rapid decay.
L_n	The sound level exceeded "n" percent of the time during a sample interval (L_{50}, L_{25}, L_8, etc.). L_{50} equals the level exceeded 50 percent of the time.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
NLR	Noise Level Reduction. The arithmetic difference in noise levels between two conditions. (e.g., NLR = L_1 - L_2 or NLR = L_{source} - $L_{receiver}$ or NLR = $L_{exterior}$ - $L_{interior}$).
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
SEL	Sound Exposure Level. The equivalent sound level over a 1 second time interval for a discrete sound event (e.g., aircraft overflight).
Simple Tone	Any sound which is distinguishable as a single pitch or set of single pitches.
STC	Sound Transmission Class. A single-number representation of a partition's noise insulation performance.

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Appendix C-1

Diamond Dorado Retail Center – El Dorado County, CA

24-Hour Continuous Noise Level Measurements - Site #2

February 7-8, 2008

Hour	Leq	Lmax
17:00	69	83
18:00	66	87
19:00	65	82
20:00	64	83
21:00	63	83
22:00	60	83
23:00	58	78
0:00	54	79
1:00	54	79
2:00	52	80
3:00	60	85
4:00	61	83
5:00	62	83
6:00	66	86
7:00	69	87
8:00	69	87
9:00	69	88
10:00	70	88
11:00	69	90
12:00	69	90
13:00	77	109
14:00	69	90
15:00	70	90
16:00	70	90

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	77	66	71	65	63	64	66	52	60
Lmax (Maximum)	109	83	90	83	82	83	86	78	82

Computed CNEL, dB	70
% Daytime Energy	89%
% Evening Energy	5%
% Nighttime Energy	6%

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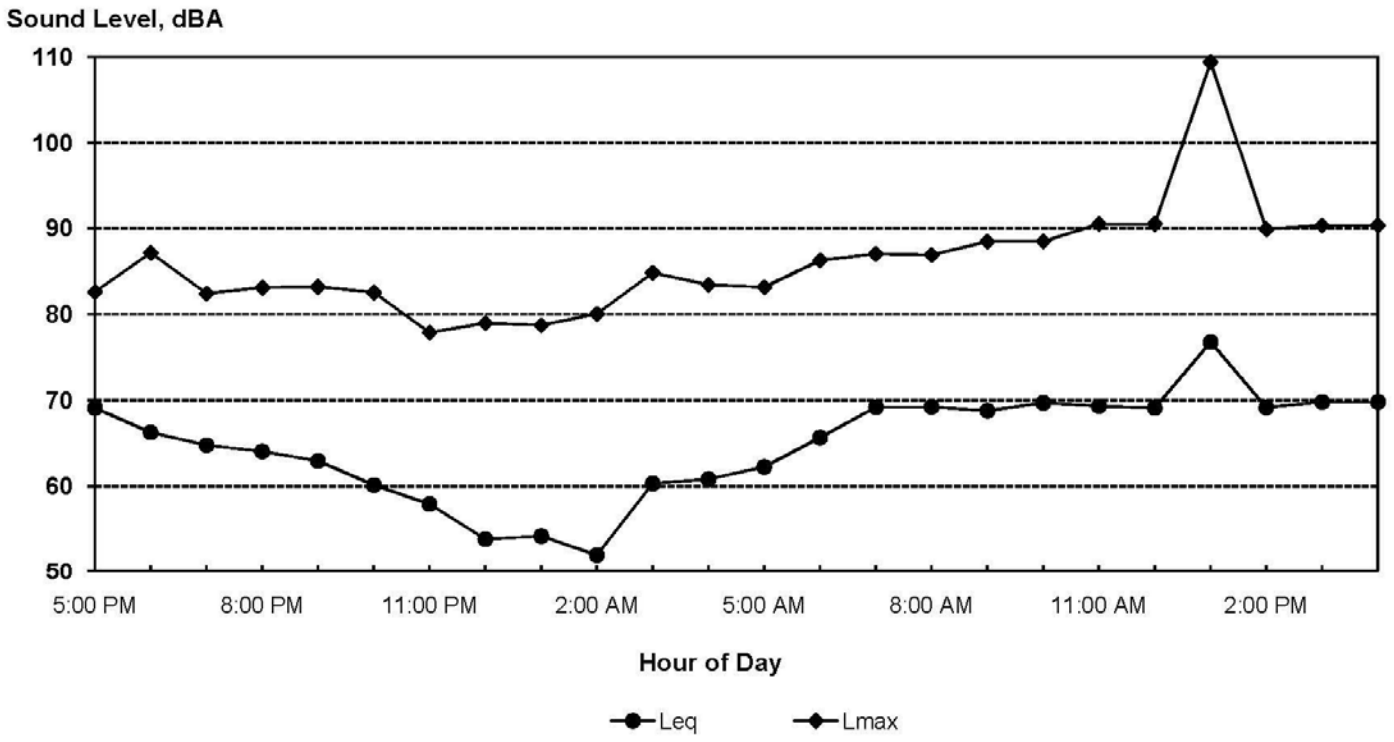
Appendix C-2
Diamond Dorado Retail Center – El Dorado County, CA
24-Hour Continuous Noise Level Measurements - Site #2
February 7-8, 2008



CNEL: 70 dB

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Appendix C-3

Diamond Dorado Retail Center – El Dorado County, CA

24-Hour Continuous Noise Level Measurements - Site #1

February 7-8, 2008

Hour	Leq	Lmax
14:00	54	71
15:00	56	75
16:00	53	67
17:00	55	81
18:00	52	77
19:00	49	63
20:00	48	58
21:00	45	61
22:00	43	62
23:00	43	56
0:00	41	60
1:00	40	54
2:00	39	63
3:00	41	54
4:00	62	81
5:00	63	83
6:00	62	82
7:00	56	75
8:00	53	72
9:00	54	73
10:00	54	73
11:00	52	68
12:00	55	72
13:00	54	70

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	56	52	54	49	45	47	63	39	57
Lmax (Maximum)	81	67	73	63	58	60	83	54	66

Computed CNEL, dB	64
% Daytime Energy	37%
% Evening Energy	2%
% Nighttime Energy	61%

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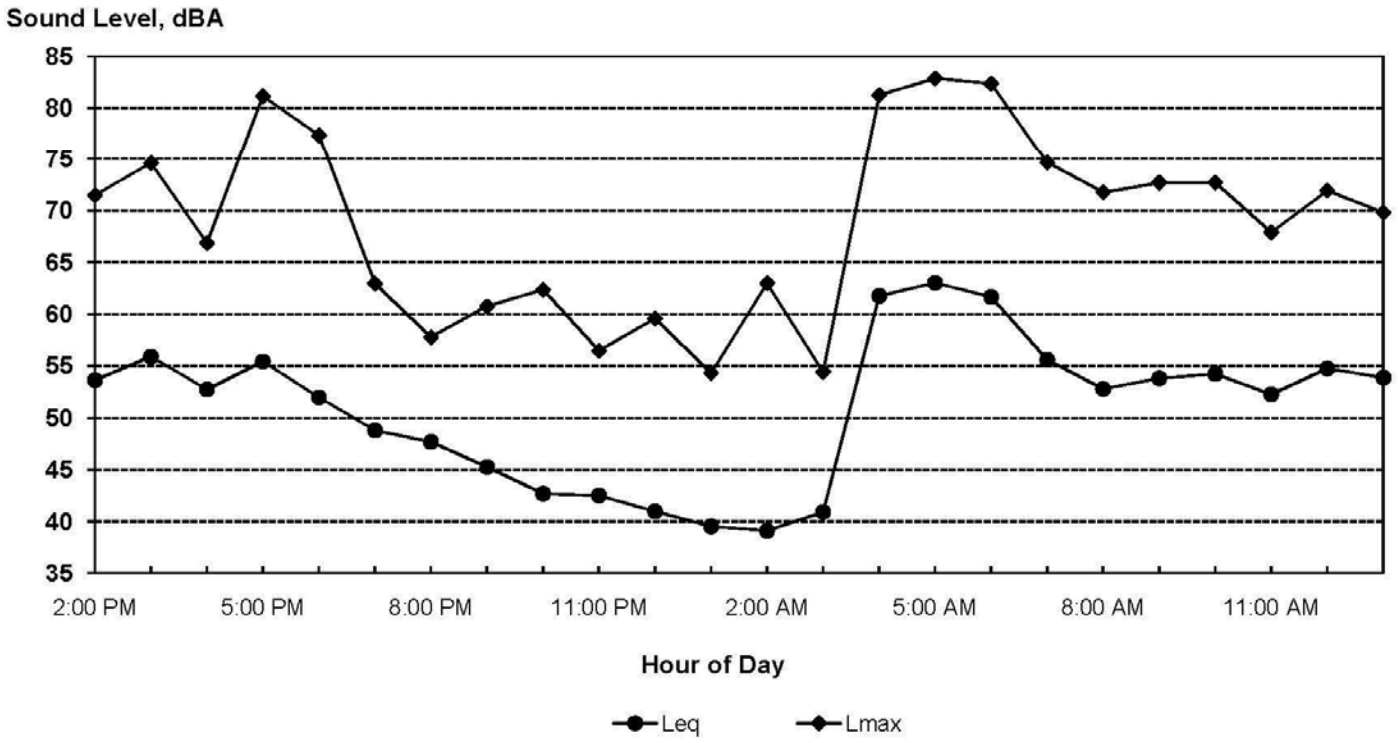
Appendix C-4
Diamond Dorado Retail Center – El Dorado County, CA
24-Hour Continuous Noise Level Measurements - Site #1
February 7-8, 2008



CNEL: 64 dB

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Appendix D-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Existing (2010)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Missouri Flat Rd.	North of Plaza Dr.	6,615	83		17	1	2	45	50	
2		Plaza Dr. to WB US-50 Ramps	15,590	83		17	1	2	45	50	
3		WB US-50 Ramps to EB US-50 Ramps	20,000	83		17	1	2	45	50	
4		EB US-50 Ramps to Mother Lode Dr.	28,630	83		17	1	2	45	50	
5		Mother Lode Dr. to Forni Rd.	26,385	83		17	1	2	45	50	
6		Forni Rd. to Golden Center Dr.	22,335	83		17	1	2	45	50	
7		Golden Center Dr. to Diamond Springs Pkwy.	19,520	83		17	1	2	45	50	
8		Diamond Springs Pkwy. to China Garden Rd.	13,070	83		17	1	2	45	50	
9		China Garden Rd. to Industrial Dr.	14,515	83		17	1	2	45	50	
10		Industrial Dr. to Enterprise Dr.	17,365	83		17	1	2	45	50	
11		Enterprise Dr. to Pleasant Valley Rd. (SR-49)	16,085	83		17	1	2	45	50	
12	SR-49	North of Pacific St.	3,300	83		17	4	6	45	50	
13		Pacific St. to Fiske St.	7,290	83		17	4	6	45	50	
14		Fiske St. to Skyline Dr.	7,270	83		17	4	6	45	50	
15		Skyline Dr. to Truck St.	7,645	83		17	4	6	45	50	
16		Truck St. to Bradley Dr.	6,510	83		17	4	6	45	50	
17		Bradley Dr. to Diamond Springs Pkwy.	6,775	83		17	4	6	45	50	
18		Diamond Springs Pkwy. to Project Driveway #3	6,775	83		17	4	6	45	50	
19		Project Driveway #3 to Black Rice Rd.	6,775	83		17	4	6	45	50	
20		Black Rice Rd. to Pleasant Valley Rd.	6,510	83		17	4	6	45	50	
21		Pleasant Valley Rd. to China Garden Rd.	15,835	83		17	4	6	45	50	
22		China Garden Rd. to Missouri Flat Rd.	17,780	83		17	4	6	45	50	
23		Missouri Flat Rd. to Patterson Dr.	13,735	83		17	4	6	45	50	
24		Patterson Dr. to Oro Ln./Koki Ln.	11,940	83		17	4	6	45	50	
25		Oro Ln./Koki Ln. to Forni Rd.	10,160	83		17	4	6	45	50	

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Appendix D-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Existing (2010)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
26	SR-49	Forni Rd. to Pleasant Valley Rd.	10,660	83		17	4	6	45	50	
27		South of Pleasant Valley Rd.	8,060	83		17	4	6	45	50	
28	Pleasant Valley Rd.	SR-49 to Racquet Way	13,985	83		17	1	2	35	50	
29		Racquet Way to Canyon Valley Rd.	12,455	83		17	1	2	35	50	
30		East of Canyon Valley Rd.	12,220	83		17	1	2	35	50	
31	Mother Lode Dr.	West of Missouri Flat	4,875	83		17	1	2	35	50	
32	Forni Rd.	East of Missouri Flat	3,455	83		17	1	2	35	50	
33		West of Missouri Flat	6,115	83		17	1	2	35	50	
34		North of Pleasant Valley Rd.	4,540	83		17	1	2	35	50	
35	Golden Center Dr.	East of Missouri Flat	2,820	83		17	1	2	30	50	
36	Industrial Dr.	West of Missouri Flat	1,050	83		17	1	2	35	50	
37	Enterprise Dr.	West of Missouri Flat	2,190	83		17	1	2	35	50	
38	Oro Ln.	North of SR-49	285	83		17	0	0	35	50	
39	Koki Ln.	South of SR-49	7,160	83		17	0	0	35	50	
40	Patterson Dr.	South of SR-49	4,350	83		17	0	0	35	50	
41	China Garden Rd.	Missouri Flat Rd. to SR-49	4,665	83		17	0	0	35	50	
42	Lime Kiln Rd.	West of SR-49	1,580	83		17	0	0	35	50	
43	Black Rice Rd.	East of SR-49	515	83		17	0	0	35	50	
44	Racquet Way	North of Pleasant Valley Rd.	1,080	83		17	0	0	35	50	
45	Throwita Way	North of Diamond Springs Pkwy	n/a	83		17	0	0	35	50	
46		South of Diamond Springs Pkwy	n/a	83		17	0	0	35	50	
47	Truck St.	West of SR-49	485	83		17	1	2	30	50	
48	Bradley Dr.	West of SR-49	1,025	83		17	1	2	30	50	
49	Diamond Springs Pkwy	Missouri Flat Rd. to Project Driveway #1	n/a	83		17	1	2	35	50	
50		Project Driveway #1 to Project Driveway #2	n/a	83		17	1	2	35	50	

Appendix D-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Existing (2010)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
51	Diamond Springs Pkwy	Project Driveway #2 to Throwita Way	n/a	83		17	1	2	35	50	
52		Throwita Way to SR-49	n/a	83		17	1	2	35	50	

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Appendix E-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Near-Term (2015)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Missouri Flat Rd.	North of Plaza Dr.	10,435	83		17	1	2	45	50	
2		Plaza Dr. to WB US-50 Ramps	21,130	83		17	1	2	45	50	
3		WB US-50 Ramps to EB US-50 Ramps	25,530	83		17	1	2	45	50	
4		EB US-50 Ramps to Mother Lode Dr.	27,145	83		17	1	2	45	50	
5		Mother Lode Dr. to Forni Rd.	32,705	83		17	1	2	45	50	
6		Forni Rd. to Golden Center Dr.	27,550	83		17	1	2	45	50	
7		Golden Center Dr. to Diamond Springs Pkwy.	23,650	83		17	1	2	45	50	
8		Diamond Springs Pkwy. to China Garden Rd.	11,990	83		17	1	2	45	50	
9		China Garden Rd. to Industrial Dr.	13,435	83		17	1	2	45	50	
10		Industrial Dr. to Enterprise Dr.	16,120	83		17	1	2	45	50	
11		Enterprise Dr. to Pleasant Valley Rd. (SR-49)	14,845	83		17	1	2	45	50	
12	SR-49	North of Pacific St.	3,635	83		17	4	6	45	50	
13		Pacific St. to Fiske St.	7,800	83		17	4	6	45	50	
14		Fiske St. to Skyline Dr.	7,715	83		17	4	6	45	50	
15		Skyline Dr. to Truck St.	8,785	83		17	4	6	45	50	
16		Truck St. to Bradley Dr.	9,560	83		17	4	6	45	50	
17		Bradley Dr. to Diamond Springs Pkwy.	9,520	83		17	4	6	45	50	
18		Diamond Springs Pkwy. to Project Driveway #3	9,525	83		17	4	6	45	50	
19		Project Driveway #3 to Black Rice Rd.	15,550	83		17	4	6	45	50	
20		Black Rice Rd. to Pleasant Valley Rd.	15,330	83		17	4	6	45	50	
21		Pleasant Valley Rd. to China Garden Rd.	9,635	83		17	4	6	45	50	
22		China Garden Rd. to Missouri Flat Rd.	10,395	83		17	4	6	45	50	
23		Missouri Flat Rd. to Patterson Dr.	10,990	83		17	4	6	45	50	
24		Patterson Dr. to Oro Ln./Koki Ln.	12,870	83		17	4	6	45	50	
25		Oro Ln./Koki Ln. to Forni Rd.	11,040	83		17	4	6	45	50	

Appendix E-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Near-Term (2015)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
26	SR-49	Forni Rd. to Pleasant Valley Rd.	12,275	83		17	4	6	45	50	
27		South of Pleasant Valley Rd.	8,985	83		17	4	6	45	50	
28	Pleasant Valley Rd.	SR-49 to Racquet Way	16,255	83		17	1	2	35	50	
29		Racquet Way to Canyon Valley Rd.	13,515	83		17	1	2	35	50	
30		East of Canyon Valley Rd.	13,255	83		17	1	2	35	50	
31	Mother Lode Dr.	West of Missouri Flat Rd.	6,010	83		17	1	2	35	50	
32	Forni Rd.	East of Missouri Flat Rd.	4,215	83		17	1	2	35	50	
33		West of Missouri Flat Rd.	7,545	83		17	1	2	35	50	
34		North of Pleasant Valley Rd.	5,845	83		17	1	2	35	50	
35	Golden Center Dr.	East of Missouri Flat Rd.	3,175	83		17	1	2	30	50	
36	Industrial Dr.	West of Missouri Flat Rd.	1,090	83		17	1	2	35	50	
37	Enterprise Dr.	West of Missouri Flat Rd.	2,255	83		17	1	2	35	50	
38	Oro Ln.	North of SR-49	300	83		17	0	0	35	50	
39	Koki Ln.	South of SR-49	7,705	83		17	0	0	35	50	
40	Patterson Dr.	South of SR-49	4,690	83		17	0	0	35	50	
41	China Garden Rd.	Missouri Flat Rd. to SR-49	4,130	83		17	0	0	35	50	
42	Lime Kiln Rd.	West of SR-49	1,450	83		17	0	0	35	50	
43	Black Rice Rd.	East of SR-49	1,120	83		17	0	0	35	50	
44	Racquet Way	North of Pleasant Valley Rd.	1,020	83		17	0	0	35	50	
45	Throwita Way	North of Diamond Springs Pkwy.	1,185	83		17	0	0	35	50	
46		South of Diamond Springs Pkwy.	1,000	83		17	0	0	35	50	
47	Truck St.	West of SR-49	315	83		17	1	2	30	50	
48	Bradley Dr.	West of SR-49	75	83		17	1	2	30	50	
49	Diamond Springs Pkwy.	Missouri Flat Rd. to Project Driveway #1	17,295	83		17	1	2	35	50	
50		Project Driveway #1 to Project Driveway #2	17,295	83		17	1	2	35	50	

Appendix E-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Near-Term (2015)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
51	Diamond Springs Pkwy.	Project Driveway #2 to Throwita Way	17,295	83		17	1	2	35	50	
52		Throwita Way to SR-49	16,620	83		17	1	2	35	50	

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Appendix E-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Near-Term (2015) Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Missouri Flat Rd.	North of Plaza Dr.	10,755	83		17	1	2	45	50	
2		Plaza Dr. to WB US-50 Ramps	21,450	83		17	1	2	45	50	
3		WB US-50 Ramps to EB US-50 Ramps	27,240	83		17	1	2	45	50	
4		EB US-50 Ramps to Mother Lode Dr.	29,570	83		17	1	2	45	50	
5		Mother Lode Dr. to Forni Rd.	36,000	83		17	1	2	45	50	
6		Forni Rd. to Golden Center Dr.	30,970	83		17	1	2	45	50	
7		Golden Center Dr. to Diamond Springs Pkwy.	27,400	83		17	1	2	45	50	
8		Diamond Springs Pkwy. to China Garden Rd.	13,355	83		17	1	2	45	50	
9		China Garden Rd. to Industrial Dr.	14,795	83		17	1	2	45	50	
10		Industrial Dr. to Enterprise Dr.	17,065	83		17	1	2	45	50	
11		Enterprise Dr. to Pleasant Valley Rd. (SR-49)	15,790	83		17	1	2	45	50	
12	SR-49	North of Pacific St.	3,820	83		17	4	6	45	50	
13		Pacific St. to Fiske St.	8,105	83		17	4	6	45	50	
14		Fiske St. to Skyline Dr.	8,215	83		17	4	6	45	50	
15		Skyline Dr. to Truck St.	9,105	83		17	4	6	45	50	
16		Truck St. to Bradley Dr.	9,880	83		17	4	6	45	50	
17		Bradley Dr. to Diamond Springs Pkwy.	9,845	83		17	4	6	45	50	
18		Diamond Springs Pkwy. to Project Driveway #3	9,575	83		17	4	6	45	50	
19		Project Driveway #3 to Black Rice Rd.	16,770	83		17	4	6	45	50	
20		Black Rice Rd. to Pleasant Valley Rd.	16,550	83		17	4	6	45	50	
21		Pleasant Valley Rd. to China Garden Rd.	9,895	83		17	4	6	45	50	
22		China Garden Rd. to Missouri Flat Rd.	10,525	83		17	4	6	45	50	
23		Missouri Flat Rd. to Patterson Dr.	12,065	83		17	4	6	45	50	
24		Patterson Dr. to Oro Ln./Koki Ln.	13,815	83		17	4	6	45	50	
25		Oro Ln./Koki Ln. to Forni Rd.	11,290	83		17	4	6	45	50	

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Appendix E-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Near-Term (2015) Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
26	SR-49	Forni Rd. to Pleasant Valley Rd.	12,875	83		17	4	6	45	50	
27		South of Pleasant Valley Rd.	9,225	83		17	4	6	45	50	
28	Pleasant Valley Rd.	SR-49 to Racquet Way	16,895	83		17	1	2	35	50	
29		Racquet Way to Canyon Valley Rd.	11,155	83		17	1	2	35	50	
30		East of Canyon Valley Rd.	11,020	83		17	1	2	35	50	
31	Mother Lode Dr.	West of Missouri Flat Rd.	6,195	83		17	1	2	35	50	
32	Forni Rd.	East of Missouri Flat Rd.	4,215	83		17	1	2	35	50	
33		West of Missouri Flat Rd.	7,675	83		17	1	2	35	50	
34		North of Pleasant Valley Rd.	5,975	83		17	1	2	35	50	
35	Golden Center Dr.	East of Missouri Flat Rd.	3,495	83		17	1	2	30	50	
36	Industrial Dr.	West of Missouri Flat Rd.	1,220	83		17	1	2	35	50	
37	Enterprise Dr.	West of Missouri Flat Rd.	2,255	83		17	1	2	35	50	
38	Oro Ln.	North of SR-49	420	83		17	0	0	35	50	
39	Koki Ln.	South of SR-49	7,835	83		17	0	0	35	50	
40	Patterson Dr.	South of SR-49	4,820	83		17	0	0	35	50	
41	China Garden Rd.	Missouri Flat Rd. to SR-49	4,130	83		17	0	0	35	50	
42	Lime Kiln Rd.	West of SR-49	1,450	83		17	0	0	35	50	
43	Black Rice Rd.	East of SR-49	1,120	83		17	0	0	35	50	
44	Racquet Way	North of Pleasant Valley Rd.	1,020	83		17	0	0	35	50	
45	Throwita Way	North of Diamond Springs Pkwy.	1,310	83		17	0	0	35	50	
46		South of Diamond Springs Pkwy.	5,560	83		17	0	0	35	50	
47	Truck St.	West of SR-49	315	83		17	1	2	30	50	
48	Bradley Dr.	West of SR-49	75	83		17	1	2	30	50	
49	Diamond Springs Pkwy.	Missouri Flat Rd. to Project Driveway #1	22,115	83		17	1	2	35	50	
50		Project Driveway #1 to Project Driveway #2	21,410	83		17	1	2	35	50	

Appendix E-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Near-Term (2015) Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
51	Diamond Springs Pkwy.	Project Driveway #2 to Throwita Way	21,475	83		17	1	2	35	50	
52		Throwita Way to SR-49	17,315	83		17	1	2	35	50	

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Appendix F-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Long-Term (2025)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Missouri Flat Rd.	North of Plaza Dr.	12,885	83		17	1	2	45	50	
2		Plaza Dr. to WB US-50 Ramps	27,000	83		17	1	2	45	50	
3		WB US-50 Ramps to EB US-50 Ramps	35,355	83		17	1	2	45	50	
4		EB US-50 Ramps to Mother Lode Dr.	35,355	83		17	1	2	45	50	
5		Mother Lode Dr. to Forni Rd.	42,770	83		17	1	2	45	50	
6		Forni Rd. to Golden Center Dr.	36,060	83		17	1	2	45	50	
7		Golden Center Dr. to Diamond Springs Pkwy.	31,470	83		17	1	2	45	50	
8		Diamond Springs Pkwy. to China Garden Rd.	15,225	83		17	1	2	45	50	
9		China Garden Rd. to Industrial Dr.	17,510	83		17	1	2	45	50	
10		Industrial Dr. to Enterprise Dr.	21,360	83		17	1	2	45	50	
11		Enterprise Dr. to Pleasant Valley Rd. (SR-49)	19,700	83		17	1	2	45	50	
12	SR-49	North of Pacific St.	4,415	83		17	4	6	45	50	
13		Pacific St. to Fiske St.	9,015	83		17	4	6	45	50	
14		Fiske St. to Skyline Dr.	9,590	83		17	4	6	45	50	
15		Skyline Dr. to Truck St.	11,995	83		17	4	6	45	50	
16		Truck St. to Bradley Dr.	11,100	83		17	4	6	45	50	
17		Bradley Dr. to Diamond Springs Pkwy.	11,050	83		17	4	6	45	50	
18		Diamond Springs Pkwy. to Project Driveway #3	11,055	83		17	4	6	45	50	
19		Project Driveway #3 to Black Rice Rd.	17,685	83		17	4	6	45	50	
20		Black Rice Rd. to Pleasant Valley Rd.	17,390	83		17	4	6	45	50	
21		Pleasant Valley Rd. to China Garden Rd.	12,325	83		17	4	6	45	50	
22		China Garden Rd. to Missouri Flat Rd.	12,070	83		17	4	6	45	50	
23		Missouri Flat Rd. to Patterson Dr.	12,685	83		17	4	6	45	50	
24		Patterson Dr. to Oro Ln./Koki Ln.	14,955	83		17	4	6	45	50	
25		Oro Ln./Koki Ln. to Forni Rd.	13,085	83		17	4	6	45	50	

Appendix F-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Long-Term (2025)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
26	SR-49	Forni Rd. to Pleasant Valley Rd.	16,495	83		17	4	6	45	50	
27		South of Pleasant Valley Rd.	10,890	83		17	4	6	45	50	
28	Pleasant Valley Rd.	SR-49 to Racquet Way	18,995	83		17	1	2	35	50	
29		Racquet Way to Canyon Valley Rd.	15,965	83		17	1	2	35	50	
30		East of Canyon Valley Rd.	15,655	83		17	1	2	35	50	
31	Mother Lode Dr.	West of Missouri Flat Rd.	7,895	83		17	1	2	35	50	
32	Forni Rd.	East of Missouri Flat Rd.	5,550	83		17	1	2	35	50	
33		West of Missouri Flat Rd.	9,890	83		17	1	2	35	50	
34		North of Pleasant Valley Rd.	10,190	83		17	1	2	35	50	
35	Golden Center Dr.	East of Missouri Flat Rd.	3,745	83		17	1	2	30	50	
36	Industrial Dr.	West of Missouri Flat Rd.	1,445	83		17	1	2	35	50	
37	Enterprise Dr.	West of Missouri Flat Rd.	2,970	83		17	1	2	35	50	
38	Oro Ln.	North of SR-49	350	83		17	0	0	35	50	
39	Koki Ln.	South of SR-49	8,965	83		17	0	0	35	50	
40	Patterson Dr.	South of SR-49	5,425	83		17	0	0	35	50	
41	China Garden Rd.	Missouri Flat Rd. to SR-49	5,255	83		17	0	0	35	50	
42	Lime Kiln Rd.	West of SR-49	1,665	83		17	0	0	35	50	
43	Black Rice Rd.	East of SR-49	1,550	83		17	0	0	35	50	
44	Racquet Way	North of Pleasant Valley Rd.	1,310	83		17	0	0	35	50	
45	Throwita Way	North of Diamond Springs Pkwy.	1,555	83		17	0	0	35	50	
46		South of Diamond Springs Pkwy.	1,440	83		17	0	0	35	50	
47	Truck St.	West of SR-49	420	83		17	1	2	30	50	
48	Bradley Dr.	West of SR-49	95	83		17	1	2	30	50	
49	Diamond Springs Pkwy.	Missouri Flat Rd. to Project Driveway #1	19,630	83		17	1	2	35	50	
50		Project Driveway #1 to Project Driveway #2	19,630	83		17	1	2	35	50	

Appendix F-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Long-Term (2025)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
51	Diamond Springs Pkwy.	Project Driveway #2 to Throwita Way	19,630	83		17	1	2	35	50	
52		Throwita Way to SR-49	18,665	83		17	1	2	35	50	

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Appendix F-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Long-Term (2025) Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Missouri Flat Rd.	North of Plaza Dr.	13,060	83		17	1	2	45	50	
2		Plaza Dr. to WB US-50 Ramps	27,175	83		17	1	2	45	50	
3		WB US-50 Ramps to EB US-50 Ramps	36,730	83		17	1	2	45	50	
4		EB US-50 Ramps to Mother Lode Dr.	36,730	83		17	1	2	45	50	
5		Mother Lode Dr. to Forni Rd.	44,635	83		17	1	2	45	50	
6		Forni Rd. to Golden Center Dr.	37,985	83		17	1	2	45	50	
7		Golden Center Dr. to Diamond Springs Pkwy.	33,590	83		17	1	2	45	50	
8		Diamond Springs Pkwy. to China Garden Rd.	16,075	83		17	1	2	45	50	
9		China Garden Rd. to Industrial Dr.	18,400	83		17	1	2	45	50	
10		Industrial Dr. to Enterprise Dr.	21,895	83		17	1	2	45	50	
11		Enterprise Dr. to Pleasant Valley Rd. (SR-49)	20,235	83		17	1	2	45	50	
12	SR-49	North of Pacific St.	4,515	83		17	4	6	45	50	
13		Pacific St. to Fiske St.	9,185	83		17	4	6	45	50	
14		Fiske St. to Skyline Dr.	9,535	83		17	4	6	45	50	
15		Skyline Dr. to Truck St.	12,170	83		17	4	6	45	50	
16		Truck St. to Bradley Dr.	11,275	83		17	4	6	45	50	
17		Bradley Dr. to Diamond Springs Pkwy.	11,230	83		17	4	6	45	50	
18		Diamond Springs Pkwy. to Project Driveway #3	10,960	83		17	4	6	45	50	
19		Project Driveway #3 to Black Rice Rd.	18,370	83		17	4	6	45	50	
20		Black Rice Rd. to Pleasant Valley Rd.	18,075	83		17	4	6	45	50	
21		Pleasant Valley Rd. to China Garden Rd.	12,480	83		17	4	6	45	50	
22		China Garden Rd. to Missouri Flat Rd.	11,145	83		17	4	6	45	50	
23		Missouri Flat Rd. to Patterson Dr.	12,295	83		17	4	6	45	50	
24		Patterson Dr. to Oro Ln./Koki Ln.	15,485	83		17	4	6	45	50	
25		Oro Ln./Koki Ln. to Forni Rd.	13,555	83		17	4	6	45	50	

Appendix F-5

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Long-Term (2025) Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
26	SR-49	Forni Rd. to Pleasant Valley Rd.	16,835	83		17	4	6	45	50	
27		South of Pleasant Valley Rd.	11,065	83		17	4	6	45	50	
28	Pleasant Valley Rd.	SR-49 to Racquet Way	19,360	83		17	1	2	35	50	
29		Racquet Way to Canyon Valley Rd.	16,330	83		17	1	2	35	50	
30		East of Canyon Valley Rd.	16,020	83		17	1	2	35	50	
31	Mother Lode Dr.	West of Missouri Flat Rd.	7,995	83		17	1	2	35	50	
32	Forni Rd.	East of Missouri Flat Rd.	5,550	83		17	1	2	35	50	
33		West of Missouri Flat Rd.	9,960	83		17	1	2	35	50	
34		North of Pleasant Valley Rd.	10,260	83		17	1	2	35	50	
35	Golden Center Dr.	East of Missouri Flat Rd.	3,920	83		17	1	2	30	50	
36	Industrial Dr.	West of Missouri Flat Rd.	1,515	83		17	1	2	35	50	
37	Enterprise Dr.	West of Missouri Flat Rd.	2,970	83		17	1	2	35	50	
38	Oro Ln.	North of SR-49	350	83		17	0	0	35	50	
39	Koki Ln.	South of SR-49	9,035	83		17	0	0	35	50	
40	Patterson Dr.	South of SR-49	5,495	83		17	0	0	35	50	
41	China Garden Rd.	Missouri Flat Rd. to SR-49	5,255	83		17	0	0	35	50	
42	Lime Kiln Rd.	West of SR-49	1,665	83		17	0	0	35	50	
43	Black Rice Rd.	East of SR-49	1,550	83		17	0	0	35	50	
44	Racquet Way	North of Pleasant Valley Rd.	1,310	83		17	0	0	35	50	
45	Throwita Way	North of Diamond Springs Pkwy.	1,680	83		17	0	0	35	50	
46		South of Diamond Springs Pkwy.	5,630	83		17	0	0	35	50	
47	Truck St.	West of SR-49	420	83		17	1	2	30	50	
48	Bradley Dr.	West of SR-49	95	83		17	1	2	30	50	
49	Diamond Springs Pkwy.	Missouri Flat Rd. to Project Driveway #1	25,495	83		17	1	2	35	50	
50		Project Driveway #1 to Project Driveway #2	22,895	83		17	1	2	35	50	

Appendix F-6

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: Long-Term (2025) Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
51	Diamond Springs Pkwy.	Project Driveway #2 to Throwita Way	21,960	83		17	1	2	35	50	
52		Throwita Way to SR-49	18,690	83		17	1	2	35	50	

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Appendix G-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: MRF Trips Without Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
7	Missouri Flat Rd.	Golden Center Dr. to Diamond Springs Pkwy.	600	83		17	0	100	45	50	
8		Diamond Springs Pkwy. to China Garden Rd.	40	83		17	0	100	45	50	
9		China Garden Rd. to Industrial Dr.	40	83		17	0	100	45	50	
10		Industrial Dr. to Enterprise Dr.	40	83		17	0	100	45	50	
11		Enterprise Dr. to Pleasant Valley Rd. (SR-49)	40	83		17	0	100	45	50	
15	SR-49	Skyline Dr. to Truck St.	75	83		17	0	100	45	50	
16		Truck St. to Bradley Dr.	75	83		17	0	100	45	50	
17		Bradley Dr. to Diamond Springs Pkwy.	80	83		17	0	100	45	50	
18		Diamond Springs Pkwy. to Project Driveway	75	83		17	0	100	45	50	
19		Project Driveway to Black Rice Rd.	75	83		17	0	100	45	50	
20		Black Rice Rd. to Pleasant Valley Rd.	75	83		17	0	100	45	50	
21		Pleasant Valley Rd. to China Garden Rd.	0	83		17	0	100	45	50	
22		China Garden Rd. to Missouri Flat Rd.	0	83		17	0	100	45	50	
23		Missouri Flat Rd. to Patterson Dr.	40	83		17	0	100	45	50	
28	Pleasant Valley Rd.	SR-49 to Racquet Way	75	83		17	0	100	35	50	
42	Lime Kiln Rd.	West of SR-49	0	83		17	0	100	35	50	
46	Throwita Way	South of Diamond Springs Pkwy	790	83		17	0	100	35	50	
49	Diamond Springs Pkwy	Missouri Flat Rd. to Project Driveway #1	635	83		17	0	100	35	50	
50		Project Driveway #1 to Project Driveway #2	635	83		17	0	100	35	50	
51		Project Driveway #2 to Throwita Way	635	83		17	0	100	35	50	
52		Throwita Way to SR-49	155	83		17	0	100	35	50	

Appendix G-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-142 Diamond Dorado Retail Center EIR
Description: MRF Trips With Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
7	Missouri Flat Rd.	Golden Center Dr. to Diamond Springs Pkwy.	595	83		17	0	100	45	50	
8		Diamond Springs Pkwy. to China Garden Rd.	40	83		17	0	100	45	50	
9		China Garden Rd. to Industrial Dr.	40	83		17	0	100	45	50	
10		Industrial Dr. to Enterprise Dr.	325	83		17	0	100	45	50	
11		Enterprise Dr. to Pleasant Valley Rd. (SR-49)	325	83		17	0	100	45	50	
15	SR-49	Skyline Dr. to Truck St.	75	83		17	0	100	45	50	
16		Truck St. to Bradley Dr.	75	83		17	0	100	45	50	
17		Bradley Dr. to Diamond Springs Pkwy.	75	83		17	0	100	45	50	
18		Diamond Springs Pkwy. to Project Driveway	345	83		17	0	100	45	50	
19		Project Driveway to Black Rice Rd.	345	83		17	0	100	45	50	
20		Black Rice Rd. to Pleasant Valley Rd.	445	83		17	0	100	45	50	
21		Pleasant Valley Rd. to China Garden Rd.	370	83		17	0	100	45	50	
22		China Garden Rd. to Missouri Flat Rd.	365	83		17	0	100	45	50	
23		Missouri Flat Rd. to Patterson Dr.	40	83		17	0	100	45	50	
28	Pleasant Valley Rd.	SR-49 to Racquet Way	75	83		17	0	100	35	50	
42	Lime Kiln Rd.	West of SR-49	790	83		17	0	100	35	50	
46	Throwita Way	South of Diamond Springs Pkwy	0	83		17	0	100	35	50	
49	Diamond Springs Pkwy	Missouri Flat Rd. to Project Driveway #1	340	83		17	0	100	35	50	
50		Project Driveway #1 to Project Driveway #2	635	83		17	0	100	35	50	
51		Project Driveway #2 to Throwita Way	635	83		17	0	100	35	50	
52		Throwita Way to SR-49	340	83		17	0	100	35	50	

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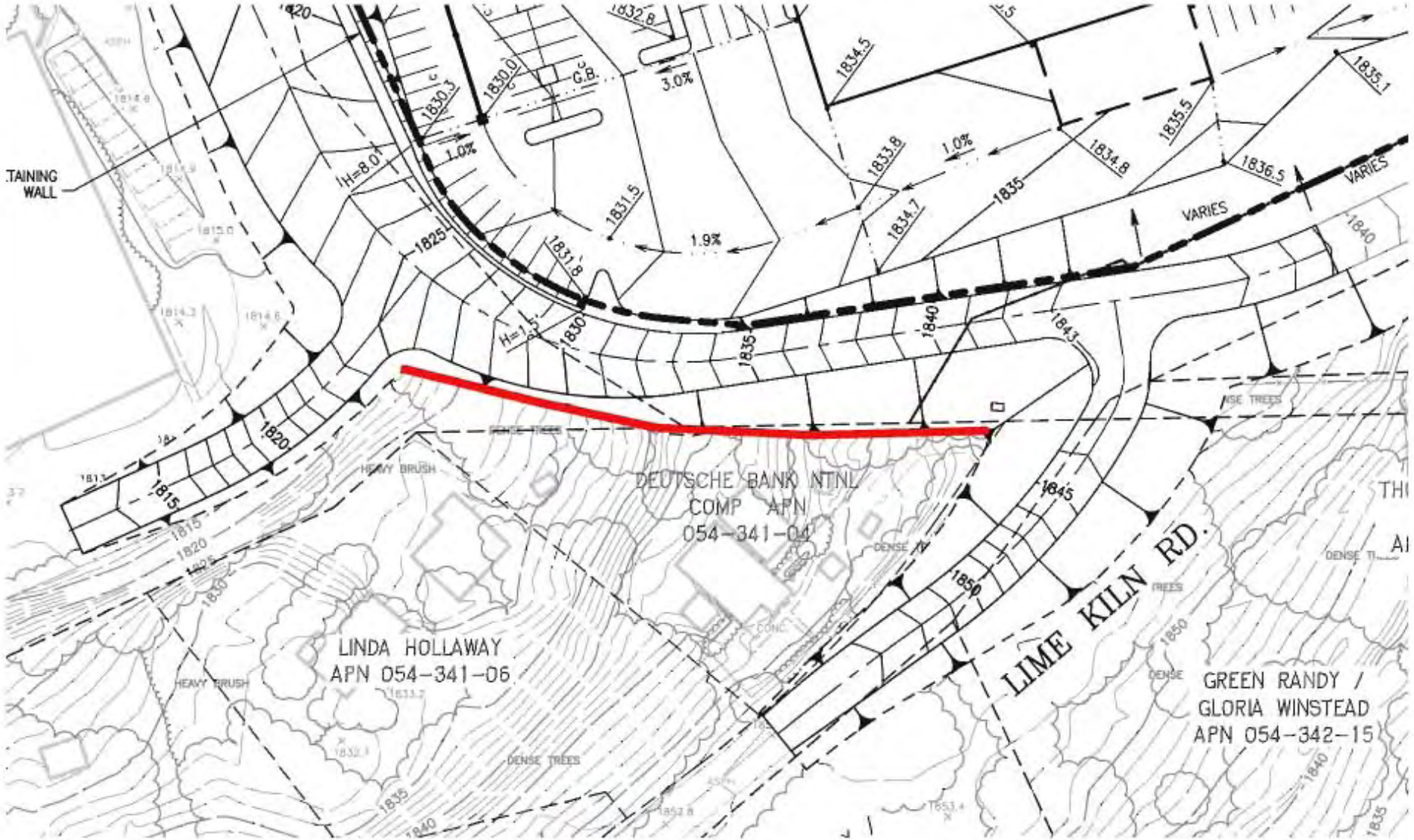
Attachment A

Diamond Dorado Retail Center EIR - El Dorado County, California

APN 054-341-04 Recommended Barrier Location



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: Recommended Barrier Location

NTS

Attachment B

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Prediction Worksheet

Project Information:

Job Number: 2007-142
Project Name: Diamond Dorado Retail Center EIR
Roadway Name: Lime Kiln Road

Traffic Data:

Year:	2030
Average Daily Traffic Volume:	2,455
Percent Daytime Traffic:	83
Percent Nighttime Traffic:	17
Percent Medium Trucks (2 axle):	0
Percent Heavy Trucks (3+ axle):	32
Assumed Vehicle Speed (mph):	35
Intervening Ground Type (hard/soft):	**Soft**

Traffic Noise Levels:

				----------L_{dn}, dB----------			
Location:	**Description**	**Distance**	**Offset (dB)**	**Autos**	**Medium Trucks**	**Heavy Trucks**	**Total**
1	APN 054-341-04 Backyard	65	0	54	35	65	66

Traffic Noise Contours (No Calibration Offset):

L_{dn} Contour, dB	Distance from Centerline, (ft)
75	16
70	34
65	73
60	157

Notes:

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Attachment C

FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Barrier Effectiveness Prediction Worksheet

Project Information:

Job Number: 2007-142
Project Name: Diamond Dorado Retail Center EIR
Roadway Name: Lime Kiln Road
Location(s): APN 054-341-04

Noise Level Data:

Year: 2030
Auto L_{dn}, dB: 54
Medium Truck L_{dn}, dB: 35
Heavy Truck L_{dn}, dB: 65

Site Geometry:

Receiver Description: APN 054-341-04 Backyard
Centerline to Barrier Distance (C_1): 30
Barrier to Receiver Distance (C_2): 35
Automobile Elevation: 1840
Medium Truck Elevation: 1842
Heavy Truck Elevation: 1848
Pad/Ground Elevation at Receiver: 1840
Receiver Elevation[1]: 1845
Base of Barrier Elevation: 1840
Starting Barrier Height 6

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height[2] (ft)	L_{dn}, dB Autos	Medium Trucks	Heavy Trucks	Total	Barrier Breaks Line of Sight to… Autos?	Medium Trucks?	Heavy Trucks?
1846	6	46	28	61	**61**	Yes	Yes	No
1847	7	45	27	60	**61**	Yes	Yes	Yes
1848	8	44	26	60	**60**	Yes	Yes	Yes
1849	9	43	25	59	**59**	Yes	Yes	Yes
1850	10	42	24	58	**58**	Yes	Yes	Yes
1851	11	41	23	57	**57**	Yes	Yes	Yes
1852	12	41	23	56	**56**	Yes	Yes	Yes
1853	13	40	22	55	**55**	Yes	Yes	Yes
1854	14	39	21	54	**54**	Yes	Yes	Yes

Notes: [1] Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s)

BOLLARD
Acoustical Consultants

Appendix K:
Public Service and Utility Letters

Diamond Springs-El Dorado
Fire Protection District

501 Main Street
Diamond Springs, Ca
95619

(530) 626-3190
Fax (530) 626-3188
www.diamondfire.org

October 10, 2007

El Dorado Irrigation District
2890 Mosquito Road
Placerville CA 95667

RE: Granite/Grado Project
Missouri Flat Rd Connection

To whom it may concern,

The Diamond Springs-El Dorado Fire Protection District will adopt the 2007 California Fire Code with the Diamond Springs-El Dorado FPD amendments, which sets the requirements for fire flow and fire hydrants distance: In Appendix B, the minimum required fire flow in a commercial complex or project is 1,500 gallons per-minute for a duration of two hours at a minimum 20 p.s.i.

A site plan has been provided and an approximate fire flow has been determined to be 4000 gallons per minute for a duration of four hours at a minimum 20 p.s.i. for the worst case scenerio.

Building	Square Foot of Building	Fire Flow (gpm)	Flow Duration (hours)
Retail	87,000	4000	4
Home Improvement	199,900	4000	4
Market	70,000	3625	4
Drug Store	15,000	1625	3
Office	8,000	1500	2

New hydrant(s) shall be spaced no more than 150 feet from any portion of the commercial building as per 2007 California Fire Code, Appendix C.
If you have any questions regarding this information you can contact me at 626-3190 Monday through Friday 8 a.m. to 5 p.m.

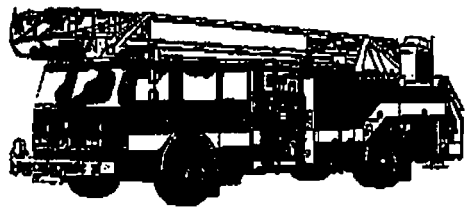
Thank you for your cooperation,

Erik Peterson,
Assistant Fire Chief – Fire Marshal

I:\FIRE PREVENTION\Business Directory\Granite Grado Project\Fire flow doc\FIRE PREVENTION\Business Directory\Granite Grado Project\Fire flow.doc

FAX

Diamond Springs/El Dorado
Fire Protection District
501 Main St
Diamond Springs CA 95619



Date January 5,2010

Number of pages including cover sheet 5

To: Connie S. Peach

Phone **916-638-0919**

Fax Phone **916-638-2479**

CC:

From: Teri Durnall **Fire Protection Specialist**	
Phone	(530) 626-3190
Fax Phone	(530) 626-3188
E-Mail	tdurnall@diamondfire.org
Web Page	www.diamondfire.org

REMARKS:

☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

Revised Fire Flow that was sent to EID and copy of invoice 12/15/09

Diamond Springs / El Dorado Fire Protection District
Fire Prevention Division
501 Main Street Diamond Springs, CA 95619 ~ (530) 626-3190 Fax (530) 626-3188
www.diamondfire.org

December 15, 2009

El Dorado Irrigation District
2890 Mosquito Road
Placerville CA 95667

Connie S. Peach
Cta Engineering & Survey
3233 Monier Circle
Rancho Cordova, CA. 95742
916-638-0919

RE: Diamond Dorado Retail Center
APN: 051-250-12, -46, -47, -51 & -54

To whom it may concern,

The Diamond Springs-El Dorado Fire Protection District has adopted the 2007 California Fire Code, with the Diamond Springs-El Dorado FPD amendments, which sets the requirements for fire flow and fire hydrant distance. Per the California Fire Code as amended section 903.2 all new buildings in excess of 3,600 square feet shall be fire sprinklered and meet the requirements of NFPA 13. This letter is conditional for the purposes of application for a development known as Diamond Dorado Retail Center.

The site plan submitted shows eleven buildings and one fuel canopy. The largest building is 160,572 square foot building, Type I-B construction. This building requires a fire flow of 4,250 gpm for duration of 4 hours, with a minimum of 20psi residual pressure; with a 50% reduction for fire sprinklers the required fire flow is to be 2,125 gpm, for duration of 4 hours at 20 psi.

Building "Major 2" is proposed to be 38843sqft of Type III-A construction. This building requires a fire flow of 2,250gpm. Allowing for a 50% reduction for fire sprinklers the required fire flow is 1,500gpm for 2 hours duration at 20 psi.

Buildings P1 is proposed at 21000sqft and P2 at 19300sqft, both are proposed to be of Type III-A construction with fire sprinklers. Fire flow for each of these buildings is 1,500 gpm for duration of 2 hours at 20 psi.

Buildings P3 is 10,000sqft, P4 is 3300sqft both are proposed to be Type V-B with fire sprinklers. The required fire flow for these buildings is 1,500 gpm for duration of 2 hours at 20 psi.

Buildings P6 at 13,500sqft, P7at 11,500sqft, and P8 at 12,000sqft are proposed to be of Type V-B with fire sprinklers. Fire flow for P6 is 3,250 gpm with 50% reduction for sprinklers to 1,725 for duration of 3 hours at 20 psi. P7 is 3,000 gpm with 50% reduction 1,500 gpm for duration of 3 hours at 20 psi. P8 is 3,000 gpm with 50% reduction 1,500 gpm for duration of 3 hours at 20 psi.

In an effort to reduce the required fire flow you have indicated there will be 4hour fire walls between buildings: Major 2, P1 and P2. The fire flows listed are based on these fire walls being built in accordance with the California Fire Code and California Building Code.

Average spacing between hydrants is 300 feet in Commercial areas. This project will require a minimum of 9 hydrants to provide the required fire flow. The exact location of new hydrants will not be determined until a full set of plans are reviewed by the Fire District.

Fire hydrants shall be accessible to fire department apparatus by roads meeting the requirements of CFC Section 503.

Approval of subject project is conditioned on meeting the public safety and fire protection requirements of the County of El Dorado General Plan, which shall include provision of a financing mechanism for said services. The financing mechanism shall include inclusion within, or annexation into, a Community Facilities District ("CFD") established under the Mello-Roos Community Facilities Act of 1982 (Government Code § 53311 et seq.) established by the Diamond Springs / El Dorado Fire Protection District ("District") for the provision of public services permitted under Government Code § 53313, including fire suppression services, emergency medical services, fire prevention activities and other services (collectively "Public Services"), and as such, shall be subject to the special tax approved with the formation of such CFD with the Tract's inclusion or annexation into the CFD.

[1] County of El Dorado General Plan sections Policy 5.1.2 and Policy 6.2.3.

If you have any questions regarding this information you can contact me at 626-3190, Monday through Friday 8 a.m. to 5 p.m.

Thank you for helping keep our community fire safe,

Rob Combs, Assistant Fire Chief / Fire Marshal
Diamond Springs/El Dorado Fire Protection District

Diamond Springs/El Dorado Fire Protection District

Fees / Invoice

Date: 15-Dec-09 **APN:** 051-250-12,48,51,& 54

Project: Dimond Dorado Retail Center **Permit #:**

Address:

Name: cta Engineering & Survey - Connie Peach **Phone #:** 916- 638-0919

PLAN REVIEW FEES

New Building Submittal Fee (Includes 3 Inspections)	# of Buildings>		$492.00	$0.00
New Building Plan Review	# Sq. Ft.>		$0.10	$0.00
New Building Re-Submittal Fee	# Sq. Ft.>		$0.05	$0.00
Tenant Improvement Submittal Fee (Includes 2 Inspections)	# of Buildings>		$328.00	$0.00
Tenant Improvement Plan Review (per sf)	#Sq. Ft.>		$0.10	$0.00
Fire Flow Letter/Initial Consultation		1	$246.00	$246.00
Subdivision, Minor Fee, 4 lots or less			$328.00	$0.00
Subdivision, Major Fee, >4 lots			$492.00	$0.00
Additional per lot	# of lots>		$10.00	$0.00
Civil Plan Review	# of hours >		$164.00	$0.00
Building Demolition	# of hours >		$164.00	$0.00
Pre-Plan Development Fee	# of hours >		$164.00	$0.00
Annexation into CFD			$300.00	$0.00
Driveway Elevation Plan Review	# of hours>		$164.00	$0.00
Water Storage Tank/Rural Water System Plan	# of hours>		$164.00	$0.00
Development Consultation	# of hours >		$164.00	$0.00
Design Waiver Review	# of hours >		$164.00	$0.00
Fire Sprinkler System <25 Heads	# under 25>		$328.00	$0.00
25 - 99 Heads	# 25 - 99>		$492.00	$0.00
>100 Heads	# >100		$656.00	$0.00
Per Head Over 100	#of heads>		$1.00	$0.00
Fire Alarm System Base Fee			$328.00	$0.00
Per Fire Alarm Device	#of devices>		$2.00	$0.00
False Alarm Fee (3x's at same location)	# of times>		$164.00	$0.00
Fixed Fire Protection System	# of systems>		$328.00	$0.00
Spray Booth	# of booths>		$328.00	$0.00
Medical Gas System	# of systems		$328.00	$0.00
Cryogenic Gas Tank (Includes 3 Inspections)	# of tanks>		$328.00	$0.00
Liquefied Petroleum Gas(per tank)				
Aggregate capacity 26 - 500 gal.	# of Tanks>		$164.00	$0.00
Aggregate capacity 501-1999 gal..	# of Tanks>		$246.00	$0.00
Aggregate Capacity >1999 gal.	# of Tanks>		$492.00	$0.00
Underground Installations	# of Tanks>		$246.00	$0.00
Additional Site Inspections	# of Tanks>		$164.00	$0.00

Sub Total	**$246.00**

Diamond Springs/El Dorado Fire Protection District

OCCUPANCY INSPECTION FEES

A-1	$328.00				
A-2	$328.00		I-1.2	$328.00	
A-2.1	$328.00		I-2	$328.00	
A-3	$328.00		I-3	$328.00	
A-4	$328.00		M	$164.00	
B	$164.00		R-1(3-14 units)	$328.00	
E-1	$328.00		R-1(15-99 units)	$328.00	
E-2	$328.00		R-1(100-249 units)	$200.00	
E-3	$328.00		R-1(250+ units)	$328.00	
F-1	$164.00		R-2.1, R-2.2, R-2.3	$328.00	
F-2	$164.00		R-2.1.1, R-2.2.1,	$328.00	
H-1	$328.00		R-2.3.1, R-3	$328.00	
H-2	$328.00		S-1	$164.00	
H-3	$328.00		S-2	$164.00	
H-4	$328.00		S-3	$164.00	
H-5	$328.00		S-4	$164.00	
H-6	$328.00		S-5	$164.00	
H-7	$328.00		U-1	$164.00	
I-1.1	$328.00		U-2	$164.00	
	Sub-Total	$0.00		Sub-Total	$0.00

MISCELLANEOUS FEES

Fire Hydrant Flow Test			$164.00	$0.00
Additional Hydrants		#Of hyd.>	$25.00	$0.00
Fire Watch Services	(Reference Annual Operating Plan)		Cost	Cost
Appeals Fee		#Of hrs.>	$164.00	$0.00
Inspections outside of normal Business hours(2 hour minimum)		#Of hrs.>	$164.00	$0.00
Design Review Consultation		#Of hrs.>	$164.00	$0.00
Defensible Space Home Inspection If requested by lot owner		#Of hrs.>	$164.00	$0.00
Weed Abatement Inspection		#Of hrs.>	$164.00	$0.00
Fire Safe Plan Approval		#Of hrs.>	$164.00	
Fire Supression & Investigation Fee	(Reference Annual Operating Plan)		Cost	Cost
			Sub-Total	$0.00

OUTSIDE CONSULTING FEES

Incident Report	# of reports>	$40.00	$0.00
Inspection Report	# of reports>	$40.00	$0.00
Investigation Report (up to 5 pages)	# of reports>	$40.00	$0.00
Each additional page	# of pages>	$4.00	$0.00
Photograph (3x5)	# of pics.>	$40.00	$0.00
Photograph (8x10)	# of pics.>	$40.00	$0.00
Digital Photographs	# of pics.>	$40.00	$0.00
		Sub-Total	$0.00
	TOTAL AMOUNT DUE		$246.00

Ommissions and errors on plans shall not be valid and all codes and laws must be complied with. If the plan (s) submitted for review are in the opinion of the Fire Marshal complicated, or would take an excessive amount of time to review, he/she may submit such plans to an approved outside agency or person for review. In this event, the local plan review fee would not be collected. However, the person submitting the plans would be responsible for paying the plan review fee.

Diamond Springs / El Dorado Fire Protection District
Fire Prevention Division
501 Main Street Diamond Springs, CA 95619 ~ (530) 626-3190 Fax (530) 626-3188
www.diamondfire.org

March 9, 2010

Jason Hade, Project Planner
Development Services Department
2850 Fairlane Court
Placerville, CA. 95667
530-621-5355

RE: Diamond Dorado Retail Center
APN: 051-250-12,-46,-47,-51 & -54

To Whom It May Concern:

The Diamond Springs-El Dorado Fire Protection District has adopted the 2007 California Fire Code, with the Diamond Springs-El Dorado FPD amendments. These shall apply to the subject development known as the Diamond Dorado Retail Center.

A request for a general plan amendment to change the land use designation from Industrial (I) to Commercial (C), a rezone change from Industrial (I) to General Commercial – Planned Development (CG-PD), a planned development to be comprised of up to 9 commercial buildings and include the development of up to 290,000 square feet of retail space, and a commercial tentative parcel map to create 12 parcels ranging in size from 0.172 acres to 11.237 acres. A 0.003 remainder parcel is also proposed. This project will have an impact on this District; the following are requirements of the District for approval:

The fire flow for this project will need to be met with hydrants on site before construction with combustible materials begins.

In an effort to reduce the required fire flow the builder has indicated there will be 4 hour walls between buildings Major 2, P1 and P2. The fire flows given to the builder are based on these fire walls being built in accordance with the California Fire Code and California Building Code.

A Site plan for all roadways and turn radius requirements shall be submitted for approval.

All new buildings in excess of 3,600 square feet shall be fire sprinklered and meet the requirements of NFPA 13 and the Diamond Springs-El Dorado FPD Fire Code adopted amendments.

All buildings containing a fire sprinkler system shall be equipped with a fire sprinkler monitoring system per NFPA 72 and Diamond Springs-El Dorado FPD requirements.

All buildings under 3,600 square feet shall have a full fire detection system installed per NFPA 72 requirements.

Knox boxes will be required on all buildings.

Approval of subject project is conditioned on meeting the public safety and fire protection requirements of the County of El Dorado General Plan, which shall include provision of a financing mechanism for said services. The financing mechanism shall include inclusion within, or annexation into, a Community Facilities District ("CFD") established under the Mello-Roos Community Facilities Act of 1982 (Government Code § 53311 et seq.) established by the Diamond Springs / El Dorado Fire Protection District ("District") for the provision of public services permitted under Government Code § 53313, including fire suppression services, emergency medical services, fire prevention activities and other services (collectively "Public Services"), and as such, shall be subject to the special tax approved with the formation of such CFD with the Tract's inclusion or annexation into the CFD.

[1] County of El Dorado General Plan sections Policy 5.1.2 and Policy 6.2.3.

If you have any questions regarding this information you can contact me at 530-626-3190, Monday through Friday 8 a.m. to 5 p.m.

Thank you for helping keep our community fire safe,

Rob Combs, Assistant Fire Chief / Fire Marshal
Diamond Springs-El Dorado FPD

I:\FIRE PREVENTION\I New Development\Projects under Construction\Diamond Dorado Retail Center\TAC Mtg-3-29-2010.doc

JEFF NEVES
SHERIFF - CORONER - PUBLIC ADMINISTRATOR
COUNTY OF EL DORADO
STATE OF CALIFORNIA

REPLY TO:

☐ HEADQUARTERS
300 FAIR LANE
PLACERVILLE
CA 95667
530 621-5655
FAX 626-8163

☐ JAIL DIVISION
300 FORNI ROAD
PLACERVILLE
CA 95667
530 621-6000
FAX 626-9472

☐ TAHOE DIVISION
1360 JOHNSON BLVD., SUITE 100
SOUTH LAKE TAHOE
CA 96150
530 573-3000
FAX 544-6809

Michael Brandman Association
John Baas, Senior Project Manager
2000 "O" Street, Suite 200
Sacramento, CA 95811

RE: Request for information for the proposed Diamond Dorado Retail Center

Dear Mr. Baas:

I have reviewed the statistical information you have inquired about and I have listed below the corrected stats.

1) EDSO is the primary law enforcement agency in the unincorporated area of El Dorado County. EDSO has two main offices and one satellite office. The closest office to the Project site is the Placerville Office, located at 300 Fair Lane.

Staffing

EDSO is divided into five divisions; Administrative, Custody, Investigations, Patrol, and Support. Currently EDSO has 184 sworn Deputies, Sergeants, and Managers.
We also have the STAR program, which consists of senior volunteers who handle various tasks including fingerprinting booths to public awareness programs.

Calls for Service

The proposed Project is located in Zone 1 of the EDSO service area. We typically receive 79,881 calls for service on an annual basis, and approximately 15,260 in Zone 1. (stats from 2007)

Response Times

The average response time for calls in zone 1with a high priority is 13:11 (minutes/seconds (2007)).

Level of Service Standards

EDSO strives to maintain a ratio of one deputy per 1,000 residents, and the current ratio is just over one deputy per 1,000 residents. Regarding staffing ratio: While a ratio of deputies per 1,000 has been a commonly used formula, within the last two years we have switched to a concept called a Patrol Allocation Study. Under this methodology we determine workload based on calls for service, obligated time and a shift relief factor. This method is more statistically based than the previous "rule of thumb".

Using this concept we were able to determine that we currently have adequate staffing for our Placerville Patrol Division.

Secondary Response

Two agencies provide secondary response for EDSO. The City Police Departments provide secondary response to incidents that occur near the city limits. The California Highway Patrol provides secondary response to all other areas outside the city of Placerville. EDSO provides secondary response to crime incidents within the cities of Placerville and South Lake Tahoe.

2) Are EDSO staffing levels adequate to meet existing demands for service?
The opening of the Materials Recovery facility at the newly proposed location should have no significant impact on calls for service; and in turn no significant impact to staffing. The current MRF is in the same Zone and it is assumed whatever calls now generated by the MRF would merely transfer to the new location.

The impact of the Diamond Dorado Retail Center is more difficult to gage. Normally, the response would be that concentrating more people in any one area, as such a shopping center would do with employees and customers would generate more calls for service. As an example, we have seen steadily increasing calls for service as Towne Center in El Dorado Hills continues to grow.

In the case of the Diamond Dorado Retail Center, it is located within the same Zone as the soon to open Red Hawk Casino. While we have increased staffing in anticipation of an increased call volume directly attributable to the Casino, those increases are estimated based on comparisons with other nearby Indian Casinos.

But until the Casino has been open for at least a year, we cannot accurately predict its impact on law enforcement.

In summary, while I am optimistic we will have adequate staffing for both the Casino and the Diamond Dorado Retail Center, I currently have no way to accurately predict the impact of both combined.

3) Other than what is described above, there are no additional law enforcement concerns with either the Materials Recovery Facility or the Diamond Dorado Retail Center.

Very truly yours,

JEFF NEVES
Sheriff - Coroner
Public Administrator

By: Undersheriff Fred Kollar

FK/ll

Rec'd 3/19/10

FRED KOLLAR
SHERIFF - CORONER - PUBLIC ADMINISTRATOR
COUNTY OF EL DORADO
STATE OF CALIFORNIA

Michael Brandman Associates
Trevor Macenski
2000 "O" Street, Suite 200
Sacramento, Ca 95811

Trevor Macenski,

The following is in response to your request for information for an Environmental Impact Report (EIR) for the development in the Diamond Springs Area. The answers are numbered to correspond to your original letter.

1. The Main Sheriff's Facility located at 300 Fair Lane, Placerville, CA would be the primary location to service the proposed project.

2. The response area that includes the project area encompasses the Placerville and Diamond Springs area. The average response time for all the call priority types we respond to in this area is six minutes and twenty seconds (6:20).

3. The average response time for all call priority types we respond to in the rest of our jurisdiction is six minutes and forty-one seconds (6:41).

4. We have three shifts per day and each shift is staffed with 10 officers on average. This equates to approximately 30 officers per 24 hour period to respond to calls, with those officers distributed throughout the day.

5. The Sheriff's office has approximately 35 emergency response vehicles available to the above officers for responding to calls for service, including emergency calls.

6. The current patrol staffing levels are based upon the budget restrictions currently in place at the county government level. With recent increases in calls for service, the staffing levels should probably be higher. Within the next five years our patrol staff should be increased by 10 – 15 officers. Our Sheriff's main facility is over 30 years old. It is inadequate to house all of the Sheriff's Office personnel and as a result, Sheriff's personnel are stationed in four geographically separate facilities. The Sheriff's Office has been attempting to secure a new facility that would accommodate all Sheriff's Office personnel. The proposed facility is estimated at 80,000 square feet and would occupy five acres of land.

FRED KOLLAR
SHERIFF - CORONER - PUBLIC ADMINISTRATOR
COUNTY OF EL DORADO
STATE OF CALIFORNIA

7. We have an additional 25 to 30 vehicles available to non-patrol personnel to accommodate the needs of other law enforcement personnel servicing the entire jurisdiction.

8. The Sheriff's Office currently provides mutual aid assistance to Placerville Police Department by handling all incidents requiring a SWAT team. Additionally, the Sheriff's Office handles all Bomb related calls for El Dorado County and City of Placerville.

9. I have attached the 2009 Reportable Crimes for El Dorado County. This report is required by California Department of Justice every year.

10. Since the proposed project involves a large grocery store and numerous other retail establishments, an increase in property crimes and crimes against persons can be expected. As a result, the number of calls for service for the Diamond Springs/Placerville area would increase, possibly necessitating an increase in the number of officers needed to service the area. Without specific numbers regarding the increase in calls for service, it is difficult to quantify the additional deputies needed. However, it is reasonable to expect that an additional deputy per shift might be necessary as the development reached its full occupancy/usage. This would mean 6 additional deputies would be needed to fulfill the 24/7 requirement and 2 additional patrol vehicles would be needed for those deputies.

Respectfully,

Fred Kollar
Sheriff – Coroner
Public Administrator

2009 Reportable Crimes
El Dorado County Sheriff

Violent Crime					Property Crimes				Larceny-Theft			
Total	Homicide	Forcible Rape	Robbery	Aggravated Assault	Total	Burglary	Motor Vehicle Theft	Larceny-theft over $400	Total	Over $400	$400 and under	Arson
176	3	17	23	133	591	365	10	216	520	216	304	10

*** Note these totals do no include Placerville Police Department Crimes

El Dorado Irrigation District

In Reply Refer To: FIL0108-227

January 28, 2007

Leonard Grado
Palos Verdes Properties, Inc.
4330 Golden Center Drive, Suite D
Placerville, CA 95667

Subject: Facility Improvement Letter (FIL), Granite Grado Commercial
Assessor's Parcel No. 051-250-12, 46, 47, 51, 54 (Diamond Springs)

Dear Mr. Grado:

This letter is in response to your request dated October 17, 2007. This letter is valid for a period of two years. If a Facility Plan Report (FPR) for your project has not been submitted to the El Dorado Irrigation District (District) within two years of the date of this letter, a new FIL will be required.

Design drawings for your project must be in conformance with the District's *Water, Sewer and Recycled Water Design and Construction Standards*.

This project consists of approximately 10 new commercial buildings on 44.5 acres. Water and sewer service, private fire service, and fire hydrants are requested. The property is within the District boundary.

Water Supply

This letter is not a commitment to serve, but does address the location and approximate capacity of existing facilities that may be available to serve your project. In terms of water supply, as of January 1, 2007, there were 2426 equivalent dwelling units (EDUs) available in the Western/Eastern Water Supply Region. Your project, as proposed on this date, would require 40 EDUs of water supply.

Water Facilities

The Diamond Springs/El Dorado Fire Protection District has determined that the minimum fire flow for this project is 4000 GPM for a 4-hour duration while maintaining a 20-psi residual pressure. **According to the District's hydraulic model, the existing system can only deliver a 2500 GPM fire flow**. In order to receive service, you must construct a water line extension connecting to the 10-inch waterline located in Throwita Way. In order to provide a maximum

fire flow of 3500 GPM you would be required to upsize approximately 3500 feet of 6-inch and 8-inch waterline to 12-inch. You would also be required to upgrade an existing pressure reducing station near the intersection of Highway 49 and Coon Hollow Road. The proposed onsite system and all required offsite improvements should be addressed in the FPR. A static hydraulic grade line of 1992 feet should be used to determine the pipe class and an operating hydraulic grade line of 1909 feet should be used in the Facility Plan Report analysis.

The flow predicted above was developed using a computer model and is not an actual field flow test.

Sewer Facilities

There is a 6-inch gravity sewer line located in Highway 49, approximately 400 feet south of the property to be developed. This sewer line has adequate capacity at this time. In order to receive service from this line, an extension of facilities of adequate size must be constructed.

Facility Plan Report

An FPR will be required for this project. The FPR shall address the expansion of the water and sewer facilities and the specific fire flow requirements for all phases of the project. A meeting to discuss the content of the report will be required. Please contact this office to arrange the meeting. A preliminary utility plan prepared by your engineer must be brought to the meeting.

Two copies of the FPR will be required along with a $2,000.00 deposit. You will be billed for actual time spent in review and processing of your FPR. Please submit the FPR and fee to our Customer and Development Services Department. Enclosed is the FPR description and transmittal form for your use. The items listed under content in the description and the completed transmittal form must be bound in each copy of the FPR.

Easement Requirements

Proposed water lines, sewer lines, and related facilities must be located within an easement accessible by conventional maintenance vehicles. When the water lines or sewer lines are within streets, they shall be located within the paved section of the roadway. No structures will be permitted within the easements of any existing or proposed facilities. The District must have unobstructed access to these easements at all times and does not generally allow water or sewer facilities along lot lines.

Easements for any new District facilities constructed by this project must be granted to the District prior to District approval of water and/or sewer improvement plans, whether onsite or offsite. In addition, due to either nonexistent or prescriptive easements for some older facilities, any existing onsite District facilities that will remain in place after the development of this property must also have an easement granted to the District.

Environmental

The County is the lead agency for environmental review of this project per Section 15051 of the California Environmental Quality Act Guidelines (CEQA). The County's environmental document should include a review of both offsite and onsite water and sewer facilities that may be constructed by this project. You may be requested to submit a copy of the County's environmental document to the District if your project involves significant off-site facilities. If the County's environmental document does not address all water and sewer facilities and they are not exempt from environmental review, a supplemental environmental document will be required. This document would be prepared by a consultant. It could require several months to prepare and you would be responsible for its cost.

Summary

Service to this proposed development is contingent upon the following:

- The future availability of water supply
- Approval of the County's environmental document by the District (if requested)
- Approval of a Facility Plan Report by the District
- Approval of an extension of facilities application by the District
- Approval of facility improvement plans by the District
- Construction by the developer of all onsite and offsite proposed water and sewer facilities
- Acceptance of these facilities by the District
- Payment of all District connection costs

Services shall be provided in accordance with District Board Policies and Administrative Regulations, as amended from time-to-time. As they relate to conditions of and fees for extension of service, District Administrative Regulations will apply as of the date of a fully executed Extension of Facilities Agreement.

If you have any questions, please contact Marc Mackay at (530) 642-4135.

Sincerely,

EL DORADO IRRIGATION DISTRICT

Kevan Samsam, P.E.
Co-Manager
Customer and Development Services

KS/MM:nm

Enclosures: System Map
FPR Guidelines and transmittal

cc: Erik Peterson, Assistant Fire Chief – Fire Marshal, Diamond Springs/El Dorado Fire Protection District, P.O. Box 741, Diamond Springs, CA 95619-0741

Dave Crosariol, CTA Engineering & Surveying,
3233 Monier Circle, Rancho Cordova, CA 95742

El Dorado Irrigation District

In Reply Refer To: FIL0310-004

March 12, 2010

Leonard Grado
Palos Verdes Properties, Inc.
4330 Golden Center Drive, Suite D
Placerville, CA 95667

Subject: Facility Improvement Letter (FIL), Diamond Dorado Retail Center
Assessor's Parcel No. 051-250-12 (Diamond Springs)

Dear Mr. Grado:

This letter is in response to your request dated January 07, 2010. This letter is valid for a period of two years. If a Facility Plan Report (FPR) for your project has not been submitted to the El Dorado Irrigation District (District) within two years of the date of this letter, a new Facility Improvement Letter will be required.

Design drawings for your project must be in conformance with the District's *Water, Sewer and Recycled Water Design and Construction Standards*.

This project consists of approximately ten new commercial buildings on 27 acres. Water service, sewer service, private fire service, and fire hydrants are requested. The property is within the District boundary.

Water Supply

This letter is not a commitment to serve, but does address the location and approximate capacity of existing facilities that may be available to serve your project. In terms of water supply, as of January 1, 2009, there were 1315 equivalent dwelling units (EDUs) available in the Western/Eastern Water Supply Region. Your project as proposed on this date would require 44 additional EDUs of water supply.

Water Facilities

The Diamond Springs/El Dorado Fire Protection District has determined that the minimum fire flow for this project is 2,125 GPM for a 4-hour duration while maintaining a 20-psi residual pressure. According to the District's hydraulic model, the existing system can deliver the required fire flow. In order to provide this fire flow and receive service you must construct a

water line extension connecting to existing water lines in multiple locations, including the 10-inch waterline in Throwita Way. The proposed onsite system and all proposed connection points should be addressed in the FPR. A static hydraulic grade line of 1987 feet should be used to determine the pipe class and an operating hydraulic grade line of 1926 feet should be used in the Facility Plan Report analysis.

The flow predicted above was developed using a computer model and is not an actual field flow test.

Sewer Facilities

There is a 6-inch gravity sewer line located in Highway 49, approximately 400 feet south of the property to be developed. There is also an 8-inch force main located in Missouri Flat Road. These sewer lines have adequate capacity at this time. In order to receive service from this line, an extension of facilities of adequate size must be constructed. This project is inside the Diamond Springs Sewer Assessment District and you will be required to pay reimbursement for the cost of upsizing a regional sewer trunk line. The reimbursement cost is approximately $875 per EDU. The property already has 1 EDU of sewer service and will be required to purchase 49 additional EDUs as the project is currently proposed.

Facility Plan Report

A Facility Plan Report (FPR) will be required for this project. The FPR shall address the expansion of the water and sewer facilities and the specific fire flow requirements for all phases of the project. A meeting to discuss the content of the report will be required. Please contact this office to arrange the meeting. A preliminary utility plan prepared by your engineer must be brought to the meeting.

Two copies of the FPR will be required along with a $2,000.00 deposit. You will be billed for actual time spent in review and processing of your FPR. Please submit the FPR and fee to our Customer Service Department. Enclosed is the FPR description and transmittal form for your use. The items listed under content in the description and the completed transmittal form must be bound in each copy of the FPR.

Easement Requirements

Proposed water lines, sewer lines and related facilities must be located within an easement accessible by conventional maintenance vehicles. When the water lines or sewer lines are within streets, they shall be located within the paved section of the roadway. No structures will be permitted within the easements of any existing or proposed facilities. The District must have unobstructed access to these easements at all times, and does not generally allow water or sewer facilities along lot lines.

Easements for any new District facilities constructed by this project must be granted to the District prior to District approval of water and/or sewer improvement plans, whether onsite or

offsite. In addition, due to either nonexistent or prescriptive easements for some older facilities, any existing onsite District facilities that will remain in place after the development of this property must also have an easement granted to the District.

Environmental

The County is the lead agency for environmental review of this project per Section 15051 of the California Environmental Quality Act Guidelines (CEQA). The County's environmental document should include a review of both offsite and onsite water and sewer facilities that may be constructed by this project. You may be requested to submit a copy of the County's environmental document to the District if your project involves significant off-site facilities. If the County's environmental document does not address all water and sewer facilities and they are not exempt from environmental review, a supplemental environmental document will be required. This document would be prepared by a consultant. It could require several months to prepare and you would be responsible for its cost.

Summary

Service to this proposed development is contingent upon the following:

- The availability of uncommitted water supplies at the time service is requested
- Approval of the County's environmental document by the District (if requested)
- Approval of a Facility Plan Report by the District
- Approval of an extension of facilities application by the District
- Approval of facility improvement plans by the District
- Construction by the developer of all onsite and offsite proposed water and sewer facilities
- Acceptance of these facilities by the District
- Payment of all District connection costs

Services shall be provided in accordance with El Dorado Irrigation District Board Policies and Administrative Regulations, as amended from time-to-time. As they relate to conditions of and fees for extension of service, District Administrative Regulations will apply as of the date of a fully executed Extension of Facilities Agreement.

If you have any questions, please contact Marc Mackay at (530) 642-4135.

Sincerely,

Elizabeth D. Wells

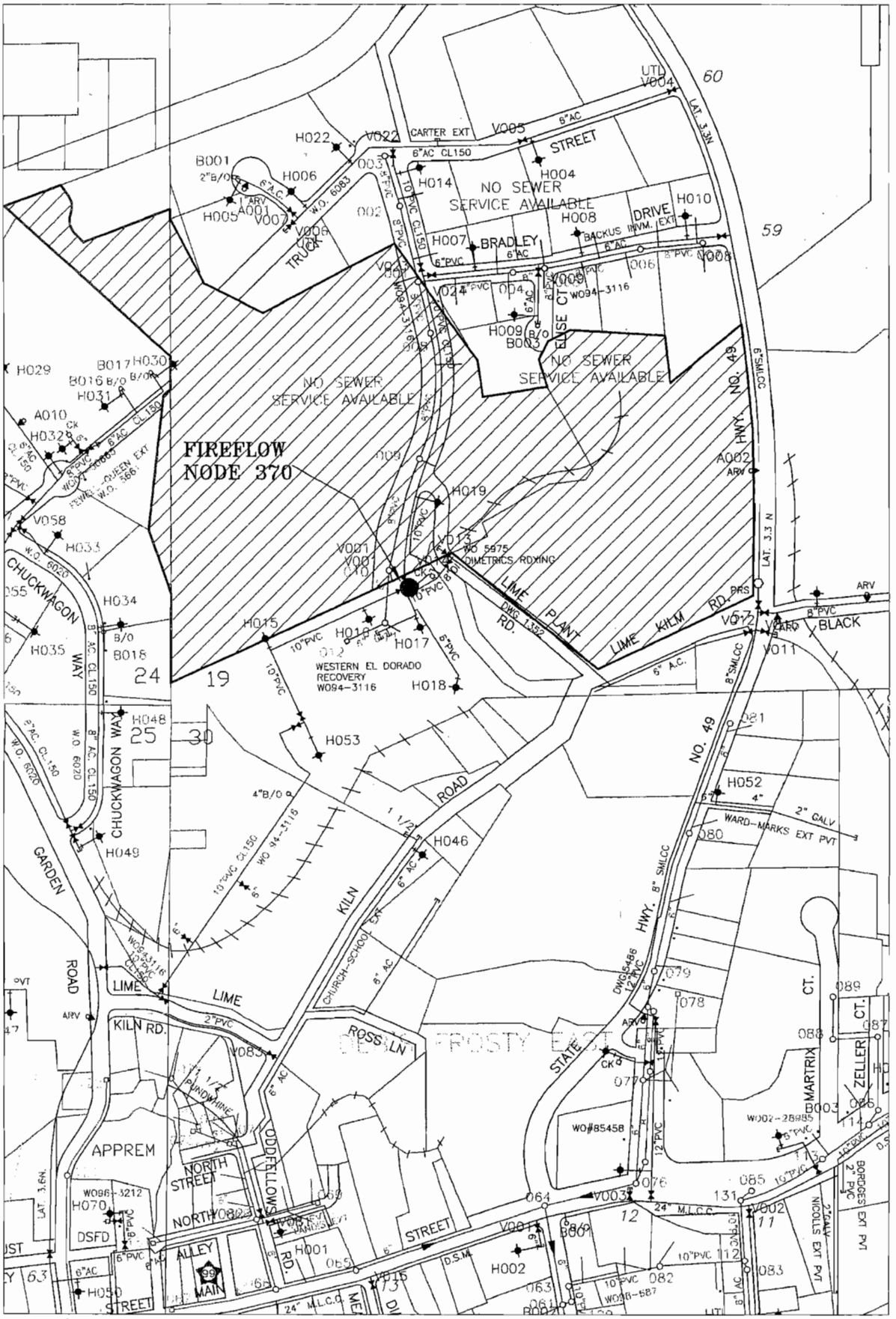
Elizabeth D. Wells, P.E.
Engineering Manager
Waste/Recycled Water Engineering Division

BC/MM:sk

Enclosures: System Map
FPR Guidelines and transmittal

cc: Dave Crosariol
CTA Engineering & Surveying
3233 Monier Circle
Rancho Cordova, CA 95742

Kerri Mikkelsen Tuttle
Coachella Valley Branch Manager
Michael Brandman Associates
340 S. Farrell Drive, Suite A210
Palm Springs, CA 92262



System Map

WARNING: For schematic purposes only. Exact pipe location must be

WATERLINE

SEWERLINE

Scale 1" = 250'

DATE: March 11, 2010

Diamond Dorado Retail

APN: 051-250-12, 46, 51, 54

SYS. No.: 65:24 & 66:19

H:\ENG\TRANSFER\MARCUS\Customer Service\FILs\2010\Diamond Dorado Retail\Diamond Dorado Retail.dwg

20100205.101600

El Dorado Irrigation District

ENGINEERING FACILITY PLAN REPORT (FPR) GUIDELINES

PURPOSE

The District requires the submittal of an engineering Facility Plan Report (FPR) for the extension of District facilities for subdivisions, commercial projects and industrial developments. The purpose of the report is to establish an understanding between the developer and the District on what system improvements the developer must construct prior to receiving service. This will help avoid misunderstandings and costly revisions in the plan review process, and will help the developer determine the costs that will be incurred for water and wastewater service.

For most development projects, the FPR includes a detailed analysis of all proposed water, sewer and recycled water facilities. However, a Master Plan FPR is often appropriate for large, multi-phased developments. Master Plan FPRs focus on major trunk sewers and water transmission facilities and do not include minor subdivision and collection facilities. One or more subsequent detailed FPRs would be required after the overall master plan has been approved.

PROCEDURE

1. The developer's engineer will submit a packet containing a completed EID FPR Transmittal Form (template attached), two copies of a Draft FPR, an additional electronic copy (pdf format) of the report on CD, and a deposit of $2,000.00, to an EID Development Services Section representative.

   All FPRs must be bound and conform to the outline describe in the FPR CONTENT section of this document. If the project is to be constructed in phases, the number of parcels and the number of EDUs for each phase must be indicated in the FPR.

2. An initial screening for completeness will be conducted by the Development Engineer. If the report is found to be unacceptable because it is not substantially complete, it will be returned to the developer's engineer without a review.

3. Complete FPRs will be reviewed by the Development Engineer **within approximately six weeks** and returned with comments, if necessary. If there are no comments, the Final FPR will be approved and returned to the engineer along with a review letter. The FPR must be approved prior to the first submittal of facility improvement plans for District review. Any re-submittal of an FPR must contain two hardcopies and one .pdf electronic copy of the revised report and also include a copy of the previous review letter(s) in the FPR appendix.

4. After approval of the FPR, the developer's engineer may submit the facility improvement plans for review. If significant changes are required to the improvement plans during the review process, which affect the Final FPR, such changes must be reflected in an addendum to the Final FPR.

Any questions regarding FPRs or facility improvement plan reviews should be directed to the District's Development Engineer.

EXPIRATION

The approved FPR is valid for two years from the date of approval.

El Dorado Irrigation District

FPR CONTENT

The complexity of the report will depend upon the size of the project, the number of phases and the extent of improvements that are required. The report must conform to the following outline, which is based on Section 2 of the District's Water Design and Construction Standards (Design Standards). All FPR's will be bound and, at a *minimum*, include:

Section I – General

- Completed EID FPR Transmittal Form (A hardcopy is attached, and electronic copies are available on request. Please use this form as a master for future transmittals.)
- Cover page containing the project name; the name, address and telephone number of the engineer and owner/developer; the date of submittal and the Assessor's Parcel Number(s)
- Introduction
- Background including:
    a. Statement of whether or not the property is within the District's service area boundary
    b. Existing County zoning designation(s)
    c. Identification of the CEQA document prepared for the project and a statement regarding whether the entire project, including offsite water and/or sewer lines, are addressed
- Project description
- Vicinity map
- Project phasing (if applicable)
- A general project boundary map, showing adjacent developments and their existing or proposed EDU's
- Description of adjacent developments impacting or having the potential to impact this project
- Typical street cross section showing all utilities and separations

Section II – Water

- Contour map showing the location and size of all water facilities, including pressure reducing stations and pump stations (if applicable)
- Contour map showing proposed pressure zone boundaries (if applicable)
- Proposed sources(s) of water (existing District facilities, individual wells)
- Description of water demands based upon the equivalent dwelling unit (EDU) concept and maximum demand criteria as provided in the Design Standards
- Description of any storage requirements and proposed pressure zones
- Description of pumping and pressure reducing facilities (if applicable)
- Demand table with average day, peak hour, and maximum day demands detailed by junction node

Section III – Sewer

- Proposed sewage treatment location (such as El Dorado Hills WWTP, Deer Creek WWTP, Camino Heights)
- Description of average dry weather flow (ADWF) sewage generation, based upon the equivalent dwelling unit (EDU) concept; and peak wet weather flow (PWWF) sewage generation, based upon criteria as provided in the Design Standards
- Contour map showing all sewer facilities, including the size and slope of sewer mains, the location of sewage lift stations, pumped lots and offsite contributions (if applicable)
- Description of sewage lift station facilities, including capacity and head, and any proposed individual hours pump installations (if applicable)
- Table showing proposed sewer hydraulics, such as capacities, flows, velocities, depth of flow

El Dorado Irrigation District

Facility Plan Report (FPR) Transmittal Form

Submittal Requirements: Two (2) copies of Facility Plan Report (FPR) and one (1) electronic copy in pdf format and a $2,000 deposit must be submitted along with this completed Transmittal Form.

Project Name: _____
Contact Person: _____
Address: _____
Telephone Number: _____ FAX Number: _____

1. Assessor's Parcel No(s): _____
2. Location: _____
3. This development will be constructed in _____ phases.
4. The property requires Annexation to EID _____Yes, _____ No.
5. The total acreage of the development is _____ acres.
6. The number of parcels proposed is _____.
7. The number of water EDU's requested is _____.
8. The number of sewer EDU's requested is _____.
9. The estimated maximum day water demand is _____ gpm and peak hour demand of _____ gpm.
10. The fire flow requirement is _____ gpm for _____ hours duration at _____ psi.
11. Pressure reducing stations are required? _____Yes, _____No.
12. The estimated average dry weather sewer flow is _____ gpm.
13. The estimated peak wet weather sewer flow is _____ gpm.
14. Recycled water proposed for irrigation _____Yes, _____No. Number of EDU's _____.
15. Estimated maximum day recycled demand is _____ gpm and peak hour demand of _____ gpm.
16. The engineer's cost estimates for all facilities to be built is attached ___Yes, ___ No.
17. Are any lift stations, pump stations or water tanks proposed? If so provide the following for each: latitude: _____ longitude: _____ elevation: _____

Exceptions: _____

_____

_____

FPR submitted by:

_____
Developer's Engineer

RCE# _____

Date _____

Final FPR approved by:

_____
EID Development Engineer

RCE# _____

Date _____

Form DE-001
Created: 06-29-08

Appendix L:
Traffic Impact Analysis

L.1 - July 2010 Report

Traffic Impact Analysis

Diamond Dorado Retail Center (WO#14)
El Dorado County, California

FINAL
July 21, 2010

Prepared for:

El Dorado County, California

Prepared by:

Kimley-Horn and Associates, Inc.
11060 White Rock Road, Suite 150
Rancho Cordova, California 95670

Phone: (916) 858-5800
Fax: (916) 858-5805

EXECUTIVE SUMMARY

This report documents the results of a traffic impact analysis completed for the Diamond Dorado Retail Center project proposed to be located west of Diamond Road (SR-49), along Diamond Springs Parkway in El Dorado County, California (the "proposed project" or "project"). The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA). This study was performed in accordance with the El Dorado County Department of Transportation's *Traffic Impact Study Protocols and Procedures*, and the scope of work provided by a representative of the County.

The project site is proposed to be developed with up to 290,015 square feet of retail uses. Primary access to the site will be provided at the Diamond Springs Parkway (DSP) intersection with Throwita Way. Three (3) additional site driveways are proposed: one right-in/right-out driveway and one right-in only driveway on DSP west of Throwita Way, and one (1) right-in/right-out driveway on Diamond Road (SR-49) south of DSP. The following facilities are included in this analysis:

Intersections

1. Missouri Flat Road at Plaza Drive
2. Missouri Flat Road at US-50 Westbound Ramps
3. Missouri Flat Road at US-50 Eastbound Ramps
4. Missouri Flat Road at Mother Lode Drive
5. Missouri Flat Road at Forni Road
6. Missouri Flat Road at Golden Center Drive
7. Diamond Springs Parkway at Missouri Flat Road (Future)
8. Diamond Springs Parkway at Throwita Way (Future)
9. Diamond Springs Parkway at Diamond Road (SR-49) (Future)
10. Diamond Road (SR-49) at Truck Street
11. Diamond Road (SR-49) at Bradley Drive
12. Diamond Road (SR-49) at Lime Kiln Road/Black Rice Road
13. Diamond Road (SR-49) at Pleasant Valley Road (SR-49)
14. Pleasant Valley Road (SR-49) at Missouri Flat Road
15. Pleasant Valley Road (SR-49) at China Garden Road
16. Pleasant Valley Road at Racquet Way
17. Pleasant Valley Road at Canyon Valley Road
18. Pleasant Valley Road (SR-49) at Koki Lane
19. Pleasant Valley Road (SR-49) at Forni Road
20. Pleasant Valley Road (SR-49) at Patterson Road
21. Pleasant Valley Road (SR-49) at SR-49 (South)
22. Missouri Flat Road at Industrial Drive
23. Ponderosa Road at US-50 Eastbound Ramps
24. Ponderosa Road at US-50 Westbound Ramps
25. Sacramento Street (SR-49) at Skyline Drive
26. Sacramento Street (SR-49) at Fiske Street
27. Sacramento Street (SR-49) at Pacific Street (SR-49)
28. Missouri Flat Road at Enterprise Drive
29. Missouri Flat Road at China Garden Road
30. Diamond Springs Parkway at Western Right-In/Right-Out Site Access Driveway
31. Diamond Springs Parkway at Right-In Only Site Access Driveway
32. Diamond Road (SR-49) at Site Access Driveway

Roadway Segments

1. Missouri Flat Road – Golden Center Drive to Diamond Springs Parkway
2. Missouri Flat Road – Diamond Springs Parkway to China Garden Road
3. Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)
4. Diamond Road (SR-49) – Truck Street to Diamond Springs Parkway
5. Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road
6. Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)
7. Diamond Springs Parkway – Missouri Flat Road to Throwita Way
8. Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)
9. Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road
10. Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)
11. Pleasant Valley Road – Diamond Road (SR-49) to Racquet Way

Freeway Facility Analysis

1. Off-Ramp Queuing
    a. Eastbound US-50 at Missouri Flat Road
    b. Westbound US-50 at Missouri Flat Road
2. Diverge Section
    a. Eastbound US-50 Exit to Missouri Flat Road
    b. Westbound US-50 Exit to Missouri Flat Road
3. Merge Section
    a. Missouri Flat Road Entrance to Eastbound US-50
    b. Missouri Flat Road Entrance to Westbound US-50
4. Freeway Mainline
    a. US-50 East of Missouri Flat Road
    b. US-50 West of Missouri Flat Road

Based on the above assumptions and the County's requirements, this LOS analysis was conducted for the study facilities for both weekday AM and PM peak-hours for the following scenarios:

A. Existing (2010) Conditions
B. Existing plus Approved Projects (2015) Conditions[+]
C. Existing plus Approved Projects (2015) plus Proposed Project Conditions[+]
D. Cumulative (2025) Conditions[+]
E. Cumulative (2025) plus Proposed Project Conditions[+]

[+] Scenario includes year 2010 and 2020 Diamond Springs Parkway improvements (LOS and queuing mitigation)

Significant findings of this study include:

- The proposed project is expected to generate 10,104 total new daily trips, including 296 new AM peak-hour trips and 970 new PM peak-hour trips in the near-term. For the long-term (year 2025) analysis, the project is expected to generate 8,083 net new daily trips, with 29 net new trips occurring during the AM peak-hour, and 686 net new trips occurring during the PM peak-hour. Because the industrial land uses designated for the proposed project site by the County *General Plan* will be removed and replaced by trips associated with the proposed project for the long-term (year 2025) conditions, the net new trips associated with the proposed project are actually greater in the near-term when compared to the long-term conditions.

- The proposed project is inconsistent with the *2004 General Plan* land use designation and zoning density for the site. Furthermore, the trip generation of the proposed project significantly exceeds the growth anticipated for the subject Traffic Analysis Zone (TAZ). Therefore, the project is deemed to exceed the magnitude of development contemplated in the *General Plan EIR* analysis and a Cumulative (year 2025) analysis is required.

- As defined by the County, the addition of the proposed project to the Existing plus Approved Projects (2015) and Cumulative (2025) analysis scenarios creates significant environmental impacts at multiple locations. However, these impacts can be mitigated to be ***less than significant***. The following is a summary of the required mitigation measures which are presumed to be *the project's sole responsibility*:

  Existing plus Approved Projects (2015) plus Proposed Project
  - (Mitigation M4) Add an eastbound right-turn lane at Intersection #28 (Missouri Flat Road @ Enterprise Drive).
  - (Mitigation M5) Upgrade Roadway Segment #5 (Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road) from 2- to 4-lanes.
  - (Mitigation M6) Upgrade Roadway Segment #7 (Diamond Springs Parkway – Missouri Flat Road to Throwita Way) from 2- to 4-lanes.

  Cumulative (2025) plus Proposed Project
  - (Mitigation M7) Convert the eastbound approach at Intersection #2 (Missouri Flat Road @ EB/WB US-50 Ramps) from dual rights to a single free right-turn. An alternative mitigation (triple left-turn lanes from Westbound US-50 to Missouri Flat Road) has also been documented to effectively mitigate this impact.
  - (Mitigation M13) Add an eastbound right-turn flare at Intersection #22 (Missouri Flat Road @ Industrial Drive).
  - (Mitigations M16 & M17) Upgrade Roadway Segments #5 and #6 (Diamond Road (SR-49) from Diamond Springs Parkway to Pleasant Valley Road (SR-49)) from 2- to 4-lanes[+].
  - (Mitigation M18) Upgrade Roadway Segment #7 (Diamond Springs Parkway from Missouri Flat Road to Throwita Way) from 2- to 4-lanes[+,*].

  [+] Both Diamond Springs Parkway and Diamond Road (SR-49) from DSP to Pleasant Valley Road are anticipated to be 4-lanes per the DSP year 2030 analysis scenario.
  [*] This corridor upgrade leaves only the eastbound Diamond Springs Parkway segment between Throwita Way and Diamond Road (SR-49) as a single lane. This segment should be considered for upgrade in conjunction with the adjacent roadway improvements.

- The addition of the proposed project adds additional queuing to several of the study locations. The following observations and modifications should be considered based on the data presented:

  - Intersection #7, DSP @ Missouri Flat Road
    - Extend the westbound left-turn lane to provide 500-feet of storage plus appropriate deceleration distance to accommodate the projected westbound left-turn 95th percentile queue of 498-feet. This additional storage length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
    - Extend the dual northbound left-turn lanes to provide 450-feet of storage plus appropriate deceleration distance to accommodate the projected northbound left-turn 95th percentile queue of 440-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.

- Intersection #8, DSP @ Throwita Way
  - Extend eastbound left-turn lane to provide 240-feet of storage plus appropriate deceleration distance to accommodate the projected eastbound left-turn 95th percentile queue of 237-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
  - Extend westbound left-turn lane to provide 350-feet of storage plus appropriate deceleration distance (a single left-turn lane) to accommodate the projected westbound left-turn 95th percentile queue of 330-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
- Intersection #9, DSP @ Diamond Rd (SR-49)
  - Extend the dual northbound left-turn lanes to provide 375-feet of storage plus appropriate deceleration distance to accommodate the projected northbound left-turn 95th percentile queue of 369-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
- Intersection #13, Diamond Road (SR-49) @ Pleasant Valley Road
  - The eastbound left-turn queue is anticipated to exceed the available storage by approximately 100-feet under Cumulative (2025) plus Proposed Project Conditions. In an effort to reduce this queue to an acceptable level, additional mitigations measures ("Mitigation for Queuing") were evaluated. Consistent with the year 2030 conclusions of the *Diamond Spring Parkway* traffic impact analysis, these measures include converting the northbound right-turn lane to a shared through-right lane, and modifying signal phasing accordingly. As an additional benefit of this mitigation, the westbound right-turn queue is reduced to a level less than the available storage length. As shown in Table 30, with these mitigations, the eastbound left-turn queue is anticipated to exceed the available storage by only thirty-three (33) feet under Cumulative (2025) plus Proposed Project Conditions. Because storage is measured to the back of striping delineation, it is presumed that the additional 33-feet required can be accommodated within the existing turn pocket bay taper without adversely affecting adjacent traffic flow.
- Intersections #19 and #21, Pleasant Valley Road (SR-49) @ Forni Road and SR-49 (South)
  - Due to the close proximity of these two intersections, left-turn queuing between traffic signals exceeds the separation distance. As part of these improvements, realignment of the Forni Road approach to the east, which would improve the southbound intersection approach angle and maximize the spacing between signalized intersections, should be considered. It is important to note that the ultimate intersection geometrics identified for implementation at this intersection are to be approved by both Caltrans and the County of El Dorado Department of Transportation.

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INTRODUCTION

This report documents the results of a traffic impact analysis completed for the Diamond Dorado Retail Center project proposed to be located west of Diamond Road (SR-49), along Diamond Springs Parkway in El Dorado County, California (the "proposed project" or "project"). The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA). This study was performed in accordance with the El Dorado County Department of Transportation's *Traffic Impact Study Protocols and Procedures*, and the scope of work provided by a representative of the County[1].

The remaining sections of this report document the proposed project, analysis methodologies, impacts and mitigation, and general study conclusions.

PROJECT DESCRIPTION

The project site is proposed to be developed with up to 290,015 square feet of retail uses. Primary access to the site will be provided at the Diamond Springs Parkway (DSP) intersection with Throwita Way. Three (3) additional site driveways are proposed: one right-in/right-out driveway and one right-in only driveway on DSP west of Throwita Way, and one (1) right-in/right-out driveway on Diamond Road (SR-49) south of DSP.

The project location is shown in Figure 1, and the proposed project site plan is shown in Figure 2. The following facilities are included in this evaluation:

Intersections

1. Missouri Flat Road at Plaza Drive
2. Missouri Flat Road at US-50 Westbound Ramps
3. Missouri Flat Road at US-50 Eastbound Ramps
4. Missouri Flat Road at Mother Lode Drive
5. Missouri Flat Road at Forni Road
6. Missouri Flat Road at Golden Center Drive
7. Diamond Springs Parkway at Missouri Flat Road (Future)
8. Diamond Springs Parkway at Throwita Way (Future)
9. Diamond Springs Parkway at Diamond Road (SR-49) (Future)
10. Diamond Road (SR-49) at Truck Street
11. Diamond Road (SR-49) at Bradley Drive
12. Diamond Road (SR-49) at Lime Kiln Road/Black Rice Road
13. Diamond Road (SR-49) at Pleasant Valley Road (SR-49)
14. Pleasant Valley Road (SR-49) at Missouri Flat Road
15. Pleasant Valley Road (SR-49) at China Garden Road
16. Pleasant Valley Road at Racquet Way
17. Pleasant Valley Road at Canyon Valley Road
18. Pleasant Valley Road (SR-49) at Koki Lane
19. Pleasant Valley Road (SR-49) at Forni Road
20. Pleasant Valley Road (SR-49) at Patterson Road
21. Pleasant Valley Road (SR-49) at SR-49 (South)
22. Missouri Flat Road at Industrial Drive
23. Ponderosa Road at US-50 Eastbound Ramps
24. Ponderosa Road at US-50 Westbound Ramps

[1] Memorandum from Abhi Parikh, Dowling Associates, Inc., to Eileen Crawford, El Dorado County DOT, June 11, 2009.

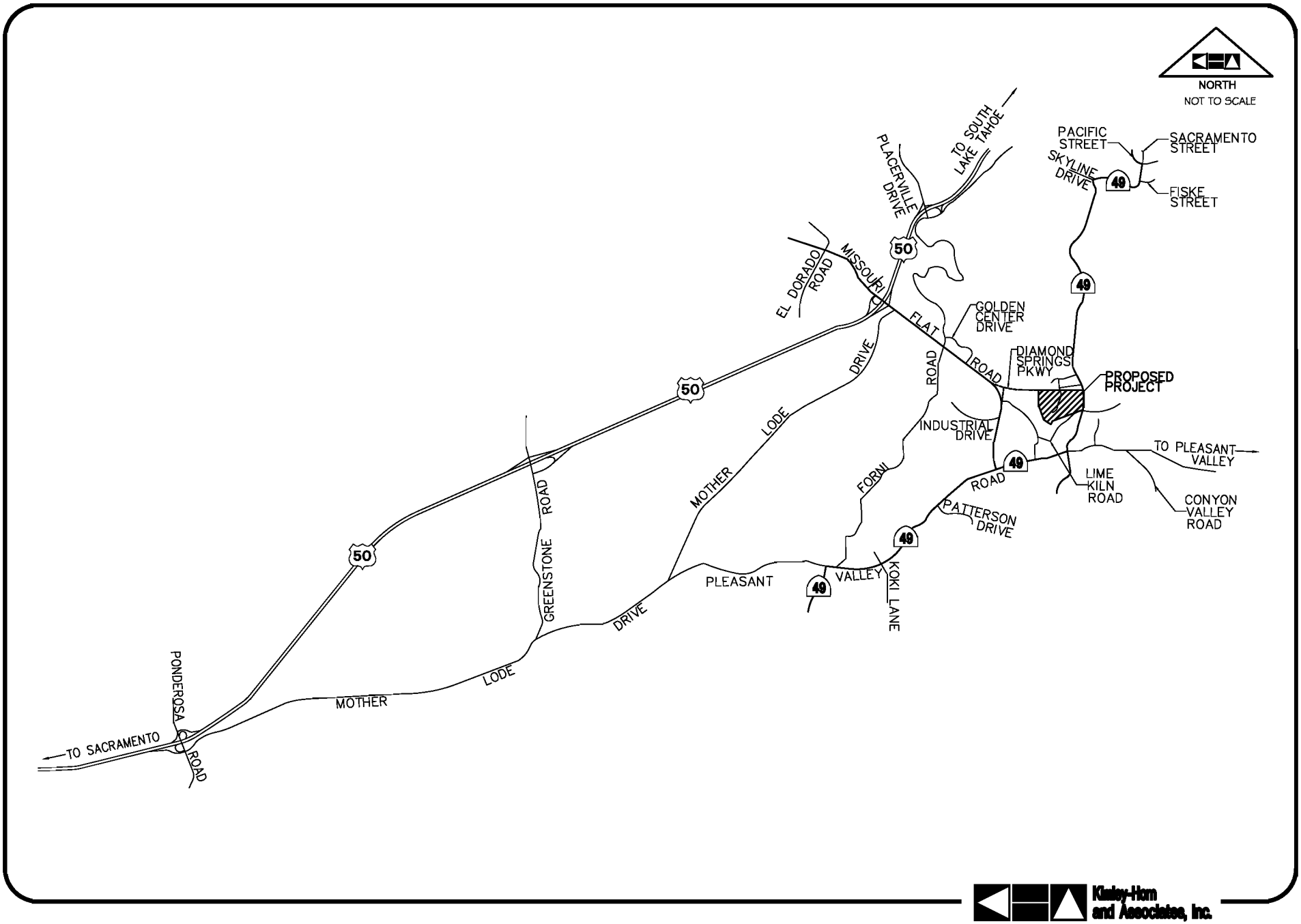
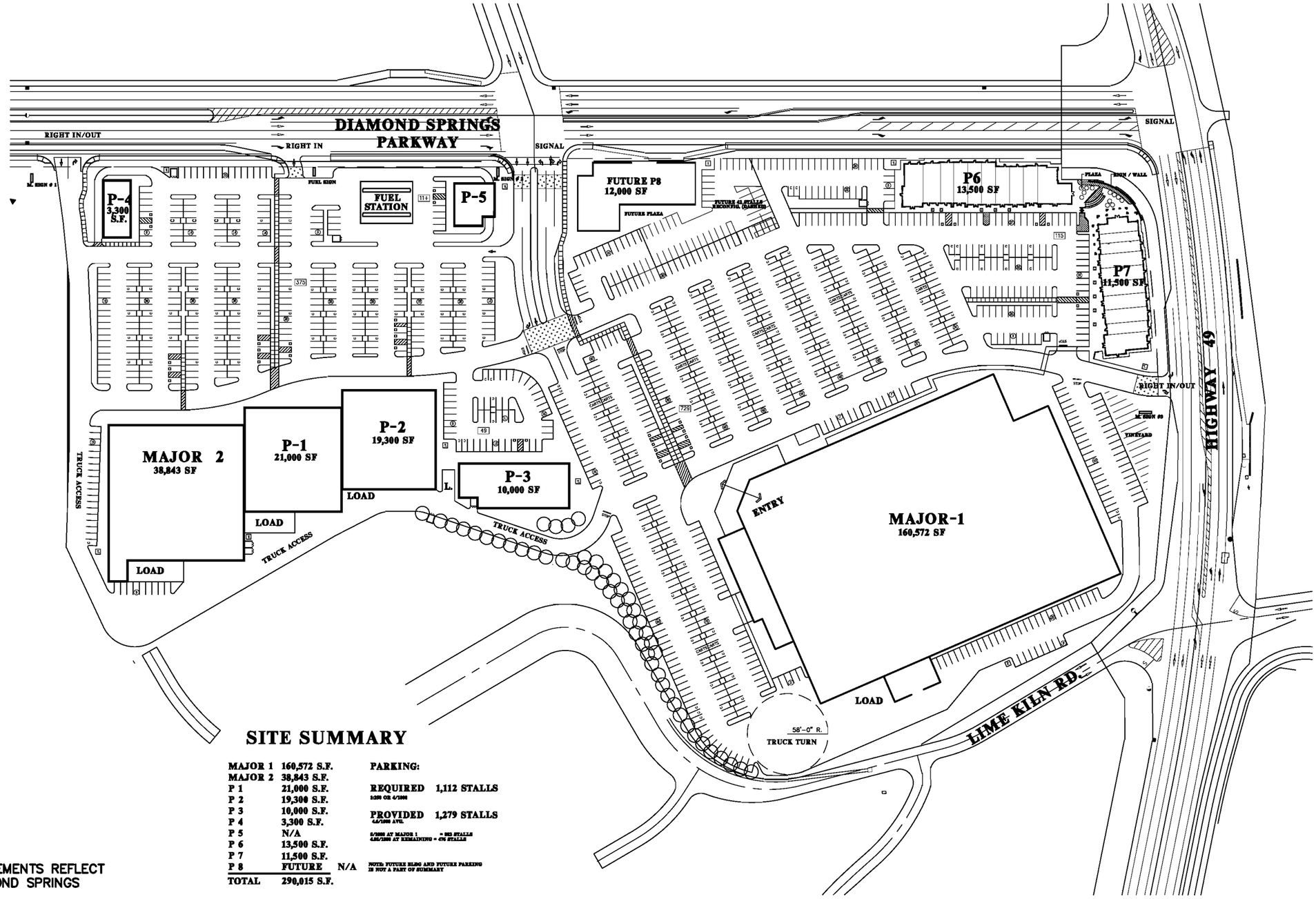


FIGURE 1

PROJECT VICINITY MAP

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA



SITE SUMMARY

MAJOR 1	160,572 S.F.	PARKING:	
MAJOR 2	38,843 S.F.		
P 1	21,000 S.F.	REQUIRED	1,112 STALLS
P 2	19,300 S.F.		
P 3	10,000 S.F.	PROVIDED	1,279 STALLS
P 4	3,300 S.F.		
P 5	N/A		
P 6	13,500 S.F.		
P 7	11,500 S.F.		
P 8	FUTURE N/A		
TOTAL	290,015 S.F.		

NOTE: OFFSITE IMPROVEMENTS REFLECT FULL YEAR 2030 DIAMOND SPRINGS PARKWAY MITIGATIONS.

Kimley-Horn and Associates, Inc.

FIGURE 2

PROPOSED PROJECT SITE PLAN

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

25. Sacramento Street (SR-49) at Skyline Drive
26. Sacramento Street (SR-49) at Fiske Street
27. Sacramento Street (SR-49) at Pacific Street (SR-49)
28. Missouri Flat Road at Enterprise Drive
29. Missouri Flat Road at China Garden Road
30. Diamond Springs Parkway at Western Right-In/Right-Out Site Access Driveway
31. Diamond Springs Parkway at Right-In Only Site Access Driveway
32. Diamond Road (SR-49) at Site Access Driveway

Roadway Segments

1. Missouri Flat Road – Golden Center Drive to Diamond Springs Parkway
2. Missouri Flat Road – Diamond Springs Parkway to China Garden Road
3. Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)
4. Diamond Road (SR-49) – Truck Street to Diamond Springs Parkway
5. Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road
6. Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)
7. Diamond Springs Parkway – Missouri Flat Road to Throwita Way
8. Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)
9. Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road
10. Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)
11. Pleasant Valley Road – Diamond Road (SR-49) to Racquet Way

Freeway Facility Analysis

1. Off-Ramp Queuing
    a. Eastbound US-50 at Missouri Flat Road
    b. Westbound US-50 at Missouri Flat Road
2. Diverge Section
    a. Eastbound US-50 Exit to Missouri Flat Road
    b. Westbound US-50 Exit to Missouri Flat Road
3. Merge Section
    a. Missouri Flat Road Entrance to Eastbound US-50
    b. Missouri Flat Road Entrance to Westbound US-50
4. Freeway Mainline
    a. US-50 East of Missouri Flat Road
    b. US-50 West of Missouri Flat Road

Figure 3 illustrates the study facilities, existing traffic control, and existing lane configurations.

PROJECT AREA ROADWAYS

The following are descriptions of the primary roadways in the vicinity of the project.

US Route 50 (US-50) is an east-west freeway located north of the project site. Generally, US-50 serves all of El Dorado County's major population centers and provides connections to Sacramento County to the west and the State of Nevada to the east. Primary access to the project site from US-50 is provided at the Missouri Flat Road interchange. At the time of this study, the US-50 interchange with Missouri Flat Road was under construction to reconstruct the interchange configuration. Within the general project area, US-50 currently serves approximately 57,000 vehicles per day[2] (vpd) with two travel lanes in each direction.

[2] Caltrans Traffic and Vehicle Data Systems Unit, http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2008all.htm.

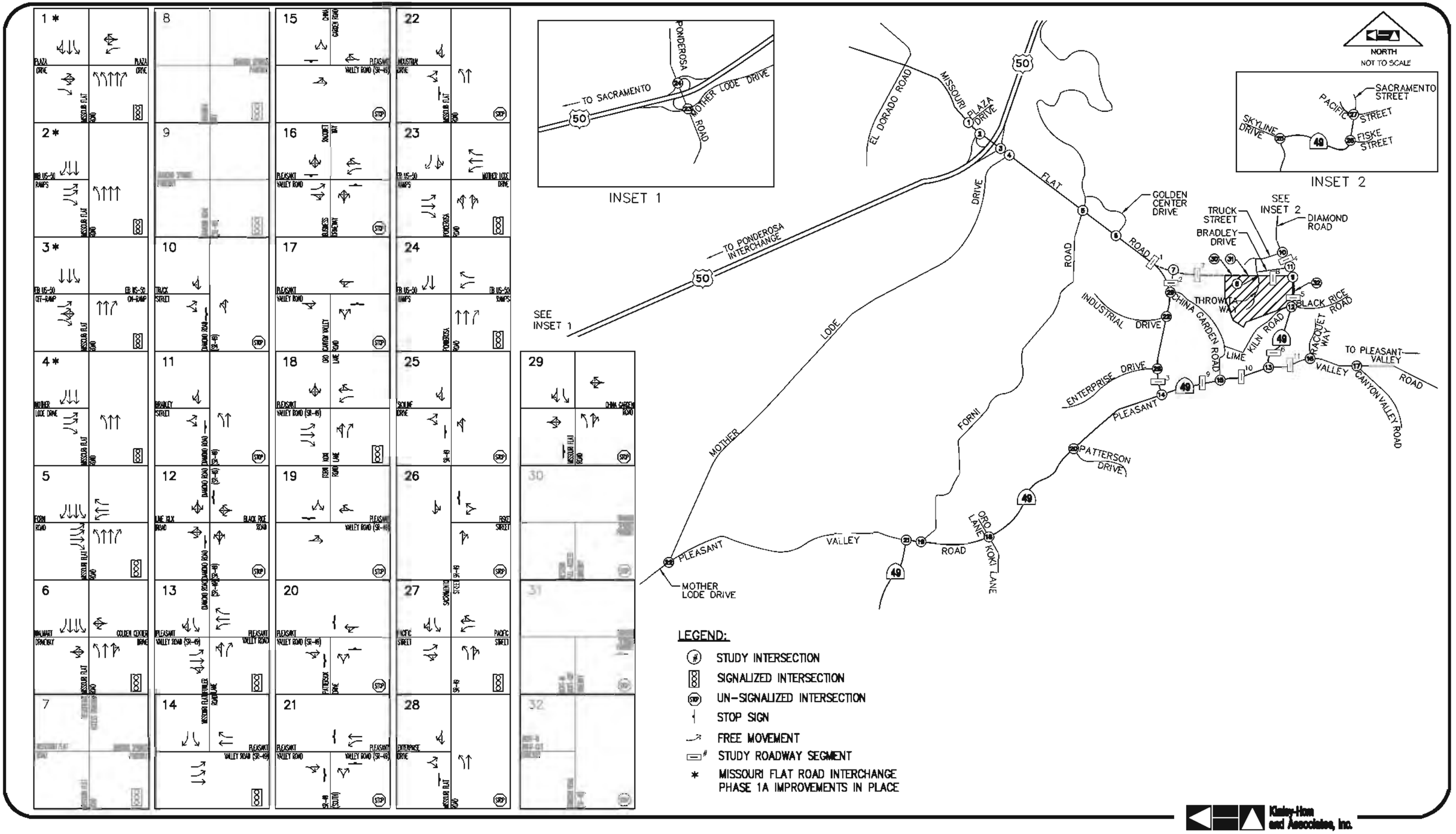


FIGURE 3

STUDY INTERSECTIONS, TRAFFIC CONTROL, AND LANE GEOMETRIES

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

The interchange reconstruction has occurred in multiple phases with the first phase, Phase 1A, being completed in 2009, and Phase 1B anticipated to be completed by 2011. Phase 1A included widening the US-50 overcrossing, widening of Missouri Flat Road and Mother Lode Drive, and modifying the US-50 off-ramps. Phase 1B will modify the eastbound on-ramp and reconfigure the westbound ramps to eliminate the loop off-ramp. Phase 2 will result in the interchange being reconfigured to be a single-point urban interchange (SPUI). Consistent with assumptions utilized in other traffic studies in the general project area, this study assumes the Phase 1A[3] improvements are in place for the Existing (2010) analysis scenario, Phase 1B[3] improvements will be in place for the Existing plus Approved Projects (2015) Conditions, and the Phase 2 improvements will be in place for the Cumulative (2025) Conditions.

State Route 49 (SR-49) is a two-lane state highway located along the eastern boundary of the proposed project. SR-49 is named Diamond Road between the City of Placerville to the north, and Pleasant Valley Road to the south of the proposed project. SR-49 shares the Pleasant Valley Road alignment for a distance to the west of the project area. In the immediate vicinity of the proposed project, SR-49 currently serves approximately 7,800 vpd[4].

Diamond Springs Parkway ("DSP" or "the Parkway") is a proposed divided arterial roadway facility that will connect Missouri Flat Road (north of China Garden) Road and Diamond Road (SR-49), between Lime Kiln Road/Black Rice Road and Bradley Drive. The initial phase of the Parkway will consist of one travel lane in each direction with traffic signal control at Missouri Flat Road, Throwita Way, and Diamond Road (SR-49). The Parkway is assumed to be operational prior to the opening of the proposed project. Furthermore, consistent with DSP traffic study conclusions, year 2010 and 2020 Parkway improvements (mitigations for both LOS and queuing) are assumed to be in place for the year 2015 and 2025 analysis scenarios for this study.

Missouri Flat Road is generally a north-south arterial roadway that provides a connection between SR-49 and US-50, and is located west of the proposed project. In the immediate vicinity of the project site, this roadway provides one travel lane in each direction. Missouri Flat Road expands to provide two lanes in each direction between Golden Center Drive and Plaza Drive. The portion of the roadway in the area of the interchange at US-50 is being improved with the improvements to the interchange. Missouri Flat Road accommodates approximately 20,000 vpd[5] near the proposed project.

Pleasant Valley Road is generally an east-west collector roadway located south of the proposed project. This facility joins with SR-49 between Missouri Flat Road and Diamond Road through the community of Diamond Springs. West of Diamond Road, Pleasant Valley Road accommodates approximately 9,300 vpd[6] with one lane in each direction.

China Garden Road is a minor, two-lane roadway that provides a internal connection between Missouri Flat Road and Pleasant Valley Road (SR-49). Although it serves some local traffic, China Garden Road also supports cut-through traffic between the two previously described major corridors.

ASSESSMENT OF PROPOSED PROJECT

Proposed Project Trip Generation

The number of trips anticipated to be generated by the proposed project were derived using data included in *Trip Generation, 7th Edition*, and the *Trip Generation Handbook*, *Second Edition*, both published by the Institute of Transportation Engineers (ITE). The anticipated trip generation for this project, is shown in Table 1.

[3] *Missouri Flat Road Phase 1A & 1B Improvements,* El Dorado County Department of Transportation, November 29, 2005.
[4] Kimley-Horn and Associates, Inc., November 28, 2007.
[5] El Dorado County, Department of Transportation, http://www.co.el-dorado.ca.us/DOT/trafficcounts.asp.
[6] Kimley-Horn and Associates, Inc., April 2008.

Table 1 – Proposed Project Trip Generation

Land Use (ITE Code)	Size (ksf)	Total Daily Trips	AM Peak Hour					PM Peak Hour				
			Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips
Shopping Center (820)	290	13,568	296	61%	181	39%	116	1264	48%	607	52%	657
Pass-By Trip Reduction [+]:	30%	*-3,464*						*-294*		*-172*		*-122*
Net New Trips		***10,104***	***296***		***181***		***116***	***970***		***435***		***535***

Source: *Trip Generation, 7th Edition* , ITE.
[+] Per *Trip Generation Handbook, 2nd Edition* , ITE.

As shown in Table 1, the proposed project is estimated to generate 10,104 total new daily trips, with 296 new trips occurring during the AM peak-hour, and 970 new trips occurring during the PM peak-hour. The project site is currently designated for industrial uses and a portion of the site is occupied with a material recovery facility (MRF). For this study, the MRF is anticipated to remain at its current location, however, the MRF access will change from Throwita Way to Diamond Road (SR-49) via Lime Kiln Road. This reassignment of the MRF site trips (using November 29, 2007, traffic count data) is depicted in Figure 4.

It should be noted that the industrial land uses designated for the proposed project site by the County *General Plan* will be removed and replaced by trips associated with the proposed project for the Cumulative (2025) plus Proposed Project Conditions. The proposed project trip generation for this analysis scenario is presented in Table 2.

Table 2 – Cumulative (2025) plus Proposed Project Trip Generation

Land Use (ITE Code)	Size (ksf)	Total Daily Trips	AM Peak Hour					PM Peak Hour				
			Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips
Shopping Center (820)	290	13,568	296	61%	181	39%	116	1264	48%	607	52%	657
Industrial Uses (110)	290	-2,021	-267	88%	-235	12%	-32	-284	12%	-34	88%	-250
Subtotal:		11,547	29		-54		84	980		573		407
Pass-By Trip Reduction [+]:	30%	*-3,464*						*-294*		*-172*		*-122*
Net New Trips		***8,083***	***29***		***-54***		***84***	***686***		***401***		***285***

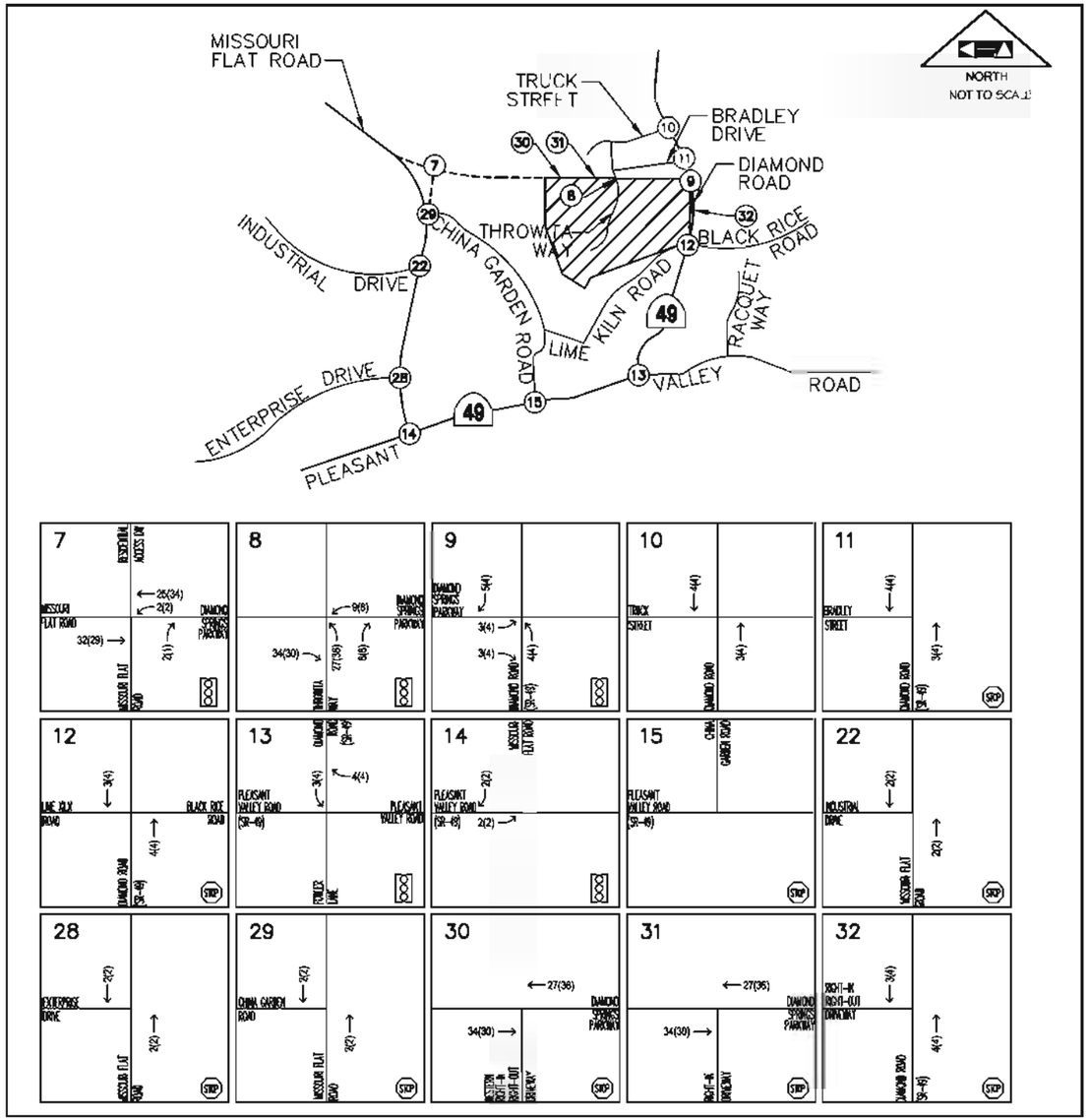
Source: *Trip Generation, 7th Edition* , ITE.
[+] Per *Trip Generation Handbook, 2nd Edition* , ITE.

As shown in Table 2, the proposed project is estimated to generate 8,083 net new daily trips, with 29 net new trips occurring during the AM peak-hour, and 686 net new trips occurring during the PM peak-hour.

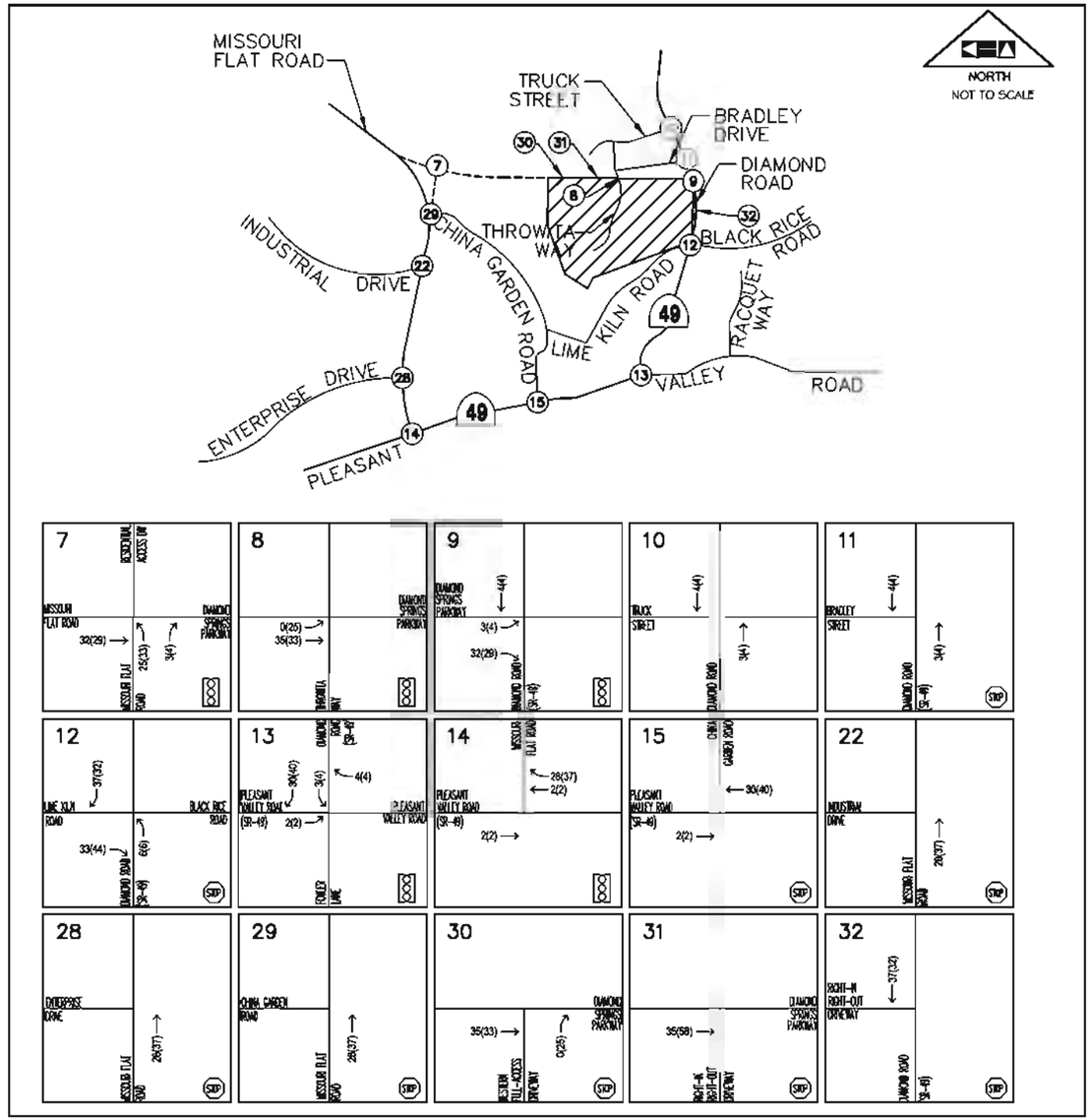
Proposed Project Trip Distribution

The distribution of project traffic (Figure 5) was developed using a select zone analysis[7] of Traffic Analysis Zone (TAZ) 323 in which the proposed project is located. The resulting near-term (2015) AM and PM peak-hour traffic volumes attributed to the proposed project at the study facilities are presented in Figure 6. Figure 7 presents the near-term project trips with the addition of the relocated MRF trips. The relocated MRF trips represent the difference, or net change, resulting from the modified MRF access. Figure 8 presents the long-term (Cumulative) trip assignment incorporating the previously discussed replacement of the industrial land use from the project site. Finally, Figure 9 presents the long-term project trips with the addition of the relocated MRF trips.

[7] Email from Abhi Parikh, Dowling Associates, Inc., November 4, 2009.



MRF TRIPS WITHOUT PROPOSED PROJECT
(EXISTING DISTRIBUTION)



RELOCATED MRF TRIPS WITH ADDITION OF PROPOSED PROJECT
(RELOCATED DISTRIBUTION)

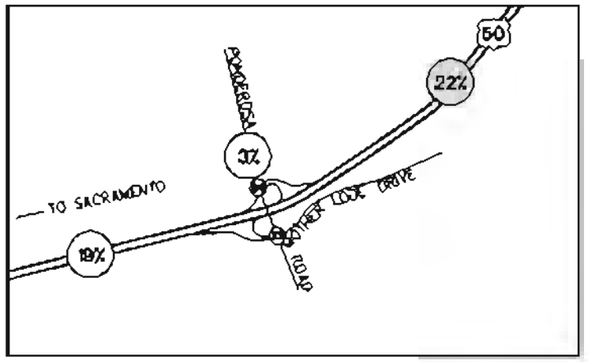
NOTE: MRF TRIPS PER NOVEMBER 29, 2007, TRAFFIC COUNT DATA.

Kimley-Horn and Associates, Inc.

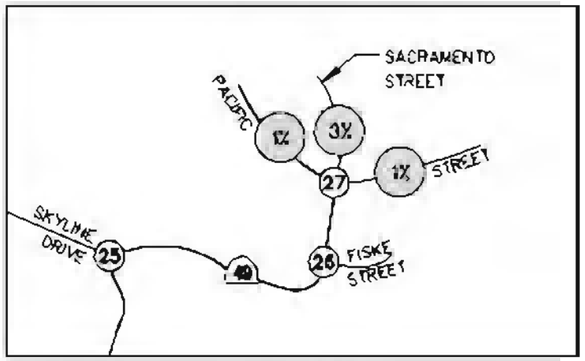
FIGURE 4

MRF SITE TRIP REASSIGNMENT

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA



INSET 1



INSET 2

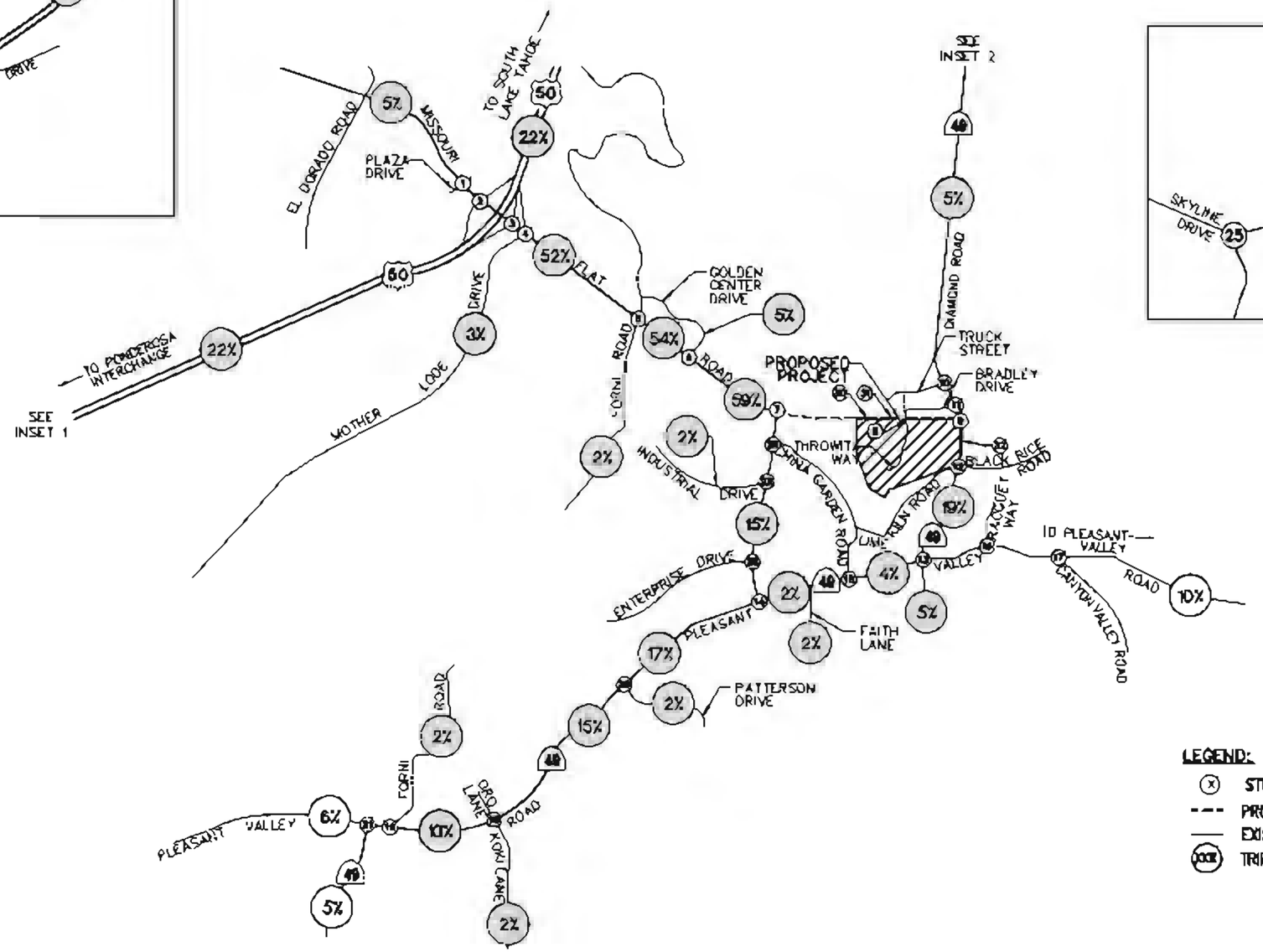


FIGURE 5

PROPOSED PROJECT TRIP DISTRIBUTION

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

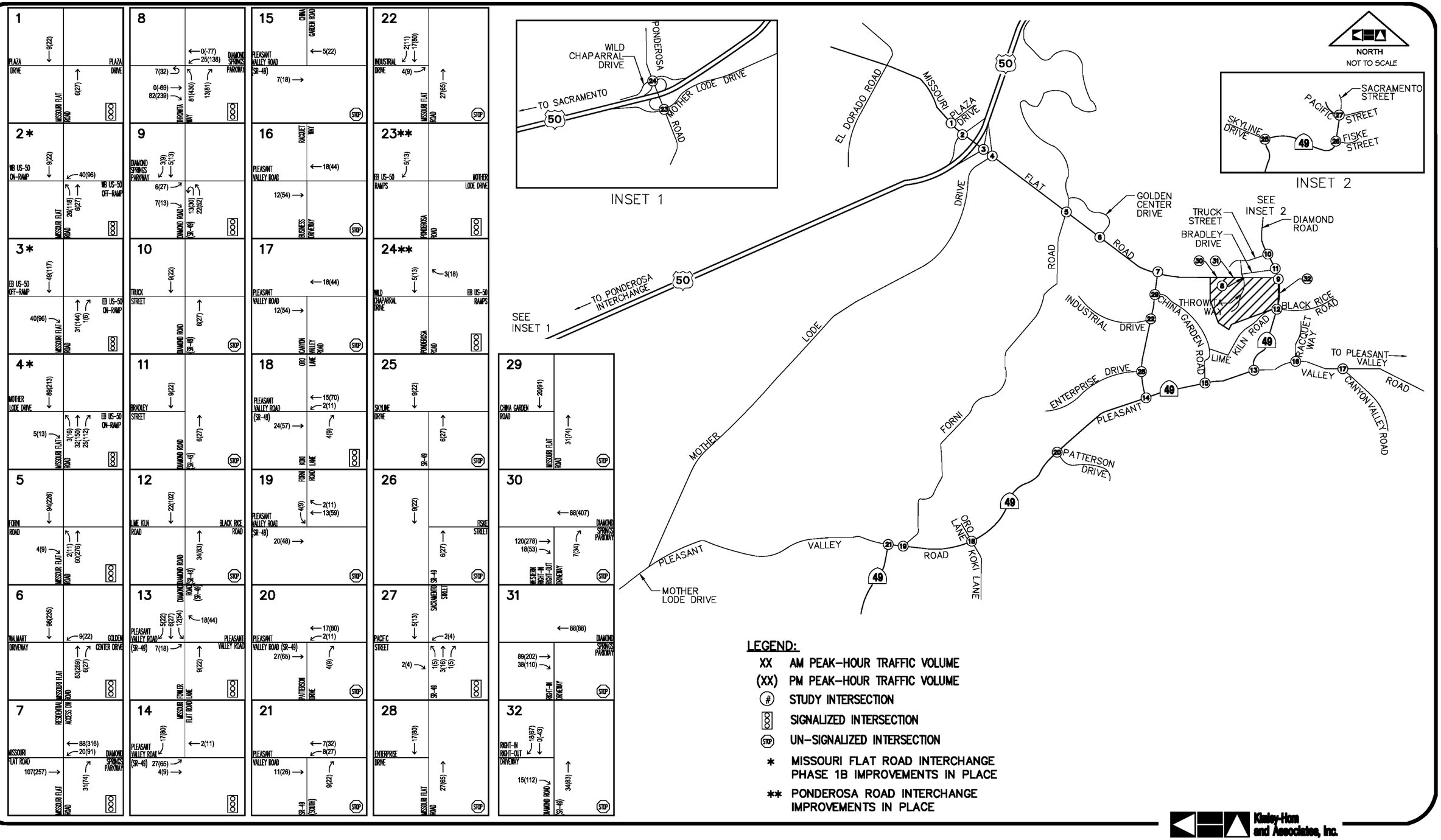
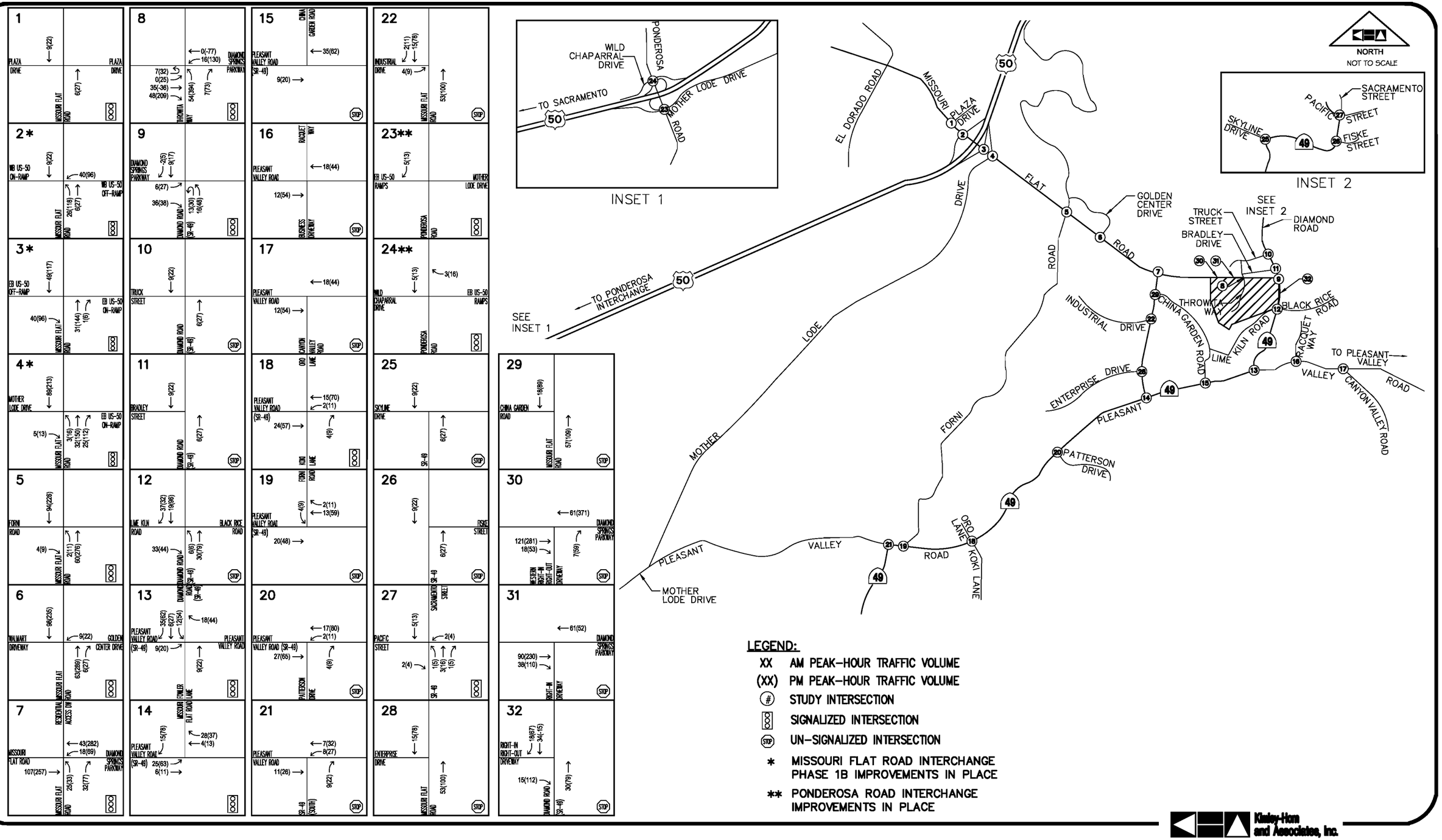


FIGURE 6

NEAR-TERM (2015) PROPOSED PROJECT TRIP ASSIGNMENT

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA



Kimley-Horn and Associates, Inc.

FIGURE 7

NEAR-TERM (2015) PROPOSED PROJECT TRIP ASSIGNMENT PLUS RELOCATED MRF TRIPS

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

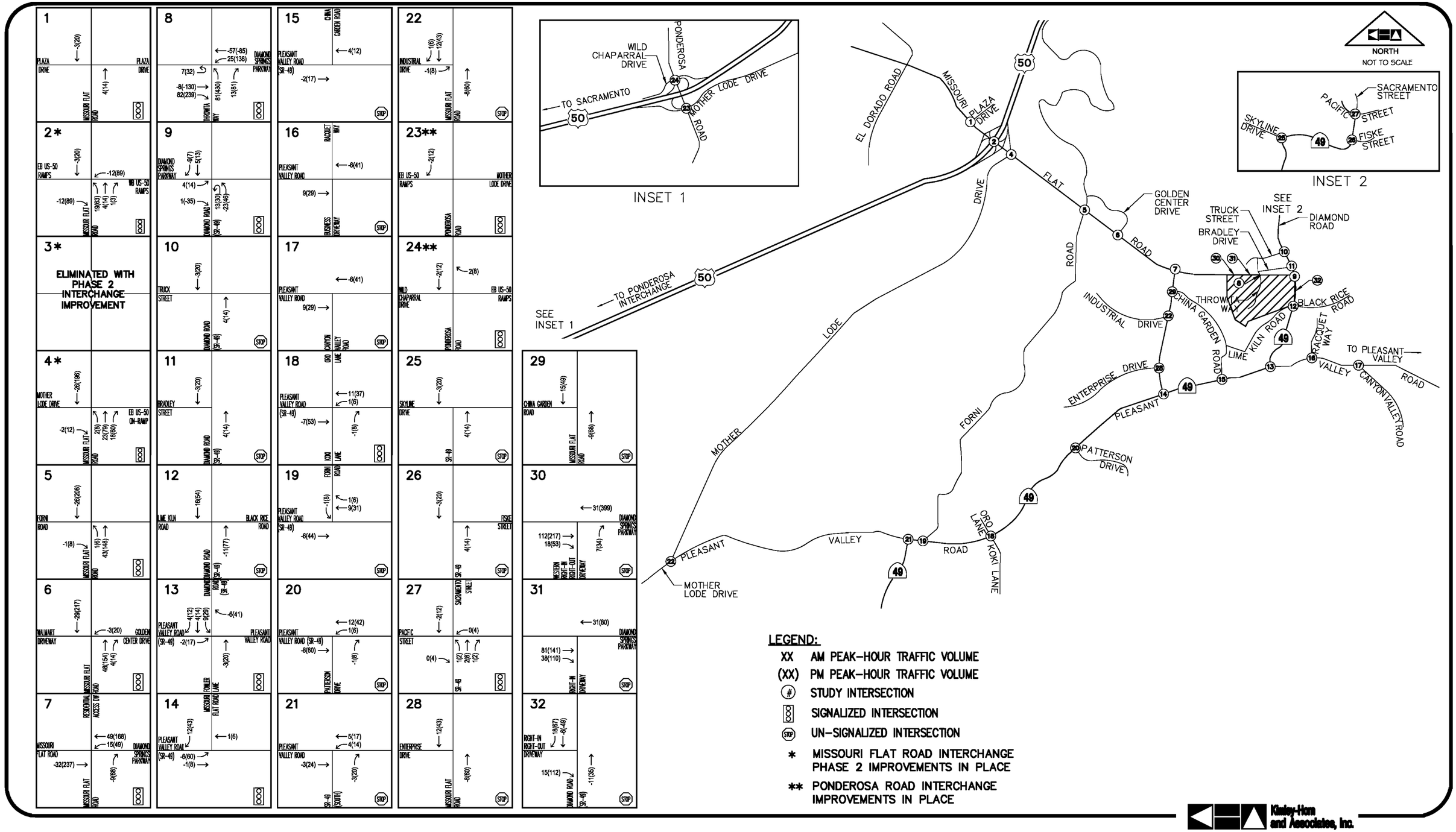


FIGURE 8

LONG TERM (2025) PROPOSED PROJECT TRIP ASSIGNMENT

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

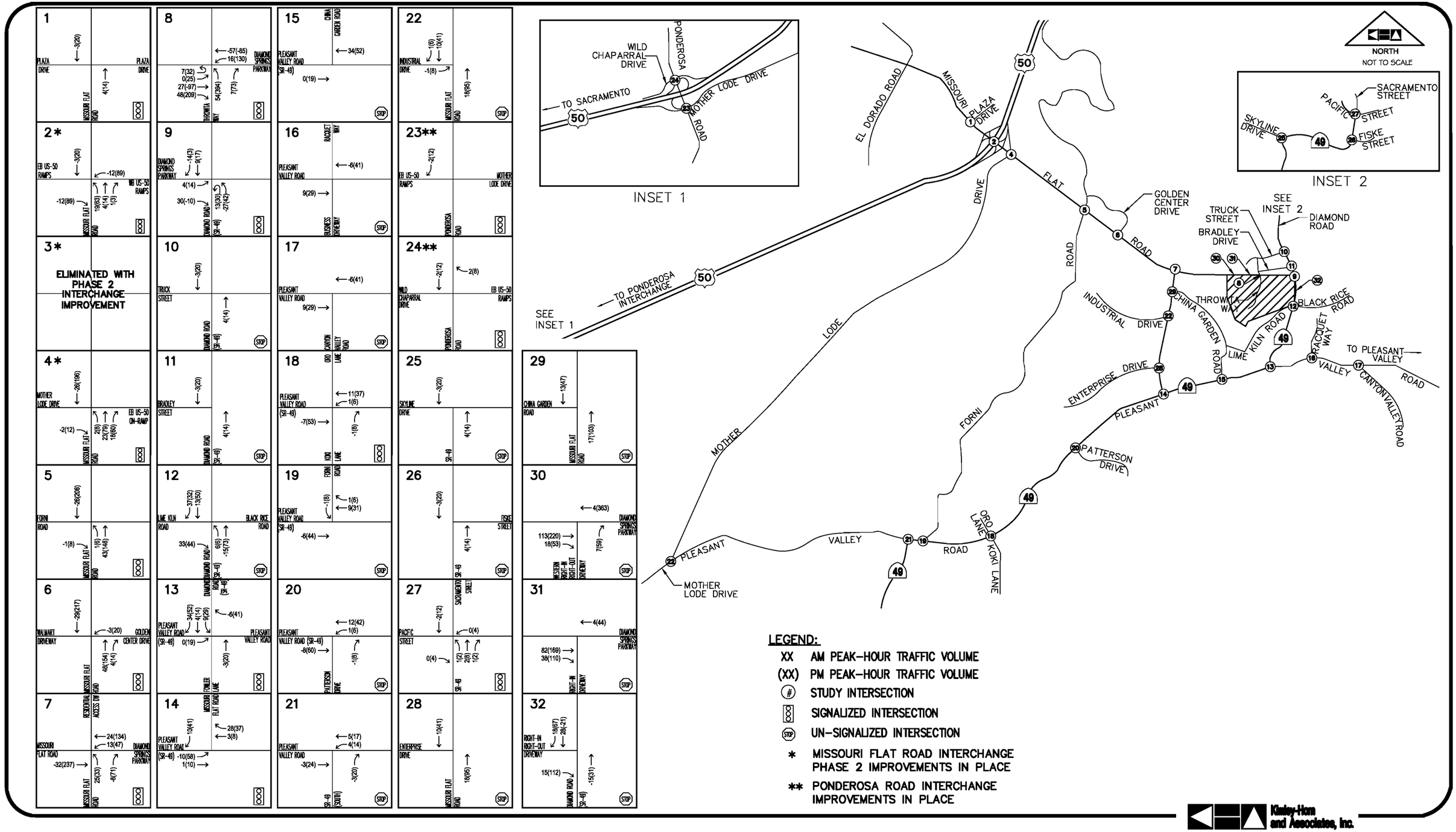


FIGURE 9

LONG TERM (2025) PROPOSED PROJECT TRIP ASSIGNMENT PLUS RELOCATED MRF TRIPS

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

TRAFFIC IMPACT ANALYSIS METHODOLOGY

Analysis of transportation facility significant environmental impacts is based on the concept of Level of Service (LOS). The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual, 2000* (HCM) and appropriate traffic analysis software

Intersections

The HCM includes procedures for analyzing two-way stop controlled (TWSC), all-way stop controlled (AWSC), and signalized intersections. The TWSC procedure defines LOS as a function of average control delay for each minor street approach movement. Conversely, the AWSC and signalized intersection procedures define LOS as a function of average control delay for the intersection as a whole. Table 3 presents intersection LOS definitions as defined in the HCM.

Table 3 – Intersection Level of Service Criteria

Level of Service (LOS)	Un-Signalized	Signalized
	Average Control Delay* (sec/veh)	Control Delay per Vehicle (sec/veh)
A	≤ 10	≤ 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

Source: Highway Capacity Manual, 2000
* Applied to the worst lane/lane group(s) for TWSC

Roadway Segments

Roadway segment LOS definitions are based on *El Dorado County Plan EIR, Traffic and Circulation, May 2003*. Table 4 presents the applicable roadway segment LOS definitions.

Table 4 – Roadway Segment Level of Service Criteria

Operational Class	Peak-Hour LOS Capacity Threshold (vehicles per hour)				
	A	B	C	D	E
Minor Two-Lane Highway	90	200	680	1,410	1,740
Major Two-Lane Highway	120	290	790	1,600	2,050
Four-Lane, Multilane Highway	1,070	1,760	2,530	3,280	3,650
Two-Lane Arterial	-	-	970	1,760	1,870
Four Lane Arterial, Undivided	-	-	1,750	2,740	2,890
Four Lane Arterial, Divided	-	-	1,920	3,540	3,740

Source: Adapted from *El Dorado County General Plan EIR*

Consistent with the methodologies of the recently completed traffic study for the Diamond Springs Parkway project[8], the evaluation of roadway segment operation focuses on the PM peak-hour only.

[8] *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.

Freeway Mainline Segments

According to the HCM, basic freeway segments are characterized by density, speed, and volume-to-capacity ratio. While all three of these characteristics indicate how well traffic flow is being accommodated, density is the primary measure used to determine segment LOS. Table 5 presents freeway segment LOS definitions based on an assumed free flow speed of 65 mph.

Table 5 – Freeway Segment Level of Service Criteria

Level of Service (LOS)	Maximum Service Flow Rate (pc/h/ln)*	Maximum Density (pc/mi/ln)**
A	710	11
B	1,170	18
C	1,680	26
D	2,090	35
E	2,350	45
F	> 2,350	> 45+

Source: *Highway Capacity Manual, 2000*
Note: Thresholds in this table are based on a Free-Flow Speed = 65 mph.
\+ Density not reported for LOS F
* Passenger Cars per Hour per Lane, ** Passenger Cars per Mile per lane

Freeway Ramp Junctions

The determination of freeway ramp junction (merge and diverge) LOS is based on the density of vehicles within the corresponding merge or diverge influence area. The HCM establishes the influence area as 1,500 feet in advance of diverge points, and 1,500 feet extending past merge points. Table 6 presents freeway ramp junction LOS definitions.

Table 6 – Freeway Ramp Merge and Diverge Level of Service Criteria

Level of Service (LOS)	Density (pc/mi/ln)*
A	≤ 10
B	> 10 – 20
C	> 20 – 28
D	> 28 – 35
E	> 35
F	*Demand Exceeds Capacity*

Source*: Highway Capacity Manual, 2000*
* Passenger Cars per Mile per Lane

Freeway Ramp Segments

Freeway ramp segment operation is based on anticipated vehicle queuing at the ramp terminal intersections with the cross-street. Anticipated vehicle queues are compared against available storage lengths and a determination is made regarding the potential of queuing adversely affecting adjacent traffic movements. These facilities are documented as an additional consideration, separate from the individual scenario discussions later in this report.

Consistency with General Plan Land Use Designation

According to the County's *Protocols*:

> "[A] Each traffic impact study must provide a review of a proposed project's consistency with the land use designations and zoning densities of the 2004 County General Plan to determine if the project is consistent with such designation(s) as applicable within the proposed project area…[B] If a proposed project is of a magnitude that is clearly within the amount of development which was anticipated in the traffic study conducted for the General Plan, then the General Plan's traffic analysis will serve as the basis for the cumulative traffic analysis of the project."

The proposed project (Shopping Center) is inconsistent with the 2004 General Plan land use designation and zoning density for the site (Industrial)[9]. Therefore, the proposed project does not satisfies the first criterion [A] for determining if a new cumulative 2025 analysis is required in addition to the analysis already completed for the County's General Plan.

Regarding the second criterion [B], the proposed project is located within Traffic Analysis Zones (TAZ) 323. According to information provided by a representative of the County[10], "A cumulative analysis is required because the project is expected to generate significantly more trips than what was assumed for in the *General Plan EIR* cumulative analysis."

Analysis Assumptions and Scenarios

Consistent with the methodology of an adjacent previously completed study[11], and according to the direction offered by a representative of the County[12], the following analysis assumptions were incorporated in this study:

- For future scenarios and locations where existing signal timing was unavailable (i.e. US-50/Missouri Flat Road interchange), the cycle lengths and allocation of green time was optimized using *Synchro v.7* software. Furthermore, this study reports analysis of the peak 15 minute period of each peak hour.
- The eastbound and westbound off-ramp intersections at the US-50/Missouri Flat Road interchange, as well as the intersection of Missouri Flat Road with Mother Lode Drive, are assumed to be coordinated. In addition, the Diamond Springs Parkway intersections with Throwita Way and Diamond Road (SR-49), as well as the Ponderosa Road intersections with US-50 ramps are also coordinated. All other signals were assumed to be uncoordinated. Based on previous discussions with Caltrans staff, the timing at existing signals was not optimized with the addition of the proposed project.
- It should be noted that this study conservatively assumes a saturation flow rate of 1,700 vph, and a peak-hour factor (PHF) of 0.90 for all analysis scenarios. In addition, the following assumptions were assumed for the heavy vehicle percentages:
    - All Caltrans intersection approaches: 2009: 6%, 2015: 5%, 2025: 4%
    - County roads serving industrial uses: same as Caltrans' approaches
    - County roads not serving industrial uses: 2% for all years

These assumptions result in higher intersection delays than would be calculated using the County's standard assumptions for the above parameters.

[9] *2004 General Plan Land Use Diagram*, El Dorado County Planning Department.
[10] Memorandum from Tom Kear, Dowling Associates, Inc., November 8, 2007.
[11] *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.
[12] Memorandum from Abhi Parikh, Dowling Associates, Inc., to Eileen Crawford, El Dorado County DOT, June 11, 2009.

Based on the above assumptions and the County's requirements, this LOS analysis was conducted for the study facilities for the following scenarios:

A. Existing (2010) Conditions
B. Existing plus Approved Projects (2015) Conditions[+]
C. Existing plus Approved Projects (2015) plus Proposed Project Conditions[+]
D. Cumulative (2025) Conditions[+]
E. Cumulative (2025) plus Proposed Project Conditions[+]

[+] Scenario includes year 2010 and 2020 Diamond Springs Parkway improvements (LOS and queuing mitigation)

The following is a discussion of the analyses for these scenarios:

EXISTING (2010) CONDITIONS

Intersections
Year 2010 peak-hour traffic volumes for 17 of the 32 study intersections were obtained from a recently completed study in the immediate project area[13] (the "DSP" study).

Recent peak-hour traffic volumes for five (5) of the 32 study intersections were obtained from a representative of the County[14]. These counts were increased to represent year 2010 conditions using a straight line growth rate from existing (1998) model conditions to year 2025 projected volumes.

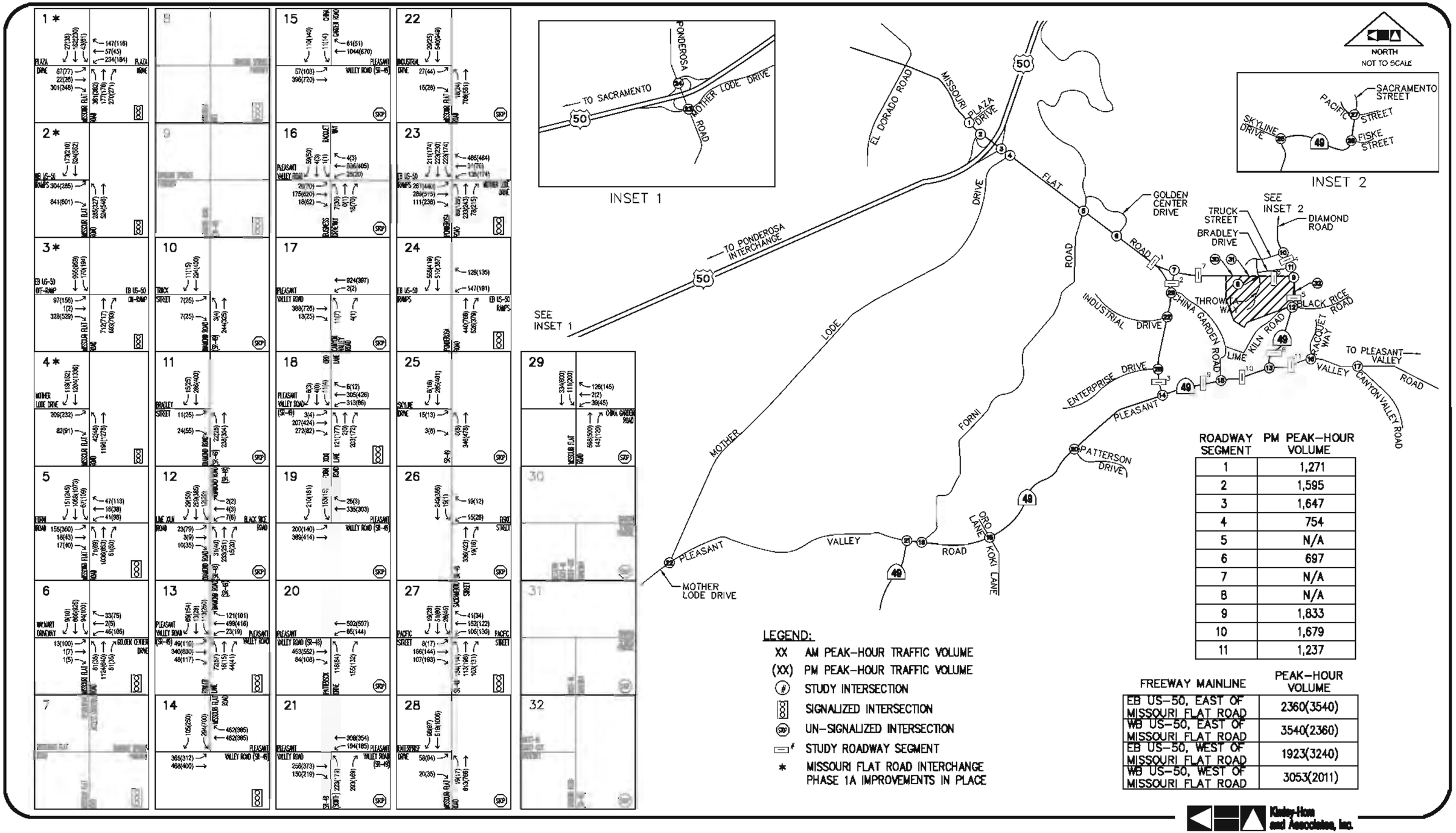
Seven (7) new weekday AM and PM peak period intersection turning movement traffic counts were conducted in 2009 for the following seven (7) study intersections:

- Pleasant Valley Road at Canyon Valley Road
- Pleasant Valley Road (SR-49) at Koki Lane
- Missouri Flat Road at Industrial Drive
- Sacramento Street (SR-49) at Skyline Drive
- Sacramento Street (SR-49) at Fiske Street
- Sacramento Street (SR-49) at Pacific Street (SR-49)
- Missouri Flat Road at Enterprise Drive

These counts were conducted between the hours of 6:30 a.m. and 9:30 a.m. and 3:30 p.m. and 6:30 p.m., with the exception of the intersection of Pleasant Valley Road (SR-49) and Koki Lane. Counts at this intersection were conducted between the hours of 6:30 a.m. and 9:30 a.m. and 2:00 p.m. and 6:00 p.m. to capture the peak-hour traffic associated with Union Mine High School. These new counts were also increased to represent year 2010 conditions using a straight line growth rate from existing (1998) model conditions to year 2025 projected volumes. Existing (2010) peak-hour turn movement volumes are presented in Figure 10, and the traffic count data sheets are provided in Appendix A. Table 7 presents the peak-hour intersection operating conditions for this analysis scenario. As indicated in Table 7, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in Appendix B.

Roadway Segments
For the purposes of this study, peak-hour roadway segment volumes were calculated using the adjacent peak-hour turning movements at the study intersections. Table 8 presents the peak-hour roadway segment operating conditions for this analysis scenario. As indicated in Table 8, the study roadway segments operate from LOS C to LOS F during the PM peak-hour. Analysis worksheets for this scenario are provided in Appendix B.

[13] *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.
[14] Dowling Associates, Inc., ftp://ftp.dowlinginc.com.



ROADWAY PM PEAK-HOUR

ROADWAY SEGMENT	PM PEAK-HOUR VOLUME
1	1,271
2	1,595
3	1,647
4	754
5	N/A
6	697
7	N/A
8	N/A
9	1,833
10	1,679
11	1,237

FREEWAY MAINLINE	PEAK-HOUR VOLUME
EB US-50, EAST OF MISSOURI FLAT ROAD	2360(3540)
WB US-50, EAST OF MISSOURI FLAT ROAD	3540(2360)
EB US-50, WEST OF MISSOURI FLAT ROAD	1923(3240)
WB US-50, WEST OF MISSOURI FLAT ROAD	3053(2011)

Kimley-Horn and Associates, Inc.

FIGURE 10

EXISTING (2010) PEAK-HOUR TRAFFIC VOLUMES

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

Table 7 – Existing (2010) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Missouri Flat Road @ Plaza Drive	Signal	28.8	C	30.5	C
2	Missouri Flat Road @ US-50 Westbound Ramps	Signal	18.0	B	20.0	C
3	Missouri Flat Road @ US-50 Eastbound Ramps	Signal	16.2	B	24.1	C
4	Missouri Flat Road @ Mother Lode Drive	Signal	11.4	B	13.4	B
5	Missouri Flat Road @ Forni Road	Signal	16.6	B	29.4	C
6	Missouri Flat Road @ Golden Center Drive	Signal	13.1	B	16.6	B
7	Diamond Springs Parkway @ Missouri Flat Road	*Future Study Facilities*				
8	Diamond Springs Parkway @ Throwita Way					
9	Diamond Springs Parkway @ Diamond Road (SR-49)					
10	Diamond Road (SR-49) @ Truck Street	TWSC*	11.8 (EB)	B	14.6 (EB)	B
11	Diamond Road (SR-49) @ Bradley Drive	TWSC*	11.6 (EB)	B	14.6 (EB)	B
12	Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	TWSC*	14.9 (WB)	C	26.9 (EB)	D
13	Diamond Road (SR-49) @ Pleasant Valley Road (SR-49)	Signal	21.2	C	29.3	C
14	Pleasant Valley Road (SR-49) @ Missouri Flat Road	Signal	20.8	C	53.8	D
15	Pleasant Valley Road (SR-49) @ China Garden Road	TWSC*	**56.0 (SB)**	**F**	**71.1 (SB)**	**F**
16	Pleasant Valley Road @ Racquet Way	TWSC*	13.1 (SB)	B	19.5 (NB)	C
17	Pleasant Valley Road @ Canyon Valley Road	TWSC*	27.5 (NB)	D	24.0 (NB)	C
18	Pleasant Valley Road (SR-49) @ Koki Lane	Signal	41.1	D	24.7	C
19	Pleasant Valley Road (SR-49) @ Forni Road	TWSC*	**254.7 (SB)**	**F**	14.3 (SB)	B
20	Pleasant Valley Road (SR-49) @ Patterson Road	AWSC	**58.7**	**F**	**101.7**	**F**
21	Pleasant Valley Road (SR-49) @ SR-49 (South)	AWSC	44.9	E	**56.3**	**F**
22	Missouri Flat Road @ Industrial Drive	TWSC*	15.7 (EB)	C	24.0 (EB)	C
23	Ponderosa Road @ US-50 Eastbound Ramps	Signal	**106.9**	**F**	**169.0**	**F**
24	Ponderosa Road @ US-50 Westbound Ramps	Signal	7.3	A	7.9	A
25	Sacramento Street (SR-49) @ Skyline Drive	TWSC*	13.7 (EB)	B	16.4 (EB)	C
26	Sacramento Street (SR-49) @ Fiske Street	TWSC*	12.6 (WB)	B	16.3 (WB)	C
27	Sacramento Street (SR-49) @ Pacific Street (SR-49)	Signal	19.4	B	28.0	C
28	Missouri Flat Road @ Enterprise Drive	TWSC*	18.9 (EB)	C	42.6 (EB)	E
29	Missouri Flat Road @ China Garden Road	TWSC*	23.3 (WB)	C	31.6 (WB)	D
30	DSP @ Right-In/Right-Out Site Access Driveway	*Future Study Facilities*				
31	DSP @ Right-In Site Access Driveway					
32	Diamond Road (SR-49) @ Site Access Driveway					

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County and/or Caltrans**

Freeway Mainline Segments

Year 2007 US-50 mainline traffic volumes were obtained from Caltrans[15]. These base volumes were projected to year 2010 using the most recent historic 5-year growth rate[15]. Table 9 presents the peak-hour freeway mainline operating for this analysis scenario. As indicated in Table 9, the US-50 freeway segments operate from LOS B to LOS D during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in Appendix B.

[15] Caltrans Traffic and Vehicle Data Systems Unit, http://traffic-counts.dot.ca.gov/2007all.htm

Table 8 – Existing (2010) Roadway Segment Levels of Service

#	Roadway Segment	Roadway Classification	PM Peak-Hour	
			Volume (vph)	LOS
1	Missouri Flat Road – Golden Center Drive to Diamond Springs Parkway	Four Lane Arterial, Divided[+]	1271	C
2	Missouri Flat Road – Diamond Springs Parkway to China Garden Road	Two-Lane Arterial	1595	D
3	Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)	Two-Lane Arterial[+]	1647	D
4	Diamond Road (SR-49) – Truck Street to Diamond Springs Parkway	Minor Two-Lane Highway	754	D
5	Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road	*Future Study Facility*		
6	Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)	Minor Two-Lane Highway[+]	697	D
7	Diamond Springs Parkway – Missouri Flat Road to Throwita Way	*Future Study Facility*		
8	Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)	*Future Study Facility*		
9	Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road	Minor Two-Lane Highway[+]	**1833**	**F**
10	Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)	Minor Two-Lane Highway	**1679**	**E**
11	Pleasant Valley Road – Diamond Road (SR-49) to Racquet Way	Two-Lane Arterial[+]	1237	D

[+] Per *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010. **Bold = Substandard per County and/or Caltrans**

Table 9 – Existing (2010) Freeway Mainline Levels of Service

Location	AM Peak-Hour			PM Peak-Hour		
	Total Volume	Flow Rate (pc/h/ln)	LOS	Total Volume	Flow Rate (pc/h/ln)	LOS
EB US-50, East of Missouri Flat Rd.	2360	1350	C	3540	2026	D
WB US-50, East of Missouri Flat Rd.	3540	2026	D	2360	1350	C
EB US-50, West of Missouri Flat Rd.	1923	1100	B	3240	1854	D
WB US-50, West of Missouri Flat Rd.	3053	1747	D	2011	1151	B

Freeway Merge/Diverge Segments

In addition to the previously discussed freeway mainline segments, the anticipated peak-hour ramp volumes were approximated using the peak-hour turning movements at the ramp intersections with the cross-streets. Table 10 presents the peak-hour freeway ramp operating conditions in the vicinity of the proposed project for this analysis scenario.

As indicated in Table 10, the existing US-50 freeway ramp junctions operate from LOS B to LOS D during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in Appendix B.

Table 10 – Existing (2010) Freeway Ramp Junction Levels of Service

Location	Junction Type	AM Peak-Hour			PM Peak-Hour		
		Total Volume	Density (pc/mi/ln)	LOS	Total Volume	Density (pc/mi/ln)	LOS
EB US-50 to Missouri Flat Rd.	Diverge	426	21.6	C	**687**	**34.5**	**D**
WB US-50 to Missouri Flat Rd.	Diverge	**945**	**37.3**	**E**	886	25.7	C
Missouri Flat Rd. to EB US-50	Merge	863	24.7	C	**987**	**35.2**	**E**
Missouri Flat Rd. to WB US-50	Merge	458	30.0	D	537	20.6	C
Bold = Substandard per County and/or Caltrans							

EXISTING PLUS APPROVED PROJECTS (2015) CONDITIONS

As specified by a representative of the County[16], straight line interpolation was performed between the DSP 2010 and 2020 analysis year volumes to approximate year 2015 conditions for this analysis scenario.

The year 2020 traffic volumes taken from *Diamond Springs Parkway Traffic Impact Analysis* include an adjustment for additional traffic associated with the El Dorado Crossing development. That development is included in Traffic Analysis Zone (TAZ) 186 north of US-50. The adjustment was made because the number of trips estimated for the El Dorado Crossing project is higher than is estimated for TAZ 186 by the County's travel demand forecast model. For the purposes of trip growth, the additional traffic associated with TAZ 186 was discounted from the 2020 model data. Once the five year volume growth was established and the 2015 traffic volumes were calculated (as noted above), the additional traffic volumes from TAZ 186 were added to the 2015 volumes[17]. It should be noted that for this and all subsequent scenarios, additional traffic from the Traffic Analysis Zone (TAZ) 186 was also added to the network.

For the intersections outside of the Diamond Springs Parkway Study Area (west of Missouri Flat Road on Pleasant Valley Road (SR-49), east of Racquet Way on Pleasant Valley Road, and north of Truck Street on Diamond Road (SR-49)) a growth rate was used to determine future traffic volumes. The growth rate for each approach was calculated based on existing (1998) and 2025 model volumes. See Appendix D for the calculated growth rates.

Figure 11 indicates lane configurations assumed for Existing plus Approved Projects (2015) Conditions. As previously indicated, and per direction offered by a representative of the County[18], this study assumes that Phases 1A and 1B[19] of the US-50 interchange with Missouri Flat Road reconstruction project is in place for the Existing plus Approved Projects scenarios. Also, beginning with this analysis scenario, roadway configuration modifications at the Ponderosa Road/South Single Road interchange with US-50 were incorporated, based on information provided by a representative of the County[20].

Additionally, this scenario incorporates the implementation of the initial Diamond Springs Parkway project with its required year 2010 mitigations for both LOS and queuing[21]. These improvements are generally described as including a 2-lane Parkway, a 2-lane SR-49 (Diamond Road), and an unsignalized SR-49/Lime Kiln with access restrictions. Appendix C provides a tabular summary of these mitigations.

Figure 12 provides the peak-hour intersection turning movement volumes for this analysis scenario.

[16] Memorandum from Abhi Parikh, Dowling Associates, Inc., to Eileen Crawford, El Dorado County DOT, June 11, 2009.
[17] Per phone conversation with Abhishek Parikh, Dowling Associates, Inc., August 14, 2008.
[18] Email from Abhishek Parikh, Dowling Associates, Inc., March 19, 2008.
[19] *Missouri Flat Road Phase 1A & 1B Improvements,* El Dorado County Department of Transportation, November 29, 2005.
[20] ftp://ftp.dowlinginc.com, Dowling Associates, Inc.
[21] *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.

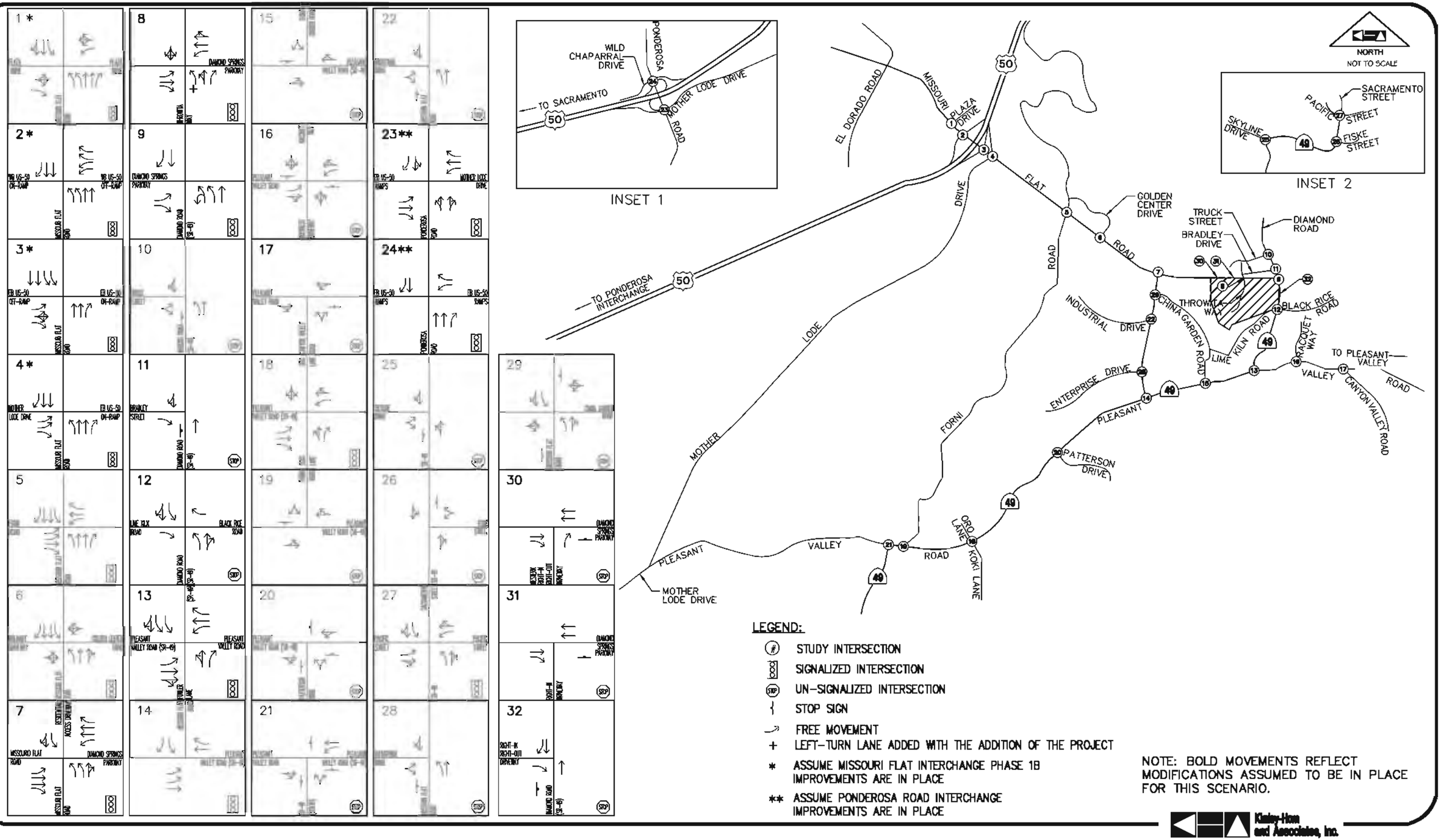
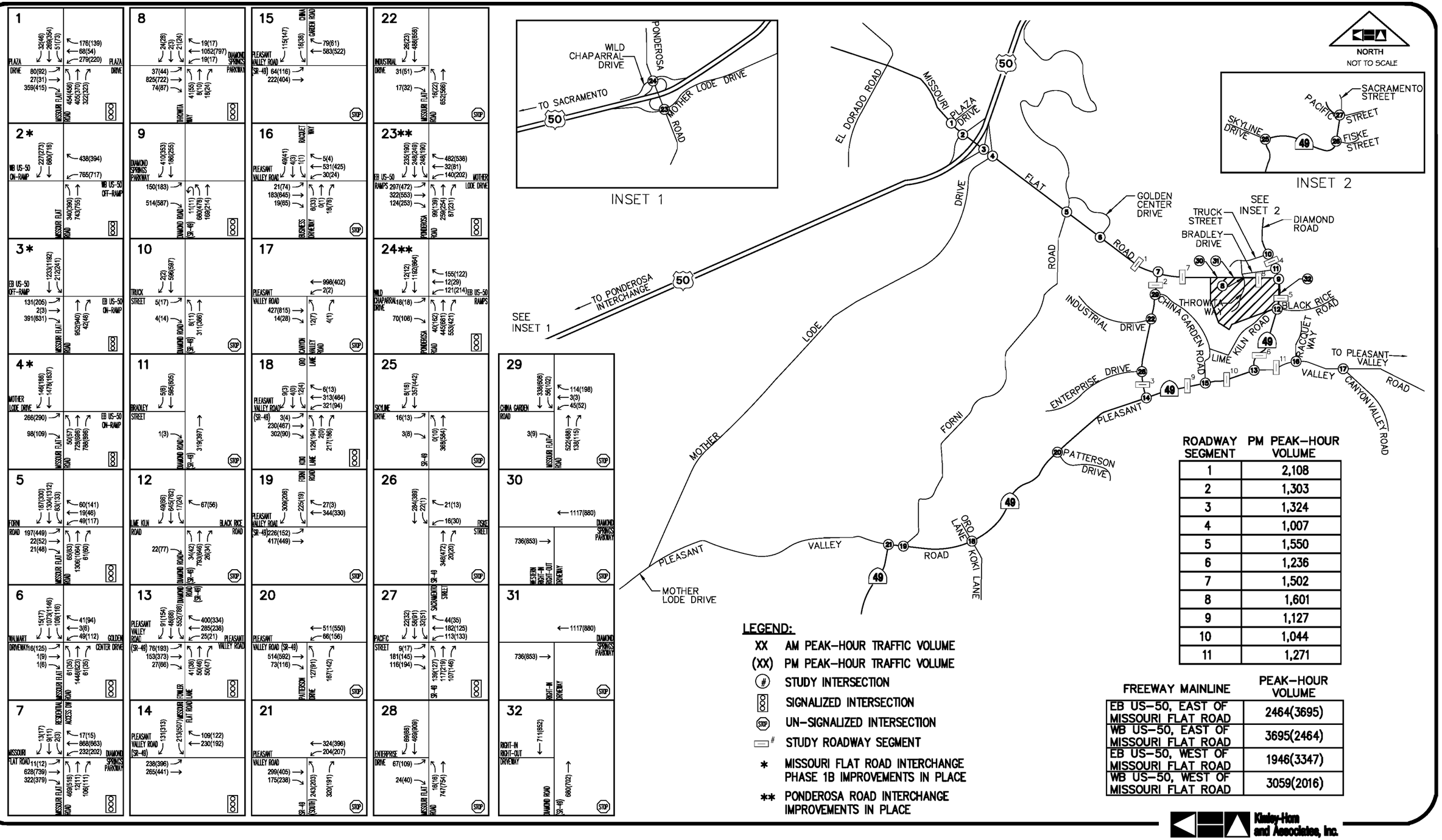


FIGURE 11

EXISTING PLUS APPROVED PROJECTS (2015) INTERSECTION CONFIGURATIONS

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA



ROADWAY SEGMENT	PM PEAK-HOUR VOLUME
1	2,108
2	1,303
3	1,324
4	1,007
5	1,550
6	1,236
7	1,502
8	1,601
9	1,127
10	1,044
11	1,271

FREEWAY MAINLINE	PEAK-HOUR VOLUME
EB US-50, EAST OF MISSOURI FLAT ROAD	2464(3695)
WB US-50, EAST OF MISSOURI FLAT ROAD	3695(2464)
EB US-50, WEST OF MISSOURI FLAT ROAD	1946(3347)
WB US-50, WEST OF MISSOURI FLAT ROAD	3059(2016)

Kimley-Horn and Associates, Inc.

FIGURE 12

EXISTING PLUS APPROVED PROJECTS (2015) PEAK-HOUR TRAFFIC VOLUMES

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

Intersections
Table 11 provides a summary of the intersection operating conditions for this analysis scenario.

Table 11 – Existing plus Approved Projects (2015) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Missouri Flat Road @ Plaza Drive	Signal	36.9	D	44.0	D
2	Missouri Flat Road @ US-50 Westbound Ramps	Signal	22.2	C	24.4	C
3	Missouri Flat Road @ US-50 Eastbound Ramps	Signal	18.4	B	28.7	C
4	Missouri Flat Road @ Mother Lode Drive	Signal	13.1	B	18.0	B
5	Missouri Flat Road @ Forni Road	Signal	23.1	C	36.4	D
6	Missouri Flat Road @ Golden Center Drive	Signal	16.5	B	19.5	B
7	Diamond Springs Parkway @ Missouri Flat Road	Signal	24.6	C	32.4	C
8	Diamond Springs Parkway @ Throwita Way	Signal	14.2	B	17.7	B
9	Diamond Springs Parkway @ Diamond Road (SR-49)	Signal	58.7	E	69.1	E
10	Diamond Road (SR-49) @ Truck Street	TWSC*	16.8 (EB)	C	19.1 (EB)	C
11	Diamond Road (SR-49) @ Bradley Drive	TWSC*	12.9 (EB)	B	13.1 (EB)	B
12	Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	TWSC*	18.8 (WB)	D	19.4 (EB)	C
13	Diamond Road (SR-49) @ Pleasant Valley Road (SR-49)	Signal	19.9	B	28.7	C
14	Pleasant Valley Road (SR-49) @ Missouri Flat Road	Signal	10.2	B	19.0	B
15	Pleasant Valley Road (SR-49) @ China Garden Road	TWSC*	19.7 (SB)	C	31.6 (SB)	D
16	Pleasant Valley Road @ Racquet Way	TWSC*	13.3 (SB)	B	21.8 (NB)	C
17	Pleasant Valley Road @ Canyon Valley Road	TWSC*	33.0 (NB)	D	27.2 (NB)	D
18	Pleasant Valley Road (SR-49) @ Koki Lane	Signal	46.6	D	25.5	C
19	Pleasant Valley Road (SR-49) @ Forni Road	TWSC*	**718.8 (SB)**	**F**	17.2 (SB)	C
20	Pleasant Valley Road (SR-49) @ Patterson Road	AWSC	**79.4**	**F**	**137.9**	**F**
21	Pleasant Valley Road (SR-49) @ SR-49 (South)	AWSC	**70.5**	**F**	**87.4**	**F**
22	Missouri Flat Road @ Industrial Drive	TWSC*	14.9 (EB)	B	22.1 (EB)	C
23	Ponderosa Road @ US-50 Eastbound Ramps	Signal	30.6	D	78.8	E
24	Ponderosa Road @ US-50 Westbound Ramps	Signal	16.8	B	26.1	C
25	Sacramento Street (SR-49) @ Skyline Drive	TWSC*	15.1 (EB)	B	19.2 (EB)	C
26	Sacramento Street (SR-49) @ Fiske Street	TWSC*	13.1 (WB)	B	17.8 (WB)	C
27	Sacramento Street (SR-49) @ Pacific Street (SR-49)	Signal	21.2	C	37.0	D
28	Missouri Flat Road @ Enterprise Drive	TWSC*	18.0 (EB)	C	39.8 (EB)	E
29	Missouri Flat Road @ China Garden Road	TWSC*	19.3 (WB)	C	29.6 (WB)	D
30	DSP @ Right-In/Right-Out Site Access Driveway	*Future Study Facility*				
31	DSP @ Right-In Site Access Driveway					
32	Diamond Road (SR-49) @ Site Access Driveway					

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County and/or Caltrans**

As indicated in Table 11, the study intersections operate from LOS B to LOS F during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in Appendix D.

Roadway Segments
Table 12 presents the peak-hour roadway segment operating conditions for this analysis scenario.

Table 12 – Existing plus Approved Projects (2015) Roadway Segment Levels of Service

#	Roadway Segment	Roadway Classification	PM Peak-Hour	
			Volume (vph)	LOS
1	Missouri Flat Road – Golden Center Drive to Diamond Springs Parkway	Four Lane Arterial, Divided	2108	D
2	Missouri Flat Road – Diamond Springs Parkway to China Garden Road	Two-Lane Arterial	1303	D
3	Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)	Two-Lane Arterial	1324	D
4	Diamond Road (SR-49) – Truck Street to Diamond Springs Parkway	Minor Two-Lane Highway	1007	D
5	Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road	Major Two-Lane Highway[+]	1550	D
6	Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)	Major Two-Lane Highway[+]	1236	D
7	Diamond Springs Parkway – Missouri Flat Road to Throwita Way	Two-Lane Arterial	1502	D
8	Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)	Two-Lane Arterial	1601	D
9	Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road	Minor Two-Lane Highway	1127	D
10	Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)	Minor Two-Lane Highway	1044	D
11	Pleasant Valley Road – Diamond Road (SR-49) to Racquet Way	Two-Lane Arterial	1271	D

[+] Per *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.

As indicated in Table 12, the study roadway segments operate at LOS D during the PM peak-hour. Analysis worksheets for this scenario are provided in Appendix D.

Freeway Mainline Segments
Table 13 presents the peak-hour freeway mainline operating for this analysis scenario.

Table 13 – Existing plus Approved Projects (2015) Freeway Mainline Levels of Service

Location	AM Peak-Hour			PM Peak-Hour		
	Total Volume	Flow Rate (pc/h/ln)	LOS	Total Volume	Flow Rate (pc/h/ln)	LOS
EB US-50, East of Missouri Flat Rd.	2464	935	B	3695	1403	C
WB US-50, East of Missouri Flat Rd.	3695	1403	C	2464	935	B
EB US-50, West of Missouri Flat Rd.	1946	1108	B	3347	1906	D
WB US-50, West of Missouri Flat Rd.	3059	1742	D	2016	1148	B

As indicated in Table 13, the US-50 freeway segments operate from LOS B to LOS D during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in Appendix D.

Freeway Merge/Diverge Segments
Table 14 presents the peak-hour freeway ramp operating conditions in the vicinity of the proposed project for this analysis scenario.

Table 14 – Existing plus Approved Projects (2015) Freeway Ramp Junction Levels of Service

Location	Junction Type	AM Peak-Hour			PM Peak-Hour		
		Total Volume	Density (pc/mi/ln)	LOS	Total Volume	Density (pc/mi/ln)	LOS
EB US-50 to Missouri Flat Rd.	Diverge	524	21.7	C	**839**	**35.4**	**E**
WB US-50 to Missouri Flat Rd.	MDA+	1203	21.6	C	1111	14.4	B
Missouri Flat Rd. to EB US-50	MMA++	1042	14.4	B	1187	21.6	C
Missouri Flat Rd. to WB US-50	Merge	**567**	**29.8**	**D**	663	20.5	C

Note: MMA = Major Merge Area, MDA = Major Diverge Area
+ Density computed for Major Diverge Area (MDA) per Equation 25-12, *Highway Capacity Manual (HCM) 2000*.
++ Density computed for Major Merge Area (MMA) per pages 25-7 to 25-10, *Highway Capacity Manual (HCM) 2000*.
Bold = Substandard per County and/or Caltrans

As indicated in Table 14, the existing US-50 freeway ramp junctions operate from LOS B to LOS E during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in Appendix D.

EXISTING PLUS APPROVED PROJECTS (2015) PLUS PROPOSED PROJECT CONDITIONS

Peak-hour traffic associated with the proposed project was added to the Existing plus Approved Projects (2015) traffic volumes, and levels of service were determined at the study facilities.

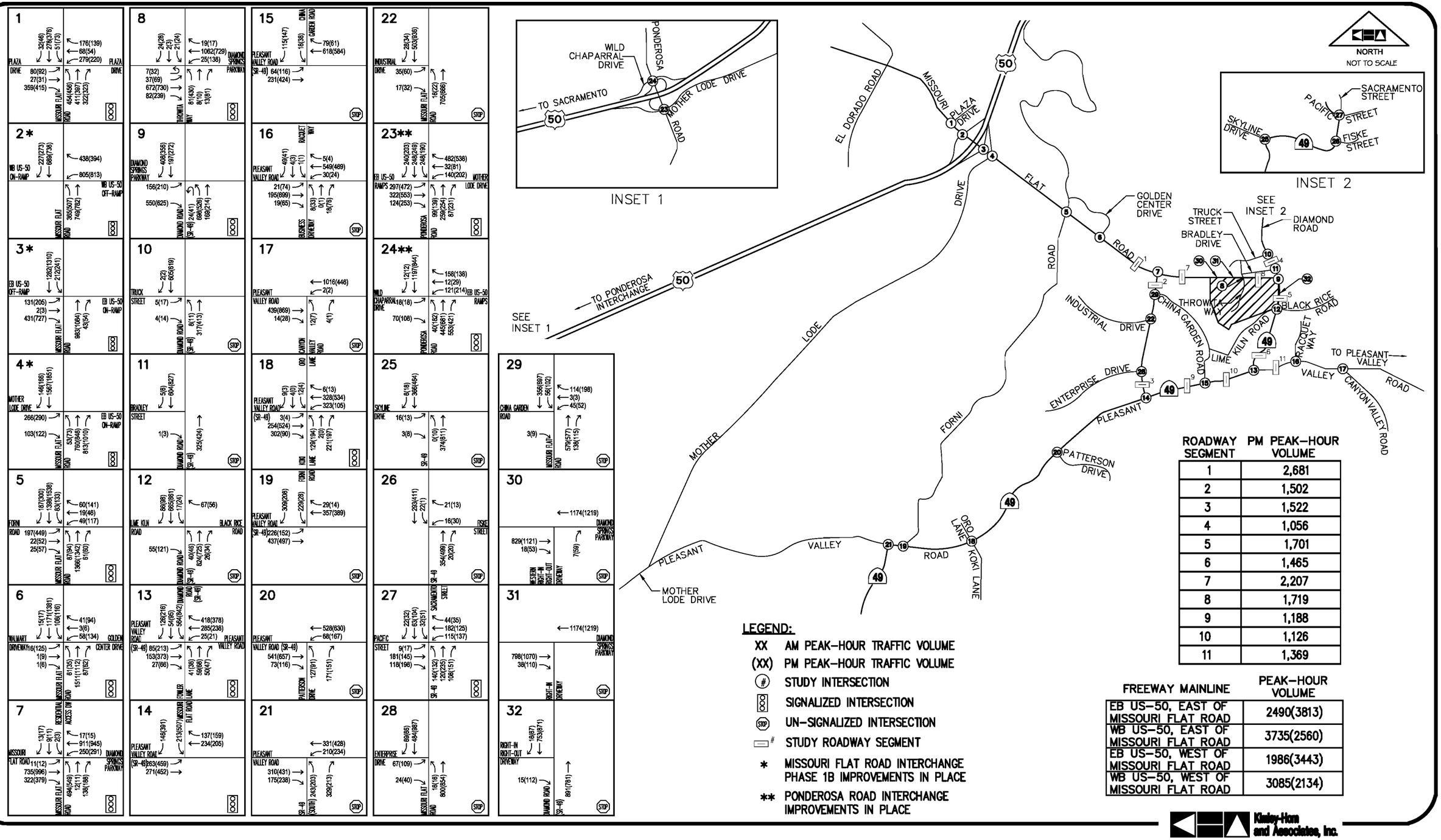
For this analysis scenario, the Existing plus Approved Projects (2015) traffic volumes were adjusted to account for the relocation of the MRF driveway from Throwita Way to Lime Kiln Road, and redistribution of a portion of the empty, outbound truck trips during the PM peak-hour (trips redistributed according to Figure 4). It should be noted that the industrial land use assumed in the County Travel Demand Model for the proposed project site was not subtracted from the proposed project trip generation for the EPAP plus Proposed Project Conditions. It is anticipated that the number of trips associated with the industrial land use will be small in 2015. Therefore, to be conservative, these volumes were left on the network.

Figure 13 provides the AM and PM traffic volumes for this analysis scenario. The analysis worksheets for this scenario are provided in Appendix E.

Intersections
Table 15 provides a summary of the intersection operating conditions for this analysis scenario. As indicated in Table 15, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours.

Roadway Segments
Table 16 presents the peak-hour roadway segment operating conditions for this analysis scenario. As indicated in Table 16, the study roadway segments operate from LOS D to LOS F during the PM peak-hour.

Freeway Mainline Segments
Table 17 presents the peak-hour freeway mainline operating for this analysis scenario. As indicated in Table 17, the US-50 freeway segments operate from LOS B to LOS D during the AM and PM peak-hours.



ROADWAY SEGMENT	PM PEAK-HOUR VOLUME
1	2,681
2	1,502
3	1,522
4	1,056
5	1,701
6	1,465
7	2,207
8	1,719
9	1,188
10	1,126
11	1,369

FREEWAY MAINLINE	PEAK-HOUR VOLUME
EB US-50, EAST OF MISSOURI FLAT ROAD	2490(3813)
WB US-50, EAST OF MISSOURI FLAT ROAD	3735(2560)
EB US-50, WEST OF MISSOURI FLAT ROAD	1986(3443)
WB US-50, WEST OF MISSOURI FLAT ROAD	3085(2134)

LEGEND:

- XX AM PEAK-HOUR TRAFFIC VOLUME
- (XX) PM PEAK-HOUR TRAFFIC VOLUME
- (#) STUDY INTERSECTION
- SIGNALIZED INTERSECTION
- UN-SIGNALIZED INTERSECTION
- # STUDY ROADWAY SEGMENT
- * MISSOURI FLAT ROAD INTERCHANGE PHASE 1B IMPROVEMENTS IN PLACE
- ** PONDEROSA ROAD INTERCHANGE IMPROVEMENTS IN PLACE

Kimley-Horn and Associates, Inc.

FIGURE 13

EXISTING PLUS APPROVED PROJECTS (2015) PLUS PROPOSED PROJECT PEAK-HOUR TRAFFIC VOLUMES

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

Table 15 – Existing plus Approved Projects (2015) plus Proposed Project Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Missouri Flat Road @ Plaza Drive	Signal	36.4	D	42.7	D
2	Missouri Flat Road @ US-50 Westbound Ramps	Signal	22.9	C	27.3	C
3	Missouri Flat Road @ US-50 Eastbound Ramps	Signal	19.8	B	34.3	C
4	Missouri Flat Road @ Mother Lode Drive	Signal	13.8	B	24.5	C
5	Missouri Flat Road @ Forni Road	Signal	25.0	C	63.5	E
6	Missouri Flat Road @ Golden Center Drive	Signal	18.3	B	28.4	C
7	Diamond Springs Parkway @ Missouri Flat Road	Signal	30.3	C	52.5	D
8	Diamond Springs Parkway @ Throwita Way	Signal	16.5	B	55.3	E
9	Diamond Springs Parkway @ Diamond Road (SR-49)	Signal	62.3	E	52.7	D
10	Diamond Road (SR-49) @ Truck Street	TWSC*	17.0 (EB)	C	20.2 (EB)	C
11	Diamond Road (SR-49) @ Bradley Drive	TWSC*	13.0 (EB)	B	13.4 (EB)	B
12	Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	TWSC*	19.6 (EB)	C	30.3 (EB)	E
13	Diamond Road (SR-49) @ Pleasant Valley Road (SR-49)	Signal	21.3	C	38.4	D
14	Pleasant Valley Road (SR-49) @ Missouri Flat Road	Signal	10.1	B	20.2	B
15	Pleasant Valley Road (SR-49) @ China Garden Road	TWSC*	21.1 (SB)	C	40.1 (SB)	E
16	Pleasant Valley Road @ Racquet Way	TWSC*	13.5 (SB)	B	24.4 (NB)	C
17	Pleasant Valley Road @ Canyon Valley Road	TWSC*	34.4 (NB)	D	30.9 (NB)	D
18	Pleasant Valley Road (SR-49) @ Koki Lane	Signal	46.8	D	29.6	C
19	Pleasant Valley Road (SR-49) @ Forni Road	TWSC*	**793.8 (SB)**	**F**	24.1 (SB)	C
20	Pleasant Valley Road (SR-49) @ Patterson Road	AWSC	**93.3**	**F**	**194.7**	**F**
21	Pleasant Valley Road (SR-49) @ SR-49 (South)	AWSC	**73.0**	**F**	**107.2**	**F**
22	Missouri Flat Road @ Industrial Drive	TWSC*	15.7 (EB)	C	26.8 (EB)	D
23	Ponderosa Road @ US-50 Eastbound Ramps	Signal	30.5	C	78.5	E
24	Ponderosa Road @ US-50 Westbound Ramps	Signal	16.9	B	25.9	C
25	Sacramento Street (SR-49) @ Skyline Drive	TWSC*	15.4 (EB)	C	20.3 (EB)	C
26	Sacramento Street (SR-49) @ Fiske Street	TWSC*	13.2 (WB)	B	18.9 (WB)	C
27	Sacramento Street (SR-49) @ Pacific Street (SR-49)	Signal	22.1	C	39.0	D
28	Missouri Flat Road @ Enterprise Drive	TWSC*	18.9 (EB)	C	**51.7 (EB)**	**F**
29	Missouri Flat Road @ China Garden Road	TWSC*	21.3 (WB)	C	44.2 (WB)	E
30	DSP @ Right-In/Right-Out Site Access Driveway	TWSC*	18.6 (NB)	C	40.4 (NB)	E
31	DSP @ Right-In Site Access Driveway	TWSC*	0.0 (EB)	A	0.0 (EB)	A
32	Diamond Road (SR-49) @ Site Access Driveway	TWSC*	17.1 (EB)	C	33.1 (EB)	D

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County and/or Caltrans**

Table 16 – Existing plus Approved Projects (2015) plus Proposed Project Roadway Segment Levels of Service

#	Roadway Segment	Roadway Classification	PM Peak-Hour	
			Volume (vph)	LOS
1	Missouri Flat Road – Golden Center Drive to Diamond Springs Parkway	Four Lane Arterial, Divided	2681	D
2	Missouri Flat Road – Diamond Springs Parkway to China Garden Road	Two-Lane Arterial	1502	D
3	Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)	Two-Lane Arterial	1522	D
4	Diamond Road (SR-49) – Truck Street to Diamond Springs Parkway	Minor Two-Lane Highway	1056	D
5	Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road	Major Two-Lane Highway[+]	**1701**	**E**
6	Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)	Major Two-Lane Highway[+]	1465	D
7	Diamond Springs Parkway – Missouri Flat Road to Throwita Way	Two-Lane Arterial	**2207**	**F**
8	Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)	Two-Lane Arterial	1719	D
9	Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road	Minor Two-Lane Highway	1188	D
10	Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)	Minor Two-Lane Highway	1126	D
11	Pleasant Valley Road – Diamond Road (SR-49) to Racquet Way	Two-Lane Arterial	1369	D

[+] Per *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010. **Bold = Substandard per County and/or Caltrans**

Table 17 – Existing plus Approved Projects (2015) plus Proposed Project Freeway Mainline Levels of Service

Location	AM Peak-Hour			PM Peak-Hour		
	Total Volume	Flow Rate (pc/h/ln)	LOS	Total Volume	Flow Rate (pc/h/ln)	LOS
EB US-50, East of Missouri Flat Rd.	2490	945	B	3813	1448	C
WB US-50, East of Missouri Flat Rd.	3735	1418	C	2560	972	B
EB US-50, West of Missouri Flat Rd.	1986	1131	B	3443	1961	D
WB US-50, West of Missouri Flat Rd.	3085	1757	D	2134	1215	C

Freeway Merge/Diverge Segments

Table 18 presents the peak-hour freeway ramp operating conditions in the vicinity of the proposed project for this analysis scenario. As indicated in Table 18, the existing US-50 freeway ramp junctions operate from LOS B to LOS D during the AM and PM peak-hours.

Table 18 – Existing plus Approved Projects (2015) plus
Proposed Project Freeway Ramp Junction Levels of Service

Location	Junction Type	AM Peak-Hour			PM Peak-Hour		
		Total Volume	Density (pc/mi/ln)	LOS	Total Volume	Density (pc/mi/ln)	LOS
EB US-50 to Missouri Flat Rd.	Diverge	564	22.1	C	**935**	**36.4**	**E**
WB US-50 to Missouri Flat Rd.	MDA+	1243	21.8	C	1207	14.9	B
Missouri Flat Rd. to EB US-50	MMA++	1068	14.5	B	1305	22.3	C
Missouri Flat Rd. to WB US-50	Merge	**593**	**30.1**	**D**	781	21.5	C

Note: MMA = Major Merge Area, MDA = Major Diverge Area
+ Density computed for Major Diverge Area (MDA) per Equation 25-12, *Highway Capacity Manual (HCM) 2000*.
++ Density computed for Major Merge Area (MMA) per pages 25-7 to 25-10, *Highway Capacity Manual (HCM) 2000*.
Bold = Substandard per County and/or Caltrans

CUMULATIVE (2025) CONDITIONS

As specified by a representative of the County[22], straight line interpolation was performed between the DSP 2020 and 2030 analysis year volumes to approximate year 2025 conditions for this analysis scenario. For the intersections outside of the Diamond Springs Parkway Study Area (west of Missouri Flat Road on Pleasant Valley Road (SR-49), east of Racquet Way on Pleasant Valley Road, and north of Truck Street on Diamond Road (SR-49)) a growth rate was used to determine future traffic volumes. The growth rate for each approach was calculated based on existing (1998) and 2025 model volumes. Phase 2 of the US-50/Missouri Flat Road interchange is assumed to be completed with this scenario. Phase 2 of the interchange improvements will result in construction of a single point urban interchange (SPUI). The SPUI will result in the removal of the signal at each of the east- and westbound off-ramp intersections. The off-ramp signals will be replaced by one centralized signal.

Additionally, this scenario also incorporates the implementation of the Diamond Springs Parkway with year 2020 mitigations for both LOS and queuing[23]. As was the case for the Existing plus Approved Projects (2015) analysis scenario, these improvements are generally described as including a 2-lane Parkway, a 2-lane SR-49 (Diamond Road), and an unsignalized SR-49/Lime Kiln with access restrictions. Lane geometries for the reconfigured study intersections are shown in Figure 14. Appendix C provides a tabular summary of these mitigations.

Figure 15 provides the AM and PM traffic volumes for this analysis scenario. Analysis worksheets for this scenario are provided in Appendix F.

Intersections
Table 19 provides a summary of the intersection operating conditions for this analysis scenario. As indicated in Table 19, the study intersections operate from LOS B to LOS F during the AM and PM peak-hours.

Roadway Segments
Table 20 presents the peak-hour roadway segment operating conditions for this analysis scenario. As indicated in Table 20, the study roadway segments operate from LOS D to LOS E during the PM peak-hour.

Freeway Mainline Segments
Table 21 presents the peak-hour freeway mainline operating for this analysis scenario. As indicated in Table 21, the US-50 freeway segments operate from LOS B to LOS D during the AM and PM peak-hours.

[22] Memorandum from Abhi Parikh, Dowling Associates, Inc., to Eileen Crawford, El Dorado County DOT, June 11, 2009.
[23] *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.

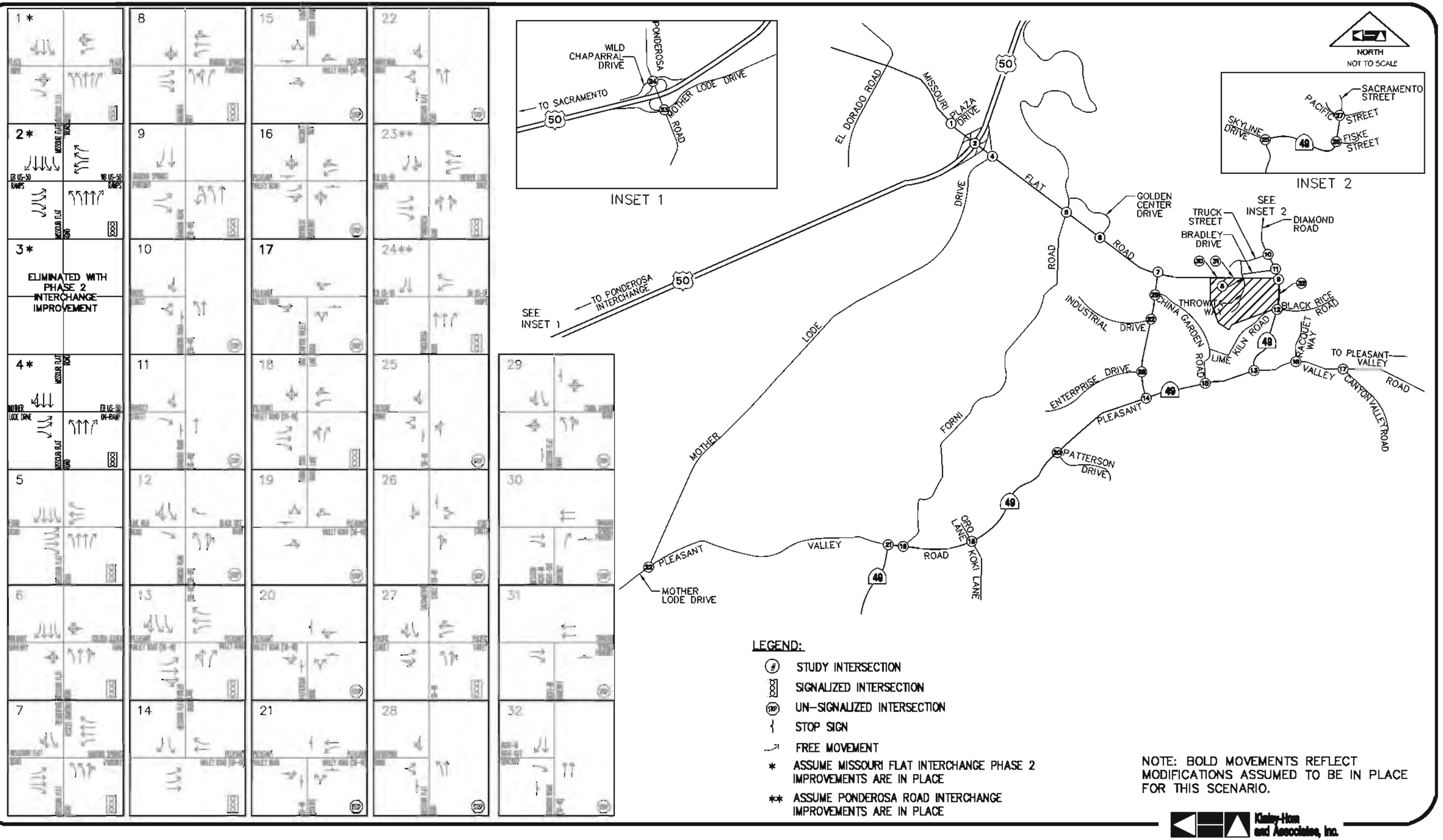
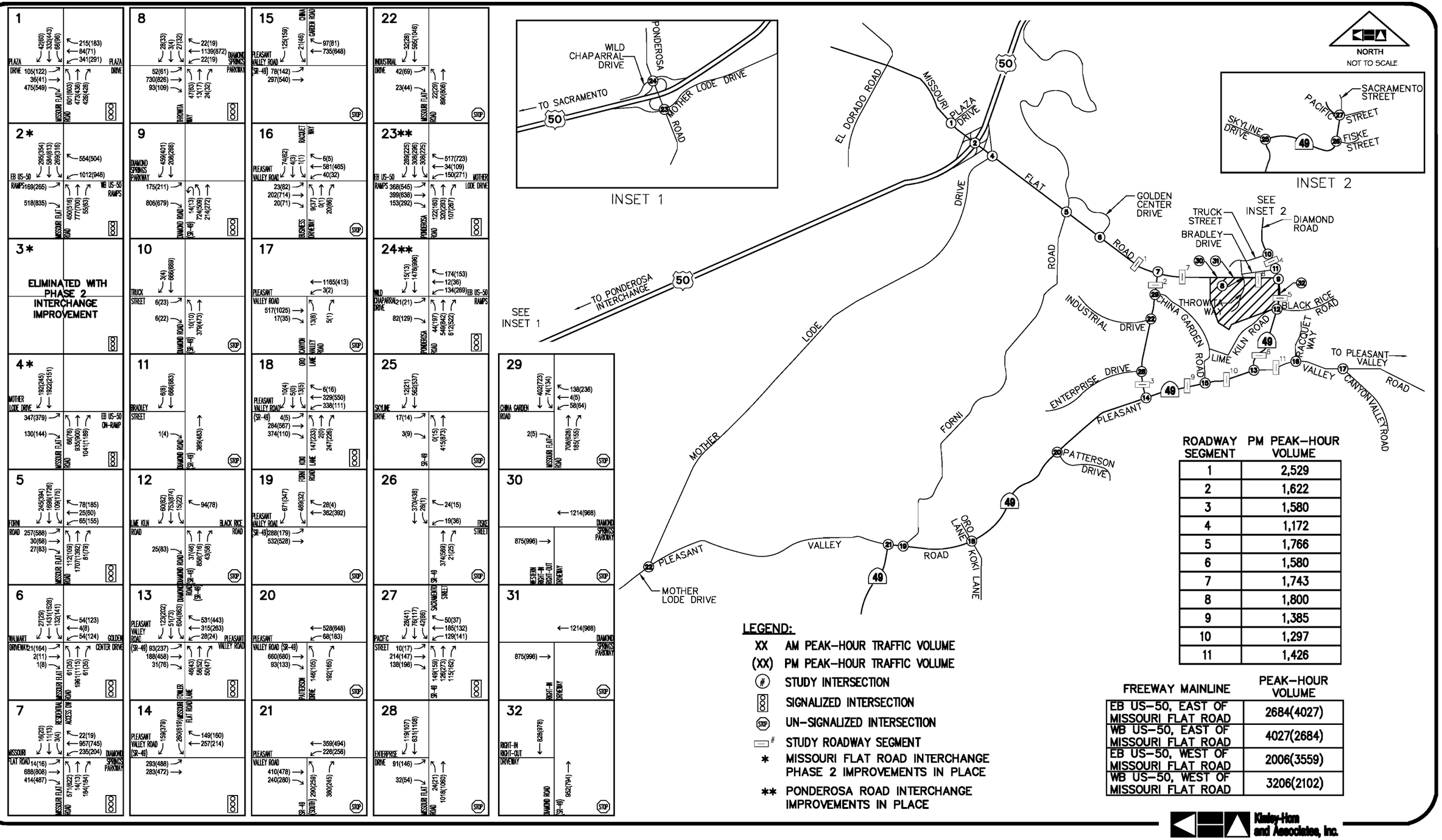


FIGURE 14

CUMULATIVE (2025) INTERSECTION CONFIGURATIONS

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA



ROADWAY SEGMENT	PM PEAK-HOUR VOLUME
1	2,529
2	1,622
3	1,580
4	1,172
5	1,766
6	1,580
7	1,743
8	1,800
9	1,385
10	1,297
11	1,426

FREEWAY MAINLINE	PEAK-HOUR VOLUME
EB US-50, EAST OF MISSOURI FLAT ROAD	2684(4027)
WB US-50, EAST OF MISSOURI FLAT ROAD	4027(2684)
EB US-50, WEST OF MISSOURI FLAT ROAD	2006(3559)
WB US-50, WEST OF MISSOURI FLAT ROAD	3206(2102)

LEGEND:

- XX AM PEAK-HOUR TRAFFIC VOLUME
- (XX) PM PEAK-HOUR TRAFFIC VOLUME
- (#) STUDY INTERSECTION
- SIGNALIZED INTERSECTION
- (STOP) UN-SIGNALIZED INTERSECTION
- # STUDY ROADWAY SEGMENT
- * MISSOURI FLAT ROAD INTERCHANGE PHASE 2 IMPROVEMENTS IN PLACE
- ** PONDEROSA ROAD INTERCHANGE IMPROVEMENTS IN PLACE

Kimley-Horn and Associates, Inc.

FIGURE 15

CUMULATIVE (2025) PEAK-HOUR TRAFFIC VOLUMES

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

Table 19 – Cumulative (2025) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Missouri Flat Road @ Plaza Drive	Signal	45.5	D	55.7	E
2	Missouri Flat Road @ US-50 EB/WB Ramps	Signal	71.8	E	77.7	E
3	Missouri Flat Road @ US-50 Eastbound Ramps	Signal	*Intersection Eliminated w/ Phase 2 of Interchange*			
4	Missouri Flat Road @ Mother Lode Drive	Signal	13.2	B	18.0	B
5	Missouri Flat Road @ Forni Road	Signal	73.1	E	**109.0**	**F**
6	Missouri Flat Road @ Golden Center Drive	Signal	45.8	D	34.6	C
7	Diamond Springs Parkway @ Missouri Flat Road	Signal	31.3	C	33.4	C
8	Diamond Springs Parkway @ Throwita Way	Signal	20.3	C	22.8	C
9	Diamond Springs Parkway @ Diamond Road (SR-49)	Signal	58.8	E	45.1	D
10	Diamond Road (SR-49) @ Truck Street	TWSC*	18.9 (EB)	C	24.2 (EB)	C
11	Diamond Road (SR-49) @ Bradley Drive	TWSC*	13.8 (EB)	B	14.1 (WB)	B
12	Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	TWSC*	16.4 (EB)	C	25.0 (EB)	D
13	Diamond Road (SR-49) @ Pleasant Valley Road (SR-49)	Signal	22.3	C	43.2	D
14	Pleasant Valley Road (SR-49) @ Missouri Flat Road	Signal	13.4	B	28.4	C
15	Pleasant Valley Road (SR-49) @ China Garden Road	TWSC*	32.3 (SB)	D	**121.6 (SB)**	**F**
16	Pleasant Valley Road @ Racquet Way	TWSC*	14.6 (SB)	B	28.7 (NB)	D
17	Pleasant Valley Road @ Canyon Valley Road	TWSC*	49.1 (NB)	E	37.8 (NB)	E
18	Pleasant Valley Road (SR-49) @ Koki Lane	Signal	51.0	D	44.7	D
19	Pleasant Valley Road (SR-49) @ Forni Road	TWSC*	**>900 (SB)**	**F**	**52.9 (SB)**	**F**
20	Pleasant Valley Road (SR-49) @ Patterson Road	AWSC	**154.4**	**F**	**228.8**	**F**
21	Pleasant Valley Road (SR-49) @ SR-49 (South)	AWSC	**148.6**	**F**	**167.0**	**F**
22	Missouri Flat Road @ Industrial Drive	TWSC*	19.3 (EB)	C	39.6 (EB)	E
23	Ponderosa Road @ US-50 Eastbound Ramps	Signal	42.6	D	**127.9**	**F**
24	Ponderosa Road @ US-50 Westbound Ramps	Signal	20.7	C	30.3	C
25	Sacramento Street (SR-49) @ Skyline Drive	TWSC*	20.3 (EB)	C	31.4 (EB)	D
26	Sacramento Street (SR-49) @ Fiske Street	TWSC*	14.6 (WB)	B	23.0 (WB)	C
27	Sacramento Street (SR-49) @ Pacific Street (SR-49)	Signal	24.5	C	40.1	D
28	Missouri Flat Road @ Enterprise Drive	TWSC*	31.5 (EB)	D	**182.6 (EB)**	**F**
29	Missouri Flat Road @ China Garden Road	TWSC*	38.4 (WB)	E	**115.8 (WB)**	**F**
30	DSP @ Right-In/Right-Out Site Access Driveway	*Future Study Facility*				
31	DSP @ Right-In Site Access Driveway					
32	Diamond Road (SR-49) @ Site Access Driveway					

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County and/or Caltrans**

Table 20 – Cumulative (2025) Roadway Segment Levels of Service

#	Roadway Segment	Roadway Classification	PM Peak-Hour	
			Volume (vph)	LOS
1	Missouri Flat Road – Golden Center Drive to Diamond Springs Parkway	Four Lane Arterial, Divided+	2529	D
2	Missouri Flat Road – Diamond Springs Parkway to China Garden Road	Two-Lane Arterial	1622	D
3	Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)	Two-Lane Arterial+	1580	D
4	Diamond Road (SR-49) – Truck Street to Diamond Springs Parkway	Minor Two-Lane Highway	1172	D
5	Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road	Major Two-Lane Highway	**1766**	**E**
6	Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)	Major Two-Lane Highway+	1580	D
7	Diamond Springs Parkway – Missouri Flat Road to Throwita Way	Two-Lane Arterial+	1743	D
8	Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)	Two-Lane Arterial	1800	E
9	Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road	Minor Two-Lane Highway+	1385	D
10	Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)	Minor Two-Lane Highway	1297	D
11	Pleasant Valley Road – Diamond Road (SR-49) to Racquet Way	Two-Lane Arterial+	1426	D

+ Per *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010. **Bold = Substandard per County and/or Caltrans**

Table 21 – Cumulative (2025) Freeway Mainline Levels of Service

Location	AM Peak-Hour			PM Peak-Hour		
	Total Volume	Flow Rate (pc/h/ln)	LOS	Total Volume	Flow Rate (pc/h/ln)	LOS
EB US-50, East of Missouri Flat Rd.	2684	1014	B	4027	1521	C
WB US-50, East of Missouri Flat Rd.	4027	1524	C	2684	1014	B
EB US-50, West of Missouri Flat Rd.	2006	758	B	3559	1345	C
WB US-50, West of Missouri Flat Rd.	3206	1817	D	2102	1191	C

Freeway Merge/Diverge Segments

Table 22 presents the peak-hour freeway ramp operating conditions in the vicinity of the proposed project for this analysis scenario. As indicated in Table 22, the existing US-50 freeway ramp junctions operate from LOS B to LOS D during the AM and PM peak-hours.

Table 22 – Cumulative (2025) Freeway Ramp Junction Levels of Service

Location	Junction Type	AM Peak-Hour			PM Peak-Hour		
		Total Volume	Density (pc/mi/ln)	LOS	Total Volume	Density (pc/mi/ln)	LOS
EB US-50 to Missouri Flat Rd.	MDA+	687	11.7	B	1100	20.8	C
WB US-50 to Missouri Flat Rd.	MDA+	1566	23.5	C	1452	15.7	B
Missouri Flat Rd. to EB US-50	MMA++	1365	15.6	B	1568	23.4	C
Missouri Flat Rd. to WB US-50	Merge	**745**	**30.9**	**D**	870	21.1	C

Note: **Bold = Substandard per County and/or Caltrans**
MMA = Major Merge Area
MDA = Major Diverge Area
+ Density computed for Major Diverge Area (MDA) per Equation 25-12, *Highway Capacity Manual (HCM) 2000*.
++ Density computed for Major Merge Area (MMA) per pages 25-7 to 25-10, *Highway Capacity Manual (HCM) 2000*.

CUMULATIVE (2025) PLUS PROPOSED PROJECT CONDITIONS

Peak-hour traffic associated with the proposed project was added to the Cumulative (2025) traffic volumes, and levels of service were determined at the study facilities. As previously noted, the project site is designated for industrial uses by the County General Plan. As such, trips from the industrial land uses were deducted from the roadway network prior to adding trips for the proposed project (per Figure 8).

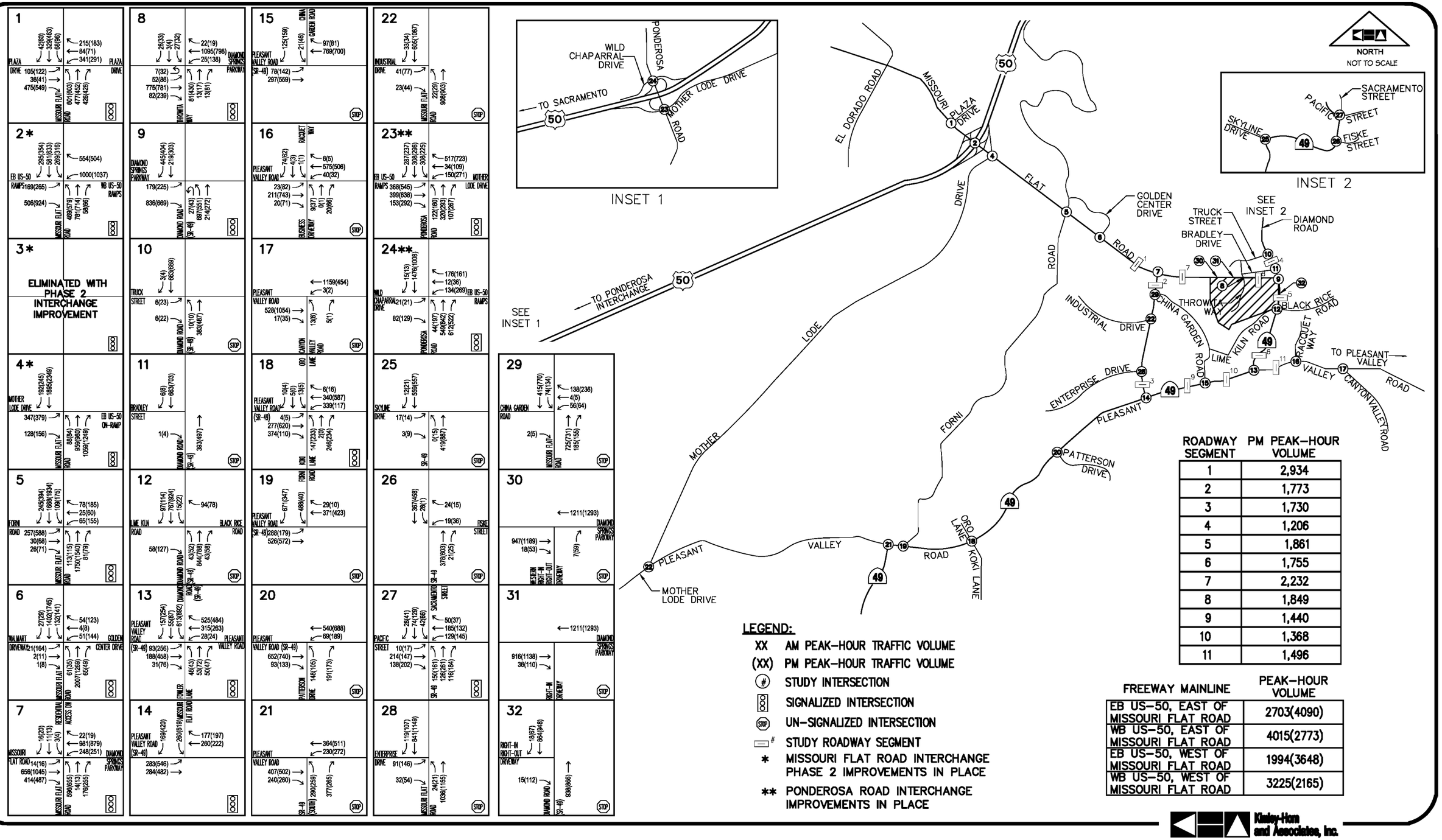
Figure 16 provides the AM and PM traffic volumes for this analysis scenario. Analysis worksheets for this scenario are provided in Appendix G.

Intersections
Table 23provides a summary of the intersection operating conditions for this analysis scenario. As indicated in Table 23, the study intersections operate from LOS B to LOS F during the AM and PM peak-hours.

Roadway Segments
Table 24 presents the peak-hour roadway segment operating conditions for this analysis scenario. As indicated in Table 24, the study roadway segments operate from LOS D to LOS F during the PM peak-hour.

Freeway Mainline Segments
Table 25 presents the peak-hour freeway mainline operating for this analysis scenario. As indicated in Table 25, the US-50 freeway segments operate from LOS C to LOS D during the AM and PM peak-hours.

Freeway Merge/Diverge Segments
Table 26 presents the peak-hour freeway ramp operating conditions in the vicinity of the proposed project for this analysis scenario. As indicated in Table 26, the existing US-50 freeway ramp junctions operate from LOS C to LOS D during the AM and PM peak-hours.



ROADWAY SEGMENT	PM PEAK-HOUR VOLUME
1	2,934
2	1,773
3	1,730
4	1,206
5	1,861
6	1,755
7	2,232
8	1,849
9	1,440
10	1,368
11	1,496

FREEWAY MAINLINE	PEAK-HOUR VOLUME
EB US-50, EAST OF MISSOURI FLAT ROAD	2703(4090)
WB US-50, EAST OF MISSOURI FLAT ROAD	4015(2773)
EB US-50, WEST OF MISSOURI FLAT ROAD	1994(3648)
WB US-50, WEST OF MISSOURI FLAT ROAD	3225(2165)

Kimley-Horn and Associates, Inc.

FIGURE 16

CUMULATIVE (2025) PLUS PROPOSED PROJECT PEAK-HOUR TRAFFIC VOLUMES

Table 23 – Cumulative (2025) plus Proposed Project Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Missouri Flat Road @ Plaza Drive	Signal	45.3	D	56.9	E
2	Missouri Flat Road @ US-50 EB/WB Ramps	Signal	70.4	E	**98.8**	**F**
3	Missouri Flat Road @ US-50 Eastbound Ramps	Signal	*Intersection Eliminated w/ Phase 2 of Interchange*			
4	Missouri Flat Road @ Mother Lode Drive	Signal	13.4	B	31.1	C
5	Missouri Flat Road @ Forni Road	Signal	75.0	E	**151.5**	**F**
6	Missouri Flat Road @ Golden Center Drive	Signal	50.8	D	63.4	E
7	Diamond Springs Parkway @ Missouri Flat Road	Signal	33.0	C	53.8	D
8	Diamond Springs Parkway @ Throwita Way	Signal	21.4	C	60.3	E
9	Diamond Springs Parkway @ Diamond Road (SR-49)	Signal	55.5	E	41.0	D
10	Diamond Road (SR-49) @ Truck Street	TWSC*	19.0 (EB)	C	25.5 (EB)	D
11	Diamond Road (SR-49) @ Bradley Drive	TWSC*	13.7 (EB)	B	14.4 (EB)	B
12	Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	TWSC*	18.8 (EB)	C	39.4 (EB)	E
13	Diamond Road (SR-49) @ Pleasant Valley Road (SR-49)	Signal	22.5	C	51.1	D
14	Pleasant Valley Road (SR-49) @ Missouri Flat Road	Signal	12.7	B	34.0	C
15	Pleasant Valley Road (SR-49) @ China Garden Road	TWSC*	35.5 (SB)	E	**165.5 (SB)**	**F**
16	Pleasant Valley Road @ Racquet Way	TWSC*	14.5 (SB)	B	31.6 (NB)	D
17	Pleasant Valley Road @ Canyon Valley Road	TWSC*	49.4 (NB)	E	41.9 (NB)	E
18	Pleasant Valley Road (SR-49) @ Koki Lane	Signal	51.1	D	59.6	E
19	Pleasant Valley Road (SR-49) @ Forni Road	TWSC*	**>900 (SB)**	**F**	**95.7 (SB)**	**F**
20	Pleasant Valley Road (SR-49) @ Patterson Road	AWSC	**154.0**	**F**	**271.7**	**F**
21	Pleasant Valley Road (SR-49) @ SR-49 (South)	AWSC	**146.9**	**F**	**182.1**	**F**
22	Missouri Flat Road @ Industrial Drive	TWSC*	19.5 (EB)	C	**50.1 (EB)**	**F**
23	Ponderosa Road @ US-50 Eastbound Ramps	Signal	42.7	D	**127.5**	**F**
24	Ponderosa Road @ US-50 Westbound Ramps	Signal	20.7	C	30.6	C
25	Sacramento Street (SR-49) @ Skyline Drive	TWSC*	20.4 (EB)	C	33.1 (EB)	D
26	Sacramento Street (SR-49) @ Fiske Street	TWSC*	14.6 (WB)	B	24.1 (WB)	C
27	Sacramento Street (SR-49) @ Pacific Street (SR-49)	Signal	24.6	C	41.8	D
28	Missouri Flat Road @ Enterprise Drive	TWSC*	32.6 (EB)	D	**227.7 (EB)**	**F**
29	Missouri Flat Road @ China Garden Road	TWSC*	40.8 (WB)	E	**179.0 (WB)**	**F**
30	DSP @ Right-In/Right-Out Site Access Driveway	TWSC*	21.7 (NB)	C	47.9 (NB)	E
31	DSP @ Right-In Site Access Driveway	TWSC*	0.0 (EB)	A	0.0 (EB)	A
32	Diamond Road (SR-49) @ Site Access Driveway	TWSC*	20.2 (EB)	C	43.7 (EB)	E

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County and/or Caltrans**

Table 24 – Cumulative (2025) plus Proposed Project Roadway Segment Levels of Service

#	Roadway Segment	Roadway Classification	PM Peak-Hour	
			Volume (vph)	LOS
1	Missouri Flat Road – Golden Center Drive to Diamond Springs Parkway	Four Lane Arterial, Divided	2934	D
2	Missouri Flat Road – Diamond Springs Parkway to China Garden Road	Two-Lane Arterial	1773	E
3	Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)	Two-Lane Arterial	1730	D
4	Diamond Road (SR-49) – Truck Street to Diamond Springs Parkway	Minor Two-Lane Highway	1206	D
5	Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road	Major Two-Lane Highway	**1861**	**E**
6	Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)	Major Two-Lane Highway	**1755**	**E**
7	Diamond Springs Parkway – Missouri Flat Road to Throwita Way	Two-Lane Arterial	**2232**	**F**
8	Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)	Two-Lane Arterial	1849	E
9	Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road	Minor Two-Lane Highway	**1440**	**E**
10	Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)	Minor Two-Lane Highway	1368	D
11	Pleasant Valley Road – Diamond Road (SR-49) to Racquet Way	Two-Lane Arterial	1496	D

Bold = Substandard per County and/or Caltrans

Table 25 – Cumulative (2025) plus Proposed Project Freeway Mainline Levels of Service

Location	AM Peak-Hour			PM Peak-Hour		
	Total Volume	Flow Rate (pc/h/ln)	LOS	Total Volume	Flow Rate (pc/h/ln)	LOS
EB US-50, East of Missouri Flat Rd.	2703	1021	B	4090	1545	C
WB US-50, East of Missouri Flat Rd.	4015	1517	C	2773	1048	B
EB US-50, West of Missouri Flat Rd.	1994	761	B	3648	1392	C
WB US-50, West of Missouri Flat Rd.	3225	1828	D	2165	1227	C

Table 26 – Cumulative (2025) plus Proposed Project Freeway Ramp Junction Levels of Service

Location	Junction Type	AM Peak-Hour			PM Peak-Hour		
		Total Volume	Density (pc/mi/ln)	LOS	Total Volume	Density (pc/mi/ln)	LOS
EB US-50 to Missouri Flat Rd.	MDA+	675	11.6	B	1189	21.3	C
WB US-50 to Missouri Flat Rd.	MDA+	1554	23.4	C	1541	16.2	B
Missouri Flat Rd. to EB US-50	MMA++	1384	15.7	B	1631	23.8	C
Missouri Flat Rd. to WB US-50	Merge	**764**	**31.1**	**D**	933	21.6	C

Note: **Bold = Substandard per County and/or Caltrans**
MMA = Major Merge Area
MDA = Major Diverge Area
+ Density computed for Major Diverge Area (MDA) per Equation 25-12, *Highway Capacity Manual (HCM) 2000.*
++ Density computed for Major Merge Area (MMA) per pages 25-7 to 25-10, *Highway Capacity Manual (HCM) 2000.*

IMPACTS AND MITIGATION

Standards of Significance

Project impacts were determined by comparing conditions with the proposed project to those without the project. Impacts for intersections are created when traffic from the proposed project forces the LOS to fall below a specific threshold.

The County's standards[24] specify the following:

> "Level of Service (LOS) for County-maintained roads and State highways within the unincorporated areas of the County *shall not be worse than LOS E in the Community Regions*." (El Dorado County General Plan Policy TC-Xd) The proposed project is located within the El Dorado/Diamond Springs Community Region.
>
> "If a project causes the peak-hour level of service…on a County road or State highway that would otherwise meet the County standards (without the project) to exceed the [given] values, then the impact shall be considered significant."
>
> "If any county road or state highway fails to meet the [given] standards for peak hour level of service…under existing conditions, and the project will 'significantly worsen' conditions on the road or highway, then the impact shall be considered significant." According to General Plan Policy TC-Xe[25], 'significantly worsen' is defined as "a 2 percent increase in traffic during the a.m. peak hour, p.m. peak hour, or daily, or the addition of 100 or more daily trips, or the addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour."

The Caltrans District 3 standard of significance was applied to intersections on SR-49 and at the Missouri Flat Road interchange. The following LOS requirement was used for Caltrans facilities:

> "The District 3 standard for average delay at signalized intersections, in most areas, is LOS D on an hourly basis, or LOS E for the peak 15 minutes. For all-way stop intersections and roundabouts, this standard should be used for each approach… For signals in high speed areas, the standard is LOS C on an hourly basis, or LOS D for the peak 15 minutes.[26]"

Due to the characteristics of SR-49 in the vicinity of the project, the roadway is not considered to be a high speed facility. SR-49 within the Diamond Springs area has a posted speed of 25 mph west of Diamond Road (SR-49), and SR-49 is in mountainous terrain with numerous turns and changes in elevation north of Pleasant Valley Road. In addition, the freeway ramps are not located in high speed areas, therefore, LOS E threshold for the peak 15 minutes should apply.

In summary, **LOS E** will be used for all study intersections (County and Caltrans) and all County roadway segments. **LOS D** will be applied to all SR-49 roadway segments. Finally, **LOS D** will be used as the significance threshold for the US-50 mainline and **LOS C** will be used for Merge/Diverge Segments[27].

[24] *Traffic Impact Study Protocols and Procedures,* El Dorado County Department of Transportation, June 2008.
[25] *El Dorado County General Plan, Transportation and Circulation Element*, July 2004.
[26] Email from Teresa Limon, Caltrans, to Jennifer Maxwell, El Dorado County DOT, September 3, 2008.
[27] Email from Teresa Limon, Caltrans, to Matt Weir, Kimley-Horn and Associates, Inc., November 12, 2009.

Impacts and Mitigation

Existing plus Approved Projects (2015) plus Proposed Project Conditions

As reflected in Table 15 through Table 18, the addition of the proposed project results in four (4) significant impacts as defined by the County and/or Caltrans. The following is a discussion of each of these impacts and their associated mitigations. Analysis worksheets for this scenario are provided in Appendix H.

Impacts:

Intersections

I1. *Intersection #19, Pleasant Valley Road (SR-49) @ Forni Road*
As shown in Table 11 and Table 15, this intersection operates at LOS F during the AM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 7) during a peak-hour. ***This is a significant impact.***

I2. *Intersection #20, Pleasant Valley Road (SR-49) @ Patterson Road*
As shown in Table 11 and Table 15, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 7) during a peak-hour. ***This is a significant impact.***

I3. *Intersection #21, Pleasant Valley Road (SR-49) @ SR-49 (South)*
As shown in Table 11 and Table 15, this intersection operates at LOS F during the AM and PM peak-hour without the project and the project contributes more than 10 peak-hour trips to the intersection (Figure 7) during a peak-hour. ***This is a significant impact.***

I4. *Intersection #28, Missouri Flat Road @ Enterprise Drive*
As shown in Table 11 and Table 15, this intersection operates at LOS E during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

Roadway Segments

I5. *Roadway Segment #5, Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road*
As shown in Table 12 and Table 16, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact.***

I6. *Roadway Segment #*7, Diamond Springs Parkway – Missouri Flat Road to Throwita Way
As shown in Table 12 and Table 16, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

Freeway Mainline

None.

Freeway Ramp Junctions

I7. *Eastbound US-50, to Missouri Flat Road*
As shown in Table 14 and Table 18, the addition of the proposed project increases the volume and density on a freeway ramp junction which operates at an unacceptable level without the proposed project. The nominal increase in freeway volume and density attributed to the proposed project is not expected to result in a noticeable change in freeway operating conditions. As a result, the addition of the proposed project results in impacts which are ***less than significant.***

I8. *Missouri Flat Road to Westbound US-50*
As shown in Table 14 and Table 18, the addition of the proposed project increases the volume and density on a freeway ramp junction which operates at an unacceptable level without the proposed project. The nominal increase in freeway volume and density attributed to the proposed project is not expected to result in a noticeable change in freeway operating conditions. As a result, the addition of the proposed project results in impacts which are ***less than significant.***

Mitigation:

Intersections

M1. Intersection #19, Pleasant Valley Road (SR-49) @ Forni Road

The significant impact at this intersection during the AM peak-hour can be mitigated with the addition of an eastbound left-turn lane and traffic signal control. Due to the close proximity, this intersection will be coordinated with the proposed signalized Pleasant Valley Road (SR-49) intersection with SR-49 (South). As shown in Table 27, this mitigation measure results in the intersection operating at LOS D during the AM peak-hour. Therefore, ***this impact is less than significant***.

M2. Intersection #20, Pleasant Valley Road (SR-49) @ Patterson Road

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the addition of a westbound left-turn lane and traffic signal control. As shown in Table 27, this mitigation measure results in the intersection operating at LOS C during the AM and PM peak-hours. Therefore, ***this impact is less than significant***.

M3. Intersection #21, Pleasant Valley Road (SR-49) @ SR-49 (South)

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the addition of traffic signal control. Due to the close proximity, this intersection will be coordinated with the proposed signalized Pleasant Valley Road (SR-49) intersection with Forni Road. As shown in Table 27, this mitigation measure results in the intersection operating at LOS E during the AM and PM peak-hours. Therefore, ***this impact is less than significant***.

M4. Intersection #28, Missouri Flat Road @ Enterprise Drive

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of an eastbound right-turn lane. As shown in Table 27, this mitigation measure results in the intersection operating at LOS D during the PM peak-hour. Therefore, ***this impact is less than significant***.

Table 27 – Intersection Levels of Service –
Existing plus Approved Projects (2015) plus Proposed Project Mitigated Conditions

#	Intersection	Analysis Scenario	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
19	M1 - Pleasant Valley Road (SR-49) @ Forni Road	EPAP	TWSC*	718.8 (SB)	F	17.2 (SB)	C
		EPAP+PP		793.8 (SB)	F	24.1 (SB)	C
		EPAP+PP (Mit.)	Signal	35.2	D	16.8	B
20	M2 - Pleasant Valley Road (SR-49) @ Patterson Road	EPAP	AWSC	79.4	F	137.9	F
		EPAP+PP		93.3	F	194.7	F
		EPAP+PP (Mit.)	Signal	21.2	C	33.1	C
21	M3 - Pleasant Valley Road (SR-49) @ SR-49 (South)	EPAP	AWSC	70.5	F	87.4	F
		EPAP+PP		73.0	F	107.2	F
		EPAP+PP (Mit.)	Signal	60.8	E	65.9	E
28	M4 - Missouri Flat Road @ Enterprise Drive	EPAP	TWSC*	18.0 (EB)	C	39.8 (EB)	E
		EPAP+PP		18.9 (EB)	C	51.7 (EB)	F
		EPAP+PP (Mit.)		17.5 (EB)	C	33.5 (EB)	D

Note: EPAP = Existing plus Approved Projects (2015), EPAP+PP = Existing plus Approved Projects (2015) plus Proposed Project, Mit. = Mitigated, * Control delay for worst minor approach (worst minor movement) for TWSC.

Roadway Segments

M5. Roadway Segment #5, Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road
The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four-Lane Multilane Highway (see Table 4 for applicable thresholds). This improvement will result in LOS B. Therefore, ***this impact is less than significant***.

It should be noted that, although this mitigation requires an upgrade of this segment to a Four-Lane Multilane Highway, the required intersection lane geometry is actually slightly different. Due to the heavy northbound left-turn movement at the Diamond Springs Parkway intersection with Diamond Road (SR-49), adding mainline capacity (an additional northbound through lane) does not appear to be realistic or required. Conversely, in the southbound direction along Diamond Road (SR-49) between Diamond Springs Parkway and Lime Kiln Road, the additional capacity (an additional southbound through lane) could be provided to further enhance operations. This additional southbound through lane would be required to drop (become a trap lane) at Lime Kiln Road. Because this segment is required to be 4-lanes in the Cumulative (2025) Conditions as a mitigation measure, the timing of this capacity improvement should be coordinated with the full build-out of Diamond Road (SR-49).

M6. Roadway Segment #7, Diamond Springs Parkway – Missouri Flat Road to Throwita Way
The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four Lane Arterial, Divided (see Table 4 for applicable thresholds). This improvement will result in LOS D. Therefore, ***this impact is less than significant***.

Figure 17 provides the mitigated lane geometries for Existing plus Approved Projects (2015) plus Proposed Project Conditions. The analysis worksheets for this mitigation are provided in Appendix H.

Cumulative (2025) plus Proposed Project Conditions

As reflected in Table 23 through Table 26, the addition of the proposed project results in sixteen (16) significant impacts as defined by the County and/or Caltrans. The following is a discussion of each of these impacts and their associated mitigations. Analysis worksheets for this scenario are provided in Appendix H.

Impacts:

Intersections

I9. Intersection #2, Missouri Flat Road @ EB/WB Ramps
As shown in Table 19 and Table 23, this intersection operates at LOS E during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

I10. Intersection #5, Missouri Flat Road @ Forni Road
As shown in Table 19 and Table 23, this intersection operates at LOS F during the PM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 9) during a peak-hour. ***This is a significant impact.***

I11. Intersection #15, Pleasant Valley Road (SR-49) @ China Garden Road
As shown in Table 19 and Table 23, this intersection operates at LOS F during the PM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 9) during a peak-hour. ***This is a significant impact.***

I12. Intersection #19, Pleasant Valley Road (SR-49) @ Forni Road
As shown in Table 19 and Table 23, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 9) during a peak-hour. ***This is a significant impact.***

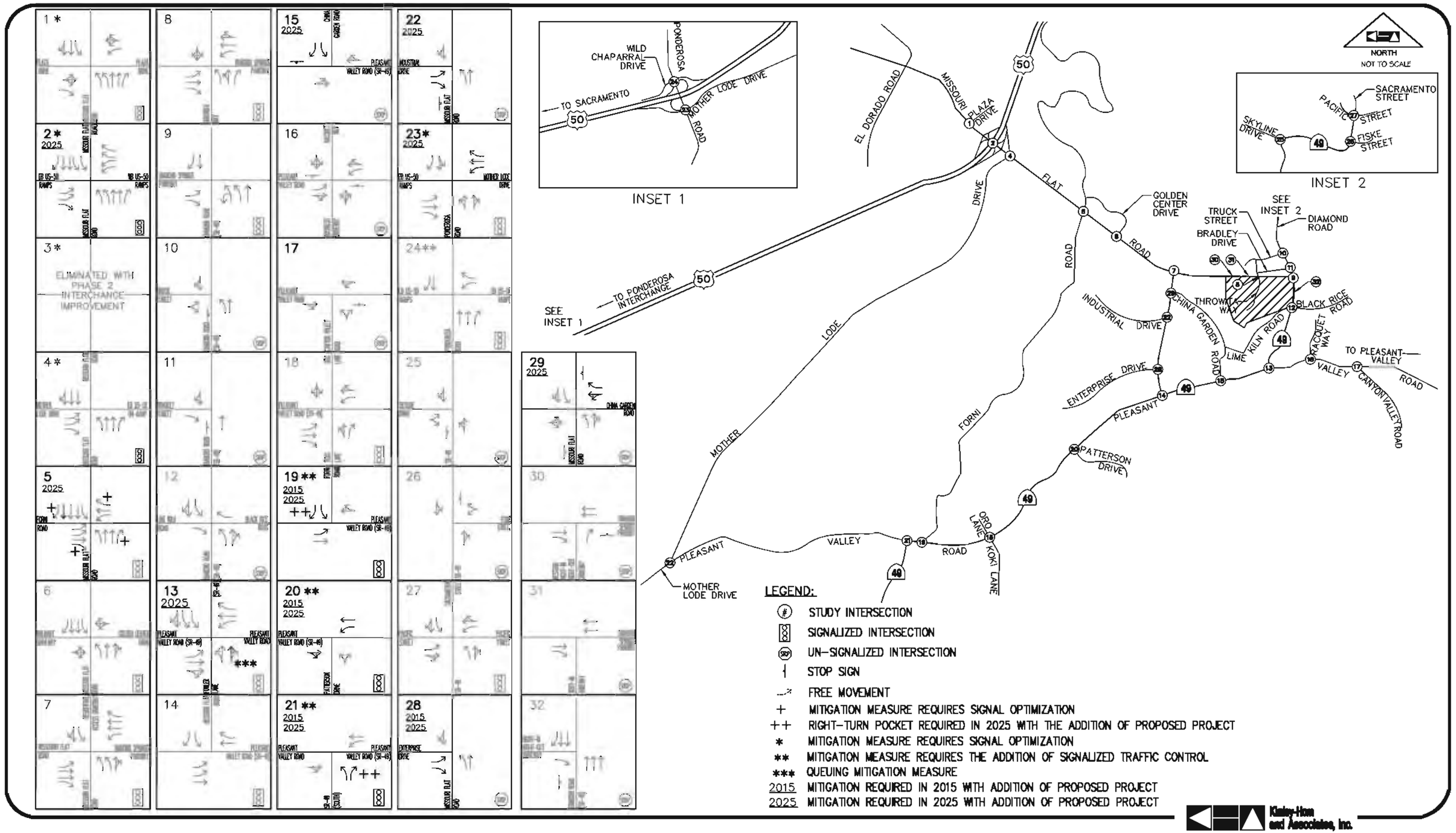


FIGURE 17

INTERSECTION LANE GEOMETRIES WITH LOS MITIGATION

DIAMOND DORADO RETAIL CENTER
EL DORADO COUNTY, CA

I13. *Intersection #20, Pleasant Valley Road (SR-49) @ Patterson Road*
As shown in Table 19 and Table 23, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 9) during a peak-hour. ***This is a significant impact.***

I14. *Intersection #21, Pleasant Valley Road (SR-49) @ SR-49 (South)*
As shown in Table 19 and Table 23, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 9) during a peak-hour. ***This is a significant impact.***

I15. *Intersection #22, Missouri Flat Road @ Industrial Drive*
As shown in Table 19 and Table 23, this intersection operates at LOS E during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

I16. *Intersection #23, Ponderosa Road @ US-50 Eastbound Ramps*
As shown in Table 19 and Table 23 this intersection operates at LOS F during the PM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 9) during a peak-hour. ***This is a significant impact.***

I17. *Intersection #28, Missouri Flat Road @ Enterprise Drive*
As shown in Table 19 and Table 23, the addition of the proposed project increases the minor street approach delay at this intersection which operates at LOS F during the PM peak-hour without the project. It should be noted that the addition of the project does not add traffic to the minor, stop-controlled Enterprise Drive intersection approach. The minimal increase in through volume attributed to the proposed project is not expected to result in a noticeable change in intersection operations. As a result, the addition of the proposed project results in impacts which are ***less than significant.***

I18. *Intersection #29, Missouri Flat Road @ China Garden Road*
As shown in Table 19 and Table 23, this intersection operates at LOS F during the PM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection (Figure 9) during a peak-hour. ***This is a significant impact.***

Roadway Segments

I19. *Roadway Segment #5,* Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road
As shown in Table 20 and Table 24, this roadway segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact.***

I20. *Roadway Segment #6,* Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)
As shown in Table 20 and Table 24, this roadway segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact.***

I21. *Roadway Segment #7,* Diamond Springs Parkway – Missouri Flat Road to Throwita Way
As shown in Table 20 and Table 24, this roadway segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

Freeway Mainline

None.

Freeway Ramp Junctions

I22. *Missouri Flat Road to Westbound US-50*
As shown in Table 14 and Table 18, the addition of the proposed project increases the volume at a freeway ramp junction which operates at an unacceptable level without the proposed project. It should be noted that the addition of the project during the AM peak-hour decreased the density of the ramp due to a slight decrease in freeway mainline volumes. The nominal increase in ramp

volume attributed to the proposed project is not expected to result in a noticeable change in freeway operating conditions. As a result, the addition of the proposed project results in impacts which are ***less than significant.***

Mitigation:

Intersections

M7. Intersection #2, Missouri Flat Road @ EB/WB Ramps

The significant impact at this intersection during the PM peak-hour can be mitigated by converting the eastbound dual right turn movement into a single free right. As shown in Table 28, this mitigation measure results in the intersection operating at LOS E during the PM peak-hour. Therefore, ***this impact is less than significant***. Alternately, due to the limited storage available between the ramp intersection and Mother Lode Drive, an additional mitigation measure was also considered. The alternative mitigation ("Alt") includes the conversion to triple left-turn lanes from westbound US-50 to Missouri Flat Road. As shown in Table 28, this option results in acceptable operation. It is important to note that the ultimate interchange geometrics identified for implementation at this intersection are to be approved by both Caltrans and the County of El Dorado Department of Transportation.

M8. Intersection #5, Missouri Flat Road @ Forni Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of a southbound through lane. As shown in Table 28, this mitigation measure results in the intersection operating at LOS E during the PM peak-hour. Therefore, ***this impact is less than significant***.

M9. Intersection #15, Pleasant Valley Road (SR-49) @ China Garden Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of a southbound right turn lane. As shown in Table 28, this mitigation measure results in the intersection operating at LOS E during the PM peak-hour. Therefore, ***this impact is less than significant***.

M10. Intersection #19, Pleasant Valley Road (SR-49) @ Forni Road

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the addition of a southbound right-turn lane, an eastbound left-turn lane, and traffic signal control. In addition, due to the close proximity, this intersection will be coordinated with the proposed signalized Pleasant Valley Road (SR-49) intersection with SR-49 (South). As shown in Table 28, this mitigation measure results in the intersection operating at LOS D and LOS B during the AM and PM peak-hours, respectively. Therefore, ***this impact is less than significant***.

M11. Intersection #20, Pleasant Valley Road (SR-49) @ Patterson Road

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the addition of a westbound left-turn lane and signalized traffic control. As shown in Table 28, this mitigation measure results in the intersection operating at LOS B and LOS C during the AM and PM peak-hour, respectively. Therefore, ***this impact is less than significant***.

M12. Intersection #21, Pleasant Valley Road (SR-49) @ SR-49 (South)

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the addition of a northbound right-turn lane and traffic signal control. In addition, due to the close proximity, this intersection will be coordinated with the proposed signalized Pleasant Valley Road (SR-49) intersection with Forni Road. As shown in Table 28, this mitigation measure results in the intersection operating at LOS D and LOS E during the AM and PM peak-hour, respectively. Therefore, ***this impact is less than significant***.

Table 28 – Intersection Levels of Service –
Cumulative (2025) plus Proposed Project Mitigated Conditions

#	Intersection	Analysis Scenario	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
2	M7 - Missouri Flat Road @ US-50 EB/WB Ramps	Cum	Signal	71.8	E	77.7	E
		Cum+PP		70.4	E	98.8	F
		Cum+PP (Mit.)		64.5	E	55.9	E
		Cum+PP (Alt.)		48.0	D	66.6	E
5	M8 - Missouri Flat Road @ Forni Road	Cum	Signal	73.1	E	109.0	F
		Cum+PP		75.0	E	151.5	F
		Cum+PP (Mit.)		48.5	D	79.9	E
15	M9 - Pleasant Valley Road (SR-49) @ China Garden Road	Cum	TWSC*	32.3 (SB)	D	121.6 (SB)	F
		Cum+PP		35.5 (SB)	E	165.5 (SB)	F
		Cum+PP (Mit.)		25.3 (SB)	D	46.0 (SB)	E
19	M10 - Pleasant Valley Road (SR-49) @ Forni Road	Cum	TWSC*	>900 (SB)	F	52.9 (SB)	F
		Cum+PP		>900 (SB)	F	95.7 (SB)	F
		Cum+PP (Mit.)	Signal	39.5	D	19.9	B
20	M11 - Pleasant Valley Road (SR-49) @ Patterson Road	Cum	AWSC	154.4	F	228.8	F
		Cum+PP		154.0	F	271.7	F
		Cum+PP (Mit.)	Signal	16.4	B	22.0	C
21	M12 - Pleasant Valley Road (SR-49) @ SR-49 (South)	Cum	AWSC	148.6	F	167.0	F
		Cum+PP		146.9	F	182.1	F
		Cum+PP (Mit.)	Signal	38.8	D	57.1	E
22	M13 - Missouri Flat Road @ Industrial Drive	Cum	TWSC*	19.3 (EB)	C	39.6 (EB)	E
		Cum+PP		19.5 (EB)	C	50.1 (EB)	F
		Cum+PP (Mit.)		21.2 (EB)	C	41.9 (EB)	E
23	M14 - Ponderosa Road @ US-50 Eastbound Ramps	Cum	Signal	42.6	D	127.9	F
		Cum+PP		42.7	D	127.5	F
		Cum+PP (Mit.)		30.6	C	56.8	E
29	M15 - Missouri Flat Road @ China Garden Road	Cum	TWSC*	38.4 (WB)	E	115.8 (WB)	F
		Cum+PP		40.8 (WB)	E	179.0 (WB)	F
		Cum+PP (Mit.)		24.2 (WB)	C	52.2	D

Note: Cum = Cumulative (2025), Cum+PP = Cumulative (2025) plus Proposed Project, Mit. = Mitigated
* Control delay for worst minor approach (worst minor movement) for TWSC.

M1. Intersection #22, Missouri Flat Road @ Industrial Drive

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of an eastbound right flare. As shown in Table 28, this mitigation measure results in the intersection operating at LOS E during the PM peak-hour. Therefore, ***this impact is less than significant.***

M2. Intersection #23, Ponderosa Road @ US-50 Eastbound Ramps

The significant impact at this intersection during the PM peak-hour can be mitigated with the conversion of the westbound right-turn lane to a free-right turn lane. As shown in Table 28, this mitigation measure results in the intersection operating at LOS E during the PM peak-hour. Therefore, ***this impact is less than significant.***

M3. Intersection #29, Missouri Flat Road @ China Garden Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of a westbound right-turn lane. As shown in Table 28, this mitigation measure results in the intersection operating at LOS D during the PM peak-hour. Therefore, ***this impact is less than significant***.

Roadway Segments

M4. Roadway Segment #5, Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four-Lane, Multilane Highway (see Table 4 for applicable thresholds). This improvement will result in LOS C. Therefore, ***this impact is less than significant***.

M5. Roadway Segment #6, Diamond Road (SR-49) – Lime Kiln Rd to Pleasant Valley Road (SR-49)

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four-Lane, Multilane Highway (see Table 4 for applicable thresholds). This improvement will result in LOS B. Therefore, ***this impact is less than significant***.

M6. Roadway Segment #7, Diamond Springs Parkway – Missouri Flat Road to Throwita Way

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four Lane Arterial, Divided (see Table 4 for applicable thresholds). This improvement will result in LOS D. Therefore, ***this impact is less than significant***.

Figure 17 (Page 43) provides the mitigated lane geometries for Cumulative (2025) plus Proposed Project Conditions. The analysis worksheets for this mitigation are provided in Appendix H.

OTHER CONSIDERATIONS

Peak-Hour Traffic Signal Warrant Evaluation

A planning level assessment of the need for traffic signalization was performed for the un-signalized study intersections. This evaluation was performed consistently with the peak-hour warrant methodologies noted in Section 4C of the *California Manual on Uniform Traffic Control Devices (CMUTCD)*, dated September 26, 2006. A summary of the peak-hour warrant results are presented in Table 29.

The addition of the proposed project results in the peak-hour signal warrant being satisfied at Intersection #15 (Pleasant Valley Road (SR-29) @ China Garden Road), and Intersection #32 (Diamond Road (SR-49) @ Site Access Driveway). Detailed results of this analysis are presented in Appendix I.

Sight Distance Evaluation

All project access driveways should be designed in accordance with the guidelines presented in the *Geometric Design of Highways and Streets, 2004*, published by the American Association of State Highway and Transportation Officials (AASHTO), and the *Highway Design Manual*, September 1, 2006, published by Caltrans.

Consideration should be given to the horizontal and vertical geometrics of Diamond Springs Parkway and Diamond Road (SR-49) at each proposed access location. Furthermore, adequate stopping sight distance is required to be provided at each site access driveway to support the intended movements (e.g., right-in/right-out, full access, and signalized).

Table 29 – Traffic Signal Warrant Analysis Results

#	Intersection	Analysis Scenario				
		Existing (2010)	EPAP (2015)	EPAP (2015) plus PP	Cumulative (2025)	Cum (2025) plus PP
10	Diamond Road (SR-49) @ Truck Street	No / No	No / No	No / No	No / No	No / No
11	Diamond Road (SR-49) @ Bradley Drive	No / No	No / No	No / No	No / No	No / No
15	Pleasant Valley Road (SR-49) @ China Garden Road	Yes / Yes	No / No	No / Yes	No / Yes	No / Yes
16	Pleasant Valley Road @ Racquet Way	No / No	No / No	No / No	No / No	No / No
17	Pleasant Valley Road @ Canyon Valley Road	No / No	No / No	No / No	No / No	No / No
19	Pleasant Valley Road (SR-49) @ Forni Road	Yes / No	Yes / No	Yes / Yes	Yes / Yes	Yes / Yes
20	Pleasant Valley Road (SR-49) @ Patterson Road	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
21	Pleasant Valley Road (SR-49) @ SR-49 (South)	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
22	Missouri Flat Road @ Industrial Drive	No / No	No / No	No / No	No / Yes	No / Yes
25	Sacramento Street (SR-49) @ Skyline Drive	No / No	No / No	No / No	No / No	No / No
26	Sacramento Street (SR-49) @ Fiske Street	No / No	No / No	No / No	No / No	No / No
28	Missouri Flat Road @ Enterprise Drive	No / Yes	No / Yes	No / Yes	Yes / Yes	Yes / Yes
29	Missouri Flat Road @ China Garden Road	No / Yes	No / Yes	No / Yes	No / Yes	Yes / Yes
30	DSP @ Right-In/Right-Out Site Access Driveway	No / No	No / No	No / No	No / No	No / No
31	DSP @ Right-In Site Access Driveway	No / No	No / No	No / No	No / No	No / No
32	Diamond Road (SR-49) @ Site Access Driveway	No / No	No / No	No / Yes	No / No	No / Yes

Note: Traffic signal is warranted if peak-hour warrant (Conditions A and/or B) is satisfied, Results are presented in AM / PM format.

Intersection Queuing Evaluation

Vehicle queuing for eleven (11) intersections was evaluated. For the queuing analysis, the anticipated vehicle queues for critical movements at these intersections were evaluated. The calculated vehicle queues were compared to actual or anticipated vehicle storage/segment lengths. Results of the queuing evaluation are presented in Table 30. This table includes the vehicle queues for the Level of Service mitigation measures identified in the "Impacts and Mitigation" section above. Analysis sheets that include the anticipated vehicle queues are presented in Appendices B, and D-H.

As presented in Table 30, the addition of the proposed project adds additional queuing to several of the study locations. The following observations and modifications should be considered based on the data presented:

- Intersection #7, DSP @ Missouri Flat Road
  - Extend the westbound left-turn lane to provide 500-feet of storage plus appropriate deceleration distance to accommodate the projected westbound left-turn 95th percentile queue of 498-feet. This additional storage length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
  - Extend the dual northbound left-turn lanes to provide 450-feet of storage plus appropriate deceleration distance to accommodate the projected northbound left-turn 95th percentile queue of 440-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.

Table 30 – Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	AM Peak-Hour Available Storage (ft)	AM Peak-Hour 95th % Queue (ft)	PM Peak-Hour Available Storage (ft)	PM Peak-Hour 95th % Queue (ft)
#2, Missouri Flat Rd @ WB US-50 Ramps	**WBLT**				
Existing (2010)		600*		600*	
EPAP (2015)			323		357
EPAP plus Proposed Project (2015)			346		430
Cumulative (2025)++			648		641
Cumulative (2025) plus Proposed Project++			638		376
Cumulative (2025) plus Proposed Project (with LOS Mitigation)++			618		652
	NBLT				
Existing (2010)		425	135	425	304
EPAP (2015)		125*	176	125*	225
EPAP plus Proposed Project (2015)			195		293
Cumulative (2025)++		325*	217	325*	194
Cumulative (2025) plus Proposed Project++			231		221
Cumulative (2025) plus Proposed Project (with LOS Mitigation)++			279		269
#3, Missouri Flat Rd @ EB US-50 Ramps	**EBRT**				
Existing (2010)		545	85	545	235
EPAP (2015)			176		355
EPAP plus Proposed Project (2015)			206		480
Cumulative (2025)++			382		627
Cumulative (2025) plus Proposed Project++			368		720
Cumulative (2025) plus Proposed Project (with LOS Mitigation)++			0		0
#7, DSP @ Missouri Flat Rd	**WBTH**				
Existing (2010)		2,835*		2,835*	
EPAP (2015)			452		301
EPAP plus Proposed Project (2015)			490		522
Cumulative (2025)			645		424
Cumulative (2025) plus Proposed Project			671		576
	WBLT				
Existing (2010)		325		325	
EPAP (2015)			373		315
EPAP plus Proposed Project (2015)			408		483
Cumulative (2025)			414		391
Cumulative (2025) plus Proposed Project			443		498
	NBLT				
Existing (2010)		325+		325+	
EPAP (2015)			332		375
EPAP plus Proposed Project (2015)			360		410
Cumulative (2025)			357		405
Cumulative (2025) plus Proposed Project			389		440
#8, DSP @ Throwita Way	**EBLT**				
Existing (2010)		175		175	
EPAP (2015)			88		104
EPAP plus Proposed Project (2015)			104		208
Cumulative (2025)			123		147
Cumulative (2025) plus Proposed Project			140		237

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, ++ EB and WB Ramp intersections are combined with Phase 2 of US-50/Missouri Flat Rd interchange,
* Intersection approach with available storage length equal to segment length

Table 30 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour Available Storage (ft)	AM Peak-Hour 95th % Queue (ft)	PM Peak-Hour Available Storage (ft)	PM Peak-Hour 95th % Queue (ft)
#8, DSP @ Throwita Way	**WBLT**	(continued)			
Existing (2010)					
EPAP (2015)			29		30
EPAP plus Proposed Project (2015)		100	36	100	317
Cumulative (2025)			26		29
Cumulative (2025) plus Proposed Project			29		330
	WBTH				
Existing (2010)					
EPAP (2015)			706		509
EPAP plus Proposed Project (2015)		850*	714	850*	305
Cumulative (2025)			788		546
Cumulative (2025) plus Proposed Project			750		471
#9, DSP @ Diamond Rd (SR-49)	**NBTH**				
Existing (2010)					
EPAP (2015)			73		102
EPAP plus Proposed Project (2015)		600*	73	600*	131
Cumulative (2025)			89		159
Cumulative (2025) plus Proposed Project			95		192
	NBLT				
Existing (2010)					
EPAP (2015)			319		221
EPAP plus Proposed Project (2015)		350+	360	350+	297
Cumulative (2025)			346		261
Cumulative (2025) plus Proposed Project			369		343
	SBTH				
Existing (2010)					
EPAP (2015)			179		248
EPAP plus Proposed Project (2015)		*	190	*	316
Cumulative (2025)			199		316
Cumulative (2025) plus Proposed Project			210		407
	SBRT				
Existing (2010)					
EPAP (2015)			82		74
EPAP plus Proposed Project (2015)		270	81	270	85
Cumulative (2025)			289		198
Cumulative (2025) plus Proposed Project			260		222
	EBLT				
Existing (2010)					
EPAP (2015)			10		11
EPAP plus Proposed Project (2015)		850*	8	850*	111
Cumulative (2025)			11		74
Cumulative (2025) plus Proposed Project			8		26
	EBRT				
Existing (2010)					
EPAP (2015)			498		557
EPAP plus Proposed Project (2015)		850*	531	850*	541
Cumulative (2025)			573		400
Cumulative (2025) plus Proposed Project			601		630

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
* Intersection approach with available storage length equal to segment length, + Dual left-turn lanes

Table 30 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour Available Storage (ft)	AM Peak-Hour 95th % Queue (ft)	PM Peak-Hour Available Storage (ft)	PM Peak-Hour 95th % Queue (ft)
#12, Diamond Rd (SR-49) @ Lime Kiln Rd	**EBLT**				
Existing (2010)			8		57
EPAP (2015)			5		25
EPAP plus Proposed Project (2015)		>500*	14	>500*	63
Cumulative (2025)			7		36
Cumulative (2025) plus Proposed Project			18		84
	NBLT				
Existing (2010)					
EPAP (2015)			4		6
EPAP plus Proposed Project (2015)		200	5	200	8
Cumulative (2025)			5		7
Cumulative (2025) plus Proposed Project			6		9
	NBTH				
Existing (2010)			2		3
EPAP (2015)			0		0
EPAP plus Proposed Project (2015)		1,740*	0	1,740*	0
Cumulative (2025)			0		0
Cumulative (2025) plus Proposed Project			0		0
	SBLT				
Existing (2010)					
EPAP (2015)			2		2
EPAP plus Proposed Project (2015)		100	2	100	3
Cumulative (2025)			2		2
Cumulative (2025) plus Proposed Project			2		3
	SBTH				
Existing (2010)			1		0
EPAP (2015)			0		0
EPAP plus Proposed Project (2015)		725*	0	725*	0
Cumulative (2025)			0		0
Cumulative (2025) plus Proposed Project			0		0
#13, Diamond Rd (SR-49) @ Pleasant Valley Rd	**EBLT**				
Existing (2010)			83		165
EPAP (2015)			83		185
EPAP plus Proposed Project (2015)		180	90	180	204
Cumulative (2025)			97		244
Cumulative (2025) plus Proposed Project			97		274
Cumulative (2025) plus Proposed Project (Mitg. For Queuing)			85		213

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length

Table 30 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour Available Storage (ft)	AM Peak-Hour 95th % Queue (ft)	PM Peak-Hour Available Storage (ft)	PM Peak-Hour 95th % Queue (ft)
#13, Diamond Rd (SR-49) @ Pleasant Valley Rd	**SBLT**		(continued)		
Existing (2010)		335	151	335	383
EPAP (2015)			192		410
EPAP plus Proposed Project (2015)			200		451
Cumulative (2025)		525+	219	525+	463
Cumulative (2025) plus Proposed Project			222		484
Cumulative (2025) plus Proposed Project (Mitg. For Queuing)			220		488
	WBRT				
Existing (2010)			52		44
EPAP (2015)			31		39
EPAP plus Proposed Project (2015)		180	32	180	80
Cumulative (2025)			41		122
Cumulative (2025) plus Proposed Project			37		188
Cumulative (2025) plus Proposed Project (Mitg. For Queuing)			30		138
#19, Pleasant Valley Rd (SR-49) @ Forni Rd	**EBL**				
Existing (2010)					
EPAP (2015)					
EPAP plus Proposed Project (2015)					
EPAP plus Proposed Project (with LOS Mitigation)		150	97	150	84
Cumulative (2025)					
Cumulative (2025) plus Proposed Project					
Cumulative (2025) plus Proposed Project (with LOS Mitigation)		150	287	150	150
	EBTH				
Existing (2010)			18		11
EPAP (2015)			21		13
EPAP plus Proposed Project (2015)			0		14
EPAP plus Proposed Project (with LOS Mitigation)		*	75	*	57
Cumulative (2025)			30		16
Cumulative (2025) plus Proposed Project			30		17
Cumulative (2025) plus Proposed Project (with LOS Mitigation)			149		33
	WBTH				
Existing (2010)			0		0
EPAP (2015)			0		0
EPAP plus Proposed Project (2015)			0		0
EPAP plus Proposed Project (with LOS Mitigation)		*	335	*	294
Cumulative (2025)			0		0
Cumulative (2025) plus Proposed Project			0		0
Cumulative (2025) plus Proposed Project (with LOS Mitigation)			411		364
#20, Pleasant Valley Rd (SR-49) @ Patterson Dr.	**EBTH**				
Existing (2010) ++			478		611
EPAP (2015) ++			543		656
EPAP plus Proposed Project (2015+)++			568		716
EPAP plus Proposed Project (with LOS Mitigation)		*	420	*	744
Cumulative (2025) ++			698		753
Cumulative (2025) plus Proposed Project++			690		808
Cumulative (2025) plus Proposed Project (with LOS Mitigation)			468		556

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length
++ Source: Per Page 714, *A Policy on Geometric Design of Highways and Streets,* AASHTO, 2004.
((Peak-Hour Volume/30 min)*25 feet)

Table 30 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#20, Pleasant Valley Rd (SR-49) @ Patterson Dr.	**WBTH**	(continued)			
Existing (2010) ++			525		603
EPAP (2015) ++			534		653
EPAP plus Proposed Project (2015) ++			552		738
EPAP plus Proposed Project (with LOS Mitigation)		*	201	*	267
Cumulative (2025) ++			552		768
Cumulative (2025) plus Proposed Project++			564		812
Cumulative (2025) plus Proposed Project (with LOS Mitigation)			218		298
#21, Pleasant Valley Rd (SR-49) @ SR-49 (South)	**EBTH**				
Existing (2010) ++			376		548
EPAP (2015) ++			439		595
EPAP plus Proposed Project (2015) ++			449		619
EPAP plus Proposed Project (with LOS Mitigation)		*	421	*	695
Cumulative (2025) ++			602		702
Cumulative (2025) plus Proposed Project++			624		724
Cumulative (2025) plus Proposed Project (with LOS Mitigation)			585		891
	WBL				
Existing (2010) ++			180		172
EPAP (2015) ++			189		192
EPAP plus Proposed Project (2015) ++			194		217
EPAP plus Proposed Project (with LOS Mitigation)		45	127	45	314
Cumulative (2025) ++			209		239
Cumulative (2025) plus Proposed Project++			213		252
Cumulative (2025) plus Proposed Project (with LOS Mitigation)			197		406
	WBTH				
Existing (2010) ++			285		328
EPAP (2015) ++			300		367
EPAP plus Proposed Project (2015) ++			307		397
EPAP plus Proposed Project (with LOS Mitigation)		*	78	*	136
Cumulative (2025) ++			333		458
Cumulative (2025) plus Proposed Project++			337		473
Cumulative (2025) plus Proposed Project (with LOS Mitigation)			33		86

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length
++ Source: Per Page 714, *A Policy on Geometric Design of Highways and Streets,* AASHTO, 2004. ((Peak-Hour Volume/30 min)*25 feet)

- Intersection #8, DSP @ Throwita Way
  - Extend eastbound left-turn lane to provide 240-feet of storage plus appropriate deceleration distance to accommodate the projected eastbound left-turn 95th percentile queue of 237-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
  - Extend westbound left-turn lane to provide 350-feet of storage plus appropriate deceleration distance (a single left-turn lane) to accommodate the projected westbound left-turn 95th percentile queue of 330-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
- Intersection #9, DSP @ Diamond Rd (SR-49)
  - Extend the dual northbound left-turn lanes to provide 375-feet of storage plus appropriate deceleration distance to accommodate the projected northbound left-turn 95th percentile queue of 369-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.

- Intersection #13, Diamond Road (SR-49) @ Pleasant Valley Road
    - The eastbound left-turn queue is anticipated to exceed the available storage by approximately 100-feet under Cumulative (2025) plus Proposed Project Conditions. In an effort to reduce this queue to an acceptable level, additional mitigations measures ("Mitigation for Queuing") were evaluated. Consistent with the year 2030 conclusions of the *Diamond Spring Parkway* traffic impact analysis[28], these measures include converting the northbound right-turn lane to a shared through-right lane, and modifying signal phasing accordingly. As an additional benefit of this mitigation, the westbound right-turn queue is reduced to a level less than the available storage length. As shown in Table 30, with these mitigations, the eastbound left-turn queue is anticipated to exceed the available storage by only thirty-three (33) feet under Cumulative (2025) plus Proposed Project Conditions. Because storage is measured to the back of striping delineation, it is presumed that the additional 33-feet required can be accommodated within the existing turn pocket bay taper without adversely affecting adjacent traffic flow. Figure 17 (Page 43) provides the mitigated lane geometry for Cumulative (2025) plus Proposed Project Conditions. The analysis worksheets for this mitigation are provided in Appendix H.
- Intersections #19 and #21, Pleasant Valley Road (SR-49) @ Forni Road and SR-49 (South)
    - Due to the close proximity of these two intersections, left-turn queuing between traffic signals exceeds the separation distance. As part of these improvements, realignment of the Forni Road approach to the east, which would improve the southbound intersection approach angle and maximize the spacing between signalized intersections, should be considered. It is important to note that the ultimate intersection geometrics identified for implementation at this intersection are to be approved by both Caltrans and the County of El Dorado Department of Transportation.

Site Plan, Access, and On-site Circulation Evaluation

The site plan for the proposed project (Figure 2) was qualitatively reviewed for general access and on-site circulation. According to the site plan, access to the site will be provided via four (4) driveways, three (3) along Diamond Springs Parkway, and one (1) along Diamond Road (SR-49). The main access to the project site is proposed at the Diamond Springs Parkway intersection with Throwita Way (study intersection #9). Extensive level of service, delay, and queuing data was previously reported for these intersections. Considering the adjacent roadway traffic volumes and patterns, the proposed project appears to have adequate access to/from both Diamond Springs Parkway and Diamond Road (SR-49).

The project proposes a series of main on-site circulation roadways. These facilities align with the building orientations, parking supply, and access locations, and appear to be consistent with driver expectation as pertains to on-site connectivity. As currently proposed, the Throwita Way site entrance approach from Diamond Springs Parkway is not stop controlled at its on-site intersection with the main aisles. This on-site intersection will likely serve as the focal point of conflicting vehicle and pedestrian movement on site, and the proposed traffic control should minimize the likelihood on on-site vehicle queuing extending to Diamond Springs Parkway. Based on the anticipated project trip distribution (Figure 7 and Figure 9), it is recommended that, to the extent possible, the throat depth of the middle Diamond Springs Parkway driveway (right-in only) be maximized to enhance access from Diamond Springs Parkway.

Furthermore, as depicted in Figure 2, on-site truck access is indicated along the western and southern project boundaries. To the extent possible, truck/delivery operations should access the site via eastbound Diamond Springs Parkway at the westernmost driveway to access Major-2, P-1, 2, and 3. Truck access for Major-1 should access the site via the signalized Throwita Way intersection.

[28] *Diamond Springs Parkway Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.

In addition, *Fire Safe Regulations*[29] state that on-site roadways shall "provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency…" All project roadways shall be designed and constructed in accordance with these requirements.

Preliminary Traffic Safety Evaluation

According to the County's 2007 *Accident Location Study*[30], several study area sites (i.e., intersections and roadway segments) experienced three (3) or more accidents during a three-year period between January 1, 2005, and December 31, 2007. According to the Study, these sites were selected for investigation and determination of corrective action(s). Table 31 provides a summary of the study area sites and their selected actions.

Table 31 – Project Area Sites Selected for Investigation

Site #	Location Description	Accident Rate[+]	Identified Action
29	Missouri Flat Rd at El Dorado Road	0.28	None Required
30	Missouri Flat Rd from Plaza Dr to County Rd 2233	2.78	Pending Improvement
31	Missouri Flat Rd in vicinity of Golden Center Dr	0.78	None Required
32	Missouri Flat Rd in vicinity of China Garden Rd	0.77	None Required
33	Missouri Flat Rd in vicinity of Enterprise Dr	0.51	None Required

Source: *Annual Accident Location Study 2007*, County of El Dorado Department of Transportation, March 28, 2008.
[+] # Accidents per Million Vehicles (MV) for single sites (intersections/curves), # Accidents per Million Vehicle Miles (MVM) for roadway sections.

According to the *Study*, one (1) site (30) was "previously identified, and [is] currently scheduled for improvement. It is anticipated that, upon completion, [this] improvement will substantially reduce the number of accidents." Furthermore, the *Study* indicates that the remaining four (4) sites "do not require further review at this time. However, these sites will continue to be monitored and any subsequent increase in the frequency of accidents may necessitate further review and analysis."

Bicycle and Pedestrian Facilities Evaluation

According to Chapter 5 of the *El Dorado County Bicycle Transportation Plan*, Class II Bike Lanes are proposed for Diamond Springs Parkway and Diamond Road (SR-49) along the proposed project frontage. A Class I Bike Path, the El Dorado Trail, is proposed for the Sacramento-Placerville Transportation Corridor (SPTC) Right-of-Way. According to the *Plan*, "the El Dorado Trail concept is for a trail that spans the entire length of El Dorado County from the western county line to the Lake Tahoe Basin."

While the project will not result in removal of a bikeway or prohibition of implementation of the facilities identified in the *Plan*, it is required to include pedestrian/bicycle facilities connecting to adjacent commercial, research and development, or industrial projects and any schools, parks, or other public facilities[31].

The proposed project includes pedestrian paths and on-site pedestrian/bicycle circulation connecting the project with the adjacent and proposed adjacent Class II Bike Lanes. Through this connection to the proposed bike lane network, the project provides continuity with adjacent projects, schools, parks, and other public facilities.

[29] *Fire Safe Regulations*, Title 14 Natural Resources, Division 1.5 Department of Forestry, Chapter 7 – Fire Protection, Subchapter 2 SRA Safe Regulations, Article 2 Emergency Access, El Dorado County Building Department.
[30] *Annual Accident Location Study 2007*, County of El Dorado Department of Transportation, March 28, 2008.
[31] Memorandum from Abhi Parikh, Dowling Associates, Inc., to Eileen Crawford, El Dorado County DOT, June 11, 2009.

CONCLUSIONS

Based upon the analysis documented in this report, the following conclusions are offered:

- The proposed project is expected to generate 10,104 total new daily trips, including 296 new AM peak-hour trips and 970 new PM peak-hour trips in the near-term. For the long-term (year 2025) analysis, the project is expected to generate 8,083 net new daily trips, with 29 net new trips occurring during the AM peak-hour, and 686 net new trips occurring during the PM peak-hour. Because the industrial land uses designated for the proposed project site by the County *General Plan* will be removed and replaced by trips associated with the proposed project for the long-term (year 2025) conditions, the net new trips associated with the proposed project are actually greater in the near-term when compared to the long-term conditions.
- The proposed project is inconsistent with the *2004 General Plan* land use designation and zoning density for the site. Furthermore, the trip generation of the proposed project significantly exceeds the growth anticipated for the subject Traffic Analysis Zone (TAZ). Therefore, the project is deemed to exceed the magnitude of development contemplated in the *General Plan EIR* analysis and a Cumulative (year 2025) analysis is required.
- As defined by the County, the addition of the proposed project to the Existing plus Approved Projects (2015) and Cumulative (2025) analysis scenarios creates significant environmental impacts at multiple locations. However, these impacts can be mitigated to be ***less than significant***. The following is a summary of the required mitigation measures which are presumed to be *the project's sole responsibility*:

Existing plus Approved Projects (2015) plus Proposed Project

- (Mitigation M4) Add an eastbound right-turn lane at Intersection #28 (Missouri Flat Road @ Enterprise Drive).
- (Mitigation M5) Upgrade Roadway Segment #5 (Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road) from 2- to 4-lanes.
- (Mitigation M6) Upgrade Roadway Segment #7 (Diamond Springs Parkway – Missouri Flat Road to Throwita Way) from 2- to 4-lanes.

Cumulative (2025) plus Proposed Project

- (Mitigation M7) Convert the eastbound approach at Intersection #2 (Missouri Flat Road @ EB/WB US-50 Ramps) from dual rights to a single free right-turn. An alternative mitigation (triple left-turn lanes from Westbound US-50 to Missouri Flat Road) has also been documented to effectively mitigate this impact.
- (Mitigation M13) Add an eastbound right-turn flare at Intersection #22 (Missouri Flat Road @ Industrial Drive).
- (Mitigations M16 & M17) Upgrade Roadway Segments #5 and #6 (Diamond Road (SR-49) from Diamond Springs Parkway to Pleasant Valley Road (SR-49)) from 2- to 4-lanes[+].
- (Mitigation M18) Upgrade Roadway Segment #7 (Diamond Springs Parkway from Missouri Flat Road to Throwita Way) from 2- to 4-lanes[+,*].

[+] Both Diamond Springs Parkway and Diamond Road (SR-49) from DSP to Pleasant Valley Road are anticipated to be 4-lanes per the DSP year 2030 analysis scenario.

[*] This corridor upgrade leaves only the eastbound Diamond Springs Parkway segment between Throwita Way and Diamond Road (SR-49) as a single lane. This segment should be considered for upgrade in conjunction with the adjacent roadway improvements.

- The addition of the proposed project adds additional queuing to several of the study locations. The following observations and modifications should be considered based on the data presented:
    - Intersection #7, DSP @ Missouri Flat Road
        - Extend the westbound left-turn lane to provide 500-feet of storage plus appropriate deceleration distance to accommodate the projected westbound left-turn 95th percentile queue of 498-feet. This additional storage length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
        - Extend the dual northbound left-turn lanes to provide 450-feet of storage plus appropriate deceleration distance to accommodate the projected northbound left-turn 95th percentile queue of 440-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
    - Intersection #8, DSP @ Throwita Way
        - Extend eastbound left-turn lane to provide 240-feet of storage plus appropriate deceleration distance to accommodate the projected eastbound left-turn 95th percentile queue of 237-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
        - Extend westbound left-turn lane to provide 350-feet of storage plus appropriate deceleration distance (a single left-turn lane) to accommodate the projected westbound left-turn 95th percentile queue of 330-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
    - Intersection #9, DSP @ Diamond Rd (SR-49)
        - Extend the dual northbound left-turn lanes to provide 375-feet of storage plus appropriate deceleration distance to accommodate the projected northbound left-turn 95th percentile queue of 369-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
    - Intersection #13, Diamond Road (SR-49) @ Pleasant Valley Road
        - The eastbound left-turn queue is anticipated to exceed the available storage by approximately 100-feet under Cumulative (2025) plus Proposed Project Conditions. In an effort to reduce this queue to an acceptable level, additional mitigations measures ("Mitigation for Queuing") were evaluated. Consistent with the year 2030 conclusions of the *Diamond Spring Parkway* traffic impact analysis, these measures include converting the northbound right-turn lane to a shared through-right lane, and modifying signal phasing accordingly. As an additional benefit of this mitigation, the westbound right-turn queue is reduced to a level less than the available storage length. As shown in Table 30, with these mitigations, the eastbound left-turn queue is anticipated to exceed the available storage by only thirty-three (33) feet under Cumulative (2025) plus Proposed Project Conditions. Because storage is measured to the back of striping delineation, it is presumed that the additional 33-feet required can be accommodated within the existing turn pocket bay taper without adversely affecting adjacent traffic flow.
    - Intersections #19 and #21, Pleasant Valley Road (SR-49) @ Forni Road and SR-49 (South)
        - Due to the close proximity of these two intersections, left-turn queuing between traffic signals exceeds the separation distance. As part of these improvements, realignment of the Forni Road approach to the east, which would improve the southbound intersection approach angle and maximize the spacing between signalized intersections, should be considered. It is important to note that the ultimate intersection geometrics identified for implementation at this intersection are to be approved by both Caltrans and the County of El Dorado Department of Transportation.

Appendix A:

Traffic Count Data Sheets

ALL TRAFFIC DATA,INC.
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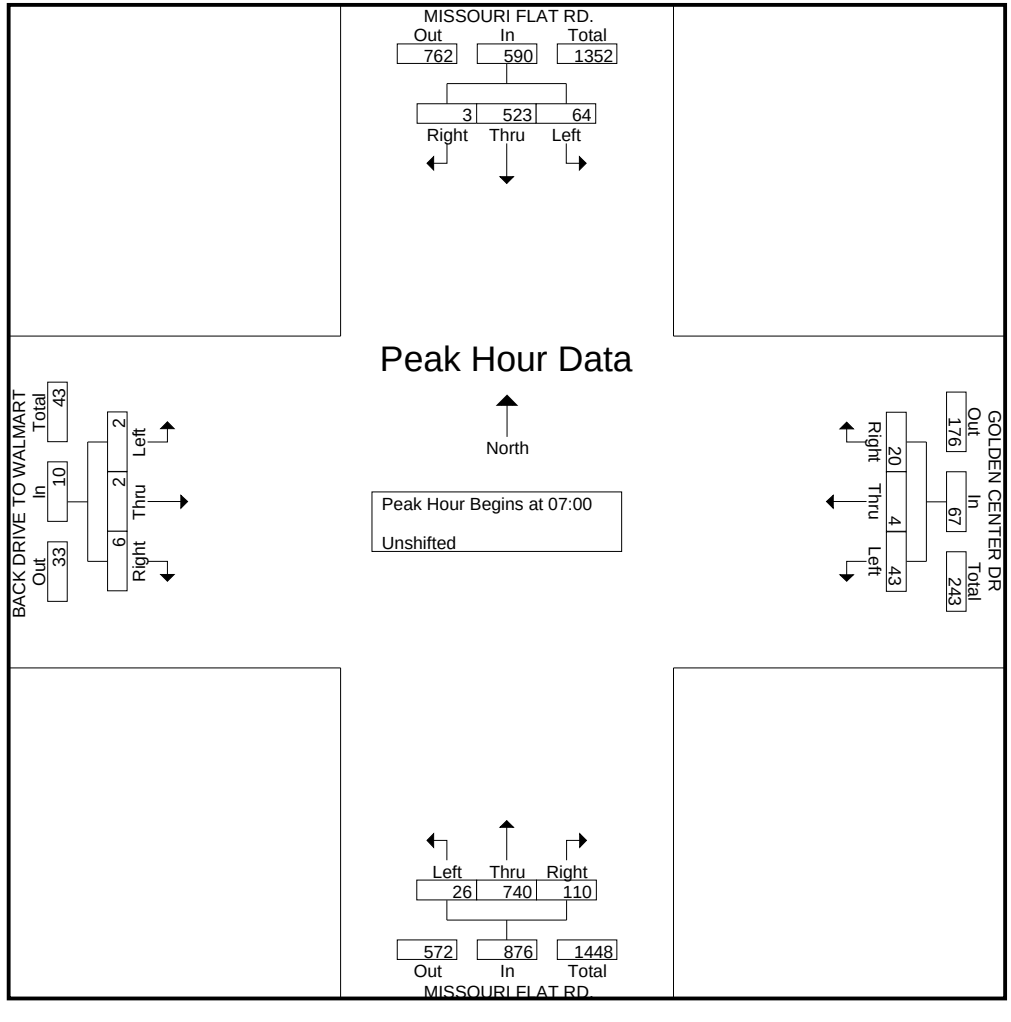
EL DORADO COUNTY

File Name : FF-MISS.FLAT-GLDN.CENTER
Site Code : 00000000
Start Date : 11/29/2007
Page No : 1

Groups Printed- Unshifted

	MISSOURI FLAT RD. Southbound					GOLDEN CENTER DR Westbound					MISSOURI FLAT RD. Northbound					BACK DRIVE TO WALMART Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30	10	115	1	0	126	5	0	3	0	8	2	170	22	0	194	1	1	0	0	2	330
06:45	17	123	0	0	140	7	0	4	0	11	2	161	20	0	183	0	2	1	0	3	337
Total	27	238	1	0	266	12	0	7	0	19	4	331	42	0	377	1	3	1	0	5	667
07:00	14	119	1	0	134	3	0	2	0	5	6	171	15	0	192	1	1	1	0	3	334
07:15	21	147	0	0	168	22	2	13	0	37	6	194	41	0	241	0	0	0	0	0	446
07:30	11	124	1	0	136	10	0	4	0	14	7	173	17	0	197	1	0	4	0	5	352
07:45	18	133	1	0	152	8	2	1	0	11	7	202	37	0	246	0	1	1	0	2	411
Total	64	523	3	0	590	43	4	20	0	67	26	740	110	0	876	2	2	6	0	10	1543
08:00	16	141	2	0	159	9	1	4	0	14	7	137	12	0	156	1	1	2	0	4	333
08:15	10	143	2	0	155	15	0	2	0	17	11	161	26	0	198	3	1	4	0	8	378
08:30	11	137	0	0	148	7	3	3	0	13	16	167	20	0	203	1	0	2	0	3	367
08:45	18	115	0	0	133	13	2	7	0	22	14	167	32	0	213	0	2	1	0	3	371
Total	55	536	4	0	595	44	6	16	0	66	48	632	90	0	770	5	4	9	0	18	1449
09:00	12	138	0	0	150	19	3	2	0	24	11	160	23	0	194	1	3	7	0	11	379
09:15	17	125	0	0	142	12	1	4	0	17	14	143	16	0	173	4	2	1	0	7	339
Total	29	263	0	0	292	31	4	6	0	41	25	303	39	0	367	5	5	8	0	18	718
15:30	8	122	4	0	134	19	4	10	0	33	16	101	13	0	130	1	9	19	0	29	326
15:45	12	139	3	0	154	19	4	12	0	35	8	95	11	0	114	3	4	12	0	19	322
Total	20	261	7	0	288	38	8	22	0	68	24	196	24	0	244	4	13	31	0	48	648
16:00	14	146	2	0	162	24	5	8	0	37	15	94	17	0	126	5	1	13	0	19	344
16:15	8	143	1	0	152	19	3	9	0	31	14	100	12	0	126	5	2	21	0	28	337
16:30	12	145	0	0	157	29	2	14	0	45	13	102	14	0	129	0	3	13	0	16	347
16:45	8	150	1	0	159	31	1	9	0	41	9	99	10	0	118	0	1	15	0	16	334
Total	42	584	4	0	630	103	11	40	0	154	51	395	53	0	499	10	7	62	0	79	1362
17:00	3	137	5	0	145	33	3	6	0	42	10	96	11	0	117	0	2	10	0	12	316
17:15	14	164	1	0	179	19	3	4	0	26	9	85	8	0	102	2	2	14	0	18	325
17:30	16	148	2	0	166	12	1	5	0	18	5	100	8	0	113	1	3	7	0	11	308
17:45	6	135	3	0	144	17	3	1	0	21	11	79	16	0	106	2	2	5	0	9	280
Total	39	584	11	0	634	81	10	16	0	107	35	360	43	0	438	5	9	36	0	50	1229
18:00	8	129	3	0	140	15	2	3	0	20	7	83	11	0	101	1	2	9	0	12	273
18:15	5	117	1	0	123	13	1	2	0	16	4	75	15	0	94	1	1	8	0	10	243
Grand Total	289	3235	34	0	3558	380	46	132	0	558	224	3115	427	0	3766	34	46	170	0	250	8132
Apprch %	8.1	90.9	1	0		68.1	8.2	23.7	0		5.9	82.7	11.3	0		13.6	18.4	68	0		
Total %	3.6	39.8	0.4	0	43.8	4.7	0.6	1.6	0	6.9	2.8	38.3	5.3	0	46.3	0.4	0.6	2.1	0	3.1	

	MISSOURI FLAT RD. Southbound				GOLDEN CENTER DR Westbound				MISSOURI FLAT RD. Northbound				BACK DRIVE TO WALMART Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	14	119	1	134	3	0	2	5	6	171	15	192	1	1	1	3	334
07:15	21	147	0	168	22	2	13	37	6	194	41	241	0	0	0	0	446
07:30	11	124	1	136	10	0	4	14	7	173	17	197	1	0	4	5	352
07:45	18	133	1	152	8	2	1	11	7	202	37	246	0	1	1	2	411
Total Volume	64	523	3	590	43	4	20	67	26	740	110	876	2	2	6	10	1543
% App. Total	10.8	88.6	0.5		64.2	6	29.9		3	84.5	12.6		20	20	60		
PHF	.762	.889	.750	.878	.489	.500	.385	.453	.929	.916	.671	.890	.500	.500	.375	.500	.865



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	MISSOURI FLAT RD. Southbound				GOLDEN CENTER DR Westbound				MISSOURI FLAT RD. Northbound				BACK DRIVE TO WALMART Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	14	146	2	162	24	5	8	37	15	94	17	126	5	1	13	19	344
16:15	8	143	1	152	19	3	9	31	14	100	12	126	5	2	21	28	337
16:30	12	145	0	157	29	2	14	45	13	102	14	129	0	3	13	16	347
16:45	8	150	1	159	31	1	9	41	9	99	10	118	0	1	15	16	334
Total Volume	42	584	4	630	103	11	40	154	51	395	53	499	10	7	62	79	1362
% App. Total	6.7	92.7	0.6		66.9	7.1	26		10.2	79.2	10.6		12.7	8.9	78.5		
PHF	.750	.973	.500	.972	.831	.550	.714	.856	.850	.968	.779	.967	.500	.583	.738	.705	.981

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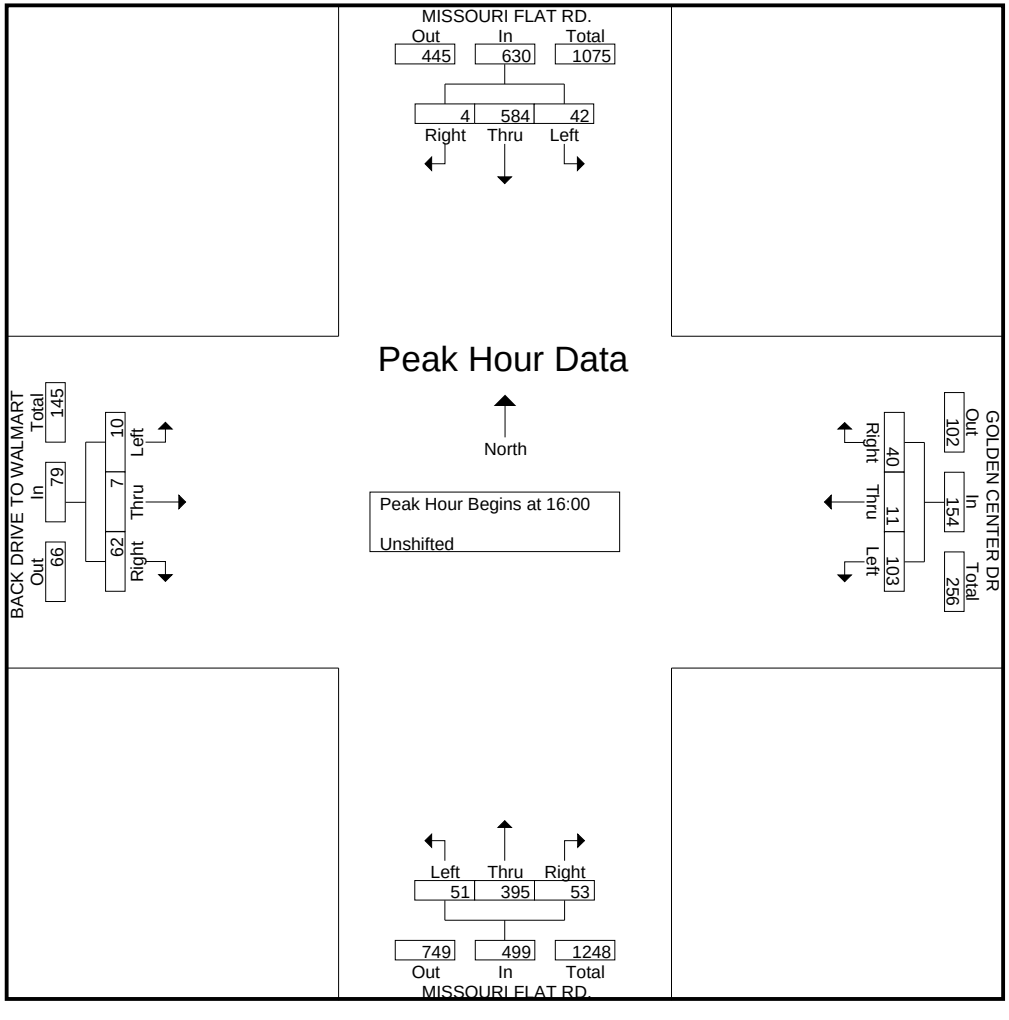

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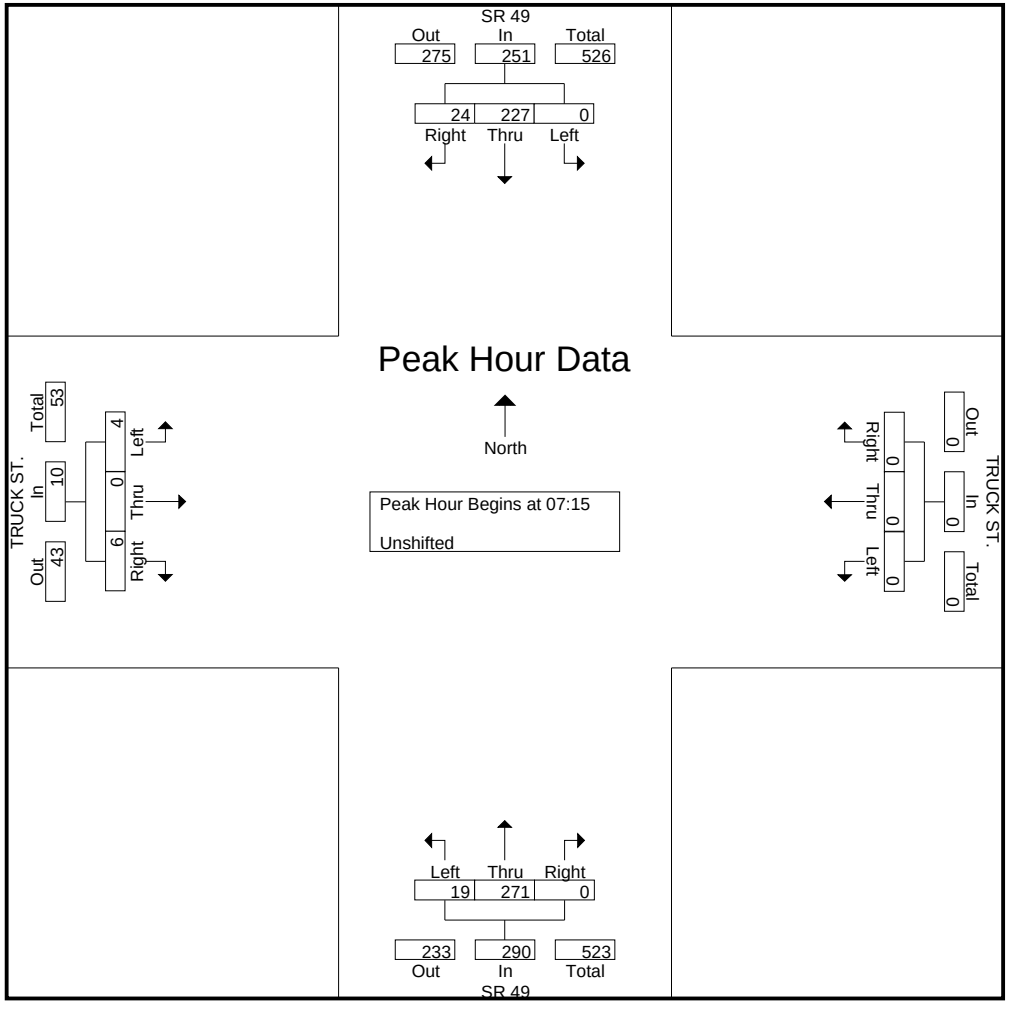
EL DORADO COUNTY

File Name : FF-SR49-TRUCK
Site Code : 00000000
Start Date : 11/29/2007
Page No : 1

Groups Printed- Unshifted

	SR 49 Southbound					TRUCK ST. Westbound					SR 49 Northbound					TRUCK ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:30	0	29	0	0	29	0	0	0	0	0	1	31	0	0	32	1	0	1	0	2	0	63	63
06:45	0	38	1	0	39	0	0	0	0	0	0	37	0	0	37	0	0	0	0	0	0	76	76
Total	0	67	1	0	68	0	0	0	0	0	1	68	0	0	69	1	0	1	0	2	0	139	139
07:00	0	36	1	0	37	0	0	0	0	0	1	43	0	0	44	2	0	1	0	3	0	84	84
07:15	0	53	1	0	54	0	0	0	0	0	5	53	0	0	58	1	0	2	0	3	0	115	115
07:30	0	40	4	0	44	0	0	0	0	0	5	74	0	0	79	1	0	1	0	2	0	125	125
07:45	0	70	14	0	84	0	0	0	0	0	4	78	0	0	82	1	0	3	0	4	0	170	170
Total	0	199	20	0	219	0	0	0	0	0	15	248	0	0	263	5	0	7	0	12	0	494	494
08:00	0	64	5	0	69	0	0	0	0	0	5	66	0	0	71	1	0	0	0	1	0	141	141
08:15	0	43	8	0	51	0	0	0	0	0	2	47	0	0	49	2	0	2	0	4	0	104	104
08:30	0	49	4	0	53	0	0	0	0	0	2	56	0	0	58	1	0	3	0	4	0	115	115
08:45	0	53	5	0	58	0	0	0	0	0	4	65	0	0	69	3	0	0	0	3	0	130	130
Total	0	209	22	0	231	0	0	0	0	0	13	234	0	0	247	7	0	5	0	12	0	490	490
09:00	0	47	2	0	49	0	0	0	0	0	3	57	0	0	60	1	0	2	0	3	0	112	112
09:15	0	42	8	0	50	0	0	0	0	0	4	56	0	0	60	4	0	3	0	7	0	117	117
Total	0	89	10	0	99	0	0	0	0	0	7	113	0	0	120	5	0	5	0	10	0	229	229
15:30	0	79	1	0	80	0	0	0	0	0	0	76	0	0	76	1	0	4	0	5	0	161	161
15:45	0	70	0	0	70	0	0	0	0	0	0	108	0	0	108	4	0	7	0	11	0	189	189
Total	0	149	1	0	150	0	0	0	0	0	0	184	0	0	184	5	0	11	0	16	0	350	350
16:00	0	105	0	0	105	0	0	0	0	0	2	80	0	0	82	2	0	3	0	5	0	192	192
16:15	0	88	0	0	88	0	0	0	0	0	4	81	0	0	85	7	0	9	0	16	0	189	189
16:30	0	83	0	0	83	0	0	0	0	0	1	122	0	0	123	5	0	2	0	7	0	213	213
16:45	0	80	1	0	81	0	0	0	0	0	2	93	0	0	95	4	0	3	0	7	0	183	183
Total	0	356	1	0	357	0	0	0	0	0	9	376	0	0	385	18	0	17	0	35	0	777	777
17:00	0	92	1	0	93	0	0	0	0	0	1	94	0	0	95	9	0	7	0	16	0	204	204
17:15	0	84	0	0	84	0	0	0	0	0	1	101	0	0	102	4	0	3	0	7	0	193	193
17:30	0	68	0	0	68	0	0	0	0	0	0	72	0	0	72	2	0	4	0	6	0	146	146
17:45	0	38	0	0	38	0	0	0	0	0	0	46	0	0	46	0	0	3	0	3	0	87	87
Total	0	282	1	0	283	0	0	0	0	0	2	313	0	0	315	15	0	17	0	32	0	630	630
18:00	0	57	0	0	57	0	0	0	0	0	0	55	0	0	55	1	0	4	0	5	0	117	117
18:15	0	34	0	0	34	0	0	0	0	0	1	34	0	0	35	0	0	0	0	0	0	69	69
Grand Total	0	1442	56	0	1498	0	0	0	0	0	48	1625	0	0	1673	57	0	67	0	124	0	3295	3295
Apprch %	0	96.3	3.7			0	0	0			2.9	97.1	0			46	0	54					
Total %	0	43.8	1.7		45.5	0	0	0		0	1.5	49.3	0		50.8	1.7	0	2.0		3.8	0	100	

	SR 49 Southbound				TRUCK ST. Westbound				SR 49 Northbound				TRUCK ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	53	1	54	0	0	0	0	5	53	0	58	1	0	2	3	115
07:30	0	40	4	44	0	0	0	0	5	74	0	79	1	0	1	2	125
07:45	0	70	14	84	0	0	0	0	4	78	0	82	1	0	3	4	170
08:00	0	64	5	69	0	0	0	0	5	66	0	71	1	0	0	1	141
Total Volume	0	227	24	251	0	0	0	0	19	271	0	290	4	0	6	10	551
% App. Total	0	90.4	9.6		0	0	0		6.6	93.4	0		40	0	60		
PHF	.000	.811	.429	.747	.000	.000	.000	.000	.950	.869	.000	.884	1.000	.000	.500	.625	.810



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EL DORADO COUNTY

File Name : FF-SR49-TRUCK
Site Code : 00000000
Start Date : 11/29/2007
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	SR 49 Southbound				TRUCK ST. Westbound				SR 49 Northbound				TRUCK ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	83	0	83	0	0	0	0	1	122	0	123	5	0	2	7	213
16:45	0	80	1	81	0	0	0	0	2	93	0	95	4	0	3	7	183
17:00	0	92	1	93	0	0	0	0	1	94	0	95	9	0	7	16	204
17:15	0	84	0	84	0	0	0	0	1	101	0	102	4	0	3	7	193
Total Volume	0	339	2	341	0	0	0	0	5	410	0	415	22	0	15	37	793
% App. Total	0	99.4	0.6		0	0	0		1.2	98.8	0		59.5	0	40.5		
PHF	.000	.921	.500	.917	.000	.000	.000	.000	.625	.840	.000	.843	.611	.000	.536	.578	.931

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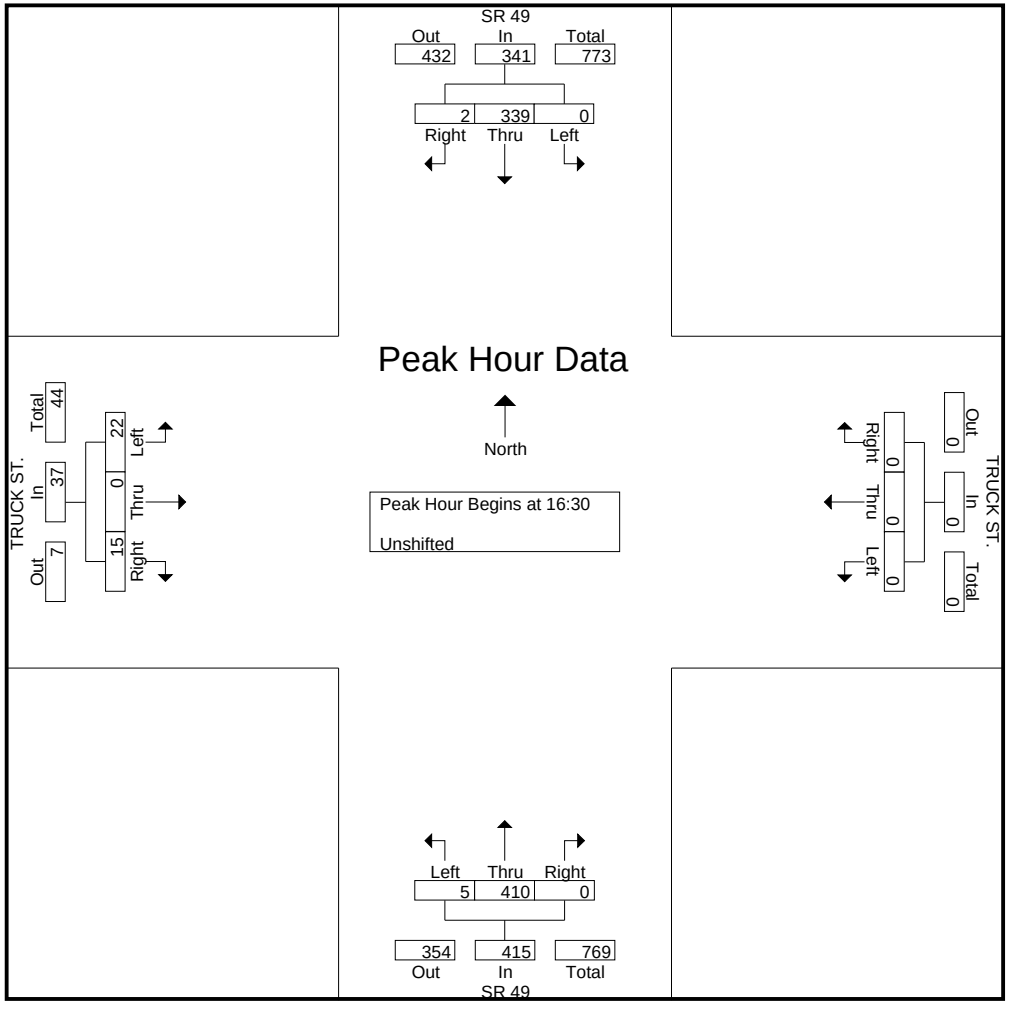

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File Name : FF--SR 49-BRADLEY
Site Code : 00000000
Start Date : 11/29/2007
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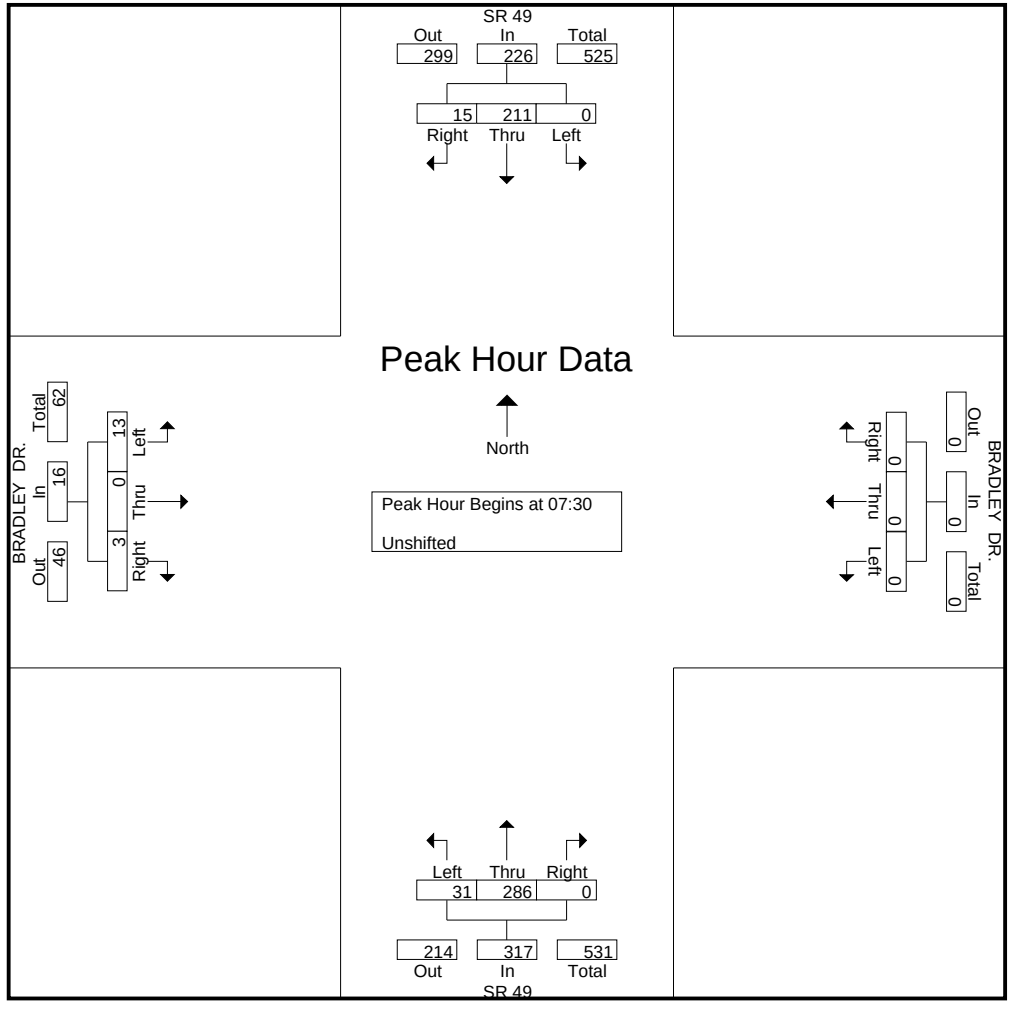
Groups Printed- Unshifted

	SR 49 Southbound					BRADLEY DR. Westbound					SR 49 Northbound					BRADLEY DR. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:30	0	28	0	0	28	0	0	0	0	0	0	32	0	0	32	1	0	0	0	1	0	61	61
06:45	0	37	0	0	37	0	0	0	0	0	1	35	0	0	36	0	0	0	0	0	0	73	73
Total	0	65	0	0	65	0	0	0	0	0	1	67	0	0	68	1	0	0	0	1	0	134	134
07:00	0	37	3	0	40	0	0	0	0	0	2	33	0	0	35	2	0	1	0	3	0	78	78
07:15	0	54	1	0	55	0	0	0	0	0	2	55	0	0	57	1	0	0	0	1	0	113	113
07:30	0	40	0	0	40	0	0	0	0	0	6	84	0	0	90	5	0	0	0	5	0	135	135
07:45	0	64	10	0	74	0	0	0	0	0	13	83	0	0	96	4	0	1	0	5	0	175	175
Total	0	195	14	0	209	0	0	0	0	0	23	255	0	0	278	12	0	2	0	14	0	501	501
08:00	0	58	5	0	63	0	0	0	0	0	7	62	0	0	69	1	0	1	0	2	0	134	134
08:15	0	49	0	0	49	0	0	0	0	0	5	57	0	0	62	3	0	1	0	4	0	115	115
08:30	0	41	4	0	45	0	0	0	0	0	14	60	0	0	74	3	0	2	0	5	0	124	124
08:45	0	50	4	0	54	0	0	0	0	0	8	61	0	0	69	4	0	1	0	5	0	128	128
Total	0	198	13	0	211	0	0	0	0	0	34	240	0	0	274	11	0	5	0	16	0	501	501
09:00	0	49	4	0	53	0	0	0	0	0	10	57	0	0	67	4	0	3	0	7	0	127	127
09:15	0	42	3	0	45	0	0	0	0	0	9	55	0	0	64	3	0	4	0	7	0	116	116
Total	0	91	7	0	98	0	0	0	0	0	19	112	0	0	131	7	0	7	0	14	0	243	243
15:30	0	78	5	0	83	0	0	0	0	0	8	82	0	0	90	4	0	4	0	8	0	181	181
15:45	0	80	0	0	80	0	0	0	0	0	12	100	0	0	112	4	0	10	0	14	0	206	206
Total	0	158	5	0	163	0	0	0	0	0	20	182	0	0	202	8	0	14	0	22	0	387	387
16:00	0	102	3	0	105	0	0	0	0	0	8	79	0	0	87	1	0	7	0	8	0	200	200
16:15	0	93	4	0	97	0	0	0	0	0	4	84	0	0	88	1	0	5	0	6	0	191	191
16:30	0	85	2	0	87	0	0	0	0	0	2	119	0	0	121	3	0	6	0	9	0	217	217
16:45	0	80	0	0	80	0	0	0	0	0	6	91	1	0	98	1	0	5	0	6	0	184	184
Total	0	360	9	0	369	0	0	0	0	0	20	373	1	0	394	6	0	23	0	29	0	792	792
17:00	0	84	1	0	85	0	0	0	0	0	1	89	1	0	91	2	0	1	0	3	0	179	179
17:15	0	92	2	0	94	0	0	0	0	0	3	100	0	0	103	5	0	2	0	7	0	204	204
17:30	0	68	0	0	68	0	0	0	0	0	1	74	0	0	75	2	0	4	0	6	0	149	149
17:45	0	58	0	0	58	0	0	0	0	0	1	46	0	0	47	1	0	0	0	1	0	106	106
Total	0	302	3	0	305	0	0	0	0	0	6	309	1	0	316	10	0	7	0	17	0	638	638
18:00	0	53	1	0	54	0	0	0	0	0	1	49	0	0	50	1	0	2	0	3	0	107	107
18:15	0	37	1	0	38	0	0	0	0	0	3	33	0	0	36	3	0	3	0	6	0	80	80
Grand Total	0	1459	53	0	1512	0	0	0	0	0	127	1620	2	0	1749	59	0	63	0	122	0	3383	3383
Apprch %	0	96.5	3.5			0	0	0			7.3	92.6	0.1			48.4	0	51.6					
Total %	0	43.1	1.6		44.7	0	0	0		0	3.8	47.9	0.1		51.7	1.7	0	1.9		3.6	0	100	

	SR 49 Southbound				BRADLEY DR. Westbound				SR 49 Northbound				BRADLEY DR. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	40	0	40	0	0	0	0	6	84	0	90	5	0	0	5	135
07:45	0	64	10	74	0	0	0	0	13	83	0	96	4	0	1	5	175
08:00	0	58	5	63	0	0	0	0	7	62	0	69	1	0	1	2	134
08:15	0	49	0	49	0	0	0	0	5	57	0	62	3	0	1	4	115
Total Volume	0	211	15	226	0	0	0	0	31	286	0	317	13	0	3	16	559
% App. Total	0	93.4	6.6		0	0	0		9.8	90.2	0		81.2	0	18.8		
PHF	.000	.824	.375	.764	.000	.000	.000	.000	.596	.851	.000	.826	.650	.000	.750	.800	.799



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EL DORADO COUNTY

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	SR 49 Southbound				BRADLEY DR. Westbound				SR 49 Northbound				BRADLEY DR. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	0	80	0	80	0	0	0	0	12	100	0	112	4	0	10	14	206
16:00	0	102	3	105	0	0	0	0	8	79	0	87	1	0	7	8	200
16:15	0	93	4	97	0	0	0	0	4	84	0	88	1	0	5	6	191
16:30	0	85	2	87	0	0	0	0	2	119	0	121	3	0	6	9	217
Total Volume	0	360	9	369	0	0	0	0	26	382	0	408	9	0	28	37	814
% App. Total	0	97.6	2.4		0	0	0		6.4	93.6	0		24.3	0	75.7		
PHF	.000	.882	.563	.879	.000	.000	.000	.000	.542	.803	.000	.843	.563	.000	.700	.661	.938

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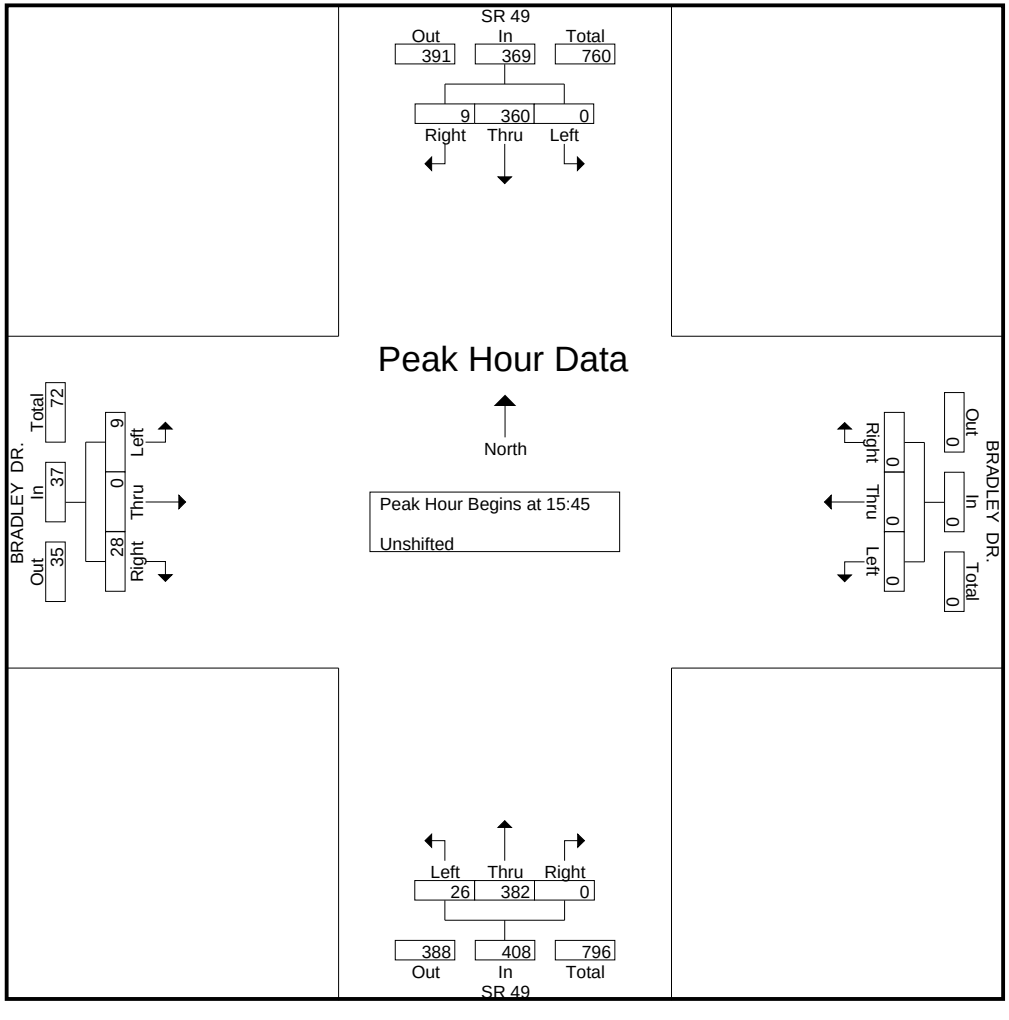

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EL DORADO COUNTY
Bank 1-contains truck classification num

File Name : FF-SR49-BLCK. RICE
Site Code : 00000000
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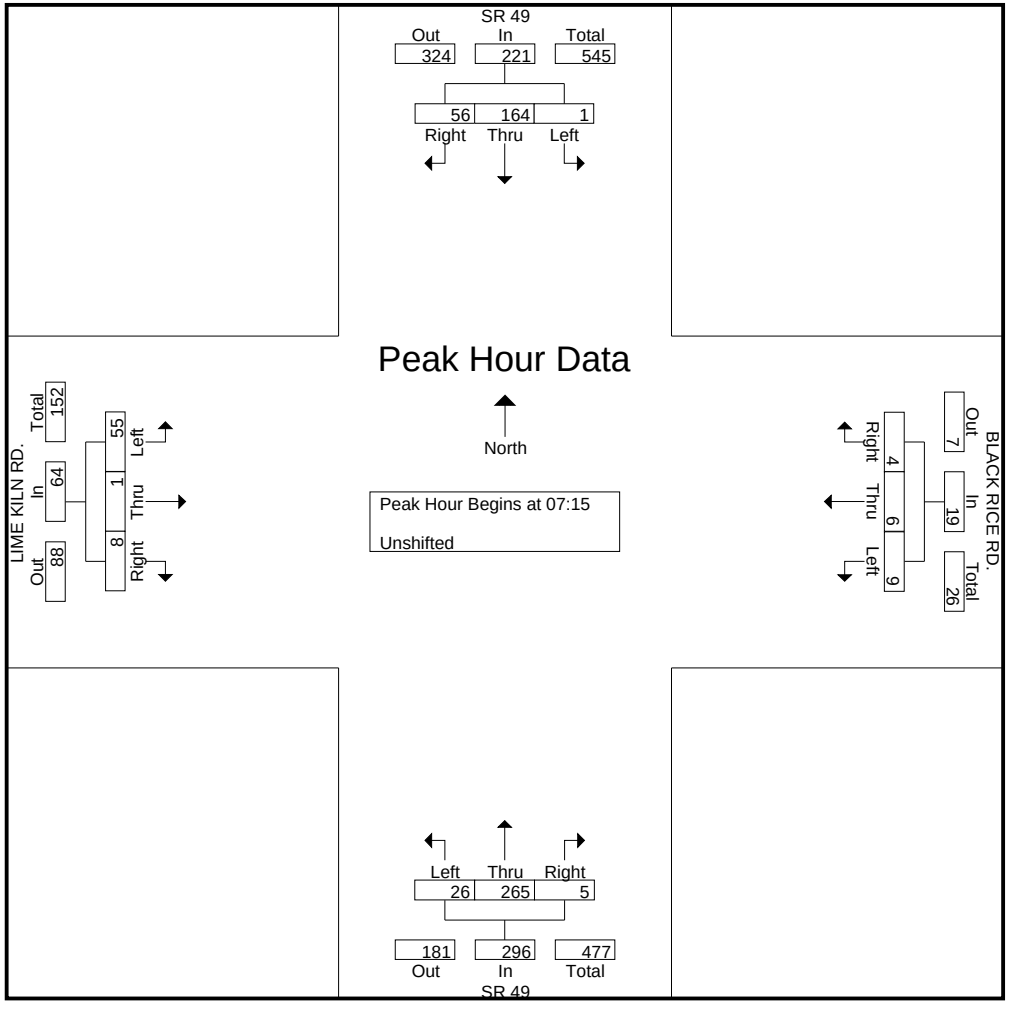
Groups Printed- Unshifted

	SR 49 Southbound					BLACK RICE RD. Westbound					SR 49 Northbound					LIME KILN RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:30	0	15	15	0	30	1	0	1	0	2	0	26	0	0	26	6	0	1	0	7	0	65	65
06:45	0	16	17	0	33	2	1	0	0	3	0	23	0	0	23	9	1	2	0	12	0	71	71
Total	0	31	32	0	63	3	1	1	0	5	0	49	0	0	49	15	1	3	0	19	0	136	136
07:00	0	24	13	0	37	1	1	0	0	2	4	24	0	0	28	7	0	1	0	8	0	75	75
07:15	0	41	16	0	57	2	2	0	0	4	11	46	2	0	59	16	0	1	0	17	0	137	137
07:30	0	33	10	0	43	1	2	0	0	3	2	80	0	0	82	14	1	2	0	17	0	145	145
07:45	1	45	17	0	63	3	1	1	0	5	7	79	3	0	89	15	0	1	0	16	0	173	173
Total	1	143	56	0	200	7	6	1	0	14	24	229	5	0	258	52	1	5	0	58	0	530	530
08:00	0	45	13	0	58	3	1	3	0	7	6	60	0	0	66	10	0	4	0	14	0	145	145
08:15	0	38	11	0	49	0	0	2	0	2	3	55	1	0	59	7	1	6	0	14	0	124	124
08:30	0	33	7	0	40	0	3	0	0	3	4	55	1	0	60	14	0	4	0	18	0	121	121
08:45	0	39	14	0	53	0	0	0	0	0	4	61	0	0	65	11	0	0	0	11	0	129	129
Total	0	155	45	0	200	3	4	5	0	12	17	231	2	0	250	42	1	14	0	57	0	519	519
09:00	1	38	9	0	48	1	2	1	0	4	2	49	3	0	54	17	2	3	0	22	0	128	128
09:15	1	44	8	0	53	0	2	0	0	2	4	59	0	0	63	8	1	4	0	13	0	131	131
Total	2	82	17	0	101	1	4	1	0	6	6	108	3	0	117	25	3	7	0	35	0	259	259
15:30	0	78	12	0	90	1	1	2	0	4	4	52	1	0	57	41	3	14	0	58	0	209	209
15:45	1	73	13	0	87	3	0	0	0	3	6	92	2	0	100	18	3	7	0	28	0	218	218
Total	1	151	25	0	177	4	1	2	0	7	10	144	3	0	157	59	6	21	0	86	0	427	427
16:00	1	100	10	0	111	1	1	1	0	3	4	64	2	0	70	28	3	13	0	44	0	228	228
16:15	0	70	13	0	83	2	0	0	0	2	5	59	3	0	67	27	4	14	0	45	0	197	197
16:30	2	74	14	0	90	2	2	2	0	6	3	76	1	0	80	33	1	19	0	53	0	229	229
16:45	0	79	16	0	95	2	1	0	0	3	3	68	3	0	74	32	2	22	0	56	0	228	228
Total	3	323	53	0	379	7	4	3	0	14	15	267	9	0	291	120	10	68	0	198	0	882	882
17:00	0	96	14	0	110	0	0	0	0	0	2	58	0	0	60	33	2	28	0	63	0	233	233
17:15	1	55	13	0	69	1	0	1	0	2	3	54	2	0	59	31	2	19	0	52	0	182	182
17:30	1	56	18	0	75	1	1	2	0	4	1	51	2	0	54	19	1	17	0	37	0	170	170
17:45	1	48	9	0	58	1	0	2	0	3	2	46	1	0	49	23	6	5	0	34	0	144	144
Total	3	255	54	0	312	3	1	5	0	9	8	209	5	0	222	106	11	69	0	186	0	729	729
18:00	1	50	3	0	54	2	1	0	0	3	2	34	3	0	39	10	0	10	0	20	0	116	116
18:15	0	34	4	0	38	1	0	2	0	3	4	29	1	0	34	6	2	5	0	13	0	88	88
Grand Total	11	1224	289	0	1524	31	22	20	0	73	86	1300	31	0	1417	435	35	202	0	672	0	3686	3686
Apprch %	0.7	80.3	19			42.5	30.1	27.4			6.1	91.7	2.2			64.7	5.2	30.1					
Total %	0.3	33.2	7.8		41.3	0.8	0.6	0.5		2	2.3	35.3	0.8		38.5	11.8	0.9	5.5		18.2	0	100	

	SR 49 Southbound				BLACK RICE RD. Westbound				SR 49 Northbound				LIME KILN RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	41	16	57	2	2	0	4	11	46	2	59	16	0	1	17	137
07:30	0	33	10	43	1	2	0	3	2	80	0	82	14	1	2	17	145
07:45	1	45	17	63	3	1	1	5	7	79	3	89	15	0	1	16	173
08:00	0	45	13	58	3	1	3	7	6	60	0	66	10	0	4	14	145
Total Volume	1	164	56	221	9	6	4	19	26	265	5	296	55	1	8	64	600
% App. Total	0.5	74.2	25.3		47.4	31.6	21.1		8.8	89.5	1.7		85.9	1.6	12.5		
PHF	.250	.911	.824	.877	.750	.750	.333	.679	.591	.828	.417	.831	.859	.250	.500	.941	.867



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	SR 49 Southbound				BLACK RICE RD. Westbound				SR 49 Northbound				LIME KILN RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	0	70	13	83	2	0	0	2	5	59	3	67	27	4	14	45	197
16:30	2	74	14	90	2	2	2	6	3	76	1	80	33	1	19	53	229
16:45	0	79	16	95	2	1	0	3	3	68	3	74	32	2	22	56	228
17:00	0	96	14	110	0	0	0	0	2	58	0	60	33	2	28	63	233
Total Volume	2	319	57	378	6	3	2	11	13	261	7	281	125	9	83	217	887
% App. Total	0.5	84.4	15.1		54.5	27.3	18.2		4.6	92.9	2.5		57.6	4.1	38.2		
PHF	.250	.831	.891	.859	.750	.375	.250	.458	.650	.859	.583	.878	.947	.563	.741	.861	.952

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EL DORADO COUNTY
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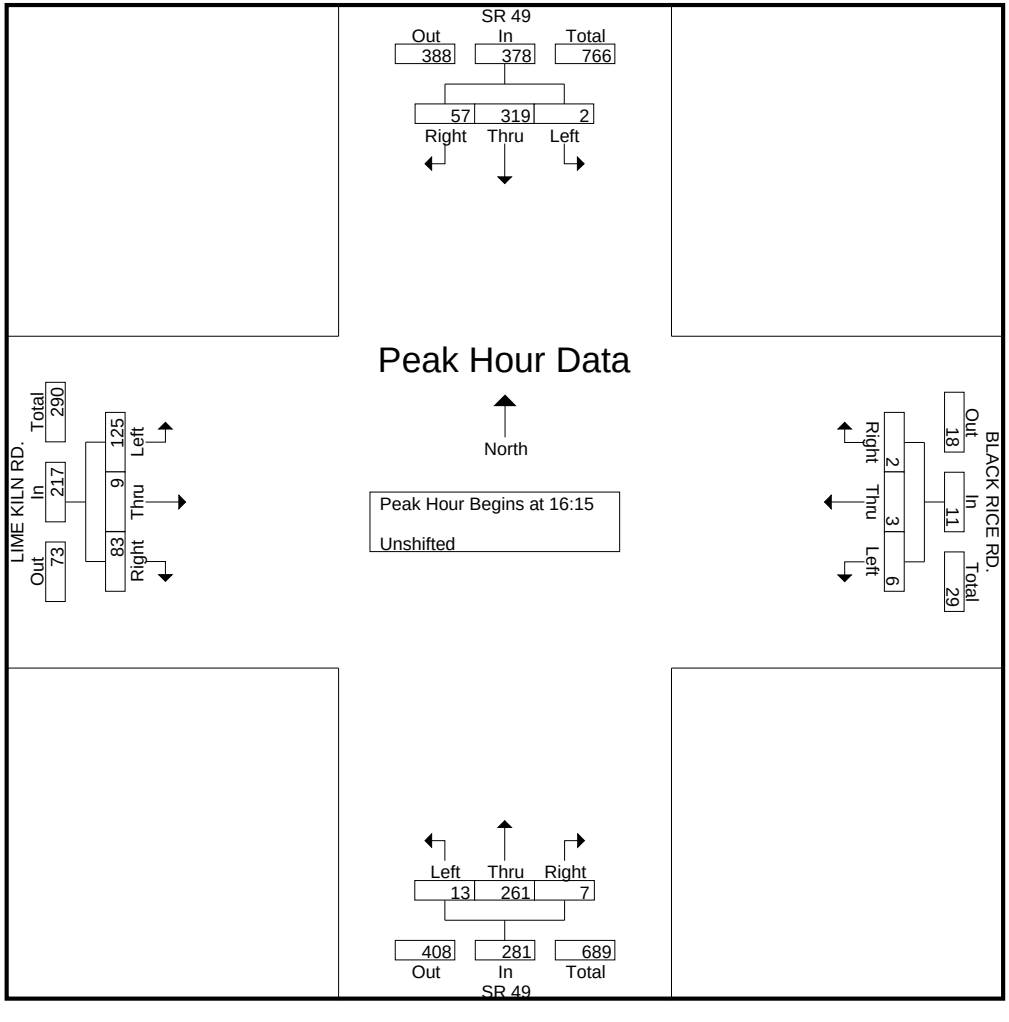

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EL DORADO COUNTY

File Name : FF-CHINA GRDN-PLEAS
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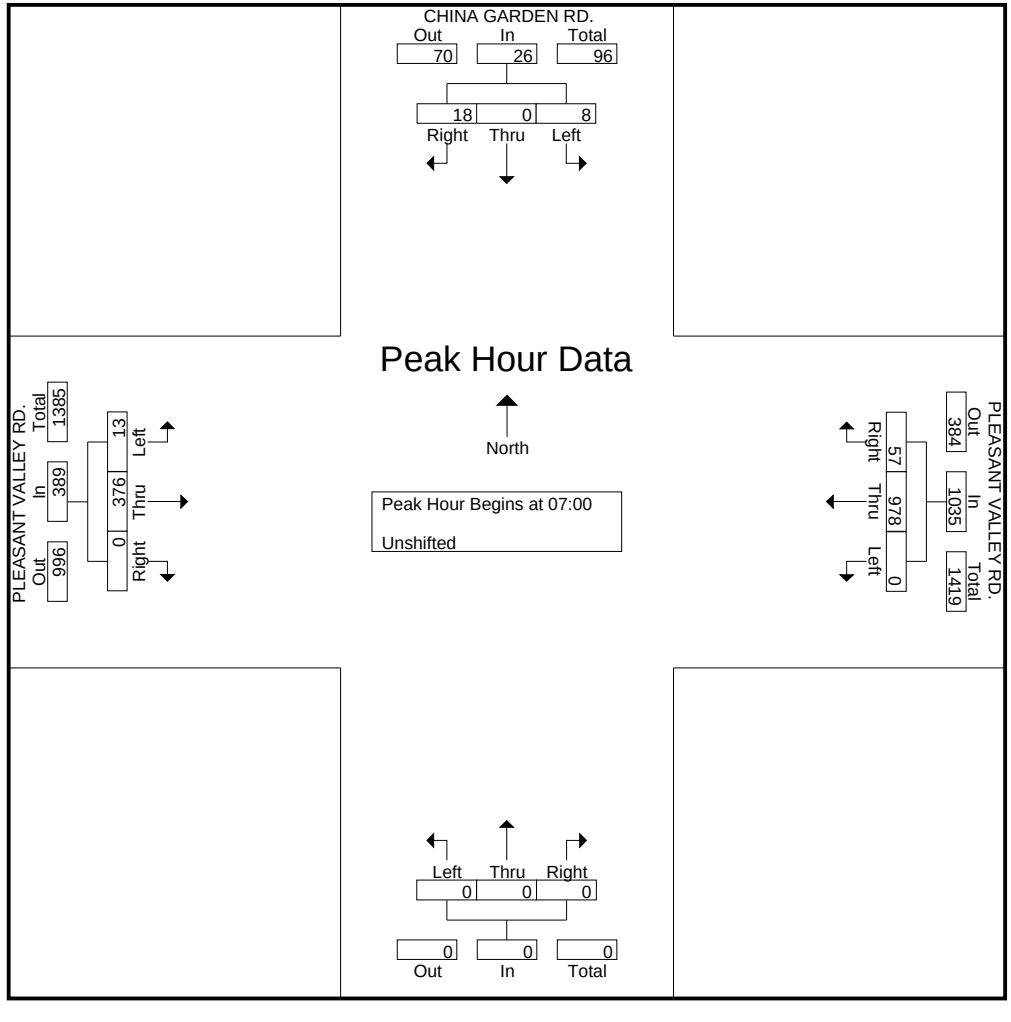
Groups Printed- Unshifted

	CHINA GARDEN RD. Southbound					PLEASANT VALLEY RD. Westbound					Northbound					PLEASANT VALLEY RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:30	1	0	0	0	1	0	229	9	0	238	0	0	0	0	0	0	69	0	0	69	0	308	308
06:45	0	0	1	0	1	0	214	11	0	225	0	0	0	0	0	0	71	0	0	71	0	297	297
Total	1	0	1	0	2	0	443	20	0	463	0	0	0	0	0	0	140	0	0	140	0	605	605
07:00	5	0	7	0	12	0	231	13	0	244	0	0	0	0	0	3	64	0	0	67	0	323	323
07:15	2	0	2	0	4	0	269	17	0	286	0	0	0	0	0	5	85	0	0	90	0	380	380
07:30	0	0	5	0	5	0	252	10	0	262	0	0	0	0	0	3	114	0	0	117	0	384	384
07:45	1	0	4	0	5	0	226	17	0	243	0	0	0	0	0	2	113	0	0	115	0	363	363
Total	8	0	18	0	26	0	978	57	0	1035	0	0	0	0	0	13	376	0	0	389	0	1450	1450
08:00	2	0	2	0	4	0	195	6	0	201	0	0	0	0	0	4	87	0	0	91	0	296	296
08:15	3	0	3	0	6	0	206	12	0	218	0	0	0	0	0	5	85	0	0	90	0	314	314
08:30	2	0	8	0	10	0	193	14	0	207	0	0	0	0	0	5	94	0	0	99	0	316	316
08:45	3	0	3	0	6	0	191	12	0	203	0	0	0	0	0	7	109	0	0	116	0	325	325
Total	10	0	16	0	26	0	785	44	0	829	0	0	0	0	0	21	375	0	0	396	0	1251	1251
09:00	4	0	3	0	7	0	182	11	0	193	0	0	0	0	0	3	97	0	0	100	0	300	300
09:15	3	0	1	0	4	0	156	7	0	163	0	0	0	0	0	2	105	0	0	107	0	274	274
Total	7	0	4	0	11	0	338	18	0	356	0	0	0	0	0	5	202	0	0	207	0	574	574
15:30	3	0	7	0	10	0	87	15	0	102	0	0	0	0	0	4	158	0	0	162	0	274	274
15:45	4	0	1	0	5	0	115	10	0	125	0	0	0	0	0	4	160	0	0	164	0	294	294
Total	7	0	8	0	15	0	202	25	0	227	0	0	0	0	0	8	318	0	0	326	0	568	568
16:00	4	0	8	0	12	0	91	12	0	103	0	0	0	0	0	6	171	0	0	177	0	292	292
16:15	2	0	2	0	4	0	103	10	0	113	0	0	0	0	0	6	178	0	0	184	0	301	301
16:30	3	0	6	0	9	0	90	10	0	100	0	0	0	0	0	5	165	0	0	170	0	279	279
16:45	5	0	3	0	8	0	118	11	0	129	0	0	0	0	0	5	171	0	0	176	0	313	313
Total	14	0	19	0	33	0	402	43	0	445	0	0	0	0	0	22	685	0	0	707	0	1185	1185
17:00	5	0	7	0	12	0	82	8	0	90	0	0	0	0	0	3	178	0	0	181	0	283	283
17:15	3	0	8	0	11	0	76	5	0	81	0	0	0	0	0	7	205	0	0	212	0	304	304
17:30	2	0	6	0	8	0	67	2	0	69	0	0	0	0	0	7	184	0	0	191	0	268	268
17:45	6	0	3	0	9	0	61	4	0	65	0	0	0	0	0	1	170	0	0	171	0	245	245
Total	16	0	24	0	40	0	286	19	0	305	0	0	0	0	0	18	737	0	0	755	0	1100	1100
18:00	4	0	4	0	8	0	51	5	0	56	0	0	0	0	0	3	168	0	0	171	0	235	235
18:15	4	0	4	0	8	0	72	13	0	85	0	0	0	0	0	10	149	0	0	159	0	252	252
Grand Total	71	0	98	0	169	0	3557	244	0	3801	0	0	0	0	0	100	3150	0	0	3250	0	7220	7220
Apprch %	42	0	58			0	93.6	6.4			0	0	0			3.1	96.9	0					
Total %	1	0	1.4		2.3	0	49.3	3.4		52.6	0	0	0		0	1.4	43.6	0		45	0	100	

	CHINA GARDEN RD. Southbound				PLEASANT VALLEY RD. Westbound				Northbound				PLEASANT VALLEY RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	5	0	7	12	0	231	13	244	0	0	0	0	3	64	0	67	323
07:15	2	0	2	4	0	269	17	286	0	0	0	0	5	85	0	90	380
07:30	0	0	5	5	0	252	10	262	0	0	0	0	3	114	0	117	384
07:45	1	0	4	5	0	226	17	243	0	0	0	0	2	113	0	115	363
Total Volume	8	0	18	26	0	978	57	1035	0	0	0	0	13	376	0	389	1450
% App. Total	30.8	0	69.2		0	94.5	5.5		0	0	0		3.3	96.7	0		
PHF	.400	.000	.643	.542	.000	.909	.838	.905	.000	.000	.000	.000	.650	.825	.000	.831	.944



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	CHINA GARDEN RD. Southbound				PLEASANT VALLEY RD. Westbound				Northbound				PLEASANT VALLEY RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	4	0	8	12	0	91	12	103	0	0	0	0	6	171	0	177	292
16:15	2	0	2	4	0	103	10	113	0	0	0	0	6	178	0	184	301
16:30	3	0	6	9	0	90	10	100	0	0	0	0	5	165	0	170	279
16:45	5	0	3	8	0	118	11	129	0	0	0	0	5	171	0	176	313
Total Volume	14	0	19	33	0	402	43	445	0	0	0	0	22	685	0	707	1185
% App. Total	42.4	0	57.6		0	90.3	9.7		0	0	0		3.1	96.9	0		
PHF	.700	.000	.594	.688	.000	.852	.896	.862	.000	.000	.000	.000	.917	.962	.000	.961	.946

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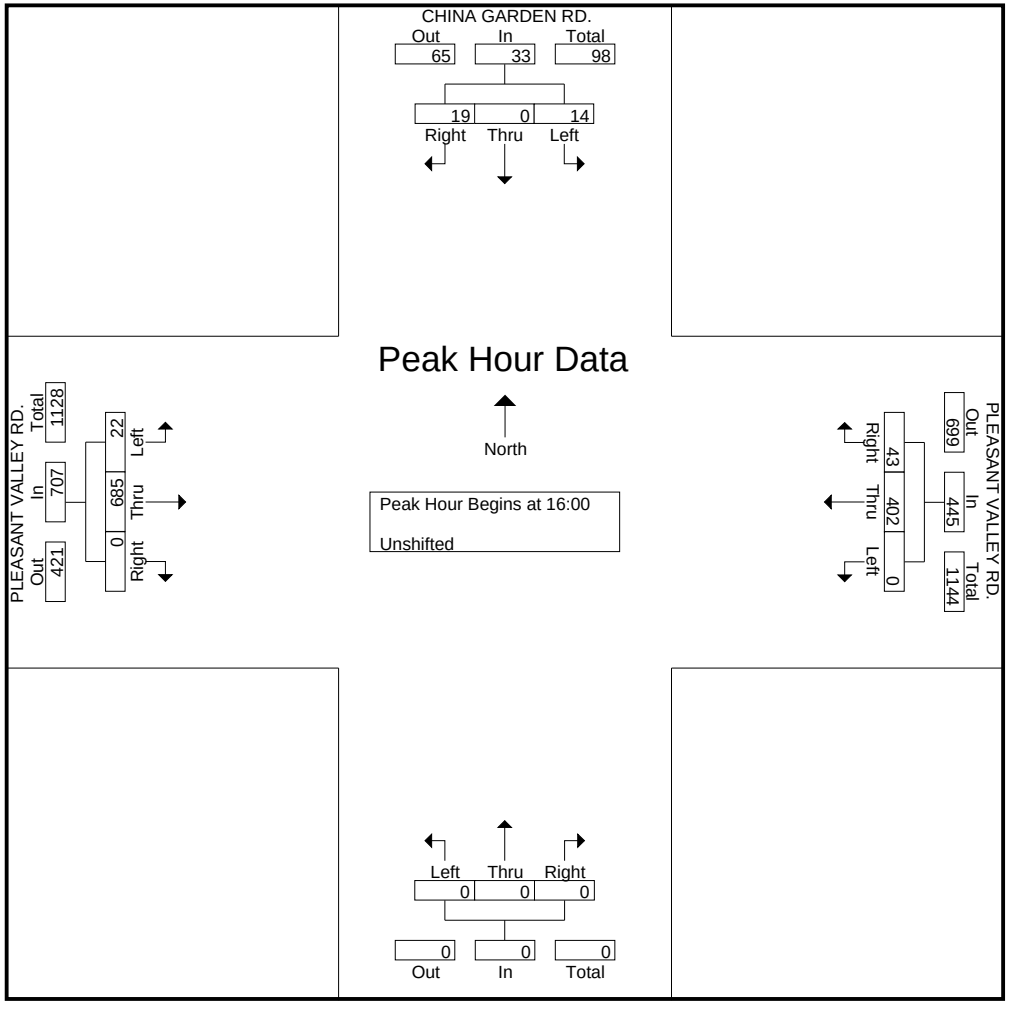

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File Name : FF-CANYON VAL-PLEAS VAL
Site Code : 00000000
Start Date : 11/29/2007
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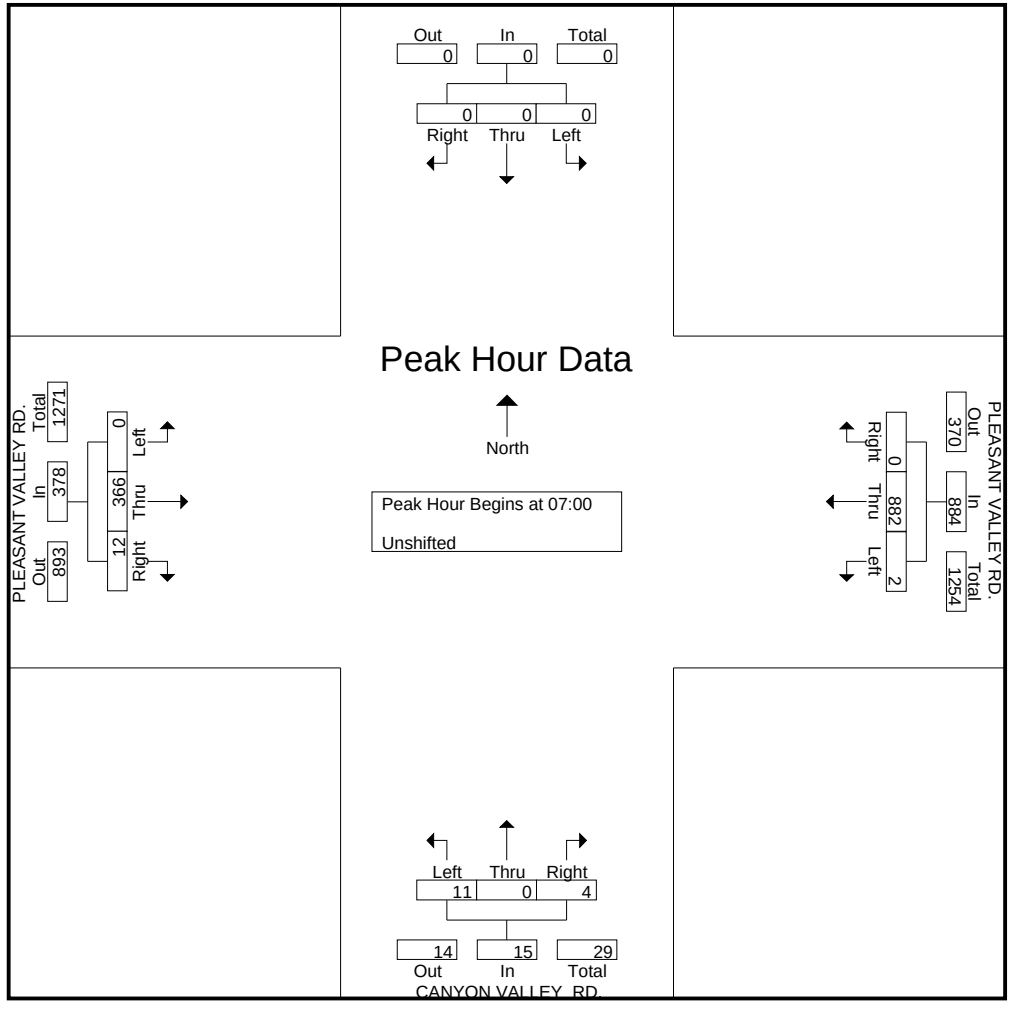
Groups Printed- Unshifted

	Southbound				PLEASANT VALLEY RD. Westbound				CANYON VALLEY RD. Northbound				PLEASANT VALLEY RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30	0	0	0	0	0	185	0	185	2	0	1	3	0	26	1	27	215
06:45	0	0	0	0	1	196	0	197	3	0	1	4	0	30	0	30	231
Total	0	0	0	0	1	381	0	382	5	0	2	7	0	56	1	57	446
07:00	0	0	0	0	1	238	0	239	1	0	0	1	0	65	3	68	308
07:15	0	0	0	0	0	248	0	248	6	0	2	8	0	86	4	90	346
07:30	0	0	0	0	0	214	0	214	2	0	2	4	0	108	2	110	328
07:45	0	0	0	0	1	182	0	183	2	0	0	2	0	107	3	110	295
Total	0	0	0	0	2	882	0	884	11	0	4	15	0	366	12	378	1277
08:00	0	0	0	0	2	171	0	173	4	0	1	5	0	87	2	89	267
08:15	0	0	0	0	1	177	0	178	7	0	1	8	0	69	2	71	257
08:30	0	0	0	0	1	194	0	195	8	0	0	8	0	99	0	99	302
08:45	0	0	0	0	1	182	0	183	3	0	0	3	0	110	4	114	300
Total	0	0	0	0	5	724	0	729	22	0	2	24	0	365	8	373	1126
09:00	0	0	0	0	1	195	0	196	4	0	2	6	0	96	6	102	304
09:15	0	0	0	0	1	141	0	142	1	0	2	3	0	92	2	94	239
Total	0	0	0	0	2	336	0	338	5	0	4	9	0	188	8	196	543
15:30	0	0	0	0	0	107	0	107	3	0	1	4	0	159	3	162	273
15:45	0	0	0	0	1	107	0	108	1	0	0	1	0	171	9	180	289
Total	0	0	0	0	1	214	0	215	4	0	1	5	0	330	12	342	562
16:00	0	0	0	0	0	91	0	91	0	0	0	0	0	170	7	177	268
16:15	0	0	0	0	1	87	0	88	3	0	0	3	0	178	4	182	273
16:30	0	0	0	0	0	90	0	90	1	0	1	2	0	172	3	175	267
16:45	0	0	0	0	0	80	0	80	3	0	1	4	0	169	4	173	257
Total	0	0	0	0	1	348	0	349	7	0	2	9	0	689	18	707	1065
17:00	0	0	0	0	2	80	0	82	2	0	0	2	0	177	5	182	266
17:15	0	0	0	0	0	88	0	88	3	0	0	3	0	203	5	208	299
17:30	0	0	0	0	0	51	0	51	2	0	1	3	0	190	5	195	249
17:45	0	0	0	0	0	70	0	70	2	0	0	2	0	165	5	170	242
Total	0	0	0	0	2	289	0	291	9	0	1	10	0	735	20	755	1056
18:00	0	0	0	0	0	59	0	59	1	0	0	1	0	168	0	168	228
18:15	0	0	0	0	0	75	0	75	1	0	1	2	0	165	0	165	242
Grand Total	0	0	0	0	14	3308	0	3322	65	0	17	82	0	3062	79	3141	6545
Apprch %	0	0	0		0.4	99.6	0		79.3	0	20.7		0	97.5	2.5		
Total %	0	0	0	0	0.2	50.5	0	50.8	1	0	0.3	1.3	0	46.8	1.2	48	

	Southbound				PLEASANT VALLEY RD. Westbound				CANYON VALLEY RD. Northbound				PLEASANT VALLEY RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	0	0	0	0	1	238	0	239	1	0	0	1	0	65	3	68	308
07:15	0	0	0	0	0	248	0	248	6	0	2	8	0	86	4	90	346
07:30	0	0	0	0	0	214	0	214	2	0	2	4	0	108	2	110	328
07:45	0	0	0	0	1	182	0	183	2	0	0	2	0	107	3	110	295
Total Volume	0	0	0	0	2	882	0	884	11	0	4	15	0	366	12	378	1277
% App. Total	0	0	0		0.2	99.8	0		73.3	0	26.7		0	96.8	3.2		
PHF	.000	.000	.000	.000	.500	.889	.000	.891	.458	.000	.500	.469	.000	.847	.750	.859	.923



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EL DORADO COUNTY

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	Southbound				PLEASANT VALLEY RD. Westbound				CANYON VALLEY RD. Northbound				PLEASANT VALLEY RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:30																	
15:30	0	0	0	0	0	107	0	107	3	0	1	4	0	159	3	162	273
15:45	0	0	0	0	1	107	0	108	1	0	0	1	0	171	9	180	289
16:00	0	0	0	0	0	91	0	91	0	0	0	0	0	170	7	177	268
16:15	0	0	0	0	1	87	0	88	3	0	0	3	0	178	4	182	273
Total Volume	0	0	0	0	2	392	0	394	7	0	1	8	0	678	23	701	1103
% App. Total	0	0	0		0.5	99.5	0		87.5	0	12.5		0	96.7	3.3		
PHF	.000	.000	.000	.000	.500	.916	.000	.912	.583	.000	.250	.500	.000	.952	.639	.963	.954

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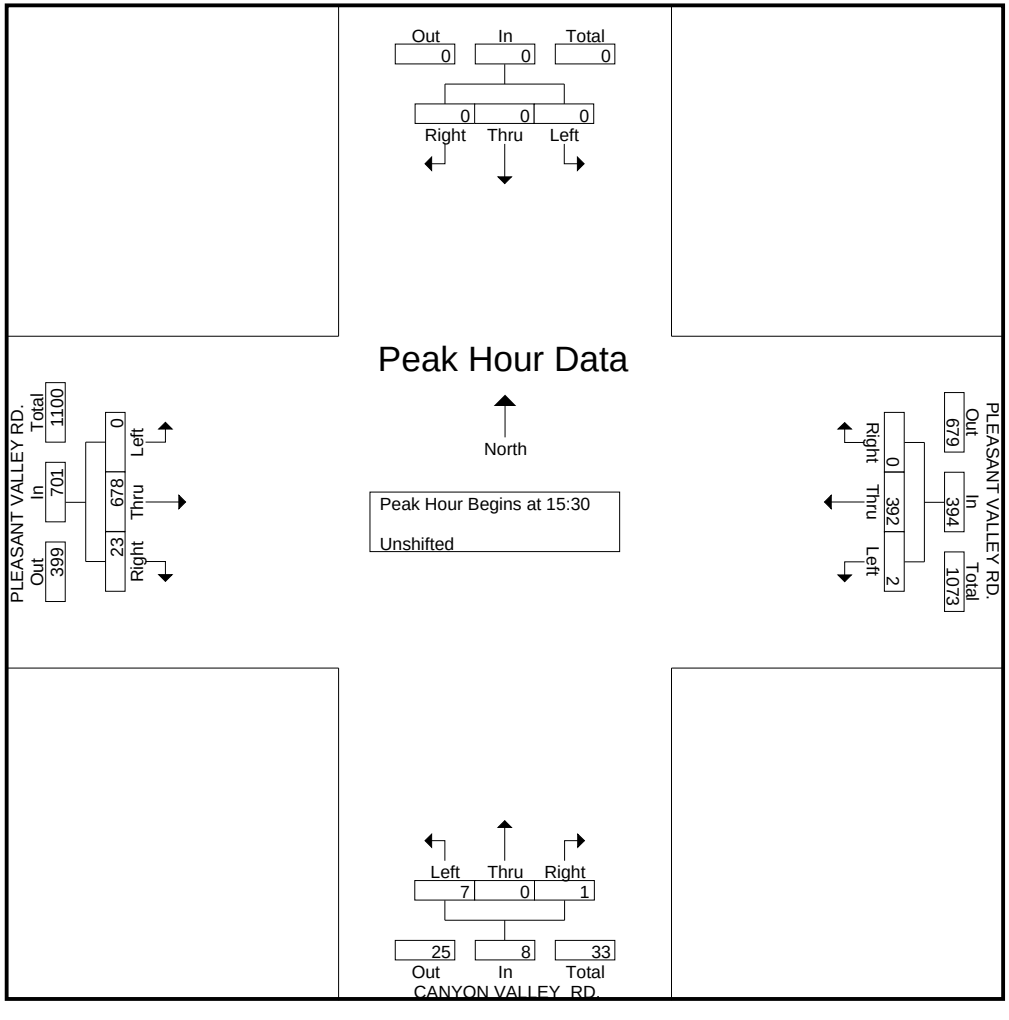

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EL DORADO COUNTY

File Name : FF-ORO LANE-PLEAS. VALLEY
Site Code : 00000000
Start Date : 11/29/2007
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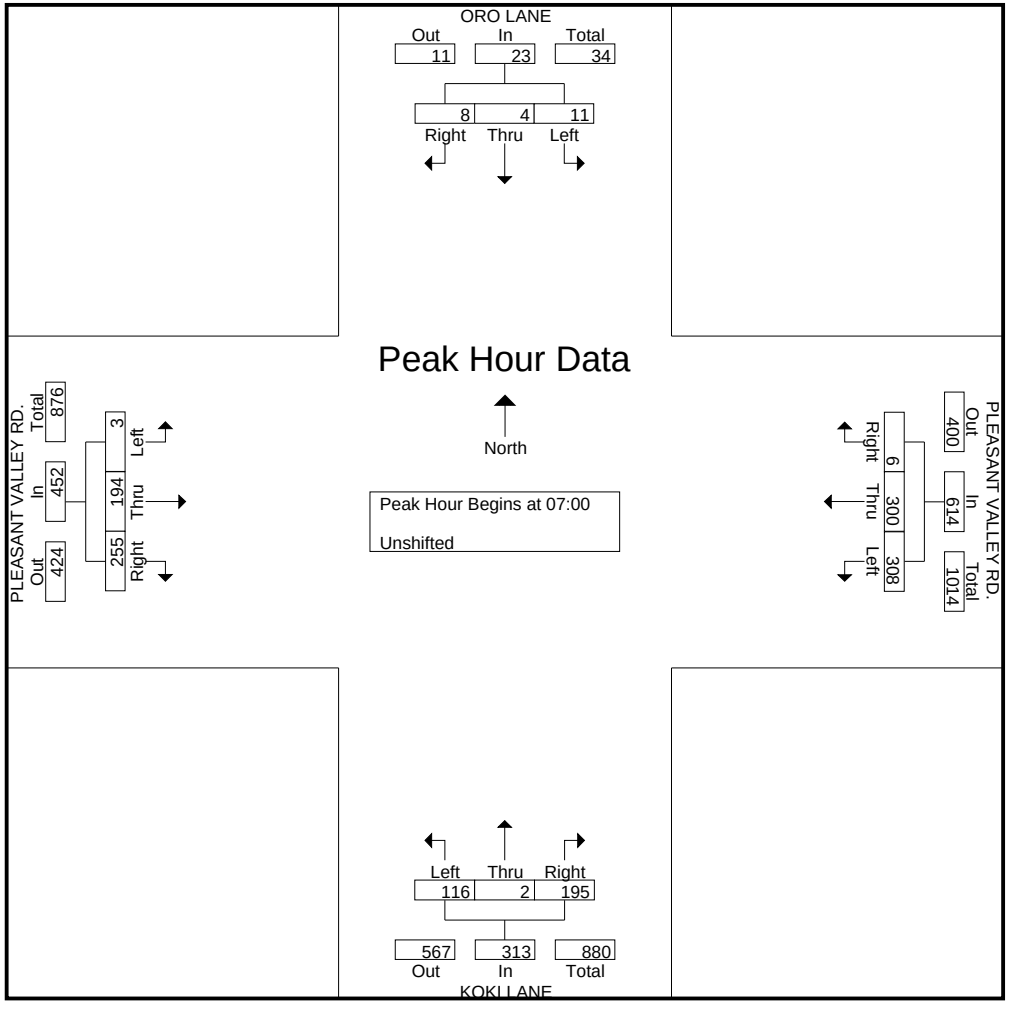
Groups Printed- Unshifted

	ORO LANE Southbound					PLEASANT VALLEY RD. Westbound					KOKI LANE Northbound					PLEASANT VALLEY RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:30	0	0	1	0	1	11	54	1	0	66	1	0	4	0	5	0	22	3	0	25	0	97	97
06:45	1	0	0	0	1	26	58	1	0	85	9	0	7	0	16	1	23	6	0	30	0	132	132
Total	1	0	1	0	2	37	112	2	0	151	10	0	11	0	21	1	45	9	0	55	0	229	229
07:00	2	0	3	0	5	36	77	1	0	114	12	0	15	0	27	1	40	17	0	58	0	204	204
07:15	2	0	1	0	3	116	66	1	0	183	26	0	46	0	72	1	36	59	0	96	0	354	354
07:30	2	4	1	0	7	115	62	4	0	181	47	0	59	0	106	1	43	138	0	182	0	476	476
07:45	5	0	3	0	8	41	95	0	0	136	31	2	75	0	108	0	75	41	0	116	0	368	368
Total	11	4	8	0	23	308	300	6	0	614	116	2	195	0	313	3	194	255	0	452	0	1402	1402
08:00	1	0	0	0	1	12	70	0	0	82	4	0	11	0	15	0	60	5	0	65	0	163	163
08:15	1	0	1	0	2	8	82	1	0	91	9	0	4	0	13	0	68	4	0	72	0	178	178
08:30	5	0	2	0	7	10	108	2	0	120	1	0	1	0	2	1	87	1	0	89	0	218	218
08:45	1	0	0	0	1	11	101	1	0	113	5	0	7	0	12	1	67	8	0	76	0	202	202
Total	8	0	3	0	11	41	361	4	0	406	19	0	23	0	42	2	282	18	0	302	0	761	761
09:00	1	0	1	0	2	21	65	1	0	87	10	0	12	0	22	3	49	8	0	60	0	171	171
09:15	0	0	1	0	1	10	62	0	0	72	4	0	13	0	17	1	66	10	0	77	0	167	167
Total	1	0	2	0	3	31	127	1	0	159	14	0	25	0	39	4	115	18	0	137	0	338	338
14:00	5	0	1	0	6	18	61	3	0	82	20	1	25	0	46	1	64	13	0	78	0	212	212
14:15	1	0	2	0	3	21	78	1	0	100	12	0	21	0	33	4	75	6	0	85	0	221	221
14:30	2	0	4	0	6	29	77	2	0	108	7	0	9	0	16	1	70	15	0	86	0	216	216
14:45	5	0	2	0	7	34	78	2	0	114	10	1	15	0	26	1	108	20	0	129	0	276	276
Total	13	0	9	0	22	102	294	8	0	404	49	2	70	0	121	7	317	54	0	378	0	925	925
15:00	0	0	2	0	2	37	84	0	0	121	104	0	90	0	194	1	104	40	0	145	0	462	462
15:15	0	0	0	0	0	24	121	2	0	147	38	0	38	0	76	1	84	16	0	101	0	324	324
15:30	2	0	0	0	2	11	86	2	0	99	16	0	17	0	33	2	93	9	0	104	0	238	238
15:45	2	0	1	0	3	10	114	7	0	131	10	0	18	0	28	0	119	12	0	131	0	293	293
Total	4	0	3	0	7	82	405	11	0	498	168	0	163	0	331	4	400	77	0	481	0	1317	1317
16:00	4	0	8	0	12	12	79	6	0	97	15	0	19	0	34	8	117	14	0	139	0	282	282
16:15	4	0	0	0	4	13	85	0	0	98	17	1	19	0	37	3	121	15	0	139	0	278	278
16:30	2	0	0	0	2	17	86	8	0	111	16	0	24	0	40	2	118	13	0	133	0	286	286
16:45	3	0	3	0	6	19	67	1	0	87	16	0	9	0	25	0	114	23	0	137	0	255	255
Total	13	0	11	0	24	61	317	15	0	393	64	1	71	0	136	13	470	65	0	548	0	1101	1101
Grand Total	51	4	37	0	92	662	1916	47	0	2625	440	5	558	0	1003	34	1823	496	0	2353	0	6073	6073
Apprch %	55.4	4.3	40.2			25.2	73	1.8			43.9	0.5	55.6			1.4	77.5	21.1					
Total %	0.8	0.1	0.6		1.5	10.9	31.5	0.8		43.2	7.2	0.1	9.2		16.5	0.6	30	8.2		38.7	0	100	

	ORO LANE Southbound				PLEASANT VALLEY RD. Westbound				KOKI LANE Northbound				PLEASANT VALLEY RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	2	0	3	5	36	77	1	114	12	0	15	27	1	40	17	58	204
07:15	2	0	1	3	116	66	1	183	26	0	46	72	1	36	59	96	354
07:30	2	4	1	7	115	62	4	181	47	0	59	106	1	43	138	182	476
07:45	5	0	3	8	41	95	0	136	31	2	75	108	0	75	41	116	368
Total Volume	11	4	8	23	308	300	6	614	116	2	195	313	3	194	255	452	1402
% App. Total	47.8	17.4	34.8		50.2	48.9	1		37.1	0.6	62.3		0.7	42.9	56.4		
PHF	.550	.250	.667	.719	.664	.789	.375	.839	.617	.250	.650	.725	.750	.647	.462	.621	.736



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	ORO LANE Southbound				PLEASANT VALLEY RD. Westbound				KOKI LANE Northbound				PLEASANT VALLEY RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 16:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:00																	
15:00	0	0	2	2	37	84	0	121	104	0	90	194	1	104	40	145	462
15:15	0	0	0	0	24	121	2	147	38	0	38	76	1	84	16	101	324
15:30	2	0	0	2	11	86	2	99	16	0	17	33	2	93	9	104	238
15:45	2	0	1	3	10	114	7	131	10	0	18	28	0	119	12	131	293
Total Volume	4	0	3	7	82	405	11	498	168	0	163	331	4	400	77	481	1317
% App. Total	57.1	0	42.9		16.5	81.3	2.2		50.8	0	49.2		0.8	83.2	16		
PHF	.500	.000	.375	.583	.554	.837	.393	.847	.404	.000	.453	.427	.500	.840	.481	.829	.713

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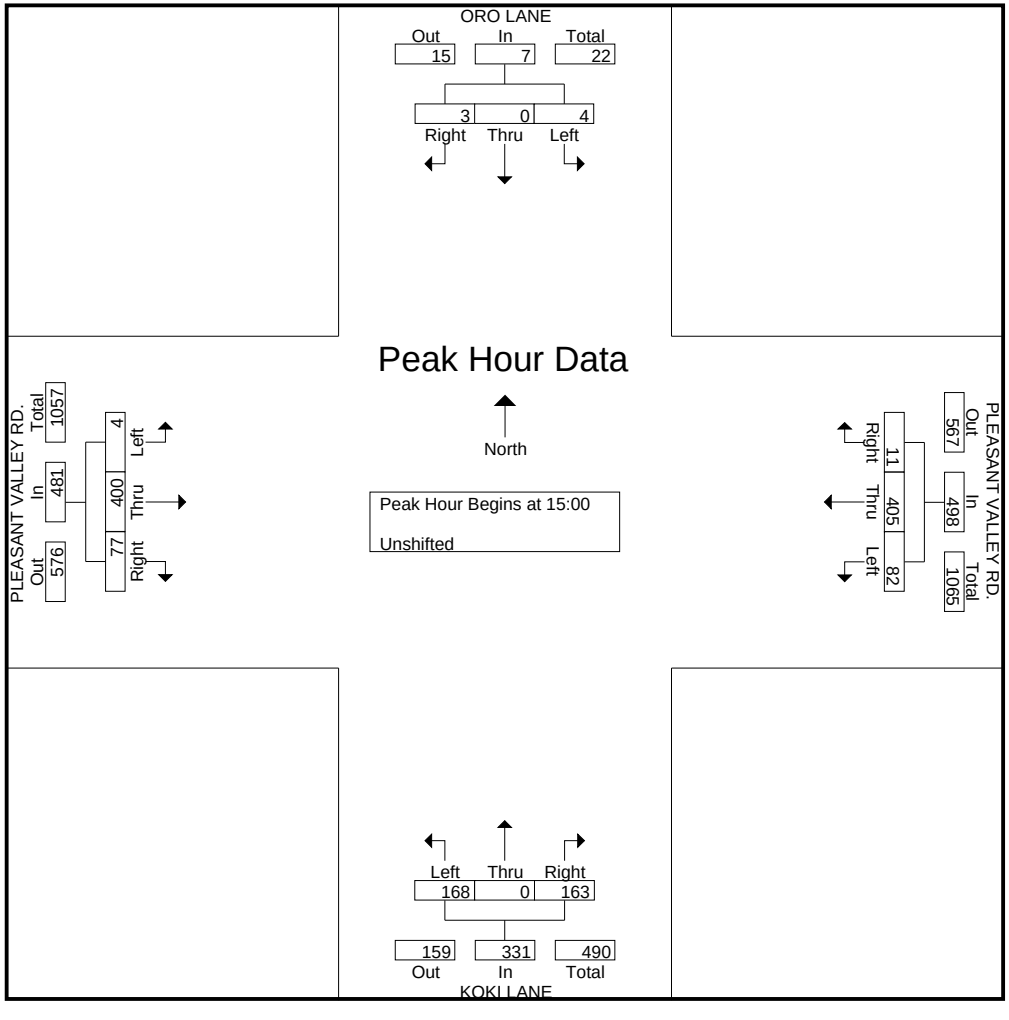

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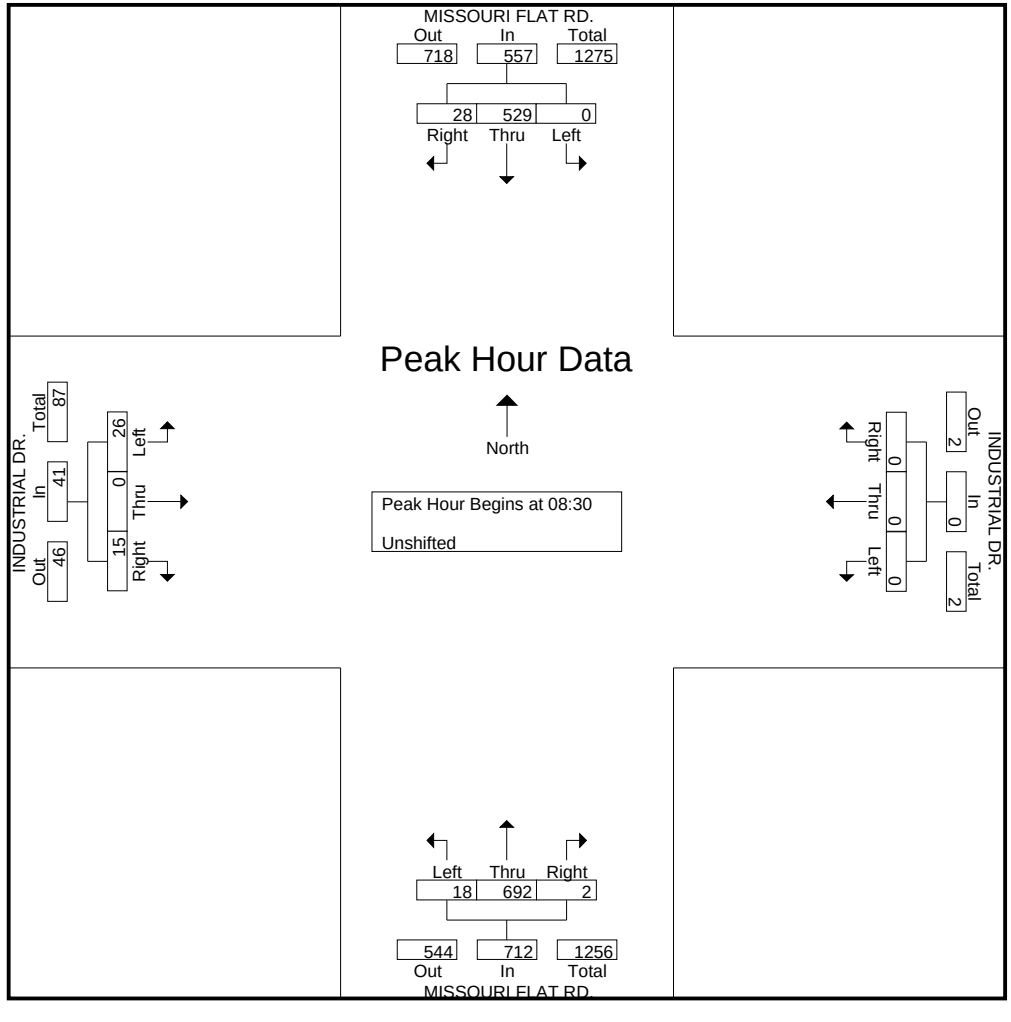
PLACERVILLE
BANK 1 = CLASSIFICATION

File Name : F-MISS.FLAT-INDUSTRIAL
Site Code : 00000000
Start Date : 1/10/2008
Page No : 1

Groups Printed- Unshifted

	MISSOURI FLAT RD. Southbound					INDUSTRIAL DR. Westbound					MISSOURI FLAT RD. Northbound					INDUSTRIAL DR. Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30	1	54	7	0	62	0	0	0	0	0	3	140	0	0	143	0	0	0	0	0	205
06:45	2	72	15	0	89	0	0	0	0	0	7	146	0	0	153	2	0	1	0	3	245
Total	3	126	22	0	151	0	0	0	0	0	10	286	0	0	296	2	0	1	0	3	450
07:00	0	78	8	0	86	0	0	0	0	0	5	162	0	0	167	4	0	2	0	6	259
07:15	0	126	5	0	131	0	0	0	0	0	3	164	0	0	167	8	0	4	0	12	310
07:30	0	135	5	0	140	0	0	0	0	0	1	182	0	0	183	7	0	4	0	11	334
07:45	0	130	7	0	137	0	0	0	0	0	11	189	0	0	200	9	0	6	0	15	352
Total	0	469	25	0	494	0	0	0	0	0	20	697	0	0	717	28	0	16	0	44	1255
08:00	4	130	13	0	147	0	0	0	0	0	5	141	0	0	146	6	0	3	0	9	302
08:15	1	109	9	0	119	0	0	0	0	0	3	159	0	0	162	6	0	3	0	9	290
08:30	0	129	11	0	140	0	0	0	0	0	5	185	0	0	190	7	0	5	0	12	342
08:45	0	127	10	0	137	0	0	0	0	0	1	170	0	0	171	6	0	3	0	9	317
Total	5	495	43	0	543	0	0	0	0	0	14	655	0	0	669	25	0	14	0	39	1251
09:00	0	126	2	0	128	0	0	0	0	0	5	189	1	0	195	4	0	3	0	7	330
09:15	0	147	5	0	152	0	0	0	0	0	7	148	1	0	156	9	0	4	0	13	321
Total	0	273	7	0	280	0	0	0	0	0	12	337	2	0	351	13	0	7	0	20	651
15:30	2	200	10	0	212	2	0	1	0	3	2	146	0	0	148	9	0	11	0	20	383
15:45	1	240	7	0	248	2	0	1	0	3	2	139	0	0	141	3	0	3	0	6	398
Total	3	440	17	0	460	4	0	2	0	6	4	285	0	0	289	12	0	14	0	26	781
16:00	0	226	5	0	231	1	0	0	0	1	9	143	0	0	152	9	0	17	0	26	410
16:15	0	235	7	0	242	0	0	0	0	0	7	145	0	0	152	14	0	3	0	17	411
16:30	1	241	6	0	248	0	0	0	0	0	5	141	1	0	147	17	0	5	0	22	417
16:45	2	232	5	0	239	0	0	0	0	0	2	127	0	0	129	9	0	3	0	12	380
Total	3	934	23	0	960	1	0	0	0	1	23	556	1	0	580	49	0	28	0	77	1618
17:00	0	228	5	0	233	0	0	0	0	0	3	133	0	0	136	3	0	6	0	9	378
17:15	0	215	3	0	218	0	0	0	0	0	1	138	0	0	139	7	0	7	0	14	371
17:30	0	224	3	0	227	0	0	0	0	0	0	145	0	0	145	4	0	6	0	10	382
17:45	0	206	2	0	208	0	0	0	0	0	1	109	0	0	110	1	0	0	0	1	319
Total	0	873	13	0	886	0	0	0	0	0	5	525	0	0	530	15	0	19	0	34	1450
18:00	0	220	2	0	222	0	0	0	0	0	1	112	0	0	113	5	0	1	0	6	341
18:15	0	185	3	0	188	0	0	0	0	0	0	102	0	0	102	1	0	4	0	5	295
Grand Total	14	4015	155	0	4184	5	0	2	0	7	89	3555	3	0	3647	150	0	104	0	254	8092
Apprch %	0.3	96	3.7	0		71.4	0	28.6	0		2.4	97.5	0.1	0		59.1	0	40.9	0		
Total %	0.2	49.6	1.9	0	51.7	0.1	0	0	0	0.1	1.1	43.9	0	0	45.1	1.9	0	1.3	0	3.1	

	MISSOURI FLAT RD. Southbound				INDUSTRIAL DR. Westbound				MISSOURI FLAT RD. Northbound				INDUSTRIAL DR. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:30																	
08:30	0	129	11	140	0	0	0	0	5	185	0	190	7	0	5	12	342
08:45	0	127	10	137	0	0	0	0	1	170	0	171	6	0	3	9	317
09:00	0	126	2	128	0	0	0	0	5	189	1	195	4	0	3	7	330
09:15	0	147	5	152	0	0	0	0	7	148	1	156	9	0	4	13	321
Total Volume	0	529	28	557	0	0	0	0	18	692	2	712	26	0	15	41	1310
% App. Total	0	95	5		0	0	0		2.5	97.2	0.3		63.4	0	36.6		
PHF	.000	.900	.636	.916	.000	.000	.000	.000	.643	.915	.500	.913	.722	.000	.750	.788	.958



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	MISSOURI FLAT RD. Southbound				INDUSTRIAL DR. Westbound				MISSOURI FLAT RD. Northbound				INDUSTRIAL DR. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	1	240	7	248	2	0	1	3	2	139	0	141	3	0	3	6	398
16:00	0	226	5	231	1	0	0	1	9	143	0	152	9	0	17	26	410
16:15	0	235	7	242	0	0	0	0	7	145	0	152	14	0	3	17	411
16:30	1	241	6	248	0	0	0	0	5	141	1	147	17	0	5	22	417
Total Volume	2	942	25	969	3	0	1	4	23	568	1	592	43	0	28	71	1636
% App. Total	0.2	97.2	2.6		75	0	25		3.9	95.9	0.2		60.6	0	39.4		
PHF	.500	.977	.893	.977	.375	.000	.250	.333	.639	.979	.250	.974	.632	.000	.412	.683	.981

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Site Code : 00000000
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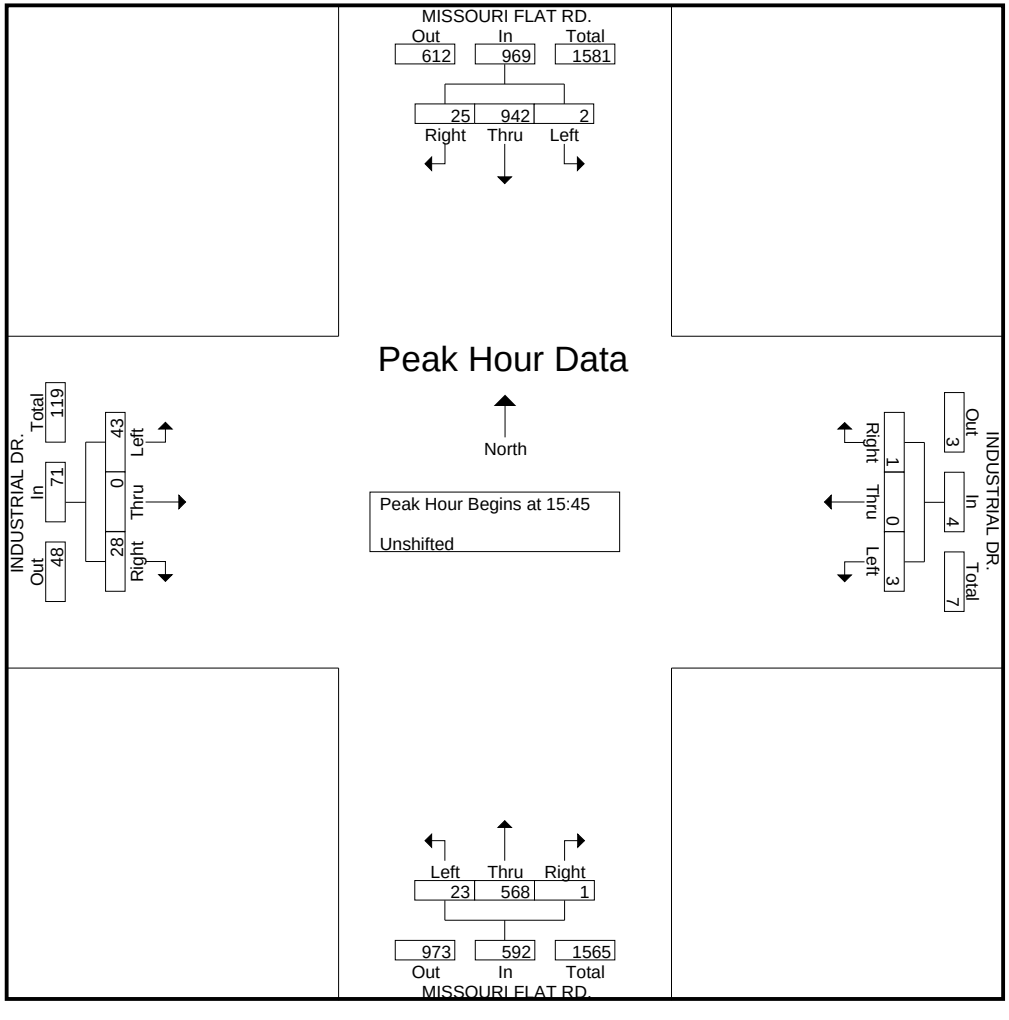

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EL DORADO COUNTY

File Name : DIAMOND-SKYLINE-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 1

Groups Printed- Unshifted

	SR 49 (DIAMOND RD.) Southbound				Westbound				SR 49 (DIAMOND RD.) Northbound				SKYLINE RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	37	1	38	0	0	0	0	2	23	0	25	5	0	1	6	69
06:45 AM	0	48	0	48	0	0	0	0	0	32	0	32	0	0	0	0	80
Total	0	85	1	86	0	0	0	0	2	55	0	57	5	0	1	6	149
07:00 AM	0	46	1	47	0	0	0	0	1	32	0	33	4	0	0	4	84
07:15 AM	0	51	0	51	0	0	0	0	1	46	0	47	2	0	1	3	101
07:30 AM	0	62	2	64	0	0	0	0	0	82	0	82	4	0	2	6	152
07:45 AM	0	85	1	86	0	0	0	0	0	99	0	99	4	0	0	4	189
Total	0	244	4	248	0	0	0	0	2	259	0	261	14	0	3	17	526
08:00 AM	0	54	1	55	0	0	0	0	0	78	0	78	4	0	0	4	137
08:15 AM	0	48	1	49	0	0	0	0	0	75	0	75	4	0	1	5	129
08:30 AM	0	59	1	60	0	0	0	0	1	64	0	65	6	0	0	6	131
08:45 AM	0	66	7	73	0	0	0	0	0	79	0	79	2	0	3	5	157
Total	0	227	10	237	0	0	0	0	1	296	0	297	16	0	4	20	554
09:00 AM	0	55	3	58	0	0	0	0	0	82	0	82	4	0	0	4	144
09:15 AM	0	44	2	46	0	0	0	0	0	69	0	69	3	0	0	3	118
Total	0	99	5	104	0	0	0	0	0	151	0	151	7	0	0	7	262
03:30 PM	0	83	8	91	1	6	0	7	5	99	0	104	3	4	4	11	213
03:45 PM	0	109	1	110	0	0	0	0	1	104	0	105	1	0	1	2	217
Total	0	192	9	201	1	6	0	7	6	203	0	209	4	4	5	13	430
04:00 PM	0	85	4	89	0	0	0	0	2	100	0	102	6	0	1	7	198
04:15 PM	0	92	5	97	0	0	0	0	1	100	0	101	2	0	3	5	203
04:30 PM	0	86	3	89	0	0	0	0	2	107	0	109	2	0	1	3	201
04:45 PM	0	93	3	96	0	0	0	0	4	103	0	107	1	0	3	4	207
Total	0	356	15	371	0	0	0	0	9	410	0	419	11	0	8	19	809

All Traffic Data

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File Name : DIAMOND-SKYLINE-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 2

Groups Printed- Unshifted

	SR 49 (DIAMOND RD.) Southbound				Westbound				SR 49 (DIAMOND RD.) Northbound				SKYLINE RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 PM	0	98	4	102	0	0	0	0	1	108	0	109	3	0	0	3	214
05:15 PM	0	101	5	106	0	0	0	0	0	106	0	106	7	0	4	11	223
05:30 PM	0	70	3	73	0	0	0	0	4	87	0	91	1	0	2	3	167
05:45 PM	0	64	5	69	0	0	0	0	3	79	0	82	3	0	4	7	158
Total	0	333	17	350	0	0	0	0	8	380	0	388	14	0	10	24	762
06:00 PM	0	63	4	67	0	0	0	0	2	47	0	49	3	0	1	4	120
06:15 PM	0	35	4	39	0	0	0	0	1	57	0	58	2	0	1	3	100
Grand Total	0	1634	69	1703	1	6	0	7	31	1858	0	1889	76	4	33	113	3712
Apprch %	0	95.9	4.1		14.3	85.7	0		1.6	98.4	0		67.3	3.5	29.2		
Total %	0	44	1.9	45.9	0	0.2	0	0.2	0.8	50.1	0	50.9	2	0.1	0.9	3	

	SR 49 (DIAMOND RD.) Southbound				Westbound				SR 49 (DIAMOND RD.) Northbound				SKYLINE RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	62	**2**	64	0	0	0	0	0	82	0	82	**4**	0	**2**	**6**	152
07:45 AM	0	**85**	1	**86**	0	0	0	0	0	**99**	0	**99**	4	0	0	4	**189**
08:00 AM	0	54	1	55	0	0	0	0	0	78	0	78	4	0	0	4	137
08:15 AM	0	48	1	49	0	0	0	0	0	75	0	75	4	0	1	5	129
Total Volume	0	249	5	254	0	0	0	0	0	334	0	334	16	0	3	19	607
% App. Total	0	98	2		0	0	0		0	100	0		84.2	0	15.8		
PHF	.000	.732	.625	.738	.000	.000	.000	.000	.000	.843	.000	.843	1.000	.000	.375	.792	.803

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File Name : DIAMOND-SKYLINE-F
Site Code : 00000000
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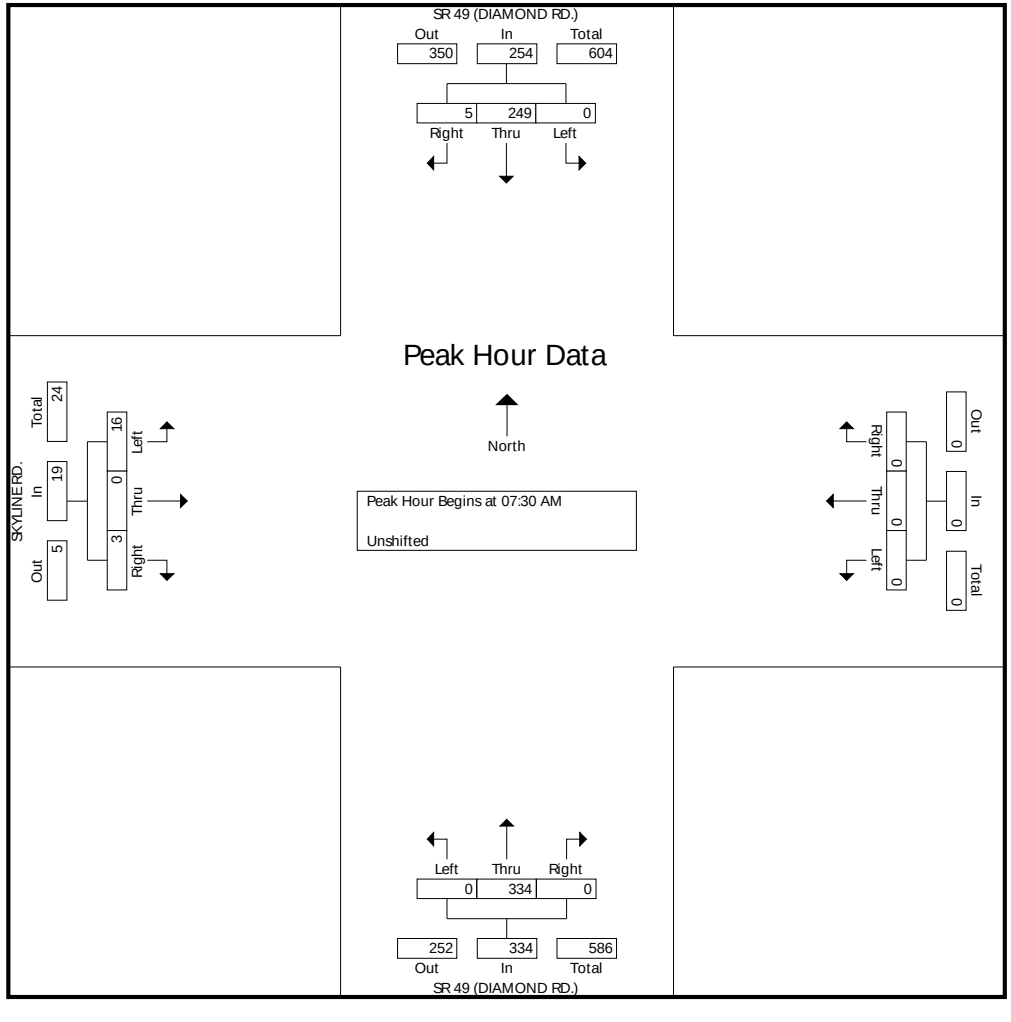

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File Name : DIAMOND-SKYLINE-F
Site Code : 00000000
Start Date : 12/12/2007
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	SR 49 (DIAMOND RD.) Southbound				Westbound				SR 49 (DIAMOND RD.) Northbound				SKYLINE RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	86	3	89	0	0	0	0	2	107	0	**109**	2	0	1	3	201
04:45 PM	0	93	3	96	0	0	0	0	**4**	103	0	107	1	0	3	4	207
05:00 PM	0	98	4	102	0	0	0	0	1	**108**	0	109	3	0	0	3	214
05:15 PM	0	**101**	**5**	**106**	0	0	0	0	0	106	0	106	**7**	0	**4**	**11**	**223**
Total Volume	0	378	15	393	0	0	0	0	7	424	0	431	13	0	8	21	845
% App. Total	0	96.2	3.8		0	0	0		1.6	98.4	0		61.9	0	38.1		
PHF	.000	.936	.750	.927	.000	.000	.000	.000	.438	.981	.000	.989	.464	.000	.500	.477	.947

All Traffic Data

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File Name : DIAMOND-SKYLINE-F
Site Code : 00000000
Start Date : 12/12/2007
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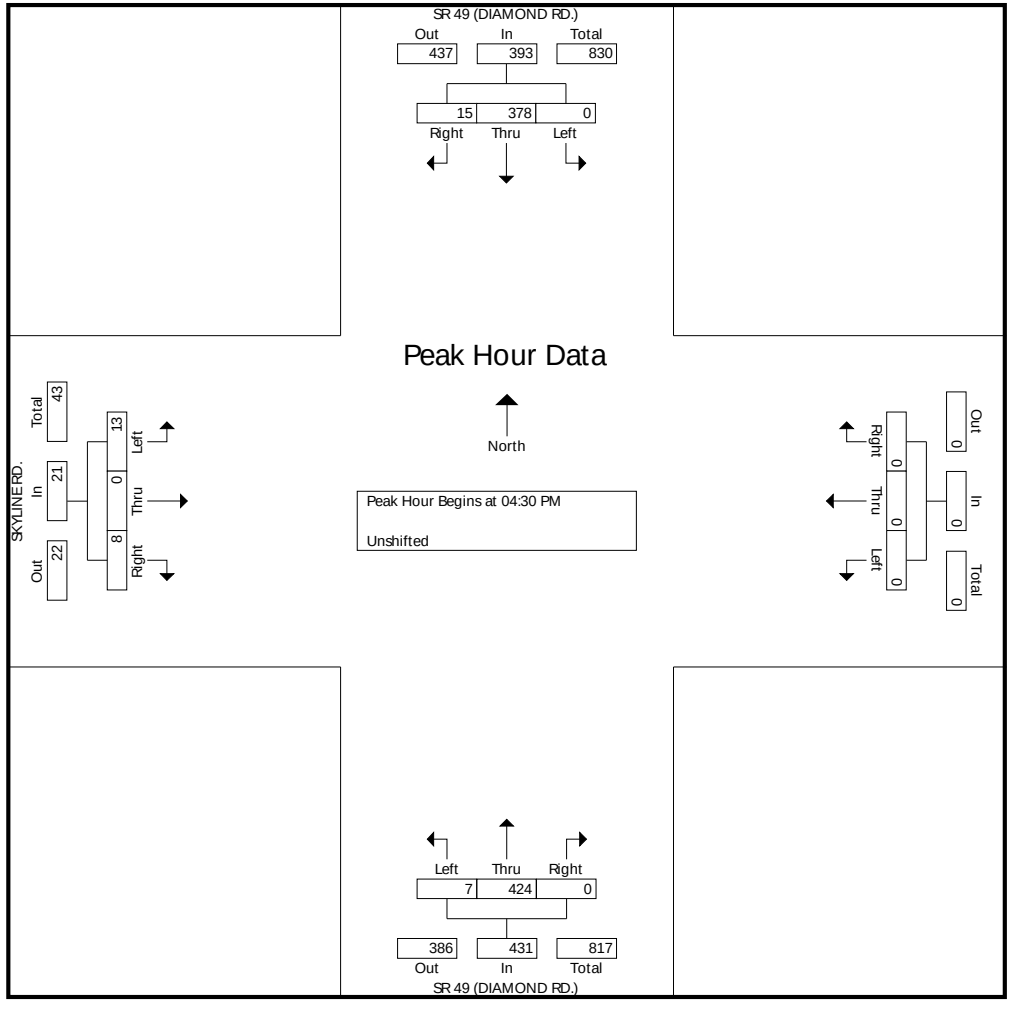

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EL DORADO COUNTY

File Name : FISKE-SACTO-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 1

Groups Printed- Unshifted

	SR 49 (SACRAMENTO ST.) Southbound				FISKE ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	22	0	22	20	0	3	23	0	26	0	26	0	0	0	0	71
06:45 AM	0	33	0	33	7	0	2	9	0	32	1	33	0	0	0	0	75
Total	0	55	0	55	27	0	5	32	0	58	1	59	0	0	0	0	146
07:00 AM	0	39	0	39	7	0	5	12	0	39	3	42	0	0	0	0	93
07:15 AM	4	53	0	57	5	0	2	7	0	59	0	59	3	0	3	6	129
07:30 AM	2	53	0	55	4	0	2	6	0	86	1	87	0	0	0	0	148
07:45 AM	3	77	0	80	3	0	4	7	0	104	6	110	0	0	0	0	197
Total	9	222	0	231	19	0	13	32	0	288	10	298	3	0	3	6	567
08:00 AM	4	49	0	53	3	0	4	7	0	73	4	77	0	0	0	0	137
08:15 AM	9	51	0	60	4	0	8	12	0	66	8	74	0	0	0	0	146
08:30 AM	2	53	0	55	2	0	1	3	0	71	1	72	0	0	0	0	130
08:45 AM	0	66	0	66	3	0	4	7	0	87	2	89	0	0	0	0	162
Total	15	219	0	234	12	0	17	29	0	297	15	312	0	0	0	0	575
09:00 AM	0	48	0	48	7	0	9	16	0	79	5	84	0	0	0	0	148
09:15 AM	0	42	0	42	2	0	4	6	0	62	5	67	0	0	0	0	115
Total	0	90	0	90	9	0	13	22	0	141	10	151	0	0	0	0	263
03:30 PM	0	80	0	80	9	0	2	11	0	101	4	105	0	0	0	0	196
03:45 PM	0	95	0	95	6	0	2	8	0	105	0	105	0	0	0	0	208
Total	0	175	0	175	15	0	4	19	0	206	4	210	0	0	0	0	404
04:00 PM	0	93	0	93	6	0	4	10	0	95	4	99	0	0	0	0	202
04:15 PM	1	85	0	86	6	0	3	9	0	95	9	104	0	0	0	0	199
04:30 PM	0	79	0	79	5	0	2	7	0	104	3	107	0	0	0	0	193
04:45 PM	2	94	0	96	2	0	0	2	0	89	1	90	0	0	0	0	188
Total	3	351	0	354	19	0	9	28	0	383	17	400	0	0	0	0	782

All Traffic Data

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EL DORADO COUNTY

File Name : FISKE-SACTO-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 2

Groups Printed- Unshifted

	SR 49 (SACRAMENTO ST.) Southbound				FISKE ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 PM	3	93	0	96	6	0	0	6	0	109	2	111	0	0	0	0	213
05:15 PM	3	102	0	105	3	0	2	5	0	92	7	99	0	0	0	0	209
05:30 PM	1	70	0	71	3	0	1	4	0	89	4	93	0	0	0	0	168
05:45 PM	1	60	0	61	2	0	0	2	0	68	3	71	0	0	0	0	134
Total	8	325	0	333	14	0	3	17	0	358	16	374	0	0	0	0	724
06:00 PM	2	60	0	62	4	0	1	5	0	52	2	54	0	0	0	0	121
06:15 PM	1	37	0	38	1	0	1	2	0	55	2	57	0	0	0	0	97
Grand Total	38	1534	0	1572	120	0	66	186	0	1838	77	1915	3	0	3	6	3679
Apprch %	2.4	97.6	0		64.5	0	35.5		0	96	4		50	0	50		
Total %	1	41.7	0	42.7	3.3	0	1.8	5.1	0	50	2.1	52.1	0.1	0	0.1	0.2	

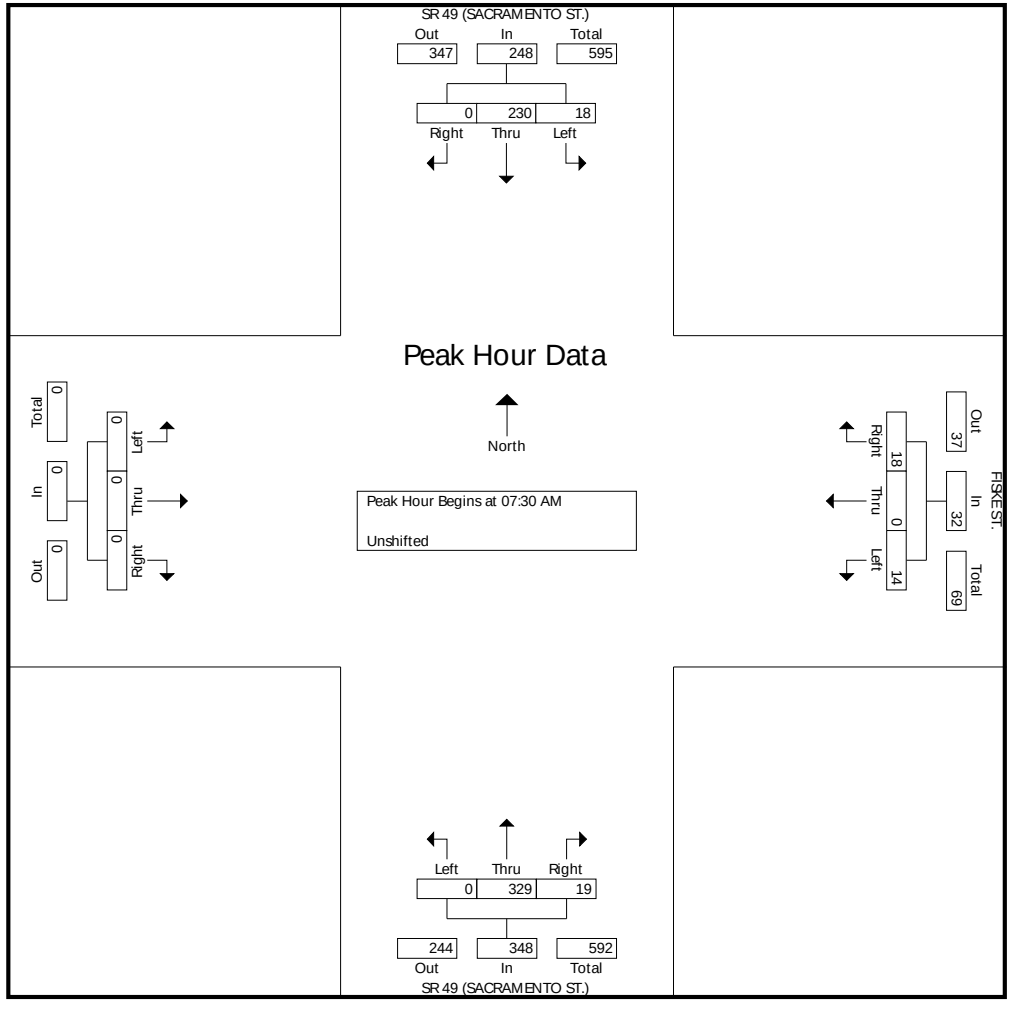
	SR 49 (SACRAMENTO ST.) Southbound				FISKE ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	2	53	0	55	**4**	0	2	6	0	86	1	87	0	0	0	0	148
07:45 AM	3	**77**	0	**80**	3	0	4	7	0	**104**	6	**110**	0	0	0	0	**197**
08:00 AM	4	49	0	53	3	0	4	7	0	73	4	77	0	0	0	0	137
08:15 AM	**9**	51	0	60	4	0	**8**	**12**	0	66	**8**	74	0	0	0	0	146
Total Volume	18	230	0	248	14	0	18	32	0	329	19	348	0	0	0	0	628
% App. Total	7.3	92.7	0		43.8	0	56.2		0	94.5	5.5		0	0	0		
PHF	.500	.747	.000	.775	.875	.000	.563	.667	.000	.791	.594	.791	.000	.000	.000	.000	.797

All Traffic Data

(916)7718700
Fax 786-2879

EL DORADO COUNTY

File Name : FISKE-SACTO-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 3



All Traffic Data

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EL DORADO COUNTY

File Name : FISKE-SACTO-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 4

	SR 49 (SACRAMENTO ST.) Southbound				FISKE ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	80	0	80	**9**	0	2	**11**	0	101	4	**105**	0	0	0	0	196
03:45 PM	0	**95**	0	**95**	6	0	2	8	0	**105**	0	105	0	0	0	0	**208**
04:00 PM	0	93	0	93	6	0	**4**	10	0	95	4	99	0	0	0	0	202
04:15 PM	**1**	85	0	86	6	0	3	9	0	95	**9**	104	0	0	0	0	199
Total Volume	1	353	0	354	27	0	11	38	0	396	17	413	0	0	0	0	805
% App. Total	0.3	99.7	0		71.1	0	28.9		0	95.9	4.1		0	0	0		
PHF	.250	.929	.000	.932	.750	.000	.688	.864	.000	.943	.472	.983	.000	.000	.000	.000	.968

All Traffic Data

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EL DORADO COUNTY

File Name : FISKE-SACTO-F
Site Code : 00000000
Start Date : 12/12/2007
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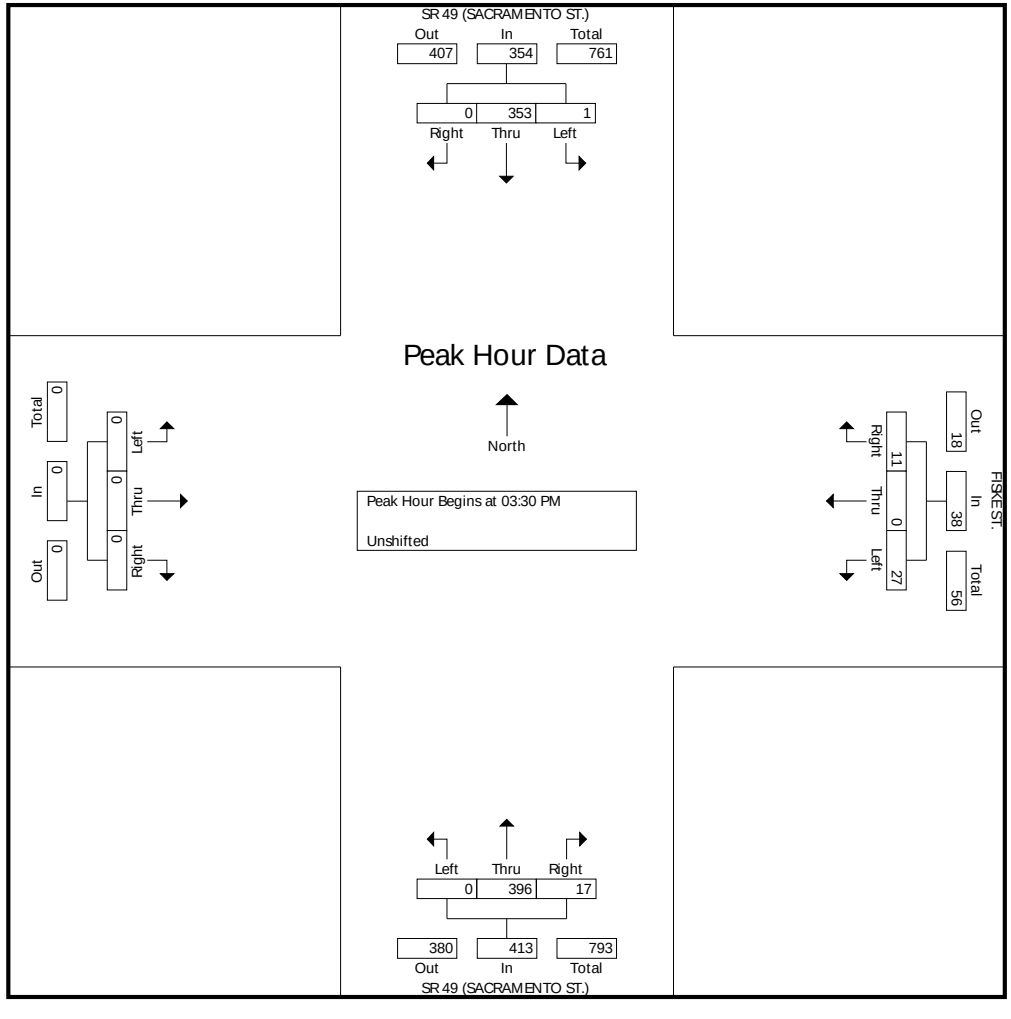

All Traffic Data

(916)7718700
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EL DORADO COUNTY

File Name : SR 49-PACIFIC-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 1

Groups Printed- Unshifted

	SR 49 (SACRAMENTO ST.) Southbound				PACIFIC ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				PACIFIC ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	6	2	8	9	43	11	63	11	14	5	30	0	11	7	18	119
06:45 AM	4	5	1	10	13	32	6	51	18	8	10	36	0	24	15	39	136
Total	4	11	3	18	22	75	17	114	29	22	15	66	0	35	22	57	255
07:00 AM	1	9	4	14	14	35	5	54	20	12	13	45	1	18	13	32	145
07:15 AM	3	12	2	17	25	47	7	79	24	10	21	55	0	20	18	38	189
07:30 AM	6	16	1	23	16	38	5	59	41	31	17	89	1	23	24	48	219
07:45 AM	8	18	4	30	35	54	8	97	39	41	29	109	2	44	29	75	311
Total	18	55	11	84	90	174	25	289	124	94	80	298	4	105	84	193	864
08:00 AM	7	10	6	23	22	27	14	63	36	26	25	87	1	40	22	63	236
08:15 AM	5	8	3	16	20	35	6	61	33	20	23	76	2	34	29	65	218
08:30 AM	6	11	5	22	25	30	11	66	23	24	24	71	3	40	22	65	224
08:45 AM	6	14	3	23	18	46	10	74	36	28	26	90	2	49	33	84	271
Total	24	43	17	84	85	138	41	264	128	98	98	324	8	163	106	277	949
09:00 AM	11	10	5	26	20	41	18	79	36	23	27	86	3	30	24	57	248
09:15 AM	6	10	7	23	19	30	11	60	24	24	19	67	3	23	12	38	188
Total	17	20	12	49	39	71	29	139	60	47	46	153	6	53	36	95	436
03:30 PM	9	12	8	29	30	42	10	82	24	40	22	86	5	37	31	73	270
03:45 PM	12	22	10	44	28	39	14	81	42	32	26	100	5	60	52	117	342
Total	21	34	18	73	58	81	24	163	66	72	48	186	10	97	83	190	612
04:00 PM	12	18	11	41	39	30	12	81	33	39	26	98	5	44	40	89	309
04:15 PM	14	18	15	47	25	29	14	68	33	41	27	101	5	40	42	87	303
04:30 PM	12	14	4	30	30	27	6	63	23	49	37	109	5	38	34	77	279
04:45 PM	8	20	9	37	33	25	13	71	25	40	27	92	6	39	50	95	295
Total	46	70	39	155	127	111	45	283	114	169	117	400	21	161	166	348	1186

All Traffic Data

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EL DORADO COUNTY

File Name : SR 49-PACIFIC-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 2

Groups Printed- Unshifted

	SR 49 (SACRAMENTO ST.) Southbound				PACIFIC ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				PACIFIC ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 PM	19	23	8	50	27	37	7	71	28	47	30	105	5	34	44	83	309
05:15 PM	3	17	5	25	38	31	7	76	31	47	29	107	1	32	64	97	305
05:30 PM	7	20	9	36	30	29	7	66	33	37	19	89	2	34	33	69	260
05:45 PM	8	13	3	24	18	19	8	45	22	20	28	70	0	45	30	75	214
Total	37	73	25	135	113	116	29	258	114	151	106	371	8	145	171	324	1088
06:00 PM	7	13	4	24	19	16	7	42	12	21	18	51	4	27	33	64	181
06:15 PM	5	12	2	19	9	29	3	41	25	20	14	59	1	24	18	43	162
Grand Total	179	331	131	641	562	811	220	1593	672	694	542	1908	62	810	719	1591	5733
Apprch %	27.9	51.6	20.4		35.3	50.9	13.8		35.2	36.4	28.4		3.9	50.9	45.2		
Total %	3.1	5.8	2.3	11.2	9.8	14.1	3.8	27.8	11.7	12.1	9.5	33.3	1.1	14.1	12.5	27.8	

	SR 49 (SACRAMENTO ST.) Southbound				PACIFIC ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				PACIFIC ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**8**	**18**	4	**30**	**35**	**54**	8	**97**	**39**	**41**	**29**	**109**	2	**44**	**29**	**75**	**311**
08:00 AM	7	10	**6**	23	22	27	**14**	63	36	26	25	87	1	40	22	63	236
08:15 AM	5	8	3	16	20	35	6	61	33	20	23	76	2	34	29	65	218
08:30 AM	6	11	5	22	25	30	11	66	23	24	24	71	**3**	40	22	65	224
Total Volume	26	47	18	91	102	146	39	287	131	111	101	343	8	158	102	268	989
% App. Total	28.6	51.6	19.8		35.5	50.9	13.6		38.2	32.4	29.4		3	59	38.1		
PHF	.813	.653	.750	.758	.729	.676	.696	.740	.840	.677	.871	.787	.667	.898	.879	.893	.795

All Traffic Data

(916)7718700
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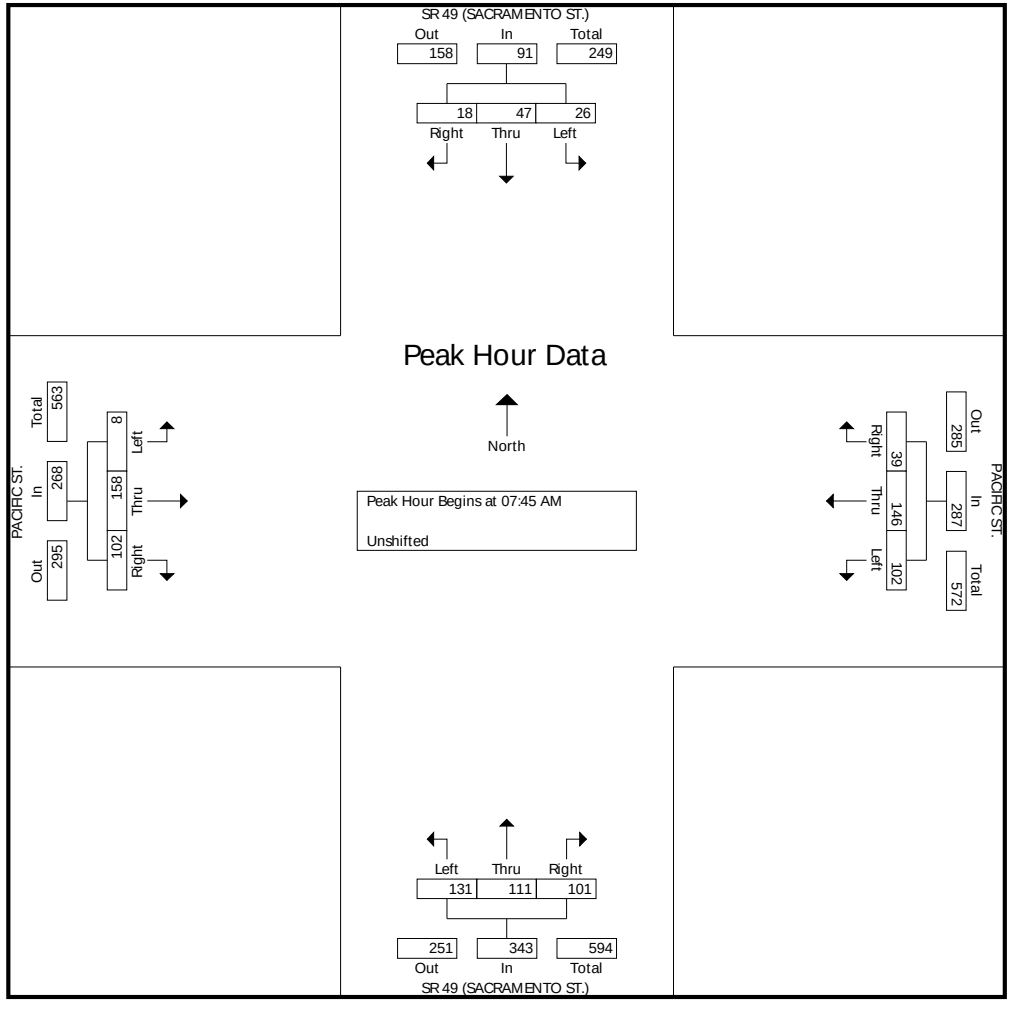
EL DORADO COUNTY

File Name : SR 49-PACIFIC-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 3



All Traffic Data

(916)7718700
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EL DORADO COUNTY

File Name : SR 49-PACIFIC-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 4

	SR 49 (SACRAMENTO ST.) Southbound				PACIFIC ST. Westbound				SR 49 (SACRAMENTO ST.) Northbound				PACIFIC ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	12	14	4	30	30	27	6	63	23	**49**	**37**	**109**	5	38	34	77	279
04:45 PM	8	20	**9**	37	33	25	**13**	71	25	40	27	92	**6**	**39**	50	95	295
05:00 PM	**19**	**23**	8	**50**	27	**37**	7	71	28	47	30	105	5	34	44	83	**309**
05:15 PM	3	17	5	25	**38**	31	7	**76**	**31**	47	29	107	1	32	**64**	**97**	305
Total Volume	42	74	26	142	128	120	33	281	107	183	123	413	17	143	192	352	1188
% App. Total	29.6	52.1	18.3		45.6	42.7	11.7		25.9	44.3	29.8		4.8	40.6	54.5		
PHF	.553	.804	.722	.710	.842	.811	.635	.924	.863	.934	.831	.947	.708	.917	.750	.907	.961

All Traffic Data

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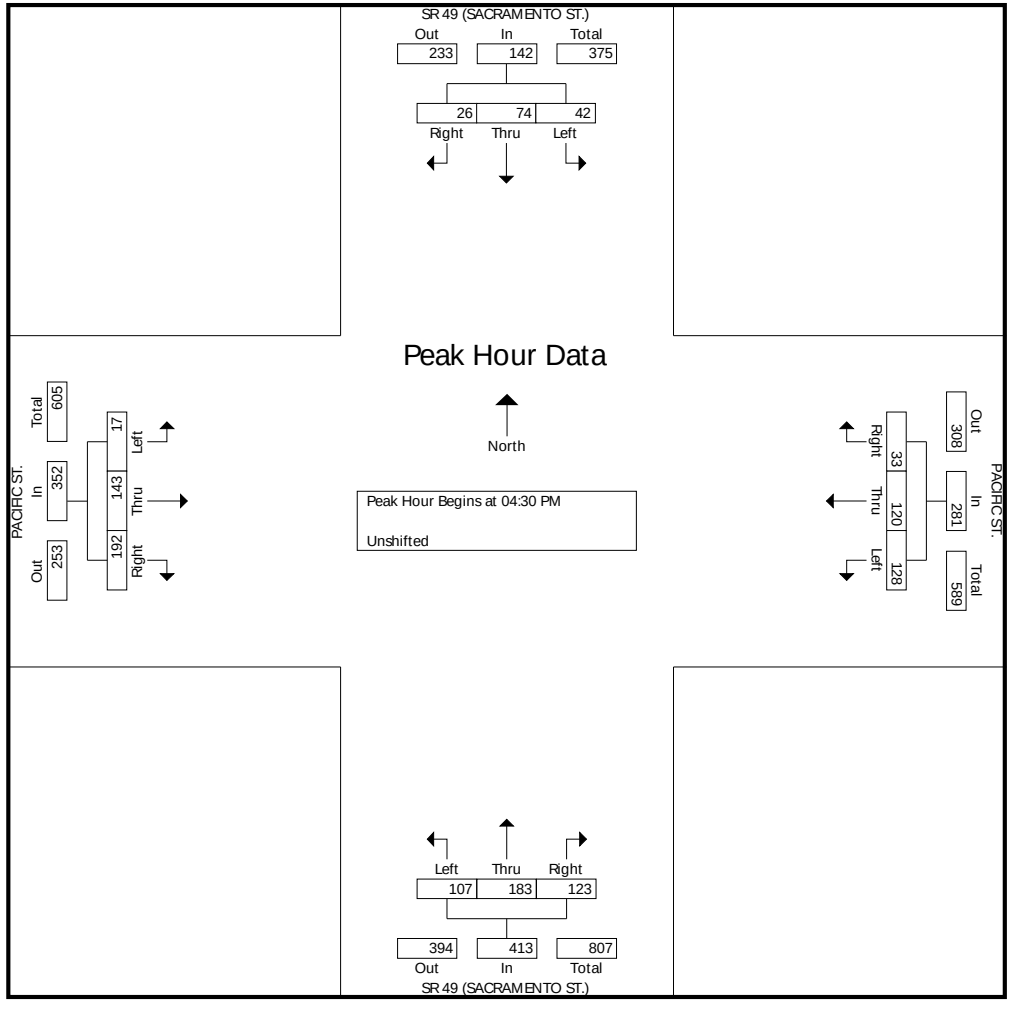
EL DORADO COUNTY

File Name : SR 49-PACIFIC-F
Site Code : 00000000
Start Date : 12/12/2007
Page No : 5



All Traffic Data

(916)771-8700

COUNTY OF EL DORADO

File Name : F-ENTERPRISE
Site Code : 00000000
Start Date : 6/23/2009
Page No : 1

Groups Printed- Unshifted

	MISSOURI FLAT RD. From North				DRIVEWAY-AUTO PARTS STORE From East				MISSOURI FLAT RD. From South				ENTERPRISE DR. From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30 AM	0	66	20	86	0	0	0	0	2	136	0	138	6	0	0	6	230
06:45 AM	0	75	30	105	0	0	0	0	9	137	0	146	8	0	1	9	260
Total	0	141	50	191	0	0	0	0	11	273	0	284	14	0	1	15	490
07:00 AM	0	109	21	130	0	0	0	0	6	152	0	158	9	0	1	10	298
07:15 AM	0	117	18	135	0	0	0	0	3	158	0	161	6	0	1	7	303
07:30 AM	0	139	17	156	1	0	0	1	3	204	0	207	10	0	4	14	378
07:45 AM	0	133	43	176	0	0	0	0	9	256	0	265	9	0	6	15	456
Total	0	498	99	597	1	0	0	1	21	770	0	791	34	0	12	46	1435
08:00 AM	0	125	17	142	0	0	0	0	5	170	0	175	22	0	5	27	344
08:15 AM	0	112	19	131	0	0	0	0	2	167	0	169	16	0	5	21	321
08:30 AM	2	125	17	144	0	0	0	0	2	175	0	177	14	0	4	18	339
08:45 AM	0	133	19	152	0	0	0	0	1	168	0	169	10	0	0	10	331
Total	2	495	72	569	0	0	0	0	10	680	0	690	62	0	14	76	1335
09:00 AM	0	125	22	147	0	0	0	0	8	160	0	168	25	0	7	32	347
09:15 AM	0	142	16	158	0	0	0	0	11	176	0	187	30	0	6	36	381
Total	0	267	38	305	0	0	0	0	19	336	0	355	55	0	13	68	728
03:30 PM	0	223	34	257	0	0	0	0	1	172	0	173	27	0	5	32	462
03:45 PM	0	212	27	239	0	0	0	0	7	169	0	176	15	0	8	23	438
Total	0	435	61	496	0	0	0	0	8	341	0	349	42	0	13	55	900
04:00 PM	0	228	24	252	0	0	0	0	3	175	0	178	28	0	20	48	478
04:15 PM	0	242	34	276	0	0	0	0	4	188	0	192	19	0	9	28	496
04:30 PM	0	248	24	272	0	0	0	0	4	189	0	193	34	0	3	37	502
04:45 PM	0	236	26	262	0	0	0	0	2	205	0	207	19	0	14	33	502
Total	0	954	108	1062	0	0	0	0	13	757	0	770	100	0	46	146	1978
05:00 PM	0	260	11	271	0	0	0	0	7	191	0	198	20	0	8	28	497
05:15 PM	0	239	14	253	0	0	0	0	9	173	0	182	10	0	2	12	447
05:30 PM	1	220	12	233	0	0	0	0	3	143	0	146	12	0	5	17	396
05:45 PM	0	249	5	254	0	0	1	1	2	183	0	185	11	0	4	15	455
Total	1	968	42	1011	0	0	1	1	21	690	0	711	53	0	19	72	1795
06:00 PM	0	204	6	210	0	0	0	0	0	136	0	136	10	0	6	16	362
06:15 PM	0	212	7	219	0	0	0	0	0	132	0	132	10	0	3	13	364
Total	0	416	13	429	0	0	0	0	0	268	0	268	20	0	9	29	726

All Traffic Data

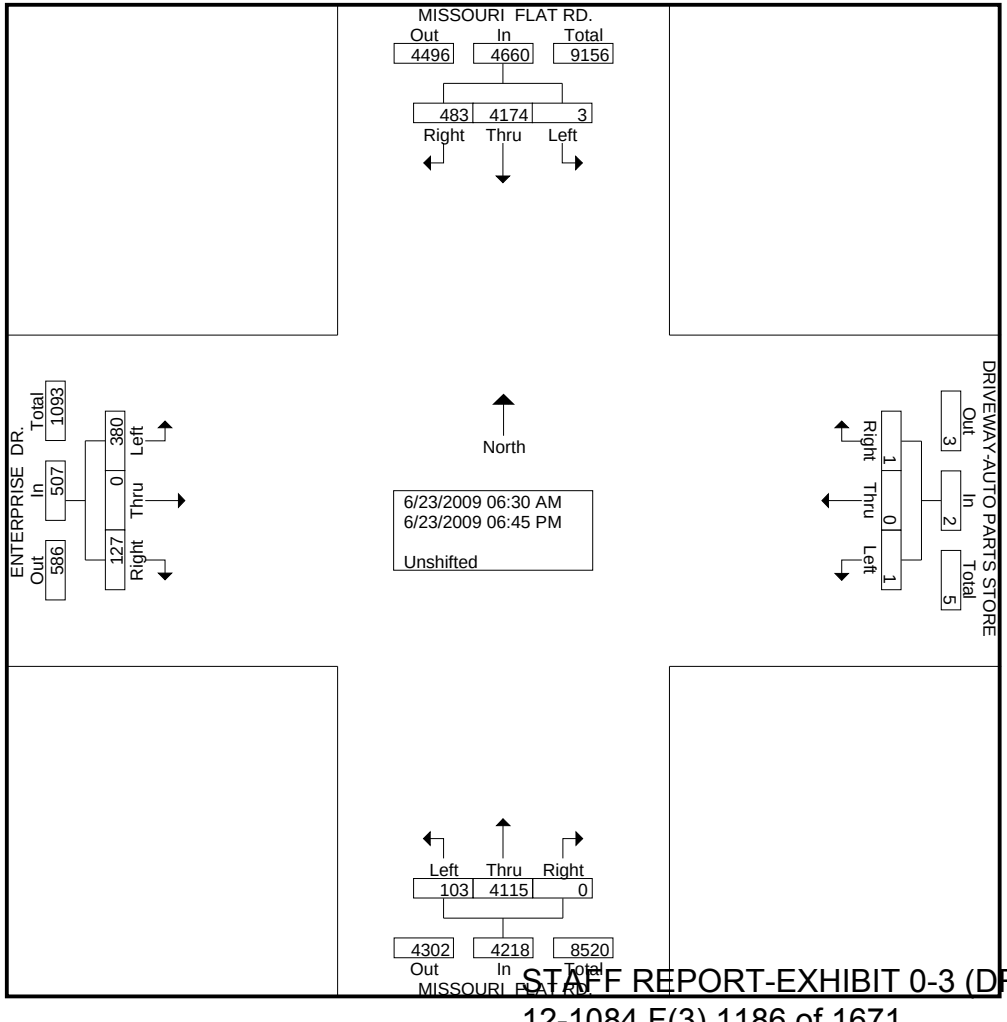
(916)771-8700

COUNTY OF EL DORADO

File Name : F-ENTERPRISE
Site Code : 00000000
Start Date : 6/23/2009
Page No : 2

Groups Printed- Unshifted

	MISSOURI FLAT RD. From North				DRIVEWAY-AUTO PARTS STORE From East				MISSOURI FLAT RD. From South				ENTERPRISE DR. From West				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Grand Total	3	4174	483	4660	1	0	1	2	103	4115	0	4218	380	0	127	507	9387
Apprch %	0.1	89.6	10.4		50	0	50		2.4	97.6	0		75	0	25		
Total %	0	44.5	5.1	49.6	0	0	0	0	1.1	43.8	0	44.9	4	0	1.4	5.4	



All Traffic Data

(916)771-8700

COUNTY OF EL DORADO

File Name : F-ENTERPRISE
Site Code : 00000000
Start Date : 6/23/2009
Page No : 3

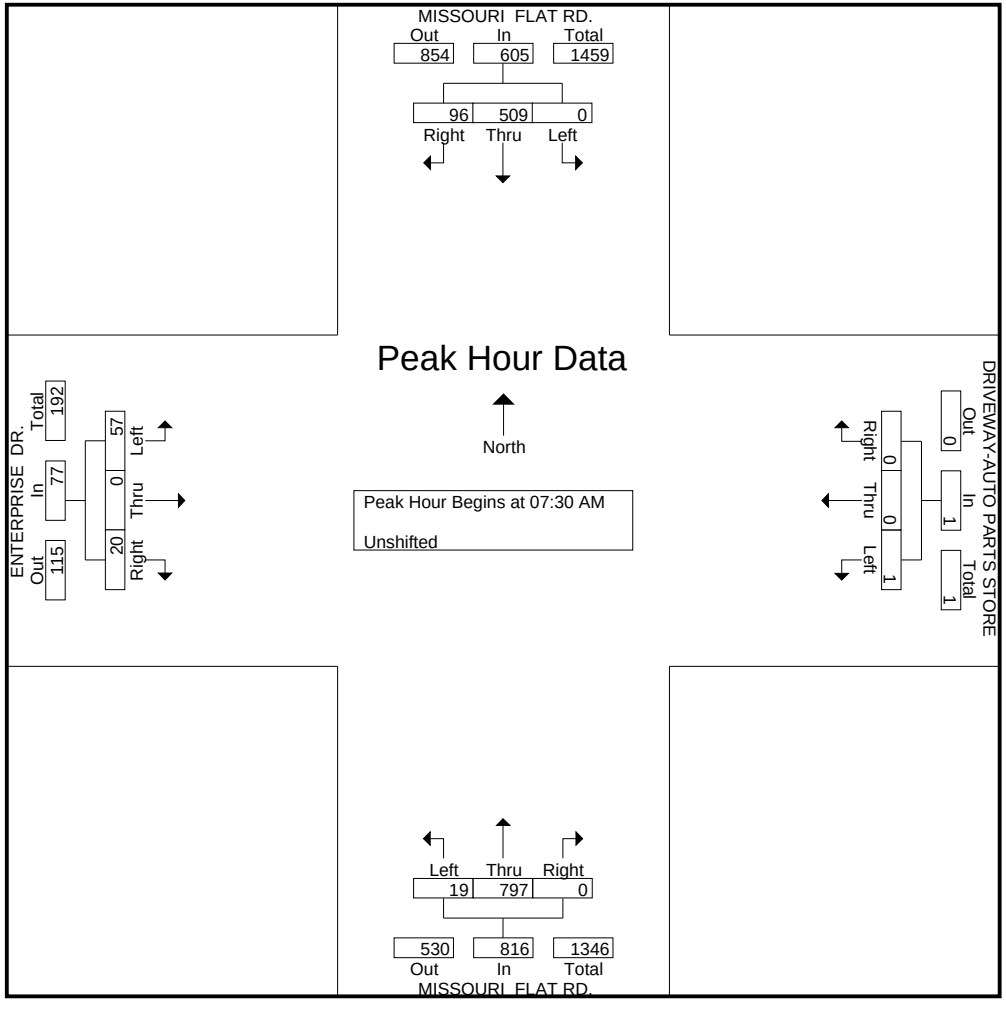
	MISSOURI FLAT RD. From North				DRIVEWAY-AUTO PARTS STORE From East				MISSOURI FLAT RD. From South				ENTERPRISE DR. From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	**139**	17	156	**1**	0	0	**1**	3	204	0	207	10	0	4	14	378
07:45 AM	0	133	**43**	**176**	0	0	0	0	**9**	**256**	0	**265**	9	0	**6**	15	**456**
08:00 AM	0	125	17	142	0	0	0	0	5	170	0	175	**22**	0	5	**27**	344
08:15 AM	0	112	19	131	0	0	0	0	2	167	0	169	16	0	5	21	321
Total Volume	0	509	96	605	1	0	0	1	19	797	0	816	57	0	20	77	1499
% App. Total	0	84.1	15.9		100	0	0		2.3	97.7	0		74	0	26		
PHF	.000	.915	.558	.859	.250	.000	.000	.250	.528	.778	.000	.770	.648	.000	.833	.713	.822

All Traffic Data

(916)771-8700

COUNTY OF EL DORADO

File Name : F-ENTERPRISE
Site Code : 00000000
Start Date : 6/23/2009
Page No : 4



All Traffic Data

(916)771-8700

COUNTY OF EL DORADO

File Name : F-ENTERPRISE
Site Code : 00000000
Start Date : 6/23/2009
Page No : 5

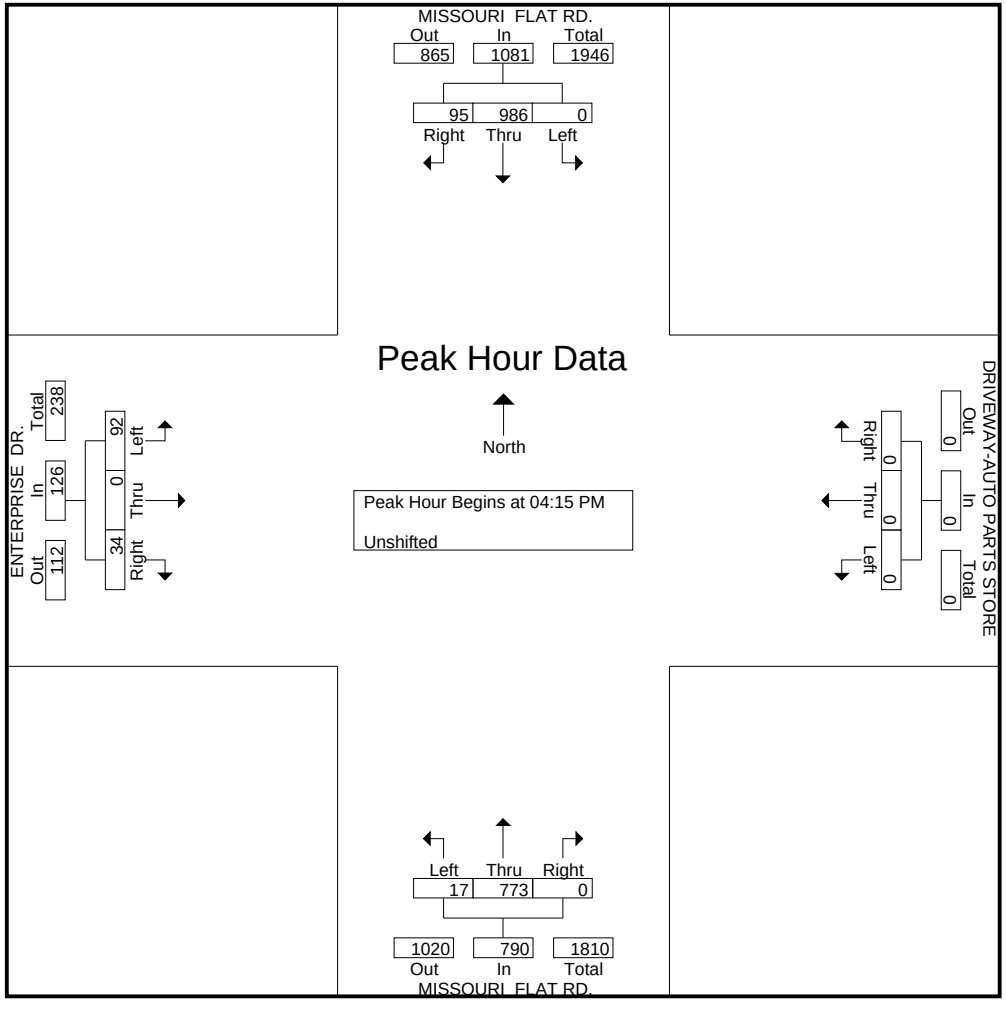
	MISSOURI FLAT RD. From North				DRIVEWAY-AUTO PARTS STORE From East				MISSOURI FLAT RD. From South				ENTERPRISE DR. From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	242	**34**	**276**	0	0	0	0	4	188	0	192	19	0	9	28	496
04:30 PM	0	248	24	272	0	0	0	0	4	189	0	193	**34**	0	3	**37**	**502**
04:45 PM	0	236	26	262	0	0	0	0	2	**205**	0	**207**	19	0	**14**	33	502
05:00 PM	0	**260**	11	271	0	0	0	0	**7**	191	0	198	20	0	8	28	497
Total Volume	0	986	95	1081	0	0	0	0	17	773	0	790	92	0	34	126	1997
% App. Total	0	91.2	8.8		0	0	0		2.2	97.8	0		73	0	27		
PHF	.000	.948	.699	.979	.000	.000	.000	.000	.607	.943	.000	.954	.676	.000	.607	.851	.995

All Traffic Data

(916)771-8700

COUNTY OF EL DORADO

File Name : F-ENTERPRISE
Site Code : 00000000
Start Date : 6/23/2009
Page No : 6



ALL TRAFFIC DATA,INC.
(916)771-8700
FAX 786-2879

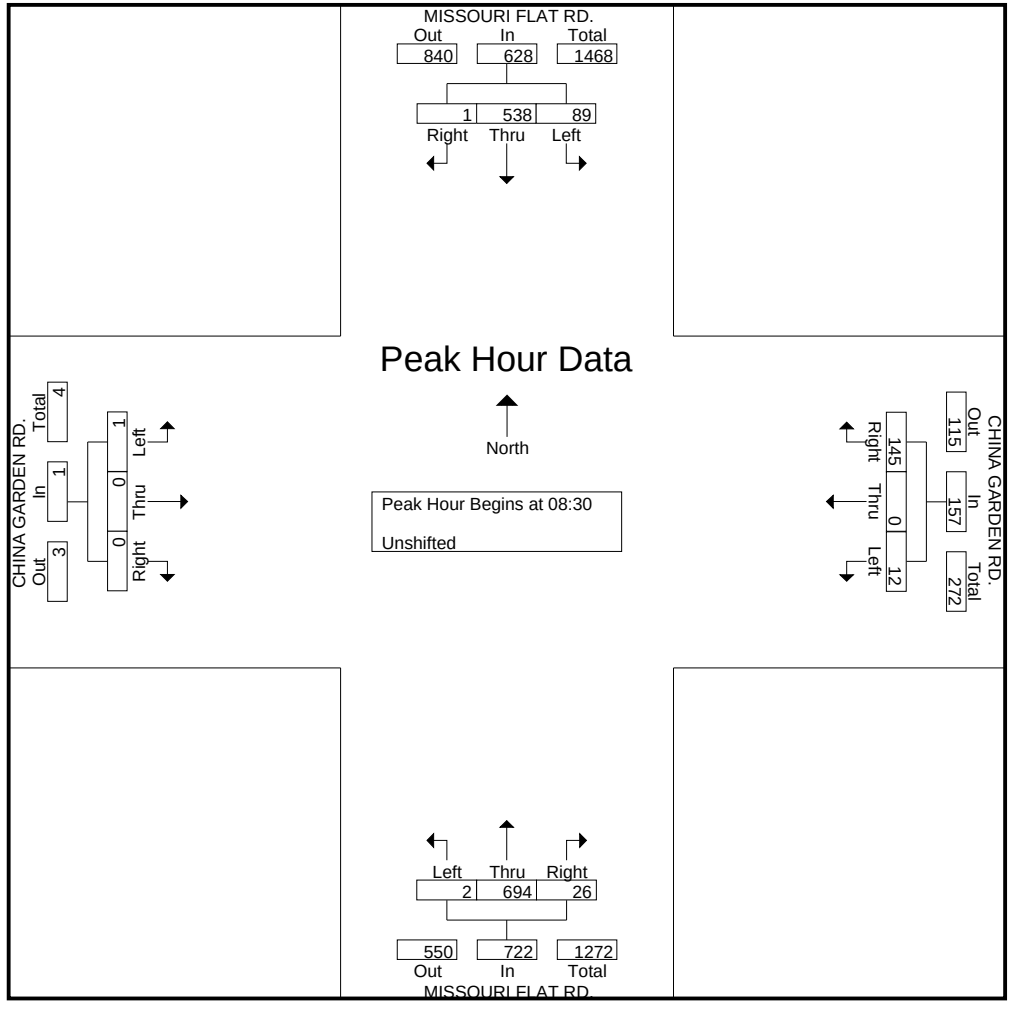
PLACERVILLE
BANK 1 = CLASSIFICATION

File Name : F-MISS.FLAT-CHNA. GRDN
Site Code : 00000000
Start Date : 1/10/2008
Page No : 1

Groups Printed- Unshifted

	MISSOURI FLAT RD. Southbound					CHINA GARDEN RD. Westbound					MISSOURI FLAT RD. Northbound					CHINA GARDEN RD. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:30	9	60	0	0	69	4	0	22	0	26	0	140	0	0	140	0	1	0	0	1	0	236	236
06:45	10	91	0	0	101	1	0	20	0	21	0	150	2	0	152	0	0	0	0	0	0	274	274
Total	19	151	0	0	170	5	0	42	0	47	0	290	2	0	292	0	1	0	0	1	0	510	510
07:00	19	75	0	0	94	3	0	31	0	34	0	170	0	0	170	0	0	0	0	0	0	298	298
07:15	18	125	0	0	143	4	0	47	0	51	0	166	2	0	168	0	0	0	0	0	0	362	362
07:30	21	133	1	0	155	8	0	44	0	52	0	182	4	0	186	0	0	0	0	0	0	393	393
07:45	36	135	0	0	171	4	0	23	0	27	0	195	3	0	198	0	0	0	0	0	0	396	396
Total	94	468	1	0	563	19	0	145	0	164	0	713	9	0	722	0	0	0	0	0	0	1449	1449
08:00	29	135	0	0	164	3	0	31	0	34	0	136	5	0	141	0	0	0	0	0	0	339	339
08:15	26	129	1	0	156	3	0	29	0	32	0	163	8	0	171	0	0	0	0	0	0	359	359
08:30	14	139	0	0	153	2	0	39	0	41	1	185	8	0	194	1	0	0	0	1	0	389	389
08:45	21	134	1	0	156	3	0	31	0	34	0	173	5	0	178	0	0	0	0	0	0	368	368
Total	90	537	2	0	629	11	0	130	0	141	1	657	26	0	684	1	0	0	0	1	0	1455	1455
09:00	31	124	0	0	155	2	0	39	0	41	0	187	6	0	193	0	0	0	0	0	0	389	389
09:15	23	141	0	0	164	5	0	36	0	41	1	149	7	0	157	0	0	0	0	0	0	362	362
Total	54	265	0	0	319	7	0	75	0	82	1	336	13	0	350	0	0	0	0	0	0	751	751
15:30	39	198	0	0	237	5	0	43	0	48	0	128	25	0	153	1	0	0	0	1	0	439	439
15:45	37	243	1	0	281	6	0	33	0	39	0	124	14	0	138	0	0	1	0	1	0	459	459
Total	76	441	1	0	518	11	0	76	0	87	0	252	39	0	291	1	0	1	0	2	0	898	898
16:00	40	224	0	0	264	7	0	31	0	38	0	136	18	0	154	0	0	1	0	1	0	457	457
16:15	40	229	0	0	269	5	0	39	0	44	0	141	20	0	161	0	0	1	0	1	0	475	475
16:30	54	244	0	0	298	5	1	38	0	44	0	146	14	0	160	0	0	1	0	1	0	503	503
16:45	48	243	0	0	291	4	0	44	0	48	0	129	10	0	139	0	0	1	0	1	0	479	479
Total	182	940	0	0	1122	21	1	152	0	174	0	552	62	0	614	0	0	4	0	4	0	1914	1914
17:00	43	228	0	0	271	5	1	39	0	45	0	135	9	0	144	0	0	0	0	0	0	460	460
17:15	29	213	0	0	242	3	0	34	0	37	0	134	5	0	139	0	0	0	0	0	0	418	418
17:30	24	225	0	0	249	4	0	27	0	31	0	132	8	0	140	0	0	0	0	0	0	420	420
17:45	33	207	0	0	240	3	0	16	0	19	0	105	7	0	112	0	0	0	0	0	0	371	371
Total	129	873	0	0	1002	15	1	116	0	132	0	506	29	0	535	0	0	0	0	0	0	1669	1669
18:00	23	220	0	0	243	2	0	25	0	27	0	115	5	0	120	0	0	0	0	0	0	390	390
18:15	24	183	0	0	207	2	0	9	0	11	1	100	0	0	101	0	0	1	0	1	0	320	320
Grand Total	691	4078	4	0	4773	93	2	770	0	865	3	3521	185	0	3709	2	1	6	0	9	0	9356	9356
Apprch %	14.5	85.4	0.1			10.8	0.2	89			0.1	94.9	5			22.2	11.1	66.7				
Total %	7.4	43.6	0		51	1	0	8.2		9.2	0	37.6	2		39.7	0	0	0		0	0	100	

	MISSOURI FLAT RD. Southbound				CHINA GARDEN RD. Westbound				MISSOURI FLAT RD. Northbound				CHINA GARDEN RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:30																	
08:30	14	139	0	153	2	0	39	41	1	185	8	194	1	0	0	1	389
08:45	21	134	1	156	3	0	31	34	0	173	5	178	0	0	0	0	368
09:00	31	124	0	155	2	0	39	41	0	187	6	193	0	0	0	0	389
09:15	23	141	0	164	5	0	36	41	1	149	7	157	0	0	0	0	362
Total Volume	89	538	1	628	12	0	145	157	2	694	26	722	1	0	0	1	1508
% App. Total	14.2	85.7	0.2		7.6	0	92.4		0.3	96.1	3.6		100	0	0		
PHF	.718	.954	.250	.957	.600	.000	.929	.957	.500	.928	.813	.930	.250	.000	.000	.250	.969



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	MISSOURI FLAT RD. Southbound				CHINA GARDEN RD. Westbound				MISSOURI FLAT RD. Northbound				CHINA GARDEN RD. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:30 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	40	229	0	269	5	0	39	44	0	141	20	161	0	0	1	1	475
16:30	54	244	0	298	5	1	38	44	0	146	14	160	0	0	1	1	503
16:45	48	243	0	291	4	0	44	48	0	129	10	139	0	0	1	1	479
17:00	43	228	0	271	5	1	39	45	0	135	9	144	0	0	0	0	460
Total Volume	185	944	0	1129	19	2	160	181	0	551	53	604	0	0	3	3	1917
% App. Total	16.4	83.6	0		10.5	1.1	88.4		0	91.2	8.8		0	0	100		
PHF	.856	.967	.000	.947	.950	.500	.909	.943	.000	.943	.663	.938	.000	.000	.750	.750	.953

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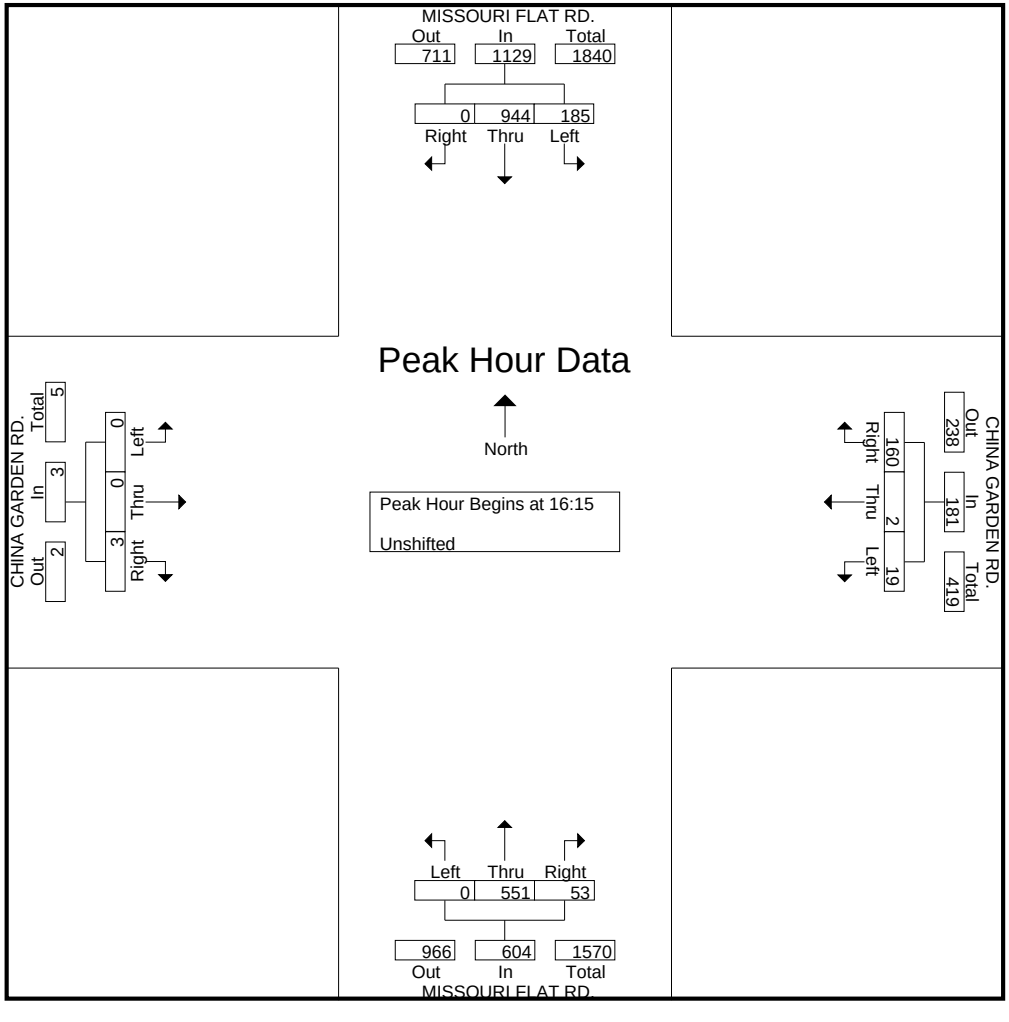


Appendix B:

Analysis Worksheets for
Existing (2010) Conditions

HCM Signalized Intersection Capacity Analysis
1: Plaza Dr. & Missouri Flat Rd.

Existing
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	67	22	301	234	57	147	381	177	270	43	162	27
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1427	1346	1504	1422		3072	3167	1417	1583	3099	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1427	1346	1504	1422		3072	3167	1417	1583	3099	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	24	334	260	63	163	423	197	300	48	180	30
RTOR Reduction (vph)	0	62	134	0	72	0	0	0	123	0	14	0
Lane Group Flow (vph)	0	160	76	234	180	0	423	197	177	48	196	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		16.5	32.5	19.3	19.3		16.0	33.7	53.0	4.5	22.2	
Effective Green, g (s)		16.5	32.5	19.3	19.3		16.0	33.7	53.0	4.5	22.2	
Actuated g/C Ratio		0.18	0.36	0.21	0.21		0.18	0.37	0.59	0.05	0.25	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		262	546	323	305		546	1186	834	79	764	
v/s Ratio Prot		c0.11	0.02	c0.16	0.13		c0.14	0.06	0.05	c0.03	c0.06	
v/s Ratio Perm			0.03						0.08			
v/c Ratio		0.61	0.14	0.72	0.59		0.77	0.17	0.21	0.61	0.26	
Uniform Delay, d1		33.8	19.3	32.9	31.8		35.3	18.8	8.7	41.9	27.3	
Progression Factor		1.00	1.00	1.00	1.00		0.90	0.83	0.68	1.00	1.00	
Incremental Delay, d2		4.2	0.1	7.8	2.9		6.5	0.3	0.1	12.5	0.8	
Delay (s)		38.0	19.5	40.7	34.7		38.2	15.8	6.1	54.4	28.1	
Level of Service		D	B	D	C		D	B	A	D	C	
Approach Delay (s)		29.0			37.6			22.9			33.0	
Approach LOS		C			D			C			C	

Intersection Summary				
HCM Average Control Delay	28.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

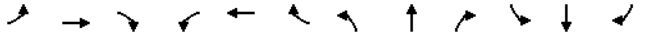
HCM Signalized Intersection Capacity Analysis
2: WB US-50 On Ramp & Missouri Flat Rd.

Existing
AM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	304	641	285	524	524	173
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	2956	1363	1524	4378	3047	1363
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	2956	1363	1524	4378	3047	1363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	338	712	317	582	582	192
RTOR Reduction (vph)	0	22	0	0	0	107
Lane Group Flow (vph)	338	690	317	582	582	85
Turn Type		pm+ov	Prot			pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	14.4	52.4	38.0	67.6	25.6	40.0
Effective Green, g (s)	14.4	52.4	38.0	67.6	25.6	40.0
Actuated g/C Ratio	0.16	0.58	0.42	0.75	0.28	0.44
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	473	854	643	3288	867	666
v/s Ratio Prot	0.11	c0.34	0.21	0.13	c0.19	0.02
v/s Ratio Perm		0.17				0.04
v/c Ratio	0.71	0.81	0.49	0.18	0.67	0.13
Uniform Delay, d1	35.9	14.8	19.0	3.2	28.5	14.7
Progression Factor	1.00	1.00	0.81	0.27	0.72	0.31
Incremental Delay, d2	5.1	5.7	0.5	0.1	3.8	0.1
Delay (s)	40.9	20.5	15.9	1.0	24.4	4.7
Level of Service	D	C	B	A	C	A
Approach Delay (s)	27.1			6.2	19.5	
Approach LOS	C			A	B	

Intersection Summary				
HCM Average Control Delay	18.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	67.2%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	1	328	0	0	0	0	712	693	170	995	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1447	1251	1295					3047	1363	1524	3047	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1447	1251	1295					3047	1363	1524	3047	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	108	1	364	0	0	0	0	791	770	189	1106	0
RTOR Reduction (vph)	0	131	131	0	0	0	0	0	282	0	0	0
Lane Group Flow (vph)	97	59	55	0	0	0	0	791	488	189	1106	0
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	11.6	11.6	11.6					51.1	51.1	15.3	70.4	
Effective Green, g (s)	11.6	11.6	11.6					51.1	51.1	15.3	70.4	
Actuated g/C Ratio	0.13	0.13	0.13					0.57	0.57	0.17	0.78	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	187	161	167					1730	774	259	2383	
v/s Ratio Prot	c0.07	0.05						0.26		c0.12	0.36	
v/s Ratio Perm			0.04						c0.36			
v/c Ratio	0.52	0.37	0.33					0.46	0.63	0.73	0.46	
Uniform Delay, d1	36.6	35.9	35.7					11.4	13.1	35.4	3.4	
Progression Factor	1.00	1.00	1.00					0.92	1.37	0.97	0.81	
Incremental Delay, d2	2.4	1.4	1.2					0.8	3.4	6.5	0.4	
Delay (s)	39.0	37.3	36.8					11.2	21.4	40.9	3.1	
Level of Service	D	D	D					B	C	D	A	
Approach Delay (s)		37.5			0.0			16.2			8.6	
Approach LOS		D			A			B			A	

Intersection Summary				
HCM Average Control Delay	16.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	75.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	209	82	42	1196	1204	119
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3072	1417	1583	3167	3167	1417
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3072	1417	1583	3167	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	232	91	47	1329	1338	132
RTOR Reduction (vph)	0	76	0	0	0	22
Lane Group Flow (vph)	232	15	47	1329	1338	110
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	14.8	14.8	6.6	67.2	56.6	56.6
Effective Green, g (s)	14.8	14.8	6.6	67.2	56.6	56.6
Actuated g/C Ratio	0.16	0.16	0.07	0.75	0.63	0.63
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	505	233	116	2365	1992	891
v/s Ratio Prot	c0.08		0.03	c0.42	c0.42	
v/s Ratio Perm		0.01				0.08
v/c Ratio	0.46	0.06	0.41	0.56	0.67	0.12
Uniform Delay, d1	34.0	31.8	39.8	5.0	10.7	6.7
Progression Factor	1.00	1.00	1.00	1.00	0.86	0.70
Incremental Delay, d2	0.7	0.1	2.3	1.0	1.6	0.3
Delay (s)	34.6	31.9	42.1	5.9	10.9	4.9
Level of Service	C	C	D	A	B	A
Approach Delay (s)	33.9			7.2	10.4	
Approach LOS	C			A	B	

Intersection Summary				
HCM Average Control Delay	11.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	52.3%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
5: Forni Rd. & Missouri Flat Rd.

Existing
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	18	17	41	16	47	71	1036	51	67	1068	151
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	172	20	19	46	18	52	79	1151	57	74	1187	168
RTOR Reduction (vph)	0	0	16	0	0	47	0	0	12	0	0	37
Lane Group Flow (vph)	172	20	3	46	18	5	79	1151	45	74	1187	131
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	9.0	12.7	12.7	3.6	7.3	7.3	6.3	40.4	40.4	6.1	40.2	40.2
Effective Green, g (s)	9.0	12.7	12.7	3.6	7.3	7.3	6.3	40.4	40.4	6.1	40.2	40.2
Actuated g/C Ratio	0.12	0.16	0.16	0.05	0.09	0.09	0.08	0.52	0.52	0.08	0.52	0.52
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	355	272	231	73	156	133	128	1645	736	124	1636	732
v/s Ratio Prot	c0.06	0.01		c0.03	c0.01		c0.05	0.36		0.05	c0.37	
v/s Ratio Perm			0.00			0.00			0.03			0.09
v/c Ratio	0.48	0.07	0.01	0.63	0.12	0.04	0.62	0.70	0.06	0.60	0.73	0.18
Uniform Delay, d1	32.2	27.6	27.3	36.4	32.3	32.1	34.6	14.1	9.3	34.7	14.5	10.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.0	12.3	0.1	0.0	6.1	1.3	0.0	5.1	1.6	0.1
Delay (s)	32.6	27.6	27.3	48.7	32.4	32.1	40.7	15.4	9.3	39.7	16.2	10.1
Level of Service	C	C	C	D	C	C	D	B	A	D	B	B
Approach Delay (s)		31.7			38.7			16.7			16.7	
Approach LOS		C			D			B			B	

Intersection Summary				
HCM Average Control Delay	18.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	59.8%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

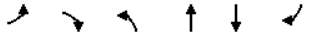
HCM Signalized Intersection Capacity Analysis
6: Golden Center Dr. & Missouri Flat Rd.

Existing
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	1	1	46	2	33	61	1124	61	94	866	9
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1524			1531		1583	3142		1583	3167	1417
Flt Permitted		0.86			0.82		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1366			1284		1583	3142		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	1	1	51	2	37	68	1249	68	104	962	10
RTOR Reduction (vph)	0	1	0	0	25	0	0	3	0	0	0	2
Lane Group Flow (vph)	0	15	0	0	65	0	68	1314	0	104	962	8
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		9.0			9.0		6.9	42.0		8.5	43.6	43.6
Effective Green, g (s)		9.0			9.0		6.9	42.0		8.5	43.6	43.6
Actuated g/C Ratio		0.12			0.12		0.10	0.58		0.12	0.60	0.60
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		170			159		151	1820		186	1905	852
v/s Ratio Prot							0.04	c0.42		c0.07	0.30	
v/s Ratio Perm		0.01			c0.05							0.01
v/c Ratio		0.09			0.41		0.45	0.72		0.56	0.50	0.01
Uniform Delay, d1		28.1			29.3		31.0	11.0		30.2	8.3	5.8
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			1.2		1.6	1.4		2.9	0.2	0.0
Delay (s)		28.3			30.5		32.6	12.5		33.1	8.5	5.8
Level of Service		C			C		C	B		C	A	A
Approach Delay (s)		28.3			30.5			13.5			10.8	
Approach LOS		C			C			B			B	

Intersection Summary				
HCM Average Control Delay	13.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	59.4%	ICU Level of Service	B	
Analysis Period (min)	15			

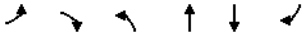
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	7	7	3	244	294	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	8	3	271	327	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				900		
pX, platoon unblocked						
vC, conflicting volume	611	333	339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	611	333	339			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	98	99	100			
cM capacity (veh/h)	450	700	1198			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	274	339
Volume Left	8	3	0
Volume Right	8	0	12
cSH	548	1198	1700
Volume to Capacity	0.03	0.00	0.20
Queue Length 95th (ft)	2	0	0
Control Delay (s)	11.8	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	11.8	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	11	24	22	236	286	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	27	24	262	318	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				446		
pX, platoon unblocked						
vC, conflicting volume	637	326	334			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	637	326	334			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	97	96	98			
cM capacity (veh/h)	426	706	1203			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	39	24	262	334
Volume Left	12	24	0	0
Volume Right	27	0	0	17
cSH	585	1203	1700	1700
Volume to Capacity	0.07	0.02	0.15	0.20
Queue Length 95th (ft)	5	2	0	0
Control Delay (s)	11.6	8.1	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	11.6	0.7		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis — Existing
12: Lime Kiln Rd. & Diamond Rd. (SR-49) — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	3	10	7	4	2	31	233	15	12	269	29
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	3	11	8	4	2	34	259	17	13	299	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked												
vC, conflicting volume	682	686	315	691	694	267	331			276		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	682	686	315	691	694	267	331			276		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	93	99	98	98	99	100	97			99		
cM capacity (veh/h)	343	351	716	336	347	762	1206			1265		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	40	14	310	344
Volume Left	26	8	34	13
Volume Right	11	2	17	32
cSH	402	371	1206	1265
Volume to Capacity	0.10	0.04	0.03	0.01
Queue Length 95th (ft)	8	3	2	1
Control Delay (s)	14.9	15.1	1.1	0.4
Lane LOS	B	C	A	A
Approach Delay (s)	14.9	15.1	1.1	0.4
Approach LOS	B	C		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	39.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis — Existing
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49) — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	340	48	23	499	121	72	16	44	113	13	69
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.4		3.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1524	2991		1583	1667	1417		1601	1417	1524	1400	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1524	2991		1583	1667	1417		1601	1417	1524	1400	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	54	378	53	26	554	134	80	18	49	126	14	77
RTOR Reduction (vph)	0	8	0	0	0	52	0	0	43	0	63	0
Lane Group Flow (vph)	54	423	0	26	554	82	0	98	6	126	28	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	6%	6%	6%
Turn Type	Prot			Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6			3			
Actuated Green, G (s)	4.9	37.9		1.8	34.8	34.8		8.6	8.6	13.8	13.8	
Effective Green, g (s)	4.9	37.9		1.8	34.8	34.8		8.6	8.6	13.8	13.8	
Actuated g/C Ratio	0.06	0.49		0.02	0.45	0.45		0.11	0.11	0.18	0.18	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.4		3.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.2		2.7	2.7	3.0	3.0	
Lane Grp Cap (vph)	97	1480		37	757	644		180	159	275	252	
v/s Ratio Prot	c0.04	0.14		0.02	c0.33			c0.06		c0.08	0.02	
v/s Ratio Perm						0.06			0.00			
v/c Ratio	0.56	0.29		0.70	0.73	0.13		0.54	0.03	0.46	0.11	
Uniform Delay, d1	34.8	11.4		37.1	17.1	12.1		32.1	30.3	28.1	26.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	0.1		39.1	3.7	0.1		2.9	0.1	1.2	0.2	
Delay (s)	38.7	11.5		76.3	20.8	12.2		35.1	30.4	29.3	26.5	
Level of Service	D	B		E	C	B		D	C	C	C	
Approach Delay (s)		14.5			21.2			33.5			28.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	14.5
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	365	468	462	462	294	105
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	2956	1604	1604	1363	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2956	1604	1604	1363	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	406	520	513	513	327	117
RTOR Reduction (vph)	0	0	0	38	0	60
Lane Group Flow (vph)	406	520	513	475	327	57
Heavy Vehicles (%)	6%	6%	6%	6%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	15.1	48.9	30.8	54.7	23.9	39.0
Effective Green, g (s)	15.1	48.9	30.8	54.7	23.9	39.0
Actuated g/C Ratio	0.19	0.61	0.38	0.68	0.30	0.49
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	555	976	614	927	471	687
v/s Ratio Prot	c0.14	0.32	c0.32	0.15	c0.21	0.02
v/s Ratio Perm				0.20		0.02
v/c Ratio	0.73	0.53	0.84	0.51	0.69	0.08
Uniform Delay, d1	30.7	9.1	22.5	6.3	25.0	11.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	0.3	9.2	0.6	4.6	0.0
Delay (s)	35.0	9.4	31.7	6.9	29.6	11.1
Level of Service	D	A	C	A	C	B
Approach Delay (s)		20.6	19.3		24.7	
Approach LOS		C	B		C	

Intersection Summary				
HCM Average Control Delay	20.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	10.6	
Intersection Capacity Utilization	67.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	57	396	1044	61	11	110
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	63	440	1160	68	12	122
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1228				1761	1194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1228				1761	1194
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	89				85	46
cM capacity (veh/h)	554				82	227

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	503	1228	134
Volume Left	63	0	12
Volume Right	0	68	122
cSH	554	1700	196
Volume to Capacity	0.11	0.72	0.69
Queue Length 95th (ft)	10	0	106
Control Delay (s)	3.2	0.0	56.0
Lane LOS	A		F
Approach Delay (s)	3.2	0.0	56.0
Approach LOS			F

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	175	18	25	506	4	7	0	16	1	4	59
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	22	194	20	28	562	4	8	0	18	1	4	66
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		1091										
pX, platoon unblocked												
vC, conflicting volume	567			214			934	871	204	877	879	564
vC1, stage 1 conf vol							249	249		620	620	
vC2, stage 2 conf vol							686	622		257	259	
vCu, unblocked vol	567			214			934	871	204	877	879	564
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			98	100	98	100	99	88
cM capacity (veh/h)	1005			1356			334	418	836	426	430	525

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	22	214	28	567	26	71
Volume Left	22	0	28	0	8	1
Volume Right	0	20	0	4	18	66
cSH	1005	1700	1356	1700	573	516
Volume to Capacity	0.02	0.13	0.02	0.33	0.04	0.14
Queue Length 95th (ft)	2	0	2	0	3	12
Control Delay (s)	8.7	0.0	7.7	0.0	11.6	13.1
Lane LOS	A		A		B	B
Approach Delay (s)	0.8		0.4		11.6	13.1
Approach LOS					B	B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	43.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	388	13	2	924	11	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	431	14	2	1027	12	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			446		1469	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			446		1469	438
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		91	99
cM capacity (veh/h)			1115		140	618

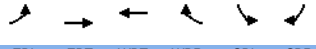
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	446	1029	17
Volume Left	0	2	12
Volume Right	14	0	4
cSH	1700	1115	176
Volume to Capacity	0.26	0.00	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.0	0.1	27.5
Lane LOS		A	D
Approach Delay (s)	0.0	0.1	27.5
Approach LOS			D

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	66.1%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	207	272	313	305	6	121	2	203	11	4	8
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1524	1604	1363	1524	1599			1588	1417		1549	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1524	1604	1363	1524	1599			1588	1417		1549	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	230	302	348	339	7	134	2	226	12	4	9
RTOR Reduction (vph)	0	0	195	0	0	0	0	0	172	0	9	0
Lane Group Flow (vph)	3	230	107	348	346	0	0	136	54	0	16	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.7	41.7	41.7	27.2	68.2			28.2	28.2		5.4	
Effective Green, g (s)	0.7	41.7	41.7	27.2	68.2			28.2	28.2		5.4	
Actuated g/C Ratio	0.01	0.35	0.35	0.23	0.58			0.24	0.24		0.05	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	9	569	483	352	927			381	340		71	
v/s Ratio Prot	0.00	c0.14		c0.23	0.22			c0.09			c0.01	
v/s Ratio Perm			0.08						0.04			
v/c Ratio	0.33	0.40	0.22	0.99	0.37			0.36	0.16		0.23	
Uniform Delay, d1	58.2	28.6	26.6	45.0	13.2			37.2	35.3		54.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	7.8	2.1	1.1	44.5	0.3			2.6	1.0		0.6	
Delay (s)	66.0	30.7	27.6	89.5	13.6			39.8	36.3		54.7	
Level of Service	E	C	C	F	B			D	D		D	
Approach Delay (s)		29.2			51.7			37.6			54.7	
Approach LOS		C			D			D			D	

Intersection Summary				
HCM Average Control Delay	41.1	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	
Analysis Period (min)	15			

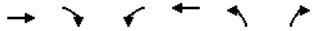
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	200	369	335	26	153	210
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	222	410	372	29	170	233
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	401				1241	387
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	401				1241	387
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	80				0	65
cM capacity (veh/h)	1136				155	661

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	632	401	403
Volume Left	222	0	170
Volume Right	0	29	233
cSH	1136	1700	279
Volume to Capacity	0.20	0.24	1.45
Queue Length 95th (ft)	18	0	559
Control Delay (s)	4.6	0.0	254.7
Lane LOS	A		F
Approach Delay (s)	4.6	0.0	254.7
Approach LOS			F

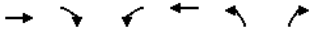
Intersection Summary			
Average Delay	73.5		
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	453	64	65	502	118	155
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	503	71	72	558	131	172

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	574	630	303
Volume Left (vph)	0	72	131
Volume Right (vph)	71	0	172
Hadj (s)	0.03	0.12	-0.22
Departure Headway (s)	6.0	6.2	6.7
Degree Utilization, x	0.96	1.08	0.57
Capacity (veh/h)	593	582	529
Control Delay (s)	52.1	84.3	18.1
Approach Delay (s)	52.1	84.3	18.1
Approach LOS	F	F	C

Intersection Summary				
Delay	58.7			
HCM Level of Service	F			
Intersection Capacity Utilization	92.5%	ICU Level of Service	F	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	256	150	194	308	223	293
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	284	167	216	342	248	326

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	451	216	342	573
Volume Left (vph)	0	216	0	248
Volume Right (vph)	167	0	0	326
Hadj (s)	-0.19	0.60	0.10	-0.15
Departure Headway (s)	6.7	8.0	7.5	6.5
Degree Utilization, x	0.84	0.48	0.71	1.04
Capacity (veh/h)	531	445	470	557
Control Delay (s)	35.5	16.9	25.8	74.3
Approach Delay (s)	35.5	22.4		74.3
Approach LOS	E	C		F

Intersection Summary				
Delay	44.9			
HCM Level of Service	E			
Intersection Capacity Utilization	81.2%	ICU Level of Service	D	
Analysis Period (min)	15			

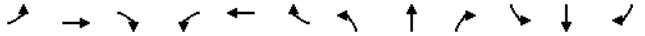
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	27	15	18	708	540	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	17	20	787	600	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1443	616	632			
vC1, stage 1 conf vol	616					
vC2, stage 2 conf vol	827					
vCu, unblocked vol	1443	616	632			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.4	2.2			
p0 queue free %	91	97	98			
cM capacity (veh/h)	344	483	950			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	47	20	787	632
Volume Left	30	20	0	0
Volume Right	17	0	0	32
cSH	384	950	1700	1700
Volume to Capacity	0.12	0.02	0.46	0.37
Queue Length 95th (ft)	10	2	0	0
Control Delay (s)	15.7	8.9	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.7	0.2		0.0
Approach LOS	C			

Intersection Summary				
Average Delay		0.6		
Intersection Capacity Utilization		51.6%	ICU Level of Service	A
Analysis Period (min)		15		

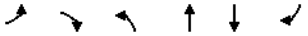
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	267	289	111	135	31	466	89	233	78	223	223	211
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.8	3.8	3.8	3.8	3.8	3.8		3.2			3.8	3.8
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	1.00
Satd. Flow (prot)	1524	1604	1363	1524	1604	1363		2925			1565	1363
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	1.00
Satd. Flow (perm)	1524	1604	1363	1524	1604	1363		2925			1565	1363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	297	321	123	150	34	518	99	259	87	248	248	234
RTOR Reduction (vph)	0	0	97	0	0	217	0	28	0	0	0	191
Lane Group Flow (vph)	297	321	26	150	34	301	0	417	0	0	496	43
Turn Type	Split		Perm	Split		pm+ov	Split			Split		Perm
Protected Phases	4	4		3	3	1	2	2		1	1	
Permitted Phases			4			3						1
Actuated Green, G (s)	16.2	16.2	16.2	7.2	7.2	21.4		24.8			14.2	14.2
Effective Green, g (s)	16.2	16.2	16.2	7.2	7.2	21.4		24.8			14.2	14.2
Actuated g/C Ratio	0.21	0.21	0.21	0.09	0.09	0.28		0.32			0.18	0.18
Clearance Time (s)	3.8	3.8	3.8	3.8	3.8	3.8		3.2			3.8	3.8
Vehicle Extension (s)	2.3	2.3	2.3	2.0	2.0	3.5		2.0			3.5	3.5
Lane Grp Cap (vph)	321	337	287	143	150	379		942			289	251
v/s Ratio Prot	0.19	c0.20		c0.10	0.02	0.15		c0.14			c0.32	
v/s Ratio Perm			0.02			0.07						0.03
v/c Ratio	0.93	0.95	0.09	1.05	0.23	0.79		0.44			1.72	0.17
Uniform Delay, d1	29.8	30.0	24.5	34.9	32.3	25.8		20.6			31.4	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	31.2	36.3	0.1	88.9	0.3	11.2		1.5			336.6	0.4
Delay (s)	61.0	66.4	24.5	123.8	32.6	36.9		22.1			368.0	26.8
Level of Service	E	E	C	F	C	D		C			F	C
Approach Delay (s)		57.3			55.3			22.1			258.6	
Approach LOS		E			E			C			F	

Intersection Summary						
HCM Average Control Delay		106.9	HCM Level of Service		F	
HCM Volume to Capacity ratio		0.94				
Actuated Cycle Length (s)		77.0	Sum of lost time (s)		14.6	
Intersection Capacity Utilization		78.5%	ICU Level of Service		D	
Analysis Period (min)		15				
c Critical Lane Group						



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	147	0	126	0	440	526	0	510	568
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				4.0		4.0		4.0	4.0		4.0	4.0
Lane Util. Factor				1.00		1.00		0.95	1.00		1.00	1.00
Frt				1.00		0.85		1.00	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1524		1363		3047	1363		1604	1363
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1524		1363		3047	1363		1604	1363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	163	0	140	0	489	584	0	567	631
RTOR Reduction (vph)	0	0	0	0	0	116	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	163	0	24	0	489	584	0	567	631
Turn Type				Prot		custom			Free			Prot
Protected Phases				3				2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)				10.2		10.2		41.8	60.0		41.8	41.8
Effective Green, g (s)				10.2		10.2		41.8	60.0		41.8	41.8
Actuated g/C Ratio				0.17		0.17		0.70	1.00		0.70	0.70
Clearance Time (s)				4.0		4.0		4.0			4.0	4.0
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				259		232		2123	1363		1117	950
v/s Ratio Prot				c0.11				0.16			0.35	c0.46
v/s Ratio Perm						0.02			0.43			
v/c Ratio				0.63		0.10		0.23	0.43		0.51	0.66
Uniform Delay, d1				23.1		21.0		3.3	0.0		4.3	5.1
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				4.7		0.2		0.3	1.0		1.6	3.7
Delay (s)				27.9		21.2		3.5	1.0		5.9	8.8
Level of Service				C		C		A	A		A	A
Approach Delay (s)		0.0			24.8			2.2			7.4	
Approach LOS		A			C			A			A	

Intersection Summary				
HCM Average Control Delay	7.3	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	45.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	16	3	0	346	285	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	3	0	384	317	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	704	320	323			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	704	320	323			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	96	100	100			
cM capacity (veh/h)	403	721	1214			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	21	384	323
Volume Left	18	0	0
Volume Right	3	0	7
cSH	433	1214	1700
Volume to Capacity	0.05	0.00	0.19
Queue Length 95th (ft)	4	0	0
Control Delay (s)	13.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.7	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	30.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
26: Fiske St. & Sacramento St (SR-49)

Existing
AM Peak

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	15	19	336	19	19	249
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	21	373	21	21	277
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	703	384			394	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	703	384			394	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	96	97			98	
cM capacity (veh/h)	396	664			1143	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	394	298
Volume Left	17	0	21
Volume Right	21	21	0
cSH	512	1700	1143
Volume to Capacity	0.07	0.23	0.02
Queue Length 95th (ft)	6	0	1
Control Delay (s)	12.6	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	12.6	0.0	0.8
Approach LOS	B		

Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		42.1%	ICU Level of Service	A
Analysis Period (min)		15		

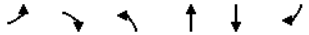
HCM Signalized Intersection Capacity Analysis
27: Pacific St. & Sacramento St.

Existing
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	166	107	106	152	41	134	113	103	28	51	19
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1524	1509		1583	1613		1524	1490		1583	1599	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1524	1509		1583	1613		1524	1490		1583	1599	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	184	119	118	169	46	149	126	114	31	57	21
RTOR Reduction (vph)	0	21	0	0	7	0	0	28	0	0	16	0
Lane Group Flow (vph)	9	282	0	118	208	0	149	212	0	31	62	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	6%	6%	6%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.7	17.6		7.3	24.2		13.0	18.7		2.3	8.0	
Effective Green, g (s)	0.7	17.6		7.3	24.2		13.0	18.7		2.3	8.0	
Actuated g/C Ratio	0.01	0.30		0.12	0.41		0.22	0.31		0.04	0.13	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	18	447		195	657		334	469		61	215	
v/s Ratio Prot	0.01	c0.19		c0.07	0.13		c0.10	c0.14		0.02	0.04	
v/s Ratio Perm												
v/c Ratio	0.50	0.63		0.61	0.32		0.45	0.45		0.51	0.29	
Uniform Delay, d1	29.2	18.1		24.7	12.0		20.1	16.3		28.0	23.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.7	2.1		3.6	0.1		0.3	0.3		2.4	0.3	
Delay (s)	36.9	20.2		28.3	12.1		20.4	16.5		30.4	23.4	
Level of Service	D	C		C	B		C	B		C	C	
Approach Delay (s)		20.7			17.8			18.0			25.4	
Approach LOS		C			B			B			C	

Intersection Summary				
HCM Average Control Delay	19.4	HCM Level of Service		B
HCM Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	59.4	Sum of lost time (s)		9.5
Intersection Capacity Utilization	54.0%	ICU Level of Service		A
Analysis Period (min)	15			

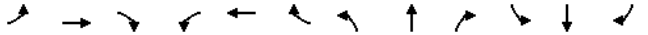
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	58	20	19	813	519	98
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	64	22	21	903	577	109
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				903		
pX, platoon unblocked						
vC, conflicting volume	1577	631	686			
vC1, stage 1 conf vol	631					
vC2, stage 2 conf vol	946					
vCu, unblocked vol	1577	631	686			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	95	98			
cM capacity (veh/h)	314	481	908			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	87	21	903	686
Volume Left	64	21	0	0
Volume Right	22	0	0	109
cSH	345	908	1700	1700
Volume to Capacity	0.25	0.02	0.53	0.40
Queue Length 95th (ft)	24	2	0	0
Control Delay (s)	18.9	9.1	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	18.9	0.2		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	59.4%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	39	2	126	0	598	143	111	334	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	43	2	140	0	664	159	123	371	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1423	1441	371	1362	1362	744	371			823		
vC1, stage 1 conf vol	618	618		744	744							
vC2, stage 2 conf vol	806	823		618	618							
vCu, unblocked vol	1423	1441	371	1362	1362	744	371			823		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.2	5.6		6.1	5.5							
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	86	99	66	100			85		
cM capacity (veh/h)	116	231	666	300	310	415	1187			807		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	186	0	823	123	371
Volume Left	0	43	0	0	123	0
Volume Right	0	140	0	159	0	0
cSH	1700	379	1700	1700	807	1700
Volume to Capacity	0.00	0.49	0.00	0.48	0.15	0.22
Queue Length 95th (ft)	0	65	0	0	13	0
Control Delay (s)	0.0	23.3	0.0	0.0	10.3	0.0
Lane LOS	A	C			B	
Approach Delay (s)	0.0	23.3	0.0		2.6	
Approach LOS	A	C				

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	73.0%	ICU Level of Service		C
Analysis Period (min)	15			

Queues
1: Plaza Dr. & Missouri Flat Rd.

Existing
AM Peak

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	222	210	234	252	423	197	300	48	210
v/c Ratio	0.69	0.32	0.73	0.67	0.87	0.16	0.30	0.39	0.25
Control Delay	31.8	3.9	47.1	29.6	55.0	19.2	1.5	50.2	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	3.9	47.1	29.6	55.0	19.2	1.6	50.2	26.4
Queue Length 50th (ft)	83	0	125	83	118	38	0	26	46
Queue Length 95th (ft)	131	41	#255	#198	#300	m76	14	#77	78
Internal Link Dist (ft)	421			1192		226			1135
Turn Bay Length (ft)					125		500	105	
Base Capacity (vph)	526	649	340	393	489	1246	989	123	874
Starvation Cap Reductn	0	0	0	0	0	0	50	0	0
Spillback Cap Reductn	0	1	0	0	0	0	0	0	19
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.32	0.69	0.64	0.87	0.16	0.32	0.39	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: WB US-50 On Ramp & Missouri Flat Rd.

Existing
AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	338	712	317	582	582	192
v/c Ratio	0.71	0.82	0.49	0.18	0.67	0.25
Control Delay	44.7	20.5	17.9	1.0	25.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	44.7	20.5	17.9	1.0	25.6	1.4
Queue Length 50th (ft)	93	239	175	14	174	1
Queue Length 95th (ft)	138	415	135	3	192	m9
Internal Link Dist (ft)	1326			235	226	
Turn Bay Length (ft)		60	425			165
Base Capacity (vph)	526	873	662	3289	868	752
Starvation Cap Reductn	0	0	0	0	38	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.82	0.48	0.18	0.70	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
3: EB US-50 Ramp & Missouri Flat Rd.

Existing
AM Peak

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	97	190	186	791	770	189	1106
v/c Ratio	0.52	0.65	0.62	0.46	0.73	0.73	0.46
Control Delay	45.5	20.9	19.3	12.5	8.3	45.6	3.5
Queue Delay	0.0	2.1	1.8	1.2	0.8	0.0	0.3
Total Delay	45.5	23.0	21.1	13.7	9.1	45.6	3.8
Queue Length 50th (ft)	54	23	20	98	14	100	59
Queue Length 95th (ft)	102	93	85	182	229	m144	156
Internal Link Dist (ft)		937		138			216
Turn Bay Length (ft)	800		600		85	225	
Base Capacity (vph)	257	346	354	1732	1056	295	2382
Starvation Cap Reductn	0	0	0	667	95	0	0
Spillback Cap Reductn	0	66	68	0	0	0	569
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.68	0.65	0.74	0.80	0.64	0.61

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
4: Mother Lode Dr. & Missouri Flat Rd.

Existing
AM Peak

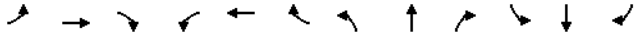
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	232	91	47	1329	1338	132
v/c Ratio	0.46	0.29	0.29	0.56	0.65	0.14
Control Delay	35.4	8.4	40.5	7.5	14.9	5.3
Queue Delay	0.2	0.0	0.0	0.0	0.1	0.3
Total Delay	35.6	8.4	40.5	7.6	15.0	5.6
Queue Length 50th (ft)	64	0	26	119	144	12
Queue Length 95th (ft)	77	32	54	338	#618	66
Internal Link Dist (ft)	847			2004	138	
Turn Bay Length (ft)	185	185	160			105
Base Capacity (vph)	1092	562	281	2363	2046	936
Starvation Cap Reductn	0	0	0	0	127	458
Spillback Cap Reductn	326	0	0	49	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.16	0.17	0.57	0.70	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
5: Forni Rd. & Missouri Flat Rd.

Existing
AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	172	20	19	46	18	52	79	1151	57	74	1187	168
v/c Ratio	0.48	0.07	0.08	0.36	0.09	0.25	0.48	0.69	0.08	0.47	0.72	0.22
Control Delay	43.8	33.6	15.2	51.2	36.7	13.7	50.9	20.4	9.8	50.9	21.3	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	33.6	15.2	51.2	36.7	13.7	50.9	20.4	9.8	50.9	21.3	9.7
Queue Length 50th (ft)	38	8	0	20	8	0	34	191	6	32	202	20
Queue Length 95th (ft)	111	34	20	80	33	34	118	546	42	112	578	97
Internal Link Dist (ft)		905			863			1035			2004	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	879	823	709	572	941	822	453	2391	1076	572	2545	1154
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.02	0.03	0.08	0.02	0.06	0.17	0.48	0.05	0.13	0.47	0.15

Intersection Summary

Queues
6: Golden Center Dr. & Missouri Flat Rd.

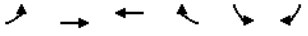
Existing
AM Peak

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	16	90	68	1317	104	962	10
v/c Ratio	0.06	0.36	0.31	0.67	0.39	0.47	0.01
Control Delay	31.8	28.2	41.8	17.5	40.5	12.3	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	28.2	41.8	17.5	40.5	12.3	8.4
Queue Length 50th (ft)	6	25	28	221	43	125	1
Queue Length 95th (ft)	27	82	95	559	130	324	11
Internal Link Dist (ft)	329	566		1154		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	716	686	525	2438	525	2476	1109
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.13	0.13	0.54	0.20	0.39	0.01

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	54	431	26	554	134	98	49	126	91
v/c Ratio	0.43	0.29	0.26	0.75	0.20	0.40	0.19	0.45	0.29
Control Delay	52.6	12.9	51.7	27.9	7.0	42.5	14.0	41.1	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	12.9	51.7	27.9	7.0	42.5	14.0	41.1	14.7
Queue Length 50th (ft)	25	51	12	217	10	43	0	54	6
Queue Length 95th (ft)	83	130	50	470	52	125	36	151	55
Internal Link Dist (ft)		152		260		844			629
Turn Bay Length (ft)	180		105		180		75	335	
Base Capacity (vph)	420	2226	437	1228	1069	520	493	569	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.19	0.06	0.45	0.13	0.19	0.10	0.22	0.16

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	406	520	513	513	327	117
v/c Ratio	0.74	0.54	0.85	0.50	0.70	0.15
Control Delay	42.6	12.3	39.7	5.6	37.2	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	12.3	39.7	5.6	37.2	2.9
Queue Length 50th (ft)	103	141	235	62	148	0
Queue Length 95th (ft)	185	264	#491	157	302	26
Internal Link Dist (ft)		1271	1500		823	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	1078	1362	910	1168	684	1035
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.38	0.56	0.44	0.48	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: Pleasant Valley Rd. (SR-49) & Koki Ln

Existing
AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	3	230	302	348	346	136	226	25
v/c Ratio	0.06	0.42	0.45	0.96	0.36	0.35	0.43	0.24
Control Delay	60.0	33.1	5.9	81.4	15.1	40.2	7.9	41.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	33.1	5.9	81.4	15.1	40.2	7.9	41.9
Queue Length 50th (ft)	2	127	0	251	117	82	0	12
Queue Length 95th (ft)	14	241	71	#525	275	164	69	39
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	229	553	668	364	960	393	521	390
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.42	0.45	0.96	0.36	0.35	0.43	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
23: EB US-50 Off-Ramp & Ponderosa Rd.

Existing
AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	297	321	123	150	34	518	445	496	234
v/c Ratio	0.93	0.95	0.32	1.05	0.23	0.87	0.46	1.72	0.53
Control Delay	67.2	71.5	7.9	127.4	36.4	25.1	20.6	361.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.2	71.5	7.9	127.4	36.4	25.1	20.6	361.9	9.1
Queue Length 50th (ft)	141	153	0	~80	15	46	79	~357	0
Queue Length 95th (ft)	#286	#307	41	#190	42	#230	121	#535	57
Internal Link Dist (ft)		2352			1487		1685	102	
Turn Bay Length (ft)	380		380	80		220			
Base Capacity (vph)	321	337	384	143	150	596	970	289	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.95	0.32	1.05	0.23	0.87	0.46	1.72	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
24: WB US-50 Ramps & Ponderosa Rd.

Existing
AM Peak

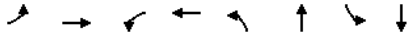
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	163	140	489	584	567	631
v/c Ratio	0.56	0.38	0.22	0.43	0.49	0.64
Control Delay	28.6	7.2	4.4	1.0	7.3	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	7.2	4.4	1.0	7.3	11.3
Queue Length 50th (ft)	54	0	28	0	83	111
Queue Length 95th (ft)	96	35	59	0	192	#348
Internal Link Dist (ft)			91		1345	
Turn Bay Length (ft)						
Base Capacity (vph)	406	466	2206	1363	1161	987
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.30	0.22	0.43	0.49	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
27: Pacific St. & Sacramento St.

Existing
AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	9	303	118	215	149	240	31	78
v/c Ratio	0.07	0.68	0.41	0.31	0.43	0.46	0.16	0.27
Control Delay	34.8	27.6	32.0	12.9	32.1	20.0	32.6	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	27.6	32.0	12.9	32.1	20.0	32.6	22.5
Queue Length 50th (ft)	3	84	37	38	45	47	10	19
Queue Length 95th (ft)	19	206	113	126	#161	162	42	61
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	401	922	417	1000	401	906	762	1165
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.33	0.28	0.21	0.37	0.26	0.04	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Plaza Dr. & Missouri Flat Rd.

Existing
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	26	348	184	45	116	382	178	271	61	230	38
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1428	1346	1504	1422		3072	3167	1417	1583	3100	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1346	1504	1422		3072	3167	1417	1583	3100	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	86	29	387	204	50	129	424	198	301	68	256	42
RTOR Reduction (vph)	0	51	144	0	67	0	0	0	157	0	12	0
Lane Group Flow (vph)	0	207	100	184	132	0	424	198	144	68	286	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		19.8	38.6	17.4	17.4		18.8	30.5	47.9	16.3	28.0	
Effective Green, g (s)		19.8	38.6	17.4	17.4		18.8	30.5	47.9	16.3	28.0	
Actuated g/C Ratio		0.20	0.39	0.17	0.17		0.19	0.30	0.48	0.16	0.28	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		283	573	262	247		578	966	735	258	868	
v/s Ratio Prot		c0.14	0.03	c0.12	0.09		c0.14	0.06	0.03	0.04	c0.09	
v/s Ratio Perm			0.04						0.07			
v/c Ratio		0.73	0.17	0.70	0.53		0.73	0.20	0.20	0.26	0.33	
Uniform Delay, d1		37.6	20.2	38.9	37.6		38.2	25.8	15.0	36.6	28.6	
Progression Factor		1.00	1.00	1.00	1.00		0.95	0.67	0.09	1.00	1.00	
Incremental Delay, d2		9.3	0.1	8.2	2.2		4.6	0.5	0.1	0.5	1.0	
Delay (s)		46.9	20.4	47.1	39.8		40.8	17.6	1.4	37.1	29.6	
Level of Service		D	C	D	D		D	B	A	D	C	
Approach Delay (s)		34.0			43.3			23.0			31.0	
Approach LOS		C			D			C			C	

Intersection Summary				
HCM Average Control Delay	30.5	HCM Level of Service		C
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service		B
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: WB US-50 On Ramp & Missouri Flat Rd.

Existing
PM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	285	601	327	546	552	210
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	0.91	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	2956	1363	1524	4378	3047	1363
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	2956	1363	1524	4378	3047	1363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	317	668	363	607	613	233
RTOR Reduction (vph)	0	29	0	0	0	124
Lane Group Flow (vph)	317	639	363	607	613	109
Turn Type		pm+ov	Prot			pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Actuated Green, G (s)	14.7	56.0	41.3	77.3	32.0	46.7
Effective Green, g (s)	14.7	56.0	41.3	77.3	32.0	46.7
Actuated g/C Ratio	0.15	0.56	0.41	0.77	0.32	0.47
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	435	818	629	3384	975	691
v/s Ratio Prot	0.11	c0.32	0.24	0.14	c0.20	0.02
v/s Ratio Perm		0.15				0.06
v/c Ratio	0.73	0.78	0.58	0.18	0.63	0.16
Uniform Delay, d1	40.7	17.2	22.6	3.0	28.9	15.3
Progression Factor	1.00	1.00	1.22	0.59	0.69	0.26
Incremental Delay, d2	6.0	4.9	1.1	0.1	2.8	0.1
Delay (s)	46.8	22.1	28.8	1.9	22.7	4.1
Level of Service	D	C	C	A	C	A
Approach Delay (s)	30.0			12.0	17.6	
Approach LOS	C			B	B	

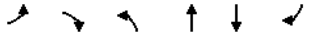
Intersection Summary				
HCM Average Control Delay	20.0	HCM Level of Service		C
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	65.3%	ICU Level of Service		C
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	2	529	0	0	0	0	717	793	194	959	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1447	1251	1295					3047	1363	1524	3047	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1447	1251	1295					3047	1363	1524	3047	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	2	588	0	0	0	0	797	881	216	1066	0
RTOR Reduction (vph)	0	128	128	0	0	0	0	0	312	0	0	0
Lane Group Flow (vph)	156	179	172	0	0	0	0	797	569	216	1066	0
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	17.7	17.7	17.7					53.1	53.1	17.2	74.3	
Effective Green, g (s)	17.7	17.7	17.7					53.1	53.1	17.2	74.3	
Actuated g/C Ratio	0.18	0.18	0.18					0.53	0.53	0.17	0.74	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	256	221	229					1618	724	262	2264	
v/s Ratio Prot	0.11	c0.14						0.26		c0.14	0.35	
v/s Ratio Perm			0.13						c0.42			
v/c Ratio	0.61	0.81	0.75					0.49	0.79	0.82	0.47	
Uniform Delay, d1	38.0	39.5	39.0					14.9	18.9	39.9	5.1	
Progression Factor	1.00	1.00	1.00					0.91	0.99	1.01	0.56	
Incremental Delay, d2	4.1	19.1	12.6					0.9	7.2	13.5	0.5	
Delay (s)	42.0	58.6	51.6					14.5	26.0	53.7	3.3	
Level of Service	D	E	D					B	C	D	A	
Approach Delay (s)		52.5			0.0			20.5			11.8	
Approach LOS		D			A			C			B	

Intersection Summary				
HCM Average Control Delay	24.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	87.8%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	232	91	48	1278	1336	152
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3072	1417	1583	3167	3167	1417
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3072	1417	1583	3167	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	258	101	53	1420	1484	169
RTOR Reduction (vph)	0	85	0	0	0	25
Lane Group Flow (vph)	258	16	53	1420	1484	144
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type		Perm	Prot			Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	16.0	16.0	8.4	76.0	63.6	63.6
Effective Green, g (s)	16.0	16.0	8.4	76.0	63.6	63.6
Actuated g/C Ratio	0.16	0.16	0.08	0.76	0.64	0.64
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	492	227	133	2407	2014	901
v/s Ratio Prot	c0.08		0.03	c0.45	c0.47	
v/s Ratio Perm		0.01				0.10
v/c Ratio	0.52	0.07	0.40	0.59	0.74	0.16
Uniform Delay, d1	38.5	35.7	43.4	5.2	12.5	7.4
Progression Factor	1.00	1.00	1.00	1.00	0.93	1.05
Incremental Delay, d2	1.0	0.1	2.0	1.1	2.0	0.3
Delay (s)	39.5	35.8	45.4	6.3	13.6	8.0
Level of Service	D	D	D	A	B	A
Approach Delay (s)	38.5			7.7	13.0	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	13.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Forni Rd. & Missouri Flat Rd.

Existing
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	360	43	40	98	38	113	69	853	50	109	1073	245
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	400	48	44	109	42	126	77	948	56	121	1192	272
RTOR Reduction (vph)	0	0	38	0	0	112	0	0	18	0	0	68
Lane Group Flow (vph)	400	48	6	109	42	14	77	948	38	121	1192	204
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	20.2	14.0	14.0	16.7	10.5	10.5	6.9	39.2	39.2	11.0	43.3	43.3
Effective Green, g (s)	20.2	14.0	14.0	16.7	10.5	10.5	6.9	39.2	39.2	11.0	43.3	43.3
Actuated g/C Ratio	0.21	0.15	0.15	0.17	0.11	0.11	0.07	0.41	0.41	0.11	0.45	0.45
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	647	243	207	276	183	155	114	1295	579	182	1430	640
v/s Ratio Prot	c0.13	c0.03		0.07	0.03		0.05	0.30		c0.08	c0.38	
v/s Ratio Perm			0.00			0.01			0.03			0.14
v/c Ratio	0.62	0.20	0.03	0.39	0.23	0.09	0.68	0.73	0.07	0.66	0.83	0.32
Uniform Delay, d1	34.4	36.0	35.1	35.1	39.0	38.4	43.4	23.9	17.2	40.7	23.1	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1	0.0	0.3	0.2	0.1	11.7	2.2	0.0	6.9	4.3	0.3
Delay (s)	35.6	36.2	35.2	35.5	39.2	38.5	55.1	26.1	17.3	47.6	27.5	17.1
Level of Service	D	D	D	D	D	D	E	C	B	D	C	B
Approach Delay (s)		35.6			37.4			27.7			27.2	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	29.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	95.9	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	66.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

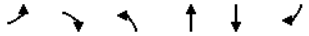
HCM Signalized Intersection Capacity Analysis
6: Golden Center Dr. & Missouri Flat Rd.

Existing
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	7	5	105	5	75	35	640	35	100	925	10
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1526			1532		1583	3142		1583	3167	1417
Flt Permitted		0.64			0.79		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1012			1247		1583	3142		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	8	6	117	6	83	39	711	39	111	1028	11
RTOR Reduction (vph)	0	1	0	0	21	0	0	3	0	0	0	3
Lane Group Flow (vph)	0	124	0	0	185	0	39	747	0	111	1028	8
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		16.6			16.6		4.1	27.7		8.5	32.1	32.1
Effective Green, g (s)		16.6			16.6		4.1	27.7		8.5	32.1	32.1
Actuated g/C Ratio		0.25			0.25		0.06	0.42		0.13	0.49	0.49
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		255			315		99	1323		204	1545	691
v/s Ratio Prot							0.02	0.24		c0.07	c0.32	
v/s Ratio Perm		0.12			c0.15							0.01
v/c Ratio		0.48			0.59		0.39	0.56		0.54	0.67	0.01
Uniform Delay, d1		21.0			21.6		29.7	14.5		26.8	12.8	8.7
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		1.1			2.3		1.9	0.6		2.3	1.1	0.0
Delay (s)		22.0			23.9		31.5	15.0		29.2	13.9	8.7
Level of Service		C			C		C	B		C	B	A
Approach Delay (s)		22.0			23.9			15.8			15.3	
Approach LOS		C			C			B			B	

Intersection Summary				
HCM Average Control Delay	16.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	54.0%	ICU Level of Service	A	
Analysis Period (min)	15			

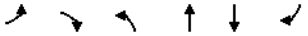
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	25	4	325	400	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	28	4	361	444	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				900		
pX, platoon unblocked						
vC, conflicting volume	823	453	461			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	823	453	461			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	92	95	100			
cM capacity (veh/h)	337	599	1079			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	56	366	461
Volume Left	28	4	0
Volume Right	28	0	17
cSH	431	1079	1700
Volume to Capacity	0.13	0.00	0.27
Queue Length 95th (ft)	11	0	0
Control Delay (s)	14.6	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	14.6	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	55	28	304	400	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	61	31	338	444	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				446		
pX, platoon unblocked						
vC, conflicting volume	858	458	472			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	858	458	472			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	91	90	97			
cM capacity (veh/h)	313	594	1069			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	89	31	338	472
Volume Left	28	31	0	0
Volume Right	61	0	0	28
cSH	464	1069	1700	1700
Volume to Capacity	0.19	0.03	0.20	0.28
Queue Length 95th (ft)	18	2	0	0
Control Delay (s)	14.6	8.5	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	14.6	0.7		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
12: Lime Kiln Rd. & Diamond Rd. (SR-49)

Existing
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	79	9	35	6	3	2	40	251	20	20	385	50
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	88	10	39	7	3	2	44	279	22	22	428	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked												
vC, conflicting volume	883	890	456	923	907	290	483			301		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	883	890	456	923	907	290	483			301		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	64	96	93	97	99	100	96			98		
cM capacity (veh/h)	247	261	597	213	256	740	1059			1237		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	137	12	346	506
Volume Left	88	7	44	22
Volume Right	39	2	22	56
cSH	298	258	1059	1237
Volume to Capacity	0.46	0.05	0.04	0.02
Queue Length 95th (ft)	57	4	3	1
Control Delay (s)	26.9	19.6	1.5	0.5
Lane LOS	D	C	A	A
Approach Delay (s)	26.9	19.6	1.5	0.5
Approach LOS	D	C		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	50.6%	ICU Level of Service	A	
Analysis Period (min)	15			

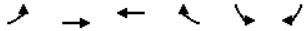
HCM Signalized Intersection Capacity Analysis
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49)

Existing
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	830	117	19	416	101	67	15	41	250	28	154
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.4		3.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1524	2991		1583	1667	1417		1602	1417	1524	1400	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1524	2991		1583	1667	1417		1602	1417	1524	1400	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	132	922	130	21	462	112	74	17	46	278	31	171
RTOR Reduction (vph)	0	8	0	0	0	61	0	0	42	0	126	0
Lane Group Flow (vph)	132	1044	0	21	462	51	0	91	4	278	76	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	6%	6%	6%
Turn Type	Prot			Prot		Perm	Split		Perm	Split		
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6			3			
Actuated Green, G (s)	11.0	42.7		1.9	33.6	33.6		8.8	8.8	24.4	24.4	
Effective Green, g (s)	11.0	42.7		1.9	33.6	33.6		8.8	8.8	24.4	24.4	
Actuated g/C Ratio	0.12	0.46		0.02	0.36	0.36		0.10	0.10	0.26	0.26	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.4		3.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.2		2.7	2.7	3.0	3.0	
Lane Grp Cap (vph)	182	1384		33	607	516		153	135	403	370	
v/s Ratio Prot	c0.09	c0.35		0.01	0.28			c0.06		c0.18	0.05	
v/s Ratio Perm						0.04			0.00			
v/c Ratio	0.73	0.75		0.64	0.76	0.10		0.59	0.03	0.69	0.21	
Uniform Delay, d1	39.2	20.5		44.9	25.8	19.4		40.0	37.9	30.5	26.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.5	2.4		25.9	5.7	0.1		5.5	0.1	4.9	0.3	
Delay (s)	50.7	22.9		70.7	31.5	19.5		45.5	38.0	35.4	26.7	
Level of Service	D	C		E	C	B		D	D	D	C	
Approach Delay (s)		26.0			30.6			43.0			31.7	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM Average Control Delay	29.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	92.3	Sum of lost time (s)	10.1	
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

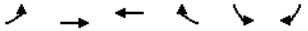
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	312	400	385	385	700	250
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	2956	1604	1604	1363	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2956	1604	1604	1363	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	347	444	428	428	778	278
RTOR Reduction (vph)	0	0	0	48	0	87
Lane Group Flow (vph)	347	444	428	380	778	191
Heavy Vehicles (%)	6%	6%	6%	6%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	12.7	40.4	24.7	57.5	32.8	45.5
Effective Green, g (s)	12.7	40.4	24.7	57.5	32.8	45.5
Actuated g/C Ratio	0.16	0.50	0.31	0.71	0.41	0.56
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	465	802	490	970	643	798
v/s Ratio Prot	c0.12	0.28	c0.27	0.16	c0.49	0.04
v/s Ratio Perm				0.12		0.10
v/c Ratio	0.75	0.55	0.87	0.39	1.21	0.24
Uniform Delay, d1	32.5	14.0	26.6	4.7	24.0	8.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.6	0.5	15.3	0.3	108.5	0.1
Delay (s)	38.2	14.4	41.9	5.0	132.5	9.0
Level of Service	D	B	D	A	F	A
Approach Delay (s)		24.8	23.4		100.0	
Approach LOS		C	C		F	

Intersection Summary				
HCM Average Control Delay	53.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	1.01			
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	10.6	
Intersection Capacity Utilization	86.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	103	720	870	51	14	140
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	114	800	967	57	16	156
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1023				2024	995
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1023				2024	995
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	83				70	48
cM capacity (veh/h)	663				53	297

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	914	1023	171
Volume Left	114	0	16
Volume Right	0	57	156
cSH	663	1700	209
Volume to Capacity	0.17	0.60	0.82
Queue Length 95th (ft)	16	0	150
Control Delay (s)	4.7	0.0	71.1
Lane LOS	A		F
Approach Delay (s)	4.7	0.0	71.1
Approach LOS			F

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	123.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	620	62	20	405	3	30	1	70	1	3	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	689	69	22	450	3	33	1	78	1	3	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		1091										
pX, platoon unblocked				0.72			0.72	0.72	0.72	0.72	0.72	
vC, conflicting volume	453			758			1431	1377	723	1419	1409	452
vC1, stage 1 conf vol							879	879		496	496	
vC2, stage 2 conf vol							552	498		923	913	
vCu, unblocked vol	453			466			1403	1328	418	1387	1374	452
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			97			86	100	83	99	99	91
cM capacity (veh/h)	1107			786			243	268	456	201	251	608

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	78	758	22	453	112	60
Volume Left	78	0	22	0	33	1
Volume Right	0	69	0	3	78	56
cSH	1107	1700	786	1700	360	544
Volume to Capacity	0.07	0.45	0.03	0.27	0.31	0.11
Queue Length 95th (ft)	6	0	2	0	33	9
Control Delay (s)	8.5	0.0	9.7	0.0	19.5	12.4
Lane LOS	A		A		C	B
Approach Delay (s)	0.8		0.5		19.5	12.4
Approach LOS					C	B

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	726	25	2	397	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	807	28	2	441	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			834		1266	821
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			834		1266	821
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			799		186	375

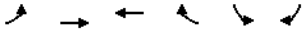
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	834	443	9
Volume Left	0	2	8
Volume Right	28	0	1
cSH	1700	799	198
Volume to Capacity	0.49	0.00	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.1	24.0
Lane LOS		A	C
Approach Delay (s)	0.0	0.1	24.0
Approach LOS			C

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	54.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	424	82	86	426	12	177	0	172	4	0	3
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1524	1604	1363	1524	1597			1583	1417		1527	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (perm)	1524	1604	1363	1524	1597			1583	1417		1527	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	471	91	96	473	13	197	0	191	4	0	3
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	136	0	3	0
Lane Group Flow (vph)	4	471	64	96	486	0	0	197	55	0	4	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.7	41.6	41.6	11.3	52.2			28.1	28.1		0.7	
Effective Green, g (s)	0.7	41.6	41.6	11.3	52.2			28.1	28.1		0.7	
Actuated g/C Ratio	0.01	0.43	0.43	0.12	0.54			0.29	0.29		0.01	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	11	689	586	178	861			460	411		11	
v/s Ratio Prot	0.00	c0.29		c0.06	0.30			c0.12			c0.00	
v/s Ratio Perm			0.05						0.04			
v/c Ratio	0.36	0.68	0.11	0.54	0.56			0.43	0.13		0.37	
Uniform Delay, d1	47.8	22.3	16.5	40.3	14.8			27.8	25.4		47.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	7.3	5.4	0.4	3.3	1.0			2.9	0.7		7.4	
Delay (s)	55.1	27.7	16.9	43.6	15.8			30.7	26.1		55.2	
Level of Service	E	C	B	D	B			C	C		E	
Approach Delay (s)		26.2			20.4			28.4			55.2	
Approach LOS		C			C			C			E	

Intersection Summary				
HCM Average Control Delay	24.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	58.2%	ICU Level of Service	B	
Analysis Period (min)	15			

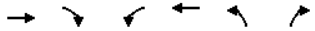
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	140	414	303	3	15	161
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	156	460	337	3	17	179
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	340				1109	338
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	340				1109	338
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	87				92	75
cM capacity (veh/h)	1197				202	704

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	616	340	196
Volume Left	156	0	17
Volume Right	0	3	179
cSH	1197	1700	581
Volume to Capacity	0.13	0.20	0.34
Queue Length 95th (ft)	11	0	37
Control Delay (s)	3.3	0.0	14.3
Lane LOS	A		B
Approach Delay (s)	3.3	0.0	14.3
Approach LOS			B

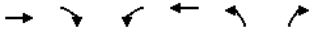
Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	552	108	144	507	84	132
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	613	120	160	563	93	147

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	733	723	240
Volume Left (vph)	0	160	93
Volume Right (vph)	120	0	147
Hadj (s)	0.00	0.15	-0.25
Departure Headway (s)	5.7	5.9	6.7
Degree Utilization, x	1.17	1.18	0.45
Capacity (veh/h)	625	618	530
Control Delay (s)	113.2	118.7	15.1
Approach Delay (s)	113.2	118.7	15.1
Approach LOS	F	F	C

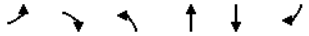
Intersection Summary			
Delay	101.7		
HCM Level of Service	F		
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	373	219	185	354	179	169
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	414	243	206	393	199	188

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	658	206	393	387
Volume Left (vph)	0	206	0	199
Volume Right (vph)	243	0	0	188
Hadj (s)	-0.19	0.60	0.10	-0.09
Departure Headway (s)	6.2	7.5	7.0	6.7
Degree Utilization, x	1.14	0.43	0.76	0.72
Capacity (veh/h)	571	474	506	524
Control Delay (s)	104.5	14.7	27.8	25.1
Approach Delay (s)	104.5	23.3		25.1
Approach LOS	F	C		D

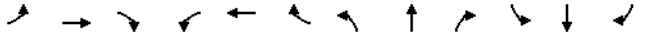
Intersection Summary			
Delay	56.3		
HCM Level of Service	F		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	44	28	24	581	949	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	49	31	27	646	1054	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1767	1068	1082			
vC1, stage 1 conf vol	1068					
vC2, stage 2 conf vol	699					
vCu, unblocked vol	1767	1068	1082			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)	5.5					
tF (s)	3.6	3.4	2.2			
p0 queue free %	82	88	96			
cM capacity (veh/h)	271	264	644			

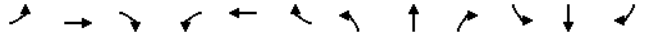
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	80	27	646	1082
Volume Left	49	27	0	0
Volume Right	31	0	0	28
cSH	269	644	1700	1700
Volume to Capacity	0.30	0.04	0.38	0.64
Queue Length 95th (ft)	30	3	0	0
Control Delay (s)	24.0	10.8	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	24.0	0.4		0.0
Approach LOS	C			

Intersection Summary				
Average Delay		1.2		
Intersection Capacity Utilization		68.8%	ICU Level of Service	C
Analysis Period (min)		15		



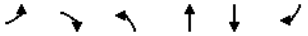
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	440	515	236	174	70	464	129	243	215	174	230	174
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.8	3.8	3.8	3.8	3.8	3.8		3.2			3.8	3.8
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		0.95			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.95			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	1.00
Satd. Flow (prot)	1524	1604	1363	1524	1604	1363		2848			1570	1363
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.99			0.98	1.00
Satd. Flow (perm)	1524	1604	1363	1524	1604	1363		2848			1570	1363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	489	572	262	193	78	516	143	270	239	193	256	193
RTOR Reduction (vph)	0	0	207	0	0	175	0	107	0	0	0	157
Lane Group Flow (vph)	489	572	55	193	78	341	0	545	0	0	449	36
Turn Type	Split		Perm	Split		pm+ov	Split			Split		Perm
Protected Phases	4	4		3	3	1	2	2		1	1	
Permitted Phases			4			3						1
Actuated Green, G (s)	16.2	16.2	16.2	7.2	7.2	21.4		24.8			14.2	14.2
Effective Green, g (s)	16.2	16.2	16.2	7.2	7.2	21.4		24.8			14.2	14.2
Actuated g/C Ratio	0.21	0.21	0.21	0.09	0.09	0.28		0.32			0.18	0.18
Clearance Time (s)	3.8	3.8	3.8	3.8	3.8	3.8		3.2			3.8	3.8
Vehicle Extension (s)	2.3	2.3	2.3	2.0	2.0	3.5		2.0			3.5	3.5
Lane Grp Cap (vph)	321	337	287	143	150	379		917			290	251
v/s Ratio Prot	0.32	c0.36		c0.13	0.05	0.17		c0.19			c0.29	
v/s Ratio Perm			0.04			0.08						0.03
v/c Ratio	1.52	1.70	0.19	1.35	0.52	0.90		0.59			1.55	0.14
Uniform Delay, d1	30.4	30.4	25.0	34.9	33.3	26.8		21.9			31.4	26.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	250.8	326.3	0.2	196.3	1.5	24.0		2.8			263.2	0.3
Delay (s)	281.2	356.7	25.2	231.2	34.8	50.8		24.7			294.6	26.6
Level of Service	F	F	C	F	C	D		C			F	C
Approach Delay (s)		263.2			93.5			24.7			214.0	
Approach LOS		F			F			C			F	

Intersection Summary						
HCM Average Control Delay		169.0	HCM Level of Service		F	
HCM Volume to Capacity ratio		1.19				
Actuated Cycle Length (s)		77.0	Sum of lost time (s)		14.6	
Intersection Capacity Utilization		98.1%	ICU Level of Service		F	
Analysis Period (min)		15				
c Critical Lane Group						



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	191	0	135	0	768	379	0	387	419
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				4.0		4.0		4.0	4.0		4.0	4.0
Lane Util. Factor				1.00		1.00		0.95	1.00		1.00	1.00
Frt				1.00		0.85		1.00	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1524		1363		3047	1363		1604	1363
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1524		1363		3047	1363		1604	1363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	212	0	150	0	853	421	0	430	466
RTOR Reduction (vph)	0	0	0	0	0	117	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	212	0	33	0	853	421	0	430	466
Turn Type				Prot		custom			Free			Prot
Protected Phases				3				2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)				13.3		13.3		38.7	60.0		38.7	38.7
Effective Green, g (s)				13.3		13.3		38.7	60.0		38.7	38.7
Actuated g/C Ratio				0.22		0.22		0.65	1.00		0.65	0.65
Clearance Time (s)				4.0		4.0		4.0			4.0	4.0
Vehicle Extension (s)				3.0		3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				338		302		1965	1363		1035	879
v/s Ratio Prot				c0.14				0.28			0.27	c0.34
v/s Ratio Perm						0.02			0.31			
v/c Ratio				0.63		0.11		0.43	0.31		0.42	0.53
Uniform Delay, d1				21.1		18.6		5.3	0.0		5.2	5.7
Progression Factor				1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				3.6		0.2		0.7	0.6		1.2	2.3
Delay (s)				24.7		18.8		6.0	0.6		6.4	8.0
Level of Service				C		B		A	A		A	A
Approach Delay (s)		0.0			22.3			4.2			7.2	
Approach LOS		A			C			A			A	

Intersection Summary				
HCM Average Control Delay	7.9	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	42.2%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	13	8	8	478	401	16
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	9	9	531	446	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1003	454	463			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1003	454	463			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	95	99	99			
cM capacity (veh/h)	266	606	1077			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	23	540	463
Volume Left	14	9	0
Volume Right	9	0	18
cSH	338	1077	1700
Volume to Capacity	0.07	0.01	0.27
Queue Length 95th (ft)	6	1	0
Control Delay (s)	16.4	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	16.4	0.2	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	45.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	28	12	423	18	1	366
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	31	13	470	20	1	407
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	889	480			490	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	889	480			490	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	90	98			100	
cM capacity (veh/h)	313	586			1053	

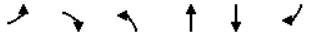
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	490	408
Volume Left	31	0	1
Volume Right	13	20	0
cSH	364	1700	1053
Volume to Capacity	0.12	0.29	0.00
Queue Length 95th (ft)	10	0	0
Control Delay (s)	16.3	0.0	0.0
Lane LOS	C		A
Approach Delay (s)	16.3	0.0	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		36.1%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	144	193	130	122	34	114	196	131	45	80	28
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1524	1466		1583	1612		1524	1507		1583	1602	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1524	1466		1583	1612		1524	1507		1583	1602	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	160	214	144	136	38	127	218	146	50	89	31
RTOR Reduction (vph)	0	42	0	0	7	0	0	22	0	0	15	0
Lane Group Flow (vph)	19	332	0	144	167	0	127	342	0	50	105	0
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	6%	6%	6%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	1.9	24.5		11.6	34.2		13.1	23.4		4.3	14.6	
Effective Green, g (s)	1.9	24.5		11.6	34.2		13.1	23.4		4.3	14.6	
Actuated g/C Ratio	0.02	0.32		0.15	0.44		0.17	0.30		0.06	0.19	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	37	465		238	713		258	456		88	303	
v/s Ratio Prot	0.01	c0.23		c0.09	0.10		0.08	c0.23		c0.03	0.07	
v/s Ratio Perm												
v/c Ratio	0.51	0.71		0.61	0.23		0.49	0.75		0.57	0.35	
Uniform Delay, d1	37.2	23.3		30.7	13.4		29.1	24.3		35.6	27.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.9	4.3		3.0	0.1		0.5	6.1		4.9	0.3	
Delay (s)	42.2	27.6		33.7	13.5		29.6	30.4		40.5	27.5	
Level of Service	D	C		C	B		C	C		D	C	
Approach Delay (s)		28.3			22.6			30.2			31.3	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	28.0	HCM Level of Service		C
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	77.3	Sum of lost time (s)		13.5
Intersection Capacity Utilization	66.9%	ICU Level of Service		C
Analysis Period (min)	15			

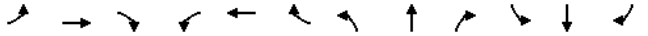
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	94	35	17	788	1006	97
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	104	39	19	876	1118	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				903		
pX, platoon unblocked						
vC, conflicting volume	2085	1172	1226			
vC1, stage 1 conf vol	1172					
vC2, stage 2 conf vol	913					
vCu, unblocked vol	2085	1172	1226			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	55	83	97			
cM capacity (veh/h)	232	234	569			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	143	19	876	1226
Volume Left	104	19	0	0
Volume Right	39	0	0	108
cSH	232	569	1700	1700
Volume to Capacity	0.62	0.03	0.52	0.72
Queue Length 95th (ft)	91	3	0	0
Control Delay (s)	42.6	11.5	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	42.6	0.2		0.0
Approach LOS	E			

Intersection Summary				
Average Delay		2.8		
Intersection Capacity Utilization		80.6%	ICU Level of Service	D
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	45	2	145	0	500	120	200	600	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	50	2	161	0	556	133	222	667	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1829	1800	667	1733	1733	622	667			689		
vC1, stage 1 conf vol	1111	1111		622	622							
vC2, stage 2 conf vol	718	689		1111	1111							
vCu, unblocked vol	1829	1800	667	1733	1733	622	667			689		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.2	5.6		6.1	5.5							
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	72	99	67	100			75		
cM capacity (veh/h)	52	159	452	177	197	487	923			905		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	213	0	689	222	667
Volume Left	0	50	0	0	222	0
Volume Right	0	161	0	133	0	0
cSH	1700	342	1700	1700	905	1700
Volume to Capacity	0.00	0.62	0.00	0.41	0.25	0.39
Queue Length 95th (ft)	0	100	0	0	24	0
Control Delay (s)	0.0	31.6	0.0	0.0	10.3	0.0
Lane LOS	A	D			B	
Approach Delay (s)	0.0	31.6	0.0		2.6	
Approach LOS	A	D				

Intersection Summary				
Average Delay		5.0		
Intersection Capacity Utilization		72.8%	ICU Level of Service	C
Analysis Period (min)		15		

Queues
1: Plaza Dr. & Missouri Flat Rd.

Existing
PM Peak

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	258	244	184	199	424	198	301	68	298
v/c Ratio	0.77	0.35	0.70	0.63	0.77	0.20	0.34	0.25	0.33
Control Delay	42.8	3.7	53.7	31.5	47.5	21.1	1.2	36.8	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	42.8	3.7	53.7	31.5	47.5	21.1	1.5	36.8	30.5
Queue Length 50th (ft)	125	3	114	70	142	43	1	35	78
Queue Length 95th (ft)	193	44	#211	152	#232	m86	7	80	124
Internal Link Dist (ft)	421			1192		226			1135
Turn Bay Length (ft)					125		500	105	
Base Capacity (vph)	474	699	289	339	552	1118	885	289	927
Starvation Cap Reductn	0	0	0	0	0	0	207	0	0
Spillback Cap Reductn	0	2	0	0	0	0	0	0	28
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.35	0.64	0.59	0.77	0.18	0.44	0.24	0.33

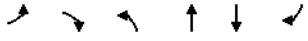
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: WB US-50 On Ramp & Missouri Flat Rd.

Existing
PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	317	668	363	607	613	233
v/c Ratio	0.73	0.79	0.58	0.18	0.63	0.29
Control Delay	51.2	21.3	31.1	1.9	23.7	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.3
Total Delay	51.2	21.3	31.1	1.9	24.2	1.7
Queue Length 50th (ft)	99	241	206	0	161	3
Queue Length 95th (ft)	145	416	m304	m0	193	10
Internal Link Dist (ft)	1326			235	226	
Turn Bay Length (ft)		60	425			165
Base Capacity (vph)	473	836	661	3386	989	793
Starvation Cap Reductn	0	0	0	0	98	204
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.80	0.55	0.18	0.69	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	156	307	300	797	881	216	1066
v/c Ratio	0.61	0.88	0.84	0.49	0.85	0.82	0.47
Control Delay	48.0	45.3	39.6	15.6	13.7	59.0	3.6
Queue Delay	0.0	8.1	5.1	1.2	2.0	0.0	1.3
Total Delay	48.0	53.5	44.7	16.8	15.7	59.0	4.9
Queue Length 50th (ft)	91	100	89	169	43	140	128
Queue Length 95th (ft)	164	#264	#235	206	#285	m#214	92
Internal Link Dist (ft)		937		138			216
Turn Bay Length (ft)	800		600		85	225	
Base Capacity (vph)	295	380	389	1644	1042	280	2279
Starvation Cap Reductn	0	0	0	583	68	0	0
Spillback Cap Reductn	0	47	47	0	0	0	928
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.92	0.88	0.75	0.90	0.77	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

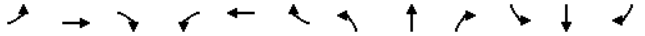
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	258	101	53	1420	1484	169
v/c Ratio	0.52	0.32	0.35	0.59	0.73	0.18
Control Delay	41.2	9.1	47.2	7.7	16.9	7.7
Queue Delay	0.6	0.0	0.0	0.2	0.9	0.7
Total Delay	41.7	9.1	47.2	7.9	17.8	8.3
Queue Length 50th (ft)	80	0	33	148	232	25
Queue Length 95th (ft)	99	38	66	373	#698	m68
Internal Link Dist (ft)	847			2004	138	
Turn Bay Length (ft)	185	185	160			105
Base Capacity (vph)	983	522	253	2407	2039	936
Starvation Cap Reductn	0	0	0	0	281	503
Spillback Cap Reductn	404	0	0	310	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.19	0.21	0.68	0.84	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Forni Rd. & Missouri Flat Rd.

Existing
PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	48	44	109	42	126	77	948	56	121	1192	272
v/c Ratio	0.61	0.18	0.16	0.39	0.26	0.50	0.57	0.74	0.09	0.66	0.82	0.38
Control Delay	42.6	39.1	13.3	49.5	46.4	15.0	64.6	29.1	12.0	62.0	29.8	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	39.1	13.3	49.5	46.4	15.0	64.6	29.1	12.0	62.0	29.8	12.0
Queue Length 50th (ft)	104	23	0	59	23	0	42	216	8	65	286	47
Queue Length 95th (ft)	#298	72	33	162	65	54	124	478	44	175	624	164
Internal Link Dist (ft)		905			863			1035			2004	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	656	609	546	446	702	670	338	1992	902	427	2170	1010
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.08	0.08	0.24	0.06	0.19	0.23	0.48	0.06	0.28	0.55	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
6: Golden Center Dr. & Missouri Flat Rd.

Existing
PM Peak

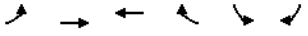
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	125	206	39	750	111	1028	11
v/c Ratio	0.48	0.61	0.21	0.58	0.42	0.66	0.02
Control Delay	31.6	30.4	37.8	19.0	35.8	16.9	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	30.4	37.8	19.0	35.8	16.9	9.6
Queue Length 50th (ft)	42	63	15	117	41	165	1
Queue Length 95th (ft)	121	170	56	254	119	338	12
Internal Link Dist (ft)	329	566		1154		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	579	724	509	2621	509	2641	1183
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.28	0.08	0.29	0.22	0.39	0.01

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	132	1052	21	462	112	91	46	278	202
v/c Ratio	0.71	0.74	0.28	0.80	0.20	0.47	0.22	0.67	0.40
Control Delay	63.3	23.5	58.8	38.6	7.4	50.6	15.6	44.6	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	23.5	58.8	38.6	7.4	50.6	15.6	44.6	11.7
Queue Length 50th (ft)	73	227	12	236	6	49	0	144	13
Queue Length 95th (ft)	165	402	43	413	44	118	35	#383	91
Internal Link Dist (ft)		152		260		844			629
Turn Bay Length (ft)	180		105		180		75	335	
Base Capacity (vph)	305	1959	317	1080	952	377	369	413	504
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.54	0.07	0.43	0.12	0.24	0.12	0.67	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	347	444	428	428	778	278
v/c Ratio	0.75	0.56	0.88	0.40	1.21	0.30
Control Delay	44.5	16.1	46.6	3.3	136.4	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	16.1	46.6	3.3	136.4	4.1
Queue Length 50th (ft)	85	143	199	29	~480	15
Queue Length 95th (ft)	154	215	344	85	#945	66
Internal Link Dist (ft)		1271	1500		823	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	1010	1422	853	1077	641	1163
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.31	0.50	0.40	1.21	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: Pleasant Valley Rd. (SR-49) & Koki Ln

Existing
PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	471	91	96	486	197	191	7
v/c Ratio	0.06	0.69	0.15	0.51	0.53	0.41	0.34	0.10
Control Delay	46.8	28.8	10.5	47.9	15.8	29.5	6.0	40.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	28.8	10.5	47.9	15.8	29.5	6.0	40.0
Queue Length 50th (ft)	2	207	14	52	148	87	0	2
Queue Length 95th (ft)	14	#401	51	109	327	176	52	18
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	284	686	610	451	911	486	568	471
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.69	0.15	0.21	0.53	0.41	0.34	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
23: EB US-50 Off-Ramp & Ponderosa Rd.

Existing
PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	489	572	262	193	78	516	652	449	193
v/c Ratio	1.52	1.70	0.53	1.35	0.52	0.93	0.64	1.55	0.47
Control Delay	277.6	351.4	8.1	228.3	46.6	37.2	19.9	290.2	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	277.6	351.4	8.1	228.3	46.6	37.2	19.9	290.2	8.9
Queue Length 50th (ft)	~334	~409	0	~124	36	68	103	~309	0
Queue Length 95th (ft)	#511	#597	59	#246	#85	#300	160	#480	52
Internal Link Dist (ft)		2352			1487		1685	102	
Turn Bay Length (ft)	380		380	80		220			
Base Capacity (vph)	321	337	494	143	150	554	1024	290	409
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.52	1.70	0.53	1.35	0.52	0.93	0.64	1.55	0.47

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
24: WB US-50 Ramps & Ponderosa Rd.

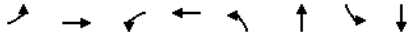
Existing
PM Peak

Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	212	150	853	421	430	466
v/c Ratio	0.63	0.36	0.43	0.31	0.42	0.53
Control Delay	28.9	6.2	6.8	0.6	7.6	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	6.2	6.8	0.6	7.6	9.6
Queue Length 50th (ft)	69	0	67	0	63	76
Queue Length 95th (ft)	117	34	126	0	142	182
Internal Link Dist (ft)			91		1345	
Turn Bay Length (ft)						
Base Capacity (vph)	457	514	1965	1363	1034	879
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.29	0.43	0.31	0.42	0.53

Intersection Summary

Queues
27: Pacific St. & Sacramento St.

Existing
PM Peak

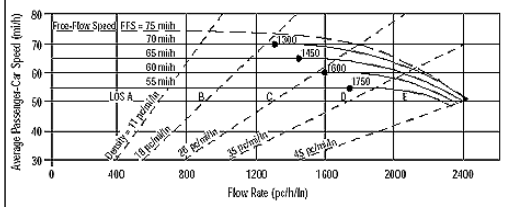


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	374	144	174	127	364	50	120
v/c Ratio	0.19	0.79	0.58	0.23	0.48	0.74	0.31	0.33
Control Delay	46.2	35.3	47.6	17.0	43.6	33.7	43.6	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	35.3	47.6	17.0	43.6	33.7	43.6	25.0
Queue Length 50th (ft)	9	146	69	45	60	151	24	42
Queue Length 95th (ft)	35	288	#185	122	#161	#302	66	93
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	274	724	285	829	278	717	522	984
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.51	0.21	0.46	0.51	0.10	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2360*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1350*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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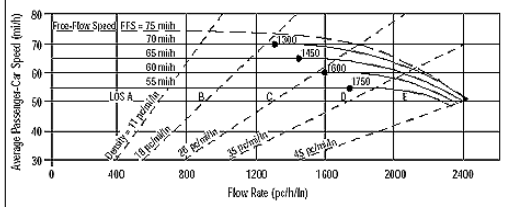
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*1923*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1100*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.9*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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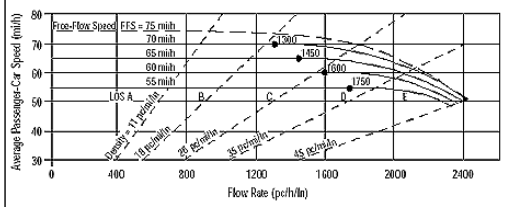
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3540*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2026*	pc/h/ln	Design LOS		
S	*61.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*33.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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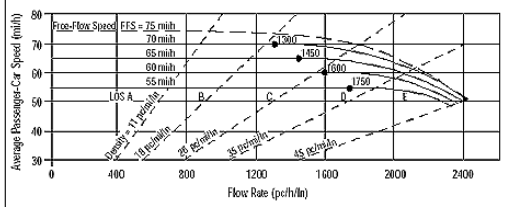

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3053*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1747*	pc/h/ln	Design LOS		
S	*64.3*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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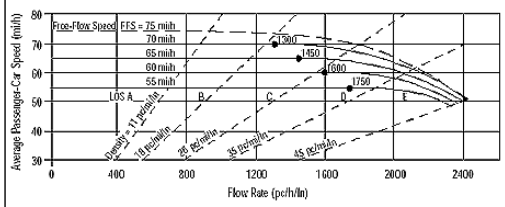

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3540*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*2026*	pc/h/ln	Design LOS		
S	*61.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*33.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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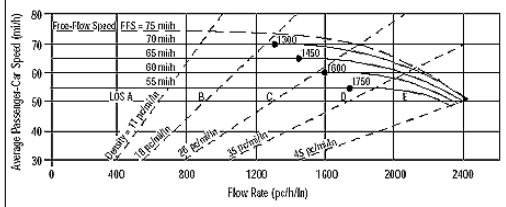

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3240*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1854*	pc/h/ln	Design LOS		
S	*63.4*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*29.2*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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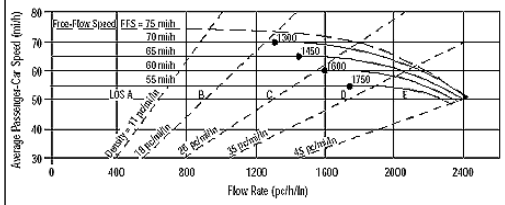
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2360*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1350*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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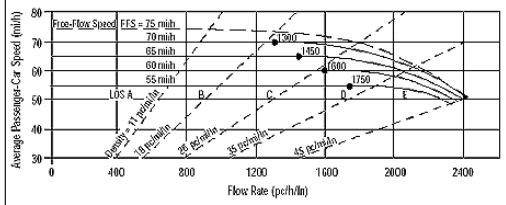
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Existing*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2011*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1151*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.7*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Terrain: Level
S_{FF} = 65.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1497	0.90	Level	6	0	0.971	1.00	1713
Ramp	863	0.90	Level	6	0	0.971	1.00	988
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$
L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= 1.000 using Equation (Exhibit 25-5)
V_{12}= 1713 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2701	See Exhibit 25-7	No
V_{R12}	2701	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$
D_R = 24.7 (pc/ m/ln)
LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.363 (Exibit 25-19)
S_R= 56.6 mph (Exhibit 25-19)
S_0= N/A mph(Exhibit 25-19)
S= 56.6 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = using Equation (Exhibit 25-11)
V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$
D_R = (pc/ m/ln)
LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)
S_R= mph(Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Terrain: Level
S_{FF} = 65.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2553	0.90	Level	6	0	0.971	1.00	2922
Ramp	987	0.90	Level	6	0	0.971	1.00	1130
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$
L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= 1.000 using Equation (Exhibit 25-5)
V_{12}= 2922 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4052	See Exhibit 25-7	No
V_{R12}	4052	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$
D_R = 35.2 (pc/ m/ln)
LOS = E (Exhibit 25-4)

Speed Estimation

M_S = 0.530 (Exibit 25-19)
S_R= 52.8 mph (Exhibit 25-19)
S_0= N/A mph(Exhibit 25-19)
S= 52.8 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = using Equation (Exhibit 25-11)
V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$
D_R = (pc/ m/ln)
LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)
S_R= mph(Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2595	0.90	Level	6	0	0.971	1.00	2970
Ramp	458	0.90	Level	6	0	0.971	1.00	524
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 2970 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3494	See Exhibit 25-7	No
V_{R12}	3494	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 30.0 (pc/ m/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.421 (Exibit 25-19)

S_R= 55.3 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 55.3 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1474	0.90	Level	6	0	0.971	1.00	1687
Ramp	537	0.90	Level	6	0	0.971	1.00	615
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 1687 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2302	See Exhibit 25-7	No
V_{R12}	2302	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 20.6 (pc/ m/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.332 (Exibit 25-19)

S_R= 57.4 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 57.4 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

HCS+™ Version 5.1 Generated: 11/30/2009 9:27 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

Vu = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1923	0.90	Level	6	0	0.971	1.00	2201
Ramp	426	0.90	Level	6	0	0.971	1.00	488
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 2201 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2201	4700	No
V_{12}	2201	4400:All	No
$V_{FO} = V_F - V_R$	1713	4700	No
V_R	488	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 21.6 (pc/ mi /ln)

LOS= C (Exhibit 25-4)

Speed Estimation

D_s = 0.472 (Exhibit 25-19)

S_R= 54.1 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 54.1 mph (Exhibit 25-15)

HCS+™ Version 5.1 Generated: 11/30/2009 8:29 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

Vu = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	3240	0.90	Level	6	0	0.971	1.00	3708
Ramp	687	0.90	Level	6	0	0.971	1.00	786
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 3708 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	3708	4700	No
V_{12}	3708	4400:All	No
$V_{FO} = V_F - V_R$	2922	4700	No
V_R	786	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 34.5 (pc/ mi /ln)

LOS= D (Exhibit 25-4)

Speed Estimation

D_s = 0.499 (Exhibit 25-19)

S_R= 53.5 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 53.5 mph (Exhibit 25-15)

HCS+™ Version 5.1 Generated: 11/30/2009 8:30 AM

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☐ Yes ☐ On
☑ No ☐ Off		☑ No ☐ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 65.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D,V_R,V_I)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	3540	0.90	Level	6	0	0.971	1.00	4051
Ramp	945	0.90	Level	6	0	0.971	1.00	1082
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 4051 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	4051	4700	No
V_{12}	4051	4400:All	No
$V_{FO} = V_F - V_R$	2969	4700	No
V_R	1082	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 37.3 (pc/ mi /ln)

LOS= E (Exhibit 25-4)

Speed Estimation

D_s = 0.525 (Exhibit 25-19)

S_R= 52.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 52.9 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET Page 1 of 1

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	Existing

Project Description

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☐ Yes ☐ On
☑ No ☐ Off		☑ No ☐ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 65.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D,V_R,V_I)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2360	0.90	Level	6	0	0.971	1.00	2701
Ramp	886	0.90	Level	6	0	0.971	1.00	1014
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 2701 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2701	4700	No
V_{12}	2701	4400:All	No
$V_{FO} = V_F - V_R$	1687	4700	No
V_R	1014	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 25.7 (pc/ mi /ln)

LOS= C (Exhibit 25-4)

Speed Estimation

D_s = 0.519 (Exhibit 25-19)

S_R= 53.1 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 53.1 mph (Exhibit 25-15)

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Appendix C:

Summary of Incorporated DSP Mitigations

DSP Mitigation Measures Incorporated in DDRC Study (DDRC EPAP 2015)

#	Intersection	DSP Scenario	DDRC Scenario	Mitigation Type	Mitigation Measure
I7	Diamond Springs Pkwy @ Missouri Flat Rd	2010	2015	LOS	None
				Queuing	Add additional WBTH lane (525-feet), add additional NBLT Lane (325-feet) and extend WBLT to 325-feet
I8	Diamond Springs Pkwy @ Throwita Way	2010	2015	LOS	None
				Queuing	Add additional WBTH lane (SR-49 through Throwita)
I9	Diamond Springs Pkwy @ Diamond Rd (SR-49)	2010	2015	LOS	Add provision to allow NB U-Turn
				Queuing	Extend NB dual lefts to 350-feet
I12	Diamond Rd (SR-49) @ Lime Kiln Rd/Black Rice Rd	2010	2015	LOS	Restrict EB/WB LT and TH (no traffic signal control)
				Queuing	No additional mitigations from 2010 + PP (LOS)
I13	Diamond Rd (SR-49) @ Pleasant Valley Rd	2010	2015	LOS	Optimize signal timing
				Queuing	Add additional SBLT lane (500-feet), optimize signal timing, add NBRT overlap, and add WBRT overlap
Note: Each mitigation type (LOS and Queuing) builds on its respective previous mitigation measures.					

DSP Mitigation Measures Incorporated in DDRC Study (DDRC Cumulative 2025)

#	Intersection / Roadway Segment	DSP Scenario	DDRC Scenario	Mitigation Type	Mitigation Measure
I7	Diamond Springs Pkwy @ Missouri Flat Rd	2010	2015	LOS	None
				Queuing	Add additional WBTH lane (525-feet), add additional NBLT Lane (325-feet) and extend WBLT to 325-feet
		2020	2025	LOS	Add additional NBLT lane
				Queuing	No additional mitigations from 2010 + PP (Queuing)
I8	Diamond Springs Pkwy @ Throwita Way	2010	2015	LOS	None
				Queuing	Add additional WBTH lane (SR-49 through Throwita)
		2020	2025	LOS	Impliment coordinated signal timings
				Queuing	No additional mitigations from 2010 + PP (Queuing)
I9	Diamond Springs Pkwy @ Diamond Rd (SR-49)	2010	2015	LOS	Add provision to allow NB U-Turn
				Queuing	Extend NB dual lefts to 350-feet
		2020	2025	LOS	No additional mitigations from 2010 + PP (LOS)
				Queuing	No additional mitigations from 2010 + PP (Queuing)
I12	Diamond Rd (SR-49) @ Lime Kiln Rd/Black Rice Rd	2010	2015	LOS	Restrict EB/WB LT and TH (no traffic signal control)
				Queuing	No additional mitigations from 2010 + PP (LOS)
		2020	2025	LOS Queuing	No additional mitigations from 2010 + PP
I13	Diamond Rd (SR-49) @ Pleasant Valley Rd	2010	2015	LOS	Optimize signal timing
				Queuing	Add additional SBLT lane (500-feet), optimize signal timing, add NBRT overlap, and add WBRT overlap
		2020	2025	LOS	Add additional SBLT lane and optimize signal timing
				Queuing	No additional mitigations from 2010 + PP (Queuing)
Note: Each mitigation type (LOS and Queuing) builds on its respective previous mitigation measures.					

Source: *Diamond Springs Parkway Traffic Impact Analysis* , Kimley-Horn and Associates, Inc., May 6, 2010.

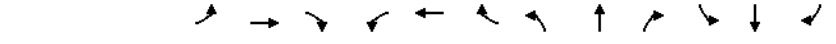
Appendix D:

Analysis Worksheets for
Existing plus Approved Projects (2015) Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	27	359	279	68	176	454	405	322	51	269	32
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1428	1346	1504	1422		3072	3167	1417	1583	3116	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1346	1504	1422		3072	3167	1417	1583	3116	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	30	399	310	76	196	504	450	358	57	299	36
RTOR Reduction (vph)	0	51	81	0	63	0	0	0	155	0	9	0
Lane Group Flow (vph)	0	216	170	279	240	0	504	450	203	57	326	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		20.3	39.3	23.9	23.9		19.0	32.9	56.8	6.9	20.8	
Effective Green, g (s)		20.3	39.3	23.9	23.9		19.0	32.9	56.8	6.9	20.8	
Actuated g/C Ratio		0.20	0.39	0.24	0.24		0.19	0.33	0.57	0.07	0.21	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		290	583	359	340		584	1042	805	109	648	
v/s Ratio Prot		c0.15	0.06	c0.19	0.17		c0.16	0.14	0.06	0.04	c0.10	
v/s Ratio Perm			0.07						0.08			
v/c Ratio		0.74	0.29	0.78	0.71		0.86	0.43	0.25	0.52	0.50	
Uniform Delay, d1		37.4	20.8	35.6	34.8		39.2	26.2	10.9	45.0	35.0	
Progression Factor		1.00	1.00	1.00	1.00		0.90	0.83	2.75	1.00	1.00	
Incremental Delay, d2		9.9	0.3	10.1	6.5		11.5	1.2	0.2	4.5	2.8	
Delay (s)		47.4	21.1	45.7	41.4		46.8	23.0	30.1	49.4	37.8	
Level of Service		D	C	D	D		D	C	C	D	D	
Approach Delay (s)		34.6			43.4			34.1			39.5	
Approach LOS		C			D			C			D	

Intersection Summary				
HCM Average Control Delay	36.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	68.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	765	0	438	340	743	0	0	680	227
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		0.88	0.97	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				2984		2422	2984	3076			3076	1376
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				2984		2422	2984	3076			3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	850	0	487	378	826	0	0	756	252
RTOR Reduction (vph)	0	0	0	0	0	184	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	850	0	303	378	826	0	0	756	252
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type				Prot		custom	Prot					Free
Protected Phases				3		3	5	2			6	
Permitted Phases						3						Free
Actuated Green, G (s)				33.4		33.4	16.6	58.6			38.0	100.0
Effective Green, g (s)				33.4		33.4	16.6	58.6			38.0	100.0
Actuated g/C Ratio				0.33		0.33	0.17	0.59			0.38	1.00
Clearance Time (s)				4.0		4.0	4.0	4.0			4.0	
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				997		809	495	1803			1169	1376
v/s Ratio Prot				c0.28		0.13	c0.13	0.27			c0.25	
v/s Ratio Perm												0.18
v/c Ratio				0.85		0.37	0.76	0.46			0.65	0.18
Uniform Delay, d1				31.0		25.4	39.8	11.7			25.5	0.0
Progression Factor				1.00		1.00	0.83	0.44			0.65	1.00
Incremental Delay, d2				7.2		0.3	5.7	0.7			2.3	0.2
Delay (s)				38.2		25.6	38.7	5.8			19.0	0.2
Level of Service				D		C	D	A			B	A
Approach Delay (s)		0.0			33.6			16.2			14.3	
Approach LOS		A			C			B			B	

Intersection Summary				
HCM Average Control Delay	22.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	97.4%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	2	391	0	0	0	0	952	42	212	1233	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1461	1265	1307					3076	1376	2984	3076	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1461	1265	1307					3076	1376	2984	3076	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	2	434	0	0	0	0	1058	47	236	1370	0
RTOR Reduction (vph)	0	58	58	0	0	0	0	0	11	0	0	0
Lane Group Flow (vph)	131	167	168	0	0	0	0	1058	36	236	1370	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	18.1	18.1	18.1					57.4	57.4	12.5	73.9	
Effective Green, g (s)	18.1	18.1	18.1					57.4	57.4	12.5	73.9	
Actuated g/C Ratio	0.18	0.18	0.18					0.57	0.57	0.12	0.74	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	264	229	237					1766	790	373	2273	
v/s Ratio Prot	0.09	c0.13						0.34		0.08	c0.45	
v/s Ratio Perm			0.13						0.03			
v/c Ratio	0.50	0.73	0.71					0.60	0.05	0.63	0.60	
Uniform Delay, d1	36.8	38.6	38.5					13.8	9.3	41.6	6.1	
Progression Factor	1.00	1.00	1.00					1.10	0.97	1.12	0.35	
Incremental Delay, d2	1.5	11.0	9.3					1.4	0.1	2.4	0.8	
Delay (s)	38.3	49.6	47.8					16.6	9.2	49.1	3.0	
Level of Service	D	D	D					B	A	D	A	
Approach Delay (s)		46.4			0.0			16.3			9.7	
Approach LOS		D			A			B			A	

Intersection Summary				
HCM Average Control Delay	18.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	97.4%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	266	0	98	0	0	0	50	728	788	0	1478	146
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85				1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	3072		1417				1583	3167	1417		3167	1417
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	3072		1417				1583	3167	1417		3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	296	0	109	0	0	0	56	809	876	0	1642	162
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	218	0	0	23
Lane Group Flow (vph)	296	0	18	0	0	0	56	809	658	0	1642	139
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Perm			Perm
Protected Phases	4						5	2			6	
Permitted Phases			4						2			6
Actuated Green, G (s)	16.9		16.9				7.8	75.1	75.1		63.3	63.3
Effective Green, g (s)	16.9		16.9				7.8	75.1	75.1		63.3	63.3
Actuated g/C Ratio	0.17		0.17				0.08	0.75	0.75		0.63	0.63
Clearance Time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	519		239				123	2378	1064		2005	897
v/s Ratio Prot	c0.10						0.04	0.26			c0.52	
v/s Ratio Perm			0.01						c0.46			0.10
v/c Ratio	0.57		0.08				0.46	0.34	0.62		0.82	0.16
Uniform Delay, d1	38.2		35.0				44.1	4.2	5.8		14.0	7.5
Progression Factor	1.00		1.00				1.00	1.00	1.00		0.73	0.48
Incremental Delay, d2	1.5		0.1				2.7	0.4	2.7		3.1	0.3
Delay (s)	39.7		35.1				46.7	4.6	8.5		13.3	3.9
Level of Service	D		D				D	A	A		B	A
Approach Delay (s)		38.5			0.0			7.9			12.5	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	13.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Forni Rd. & Missouri Flat Rd.

EPAP
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	22	21	49	19	60	85	1306	61	83	1304	187
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	219	24	23	54	21	67	94	1451	68	92	1449	208
RTOR Reduction (vph)	0	0	20	0	0	61	0	0	12	0	0	38
Lane Group Flow (vph)	219	24	3	54	21	6	94	1451	56	92	1449	170
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	9.5	13.3	13.3	4.1	7.9	7.9	7.1	51.1	51.1	7.0	51.0	51.0
Effective Green, g (s)	9.5	13.3	13.3	4.1	7.9	7.9	7.1	51.1	51.1	7.0	51.0	51.0
Actuated g/C Ratio	0.10	0.15	0.15	0.05	0.09	0.09	0.08	0.56	0.56	0.08	0.56	0.56
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	322	245	208	72	146	124	124	1788	800	122	1785	799
v/s Ratio Prot	c0.07	0.01		0.03	c0.01		c0.06	c0.46		0.06	0.46	
v/s Ratio Perm			0.00			0.00			0.04			0.12
v/c Ratio	0.68	0.10	0.02	0.75	0.14	0.05	0.76	0.81	0.07	0.75	0.81	0.21
Uniform Delay, d1	39.0	33.4	33.0	42.7	38.2	37.9	40.9	15.8	8.9	40.9	15.9	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.1	0.0	31.6	0.2	0.1	20.6	2.9	0.0	20.6	2.9	0.1
Delay (s)	43.7	33.5	33.0	74.3	38.3	37.9	61.5	18.7	9.0	61.5	18.8	9.9
Level of Service	D	C	C	E	D	D	E	B	A	E	B	A
Approach Delay (s)		41.8			51.8			20.8			20.0	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	23.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	69.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: Golden Center Dr. & Missouri Flat Rd.

EPAP
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	1	1	49	3	41	61	1448	61	108	1073	15
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1539			1526		1583	3147		1583	3167	1417
Flt Permitted		0.81			0.82		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1299			1292		1583	3147		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	1	1	54	3	46	68	1609	68	120	1192	17
RTOR Reduction (vph)	0	1	0	0	37	0	0	2	0	0	0	3
Lane Group Flow (vph)	0	19	0	0	66	0	68	1675	0	120	1192	14
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		10.1			10.1		6.0	51.9		7.1	53.0	53.0
Effective Green, g (s)		10.1			10.1		6.0	51.9		7.1	53.0	53.0
Actuated g/C Ratio		0.12			0.12		0.07	0.63		0.09	0.65	0.65
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		160			159		116	1989		137	2044	915
v/s Ratio Prot							0.04	c0.53		c0.08	0.38	
v/s Ratio Perm		0.01			c0.05							0.01
v/c Ratio		0.12			0.42		0.59	0.84		0.88	0.58	0.02
Uniform Delay, d1		32.0			33.3		36.8	11.9		37.1	8.3	5.2
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			1.3		6.1	3.4		41.7	0.4	0.0
Delay (s)		32.3			34.6		43.0	15.3		78.8	8.7	5.2
Level of Service		C			C		D	B		E	A	A
Approach Delay (s)		32.3			34.6			16.4			15.0	
Approach LOS		C			C			B			B	

Intersection Summary				
HCM Average Control Delay	16.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	70.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	628	322	232	868	17	469	12	106	2	9	13
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	3072	1441		1583	1521	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	3072	1441		1583	1521	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	698	358	258	964	19	521	13	118	2	10	14
RTOR Reduction (vph)	0	0	172	0	0	2	0	86	0	0	13	0
Lane Group Flow (vph)	12	698	186	258	964	17	521	45	0	2	11	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	1.1	25.4	42.3	16.9	41.2	41.2	16.9	22.4		0.9	6.4	
Effective Green, g (s)	1.1	25.4	42.3	16.9	41.2	41.2	16.9	22.4		0.9	6.4	
Actuated g/C Ratio	0.01	0.31	0.52	0.21	0.50	0.50	0.21	0.27		0.01	0.08	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	21	986	804	328	1599	715	636	396		17	119	
v/s Ratio Prot	0.01	c0.22	0.05	c0.16	0.30		c0.17	c0.03		0.00	0.01	
v/s Ratio Perm			0.08			0.01						
v/c Ratio	0.57	0.71	0.23	0.79	0.60	0.02	0.82	0.11		0.12	0.09	
Uniform Delay, d1	40.0	24.8	10.8	30.6	14.4	10.1	30.9	22.2		40.0	34.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	32.5	2.3	0.1	11.8	0.6	0.0	8.1	0.1		3.1	0.3	
Delay (s)	72.5	27.2	10.9	42.4	15.0	10.1	39.0	22.3		43.0	35.2	
Level of Service	E	C	B	D	B	B	D	C		D	D	
Approach Delay (s)		22.2			20.6			35.6			35.8	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM Average Control Delay	24.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	65.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	625	74	19	1052	19	41	8	18	21	2	24
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1583	1667	1417	1583	3158			1554	1376		1473	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1583	1667	1417	1583	3158			1554	1376		1473	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	694	82	21	1169	21	46	9	20	23	2	27
RTOR Reduction (vph)	0	0	22	0	1	0	0	0	18	0	24	0
Lane Group Flow (vph)	41	694	60	21	1189	0	0	55	2	0	28	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	4.8	65.8	65.8	1.6	62.6			10.9	10.9		10.7	
Effective Green, g (s)	4.8	65.8	65.8	1.6	62.6			10.9	10.9		10.7	
Actuated g/C Ratio	0.05	0.63	0.63	0.02	0.60			0.10	0.10		0.10	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	72	1045	888	24	1883			161	143		150	
v/s Ratio Prot	c0.03	c0.42		0.01	0.38			c0.04			c0.02	
v/s Ratio Perm			0.04						0.00			
v/c Ratio	0.57	0.66	0.07	0.88	0.63			0.34	0.01		0.19	
Uniform Delay, d1	49.1	12.5	7.6	51.6	13.7			43.7	42.2		43.2	
Progression Factor	1.00	1.00	1.00	0.79	0.37			1.00	1.00		1.00	
Incremental Delay, d2	9.9	3.3	0.1	115.7	1.4			1.3	0.0		0.6	
Delay (s)	59.0	15.9	7.8	156.6	6.4			45.0	42.3		43.8	
Level of Service	E	B	A	F	A			D	D		D	
Approach Delay (s)		17.2			9.0			44.3			43.8	
Approach LOS		B			A			D			D	

Intersection Summary				
HCM Average Control Delay	14.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	53.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	150	514	11	680	169	186	410
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		2984	1619	1619	1376
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		2984	1619	1619	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	167	571	12	756	188	207	456
RTOR Reduction (vph)	0	475	0	0	0	0	366
Lane Group Flow (vph)	167	96	0	768	188	207	90
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%	5%
Turn Type		Perm	Prot	Prot			Perm
Protected Phases	4		5	5	2	6	
Permitted Phases		4					6
Actuated Green, G (s)	17.6	17.6		54.7	79.4	20.7	20.7
Effective Green, g (s)	17.6	17.6		54.7	79.4	20.7	20.7
Actuated g/C Ratio	0.17	0.17		0.52	0.76	0.20	0.20
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	265	238		1555	1224	319	271
v/s Ratio Prot	c0.11			c0.26	0.12	c0.13	
v/s Ratio Perm		0.07					0.07
v/c Ratio	0.63	0.40		0.49	0.15	0.65	0.33
Uniform Delay, d1	40.7	39.0		16.2	3.5	38.8	36.2
Progression Factor	0.62	4.18		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.9		1.1	0.1	4.5	0.7
Delay (s)	29.3	164.1		17.3	3.6	43.3	36.9
Level of Service	C	F		B	A	D	D
Approach Delay (s)	133.6				14.6	38.9	
Approach LOS	F				B	D	

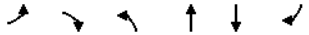
Intersection Summary				
HCM Average Control Delay	58.7	HCM Level of Service		E
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	78.5%	ICU Level of Service		D
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	4	8	311	596	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	4	9	346	662	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked						
vC, conflicting volume	1027	663	664			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1027	663	664			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	254	456	911			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	354	664
Volume Left	6	9	0
Volume Right	4	0	2
cSH	316	911	1700
Volume to Capacity	0.03	0.01	0.39
Queue Length 95th (ft)	2	1	0
Control Delay (s)	16.8	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	16.8	0.3	0.0
Approach LOS	C		

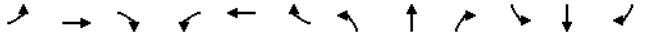
Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	45.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	1	0	319	595	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	354	661	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.98					
vC, conflicting volume	1018	664	667			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1011	664	667			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	258	455	909			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	354	667
Volume Left	0	0	0
Volume Right	1	0	6
cSH	455	1700	1700
Volume to Capacity	0.00	0.21	0.39
Queue Length 95th (ft)	0	0	0
Control Delay (s)	12.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.9	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		45.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	22	0	0	67	34	793	26	17	645	49
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	24	0	0	74	38	881	29	19	717	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	1813	1767	744	1750	1780	896	771			910		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1846	1796	663	1777	1810	896	693			910		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	100	100	78	95			97		
cM capacity (veh/h)	37	66	412	51	65	335	802			736		

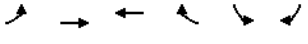
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	24	74	38	910	19	771
Volume Left	0	0	38	0	19	0
Volume Right	24	74	0	29	0	54
cSH	412	335	802	1700	736	1700
Volume to Capacity	0.06	0.22	0.05	0.54	0.03	0.45
Queue Length 95th (ft)	5	21	4	0	2	0
Control Delay (s)	14.3	18.8	9.7	0.0	10.0	0.0
Lane LOS	B	C	A		B	
Approach Delay (s)	14.3	18.8	0.4		0.2	
Approach LOS	B	C				

Intersection Summary				
Average Delay		1.3		
Intersection Capacity Utilization		59.7%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	153	27	25	285	400	41	50	50	552	48	91
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1538	3007		1583	1667	1417		1630	1417	2984	1460	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1538	3007		1583	1667	1417		1630	1417	2984	1460	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	170	30	28	317	444	46	56	56	613	53	101
RTOR Reduction (vph)	0	18	0	0	0	181	0	0	48	0	70	0
Lane Group Flow (vph)	84	182	0	28	317	263	0	102	8	613	84	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	5.4	21.0		3.2	18.8	38.6		5.7	8.9	19.8	19.8	
Effective Green, g (s)	5.4	21.0		3.2	18.8	38.6		5.7	8.9	19.8	19.8	
Actuated g/C Ratio	0.08	0.32		0.05	0.29	0.59		0.09	0.14	0.30	0.30	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	127	969		78	481	839		143	193	906	443	
v/s Ratio Prot	c0.05	0.06		0.02	c0.19	0.10		c0.06	0.00	c0.21	0.06	
v/s Ratio Perm						0.09			0.00			
v/c Ratio	0.66	0.19		0.36	0.66	0.31		0.71	0.04	0.68	0.19	
Uniform Delay, d1	29.0	15.9		30.0	20.4	6.7		29.0	24.4	19.9	16.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.6	0.1		1.0	3.3	0.2		15.5	0.0	2.0	0.2	
Delay (s)	38.6	16.1		31.0	23.7	6.9		44.4	24.5	21.9	17.0	
Level of Service	D	B		C	C	A		D	C	C	B	
Approach Delay (s)		22.7			14.5			37.4			20.9	
Approach LOS		C			B			D			C	

Intersection Summary				
HCM Average Control Delay	19.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	58.3%	ICU Level of Service	B	
Analysis Period (min)	15			

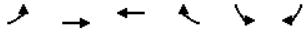
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	238	265	230	109	213	131
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	2984	1619	1619	1376	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2984	1619	1619	1376	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	264	294	256	121	237	146
RTOR Reduction (vph)	0	0	0	7	0	78
Lane Group Flow (vph)	264	294	256	114	237	68
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	7.1	18.1	8.0	16.9	8.9	16.0
Effective Green, g (s)	7.1	18.1	8.0	16.9	8.9	16.0
Actuated g/C Ratio	0.21	0.52	0.23	0.49	0.26	0.46
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	612	847	374	672	407	655
v/s Ratio Prot	c0.09	0.18	c0.16	0.04	c0.15	0.02
v/s Ratio Perm				0.04		0.03
v/c Ratio	0.43	0.35	0.68	0.17	0.58	0.10
Uniform Delay, d1	12.0	4.8	12.1	4.9	11.2	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	4.1	0.1	2.3	0.0
Delay (s)	12.2	4.9	16.2	5.1	13.5	5.3
Level of Service	B	A	B	A	B	A
Approach Delay (s)		8.3	12.7		10.4	
Approach LOS		A	B		B	

Intersection Summary				
HCM Average Control Delay	10.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	34.6	Sum of lost time (s)	10.6	
Intersection Capacity Utilization	44.4%	ICU Level of Service	A	
Analysis Period (min)	15			

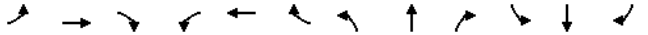
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	64	222	583	79	18	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	71	247	648	88	20	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	736				1081	692
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	736				1081	692
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				91	71
cM capacity (veh/h)	856				221	444

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	318	736	148
Volume Left	71	0	20
Volume Right	0	88	128
cSH	856	1700	391
Volume to Capacity	0.08	0.43	0.38
Queue Length 95th (ft)	7	0	43
Control Delay (s)	2.9	0.0	19.7
Lane LOS	A		C
Approach Delay (s)	2.9	0.0	19.7
Approach LOS			C

Intersection Summary				
Average Delay		3.2		
Intersection Capacity Utilization		75.7%	ICU Level of Service	D
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	183	19	30	531	5	8	0	18	1	4	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	203	21	33	590	6	9	0	20	1	4	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		873										
pX, platoon unblocked												
vC, conflicting volume	596			224			974	923	214	929	931	593
vC1, stage 1 conf vol							261	261		659	659	
vC2, stage 2 conf vol							713	662		270	271	
vCu, unblocked vol	596			224			974	923	214	929	931	593
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			97	100	98	100	99	89
cM capacity (veh/h)	981			1344			325	398	826	403	410	506

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	23	224	33	596	29	60
Volume Left	23	0	33	0	9	1
Volume Right	0	21	0	6	20	54
cSH	981	1700	1344	1700	560	495
Volume to Capacity	0.02	0.13	0.02	0.35	0.05	0.12
Queue Length 95th (ft)	2	0	2	0	4	10
Control Delay (s)	8.8	0.0	7.7	0.0	11.8	13.3
Lane LOS	A		A		B	B
Approach Delay (s)	0.8		0.4		11.8	13.3
Approach LOS					B	B

Intersection Summary				
Average Delay		1.7		
Intersection Capacity Utilization		45.6%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	427	14	2	998	12	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	474	16	2	1109	13	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			490		1596	482
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			490		1596	482
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	99
cM capacity (veh/h)			1073		117	584

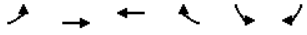
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	490	1111	18
Volume Left	0	2	13
Volume Right	16	0	4
cSH	1700	1073	146
Volume to Capacity	0.29	0.00	0.12
Queue Length 95th (ft)	0	0	10
Control Delay (s)	0.0	0.1	33.0
Lane LOS		A	D
Approach Delay (s)	0.0	0.1	33.0
Approach LOS			D

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		70.5%	ICU Level of Service	C
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	230	302	321	313	6	129	2	217	12	4	9
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1538	1619	1376	1538	1614			1588	1417		1546	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1538	1619	1376	1538	1614			1588	1417		1546	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	256	336	357	348	7	143	2	241	13	4	10
RTOR Reduction (vph)	0	0	234	0	1	0	0	0	178	0	9	0
Lane Group Flow (vph)	3	256	102	357	354	0	0	145	63	0	18	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.6	24.7	24.7	16.2	40.3			21.3	21.3		4.3	
Effective Green, g (s)	0.6	24.7	24.7	16.2	40.3			21.3	21.3		4.3	
Actuated g/C Ratio	0.01	0.30	0.30	0.20	0.49			0.26	0.26		0.05	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	11	490	417	305	797			415	370		81	
v/s Ratio Prot	0.00	c0.16		c0.23	0.22			c0.09			c0.01	
v/s Ratio Perm			0.07						0.04			
v/c Ratio	0.27	0.52	0.24	1.17	0.44			0.35	0.17		0.22	
Uniform Delay, d1	40.3	23.6	21.4	32.7	13.4			24.5	23.3		37.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	4.8	3.9	1.4	106.0	0.5			2.3	1.0		0.5	
Delay (s)	45.1	27.5	22.8	138.7	13.9			26.8	24.3		37.5	
Level of Service	D	C	C	F	B			C	C		D	
Approach Delay (s)		24.9			76.5			25.3			37.5	
Approach LOS		C			E			C			D	

Intersection Summary				
HCM Average Control Delay	46.6	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	58.8%	ICU Level of Service	B	
Analysis Period (min)	15			

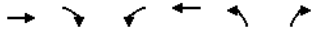
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	226	417	344	27	225	309
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	251	463	382	30	250	343
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	412				1363	397
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	412				1363	397
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				0	47
cM capacity (veh/h)	1131				127	652

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	714	412	593
Volume Left	251	0	250
Volume Right	0	30	343
cSH	1131	1700	237
Volume to Capacity	0.22	0.24	2.50
Queue Length 95th (ft)	21	0	1225
Control Delay (s)	5.0	0.0	718.8
Lane LOS	A		F
Approach Delay (s)	5.0	0.0	718.8
Approach LOS			F

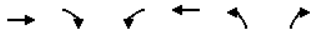
Intersection Summary				
Average Delay		250.0		
Intersection Capacity Utilization		105.7%	ICU Level of Service	G
Analysis Period (min)		15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	514	73	66	511	127	167
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	571	81	73	568	141	186

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	652	641	327
Volume Left (vph)	0	73	141
Volume Right (vph)	81	0	186
Hadj (s)	0.01	0.11	-0.22
Departure Headway (s)	6.1	6.2	6.8
Degree Utilization, x	1.11	1.11	0.61
Capacity (veh/h)	580	590	519
Control Delay (s)	94.4	94.4	19.9
Approach Delay (s)	94.4	94.4	19.9
Approach LOS	F	F	C

Intersection Summary				
Delay		79.4		
HCM Level of Service		F		
Intersection Capacity Utilization		98.6%	ICU Level of Service	F
Analysis Period (min)		15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	299	175	204	324	243	320
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	332	194	227	360	270	356

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	527	227	360	626
Volume Left (vph)	0	227	0	270
Volume Right (vph)	194	0	0	356
Hadj (s)	-0.19	0.58	0.09	-0.17
Departure Headway (s)	6.7	8.2	7.7	6.8
Degree Utilization, x	0.99	0.51	0.77	1.17
Capacity (veh/h)	527	437	462	538
Control Delay (s)	61.3	18.3	30.4	120.3
Approach Delay (s)	61.3	25.7		120.3
Approach LOS	F	D		F

Intersection Summary			
Delay	70.5		
HCM Level of Service	F		
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	31	17	16	652	488	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	34	19	18	724	542	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1317	557	571			
vC1, stage 1 conf vol	557					
vC2, stage 2 conf vol	760					
vCu, unblocked vol	1317	557	571			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	96	98			
cM capacity (veh/h)	376	524	987			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	53	18	724	571
Volume Left	34	18	0	0
Volume Right	19	0	0	29
cSH	418	987	1700	1700
Volume to Capacity	0.13	0.02	0.43	0.34
Queue Length 95th (ft)	11	1	0	0
Control Delay (s)	14.9	8.7	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	14.9	0.2		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	297	322	124	140	32	482	99	259	87	248	248	235
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2984	1529	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2984	1529	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	330	358	138	156	36	536	110	288	97	276	276	261
RTOR Reduction (vph)	0	1	89	0	0	72	0	0	83	0	0	0
Lane Group Flow (vph)	330	371	35	156	36	464	110	288	14	276	276	261
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	25.0	25.6	25.6	13.4	14.0	35.9	10.2	13.1	13.1	21.9	24.8	90.0
Effective Green, g (s)	25.0	25.6	25.6	13.4	14.0	35.9	10.2	13.1	13.1	21.9	24.8	90.0
Actuated g/C Ratio	0.28	0.28	0.28	0.15	0.16	0.40	0.11	0.15	0.15	0.24	0.28	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	829	435	372	229	252	549	174	448	200	374	848	1376
v/s Ratio Prot	0.11	c0.24		c0.10	0.02	c0.21	0.07	c0.09		0.18	0.09	
v/s Ratio Perm			0.03			0.13			0.01			c0.19
v/c Ratio	0.40	0.85	0.09	0.68	0.14	0.84	0.63	0.64	0.07	0.74	0.33	0.19
Uniform Delay, d1	26.4	30.4	23.7	36.3	32.8	24.5	38.1	36.2	33.2	31.4	25.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.52	1.00
Incremental Delay, d2	0.3	14.8	0.1	8.1	0.3	11.4	7.3	6.9	0.7	5.4	0.7	0.2
Delay (s)	26.7	45.2	23.8	44.4	33.1	35.9	45.4	43.2	33.9	24.9	14.3	0.2
Level of Service	C	D	C	D	C	D	D	D	C	C	B	A
Approach Delay (s)		34.6			37.6			41.8			13.4	
Approach LOS		C			D			D			B	

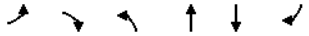
Intersection Summary				
HCM Average Control Delay	30.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	67.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	0	70	121	12	155	40	445	553	0	1192	12
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.87	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1538		1376	1538	1339	1307	1538	3076	1376		3076	1376
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1538		1376	1538	1339	1307	1538	3076	1376		3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	0	78	134	13	172	44	494	614	0	1324	13
RTOR Reduction (vph)	0	0	72	0	65	73	0	0	0	0	0	0
Lane Group Flow (vph)	20	0	6	134	29	18	44	494	614	0	1324	13
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	3.2		6.9	14.2	17.9	17.9	3.2	56.9	90.0		49.7	49.7
Effective Green, g (s)	3.2		6.9	14.2	17.9	17.9	3.2	56.9	90.0		49.7	49.7
Actuated g/C Ratio	0.04		0.08	0.16	0.20	0.20	0.04	0.63	1.00		0.55	0.55
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	55		105	243	266	260	55	1945	1376		1699	760
v/s Ratio Prot	0.01		0.00	0.09	0.02		0.03	0.16			c0.43	0.01
v/s Ratio Perm						0.01			c0.45			
v/c Ratio	0.36		0.06	0.55	0.11	0.07	0.80	0.25	0.45		0.78	0.02
Uniform Delay, d1	42.4		38.5	35.0	29.5	29.3	43.1	7.3	0.0		15.8	9.1
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.03	1.11	1.00		1.00	1.00
Incremental Delay, d2	4.1		0.2	2.7	0.2	0.1	45.2	0.2	0.8		3.6	0.0
Delay (s)	46.5		38.8	37.7	29.7	29.4	89.5	8.3	0.8		19.4	9.1
Level of Service	D		D	D	C	C	F	A	A		B	A
Approach Delay (s)		40.3			33.0			7.4			19.3	
Approach LOS		D			C			A			B	

Intersection Summary				
HCM Average Control Delay	16.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0	
Intersection Capacity Utilization	59.2%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	16	3	0	368	357	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	3	0	409	397	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	810	401	406			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	810	401	406			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	100			
cM capacity (veh/h)	349	649	1137			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	21	409	406
Volume Left	18	0	0
Volume Right	3	0	9
cSH	377	1137	1700
Volume to Capacity	0.06	0.00	0.24
Queue Length 95th (ft)	4	0	0
Control Delay (s)	15.1	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.1	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	16	21	348	20	22	284
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	23	387	22	24	316
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	762	398			409	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	762	398			409	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			98	
cM capacity (veh/h)	365	652			1134	

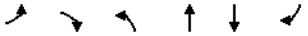
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	41	409	340
Volume Left	18	0	24
Volume Right	23	22	0
cSH	486	1700	1134
Volume to Capacity	0.08	0.24	0.02
Queue Length 95th (ft)	7	0	2
Control Delay (s)	13.1	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	13.1	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	181	116	113	162	44	139	117	107	32	58	22
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1538	1524		1583	1613		1538	1503		1583	1598	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1538	1524		1583	1613		1538	1503		1583	1598	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	201	129	126	180	49	154	130	119	36	64	24
RTOR Reduction (vph)	0	35	0	0	14	0	0	64	0	0	21	0
Lane Group Flow (vph)	10	295	0	126	215	0	154	185	0	36	67	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.4	14.7		4.3	18.6		5.7	9.3		1.2	4.8	
Effective Green, g (s)	0.4	14.7		4.3	18.6		5.7	9.3		1.2	4.8	
Actuated g/C Ratio	0.01	0.34		0.10	0.43		0.13	0.22		0.03	0.11	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	14	521		158	698		204	325		44	178	
v/s Ratio Prot	0.01	c0.19		c0.08	0.13		c0.10	c0.12		0.02	0.04	
v/s Ratio Perm												
v/c Ratio	0.71	0.57		0.80	0.31		0.75	0.57		0.82	0.37	
Uniform Delay, d1	21.2	11.5		18.9	8.0		18.0	15.1		20.8	17.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	87.8	0.8		22.3	0.1		13.1	1.4		66.7	0.5	
Delay (s)	109.1	12.4		41.3	8.1		31.1	16.4		87.5	18.2	
Level of Service	F	B		D	A		C	B		F	B	
Approach Delay (s)		15.2			19.9			22.0			38.3	
Approach LOS		B			B			C			D	

Intersection Summary				
HCM Average Control Delay	21.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	43.0	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	56.4%	ICU Level of Service	B	
Analysis Period (min)	15			

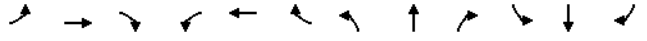
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	67	24	18	747	469	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	27	20	830	521	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				914		
pX, platoon unblocked						
vC, conflicting volume	1441	571	620			
vC1, stage 1 conf vol	571					
vC2, stage 2 conf vol	870					
vCu, unblocked vol	1441	571	620			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	78	95	98			
cM capacity (veh/h)	344	521	960			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	101	20	830	620
Volume Left	74	20	0	0
Volume Right	27	0	0	99
cSH	378	960	1700	1700
Volume to Capacity	0.27	0.02	0.49	0.36
Queue Length 95th (ft)	27	2	0	0
Control Delay (s)	18.0	8.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	18.0	0.2		0.0
Approach LOS	C			

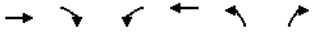
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	56.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	3	45	3	114	0	522	138	56	338	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	3	50	3	127	0	580	153	62	376	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1208	1233	376	1160	1157	657	376			733		
vC1, stage 1 conf vol	500	500		657	657							
vC2, stage 2 conf vol	708	733		503	500							
vCu, unblocked vol	1208	1233	376	1160	1157	657	376			733		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	86	99	73	100			93		
cM capacity (veh/h)	226	317	664	364	372	465	1183			872		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	3	180	0	733	62	376
Volume Left	0	50	0	0	62	0
Volume Right	3	127	0	153	0	0
cSH	664	430	1700	1700	872	1700
Volume to Capacity	0.01	0.42	0.00	0.43	0.07	0.22
Queue Length 95th (ft)	0	51	0	0	6	0
Control Delay (s)	10.4	19.3	0.0	0.0	9.4	0.0
Lane LOS	B	C			A	
Approach Delay (s)	10.4	19.3	0.0		1.3	
Approach LOS	B	C				

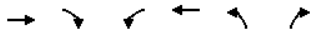
Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	71.0%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	736	0	0	1117	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	818	0	0	1241	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				679		
pX, platoon unblocked					0.77	
vC, conflicting volume			818		1438	818
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		964	818
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			806		194	319

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	818	0	621	621	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.00	0.37	0.37	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	46.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	736	0	0	1117	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	818	0	0	1241	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				386		
pX, platoon unblocked					0.76	
vC, conflicting volume			818		1438	818
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		951	818
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			806		197	319

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	818	0	621	621
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.48	0.00	0.37	0.37
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		46.6%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	860	711	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	956	790	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					247	
pX, platoon unblocked	0.89	0.89	0.89			
vC, conflicting volume	1109	790	790			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1059	701	701			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	195	339	775			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	0	319	319	319	790	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.19	0.19	0.19	0.46	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A					
Approach Delay (s)	0.0	0.0			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		45.2%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	267	251	279	303	504	450	358	57	335
v/c Ratio	0.78	0.39	0.78	0.75	0.90	0.42	0.37	0.45	0.49
Control Delay	43.5	9.7	51.9	38.5	56.3	25.4	3.8	55.2	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	9.7	51.9	38.5	56.3	25.4	3.9	55.2	38.1
Queue Length 50th (ft)	131	49	163	129	173	146	62	35	101
Queue Length 95th (ft)	202	92	#340	#298	#267	167	35	76	151
Internal Link Dist (ft)	421			1192		356			1135
Turn Bay Length (ft)					235			85	
Base Capacity (vph)	474	649	367	409	560	1069	973	142	682
Starvation Cap Reductn	0	0	0	0	0	0	11	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.39	0.76	0.74	0.90	0.42	0.37	0.40	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	850	487	378	826	756	252
v/c Ratio	0.85	0.49	0.76	0.46	0.65	0.18
Control Delay	40.2	12.2	42.0	6.1	19.9	0.2
Queue Delay	0.9	0.0	0.0	0.4	0.1	0.0
Total Delay	41.1	12.2	42.0	6.5	20.0	0.2
Queue Length 50th (ft)	249	53	121	159	181	0
Queue Length 95th (ft)	323	102	176	43	231	m0
Internal Link Dist (ft)				269	356	
Turn Bay Length (ft)		600	125			235
Base Capacity (vph)	1074	1049	539	1804	1173	1376
Starvation Cap Reductn	0	0	0	443	19	0
Spillback Cap Reductn	64	0	0	0	1	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.46	0.70	0.61	0.66	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
3: EB US-50 Off Ramp & Missouri Flat Rd.

EPAP
AM Peak

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	131	225	226	1058	47	236	1370
v/c Ratio	0.50	0.78	0.77	0.60	0.06	0.63	0.60
Control Delay	41.7	44.4	42.7	18.8	7.3	51.9	3.4
Queue Delay	0.0	1.0	0.9	0.7	0.0	0.0	0.6
Total Delay	41.7	45.4	43.6	19.5	7.3	51.9	4.0
Queue Length 50th (ft)	78	103	98	282	3	63	1
Queue Length 95th (ft)	130	185	176	384	16	m96	302
Internal Link Dist (ft)		1012		199			269
Turn Bay Length (ft)	675		545		85	100	
Base Capacity (vph)	365	370	380	1765	801	422	2274
Starvation Cap Reductn	0	0	0	354	0	0	393
Spillback Cap Reductn	0	35	36	0	0	0	486
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.67	0.66	0.75	0.06	0.56	0.77

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

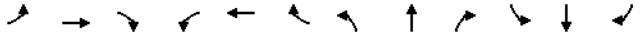
Queues
4: Mother Lode Dr. & Missouri Flat Rd.

EPAP
AM Peak

Lane Group	EBL	EBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	296	109	56	809	876	1642	162
v/c Ratio	0.57	0.33	0.39	0.34	0.68	0.81	0.17
Control Delay	41.5	8.8	50.2	5.4	3.7	16.3	3.6
Queue Delay	0.2	0.0	0.0	0.1	0.0	0.5	0.5
Total Delay	41.7	8.8	50.2	5.6	3.7	16.9	4.1
Queue Length 50th (ft)	92	0	34	67	0	363	13
Queue Length 95th (ft)	112	39	71	161	43	#766	31
Internal Link Dist (ft)				311		199	
Turn Bay Length (ft)	185	185	200		300		105
Base Capacity (vph)	891	488	253	2378	1282	2028	930
Starvation Cap Reductn	0	0	0	0	0	109	451
Spillback Cap Reductn	155	0	0	562	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.22	0.22	0.45	0.68	0.86	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	219	24	23	54	21	67	94	1451	68	92	1449	208
v/c Ratio	0.67	0.10	0.10	0.49	0.12	0.33	0.64	0.80	0.08	0.63	0.80	0.24
Control Delay	51.8	35.2	14.3	60.6	39.5	14.0	63.4	24.0	10.9	63.2	24.1	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	35.2	14.3	60.6	39.5	14.0	63.4	24.0	10.9	63.2	24.1	10.4
Queue Length 50th (ft)	59	12	0	29	11	0	50	300	9	49	301	28
Queue Length 95th (ft)	131	36	22	87	35	37	131	#895	53	129	#896	132
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	617	652	568	318	640	585	318	1819	826	318	1816	849
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.04	0.04	0.17	0.03	0.11	0.30	0.80	0.08	0.29	0.80	0.24

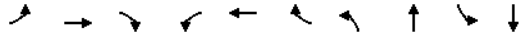
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	20	103	68	1677	120	1192	17
v/c Ratio	0.10	0.46	0.48	0.84	0.86	0.56	0.02
Control Delay	28.7	26.6	49.7	19.6	86.9	12.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.7	26.6	49.7	19.6	86.9	12.5	7.3
Queue Length 50th (ft)	9	28	32	294	59	164	1
Queue Length 95th (ft)	27	71	#94	#764	#200	402	14
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	494	517	160	1995	140	2136	959
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.20	0.42	0.84	0.86	0.56	0.02

Intersection Summary

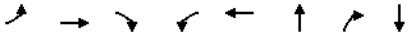
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	698	358	258	964	19	521	131	2	24
v/c Ratio	0.09	0.76	0.37	0.72	0.55	0.02	0.75	0.26	0.02	0.11
Control Delay	41.5	32.0	2.9	45.0	16.7	13.3	39.0	6.8	42.5	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	32.0	2.9	45.0	16.7	13.3	39.0	6.8	42.5	20.6
Queue Length 50th (ft)	4	124	0	90	91	2	94	4	1	4
Queue Length 95th (ft)	28	315	51	#373	#452	23	#332	45	10	25
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	356	1335	962	356	1738	780	691	737	356	691
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.52	0.37	0.72	0.55	0.02	0.75	0.18	0.01	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	41	694	82	21	1190	55	20	52
v/c Ratio	0.68	0.62	0.08	0.35	0.59	0.31	0.11	0.27
Control Delay	99.9	20.8	8.4	52.7	11.9	44.1	15.4	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.9	20.8	8.4	52.7	11.9	44.1	15.4	24.7
Queue Length 50th (ft)	28	184	4	15	57	36	0	16
Queue Length 95th (ft)	#88	#908	50	m29	#706	61	19	40
Internal Link Dist (ft)		306			840	290		465
Turn Bay Length (ft)	175		200	100			100	
Base Capacity (vph)	60	1121	972	60	2027	400	369	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.08	0.35	0.59	0.14	0.05	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

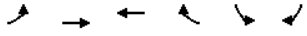
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	167	571	768	188	207	456
v/c Ratio	0.63	0.80	0.49	0.15	0.65	0.72
Control Delay	33.5	21.1	20.9	4.8	47.2	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	21.1	20.9	4.8	47.2	9.9
Queue Length 50th (ft)	108	134	155	27	131	0
Queue Length 95th (ft)	10	498	319	73	179	82
Internal Link Dist (ft)	840			167	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	422	797	1556	1225	493	736
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.72	0.49	0.15	0.42	0.62

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	200	28	317	444	102	56	613	154
v/c Ratio	0.53	0.20	0.26	0.65	0.39	0.47	0.17	0.67	0.30
Control Delay	43.8	16.5	40.1	31.3	1.8	41.3	9.0	25.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	16.5	40.1	31.3	1.8	41.3	9.0	25.8	10.4
Queue Length 50th (ft)	36	28	12	122	0	43	0	124	17
Queue Length 95th (ft)	83	57	38	#259	31	#118	28	192	62
Internal Link Dist (ft)		219		338		844			640
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	592	1820	194	612	1170	228	405	1304	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.11	0.14	0.52	0.38	0.45	0.14	0.47	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	264	294	256	121	237	146
v/c Ratio	0.44	0.39	0.52	0.13	0.39	0.18
Control Delay	25.2	8.3	16.1	1.8	14.1	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	8.3	16.1	1.8	14.1	2.4
Queue Length 50th (ft)	25	31	43	4	35	0
Queue Length 95th (ft)	#119	97	115	10	121	24
Internal Link Dist (ft)		1271	1500		834	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	596	1387	1133	1269	965	812
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.21	0.23	0.10	0.25	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	3	256	336	357	355	145	241	27
v/c Ratio	0.04	0.55	0.53	1.10	0.42	0.33	0.43	0.18
Control Delay	41.0	30.7	6.8	112.8	16.2	27.2	6.7	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	30.7	6.8	112.8	16.2	27.2	6.7	26.5
Queue Length 50th (ft)	1	90	0	~161	74	48	0	7
Queue Length 95th (ft)	11	#231	74	#460	270	134	61	31
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	81	467	636	324	846	439	566	434
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.55	0.53	1.10	0.42	0.33	0.43	0.06

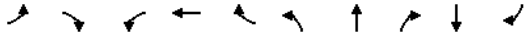
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	330	372	124	156	36	536	110	288	97	276	276	261
v/c Ratio	0.40	0.91	0.28	0.68	0.12	0.88	0.56	0.54	0.31	0.77	0.30	0.19
Control Delay	31.4	60.5	7.1	51.3	27.8	30.5	46.7	38.5	9.8	33.9	14.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	60.5	7.1	51.3	27.8	30.5	46.7	38.5	9.8	33.9	14.8	0.2
Queue Length 50th (ft)	91	211	0	84	15	73	60	81	0	149	67	0
Queue Length 95th (ft)	135	#405	44	146	40	#179	107	118	41	m#262	m72	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	835	411	441	273	417	609	273	601	347	360	929	1376
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.91	0.28	0.57	0.09	0.88	0.40	0.48	0.28	0.77	0.30	0.19

Intersection Summary

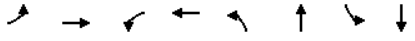
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	20	78	134	94	91	44	494	614	1324	13
v/c Ratio	0.17	0.40	0.62	0.28	0.27	0.59	0.24	0.45	0.73	0.02
Control Delay	41.8	15.0	48.8	11.1	8.7	69.0	9.0	1.2	20.2	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	15.0	48.8	11.1	8.7	69.0	9.0	1.2	20.2	12.7
Queue Length 50th (ft)	11	0	72	6	0	25	65	8	276	3
Queue Length 95th (ft)	33	37	127	45	37	m#49	m111	m1	#555	15
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	273	309	273	356	357	75	2028	1376	1809	809
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	0.49	0.26	0.25	0.59	0.24	0.45	0.73	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	330	126	229	154	249	36	88
v/c Ratio	0.06	0.63	0.38	0.30	0.41	0.48	0.16	0.24
Control Delay	26.0	20.3	29.8	10.5	27.3	13.6	25.8	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	20.3	29.8	10.5	27.3	13.6	25.8	15.8
Queue Length 50th (ft)	3	66	33	31	38	30	9	16
Queue Length 95th (ft)	16	#196	#124	108	#136	101	37	48
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	161	780	332	943	430	872	221	788
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.42	0.38	0.24	0.36	0.29	0.16	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	31	415	220	54	139	456	370	323	73	354	46
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1427	1346	1504	1422		3072	3167	1417	1583	3112	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1427	1346	1504	1422		3072	3167	1417	1583	3112	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	102	34	461	244	60	154	507	411	359	81	393	51
RTOR Reduction (vph)	0	40	91	0	56	0	0	0	154	0	7	0
Lane Group Flow (vph)	0	267	199	220	182	0	507	411	205	81	437	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		26.2	50.5	22.2	22.2		24.3	46.2	68.4	9.4	31.3	
Effective Green, g (s)		26.2	50.5	22.2	22.2		24.3	46.2	68.4	9.4	31.3	
Actuated g/C Ratio		0.22	0.42	0.18	0.18		0.20	0.39	0.57	0.08	0.26	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		312	611	278	263		622	1219	808	124	812	
v/s Ratio Prot		c0.19	0.07	c0.15	0.13		c0.17	0.13	0.05	c0.05	c0.14	
v/s Ratio Perm			0.08						0.10			
v/c Ratio		0.86	0.33	0.79	0.69		0.82	0.34	0.25	0.65	0.54	
Uniform Delay, d1		45.1	23.3	46.7	45.7		45.7	26.1	13.0	53.7	38.1	
Progression Factor		1.00	1.00	1.00	1.00		0.90	0.80	3.40	1.00	1.00	
Incremental Delay, d2		20.0	0.3	14.2	7.6		7.5	0.7	0.2	11.7	2.5	
Delay (s)		65.0	23.6	60.9	53.3		48.4	21.6	44.3	65.4	40.7	
Level of Service		E	C	E	D		D	C	D	E	D	
Approach Delay (s)		44.9			57.0			38.6			44.5	
Approach LOS		D			E			D			D	

Intersection Summary				
HCM Average Control Delay	44.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	70.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	717	0	394	390	755	0	0	716	273
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		0.88	0.97	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				2984		2422	2984	3076			3076	1376
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				2984		2422	2984	3076			3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	797	0	438	433	839	0	0	796	303
RTOR Reduction (vph)	0	0	0	0	0	198	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	797	0	240	433	839	0	0	796	303
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type				Prot		custom	Prot					Free
Protected Phases				3		3	5	2			6	
Permitted Phases						3						Free
Actuated Green, G (s)				37.9		37.9	21.7	74.1			48.4	120.0
Effective Green, g (s)				37.9		37.9	21.7	74.1			48.4	120.0
Actuated g/C Ratio				0.32		0.32	0.18	0.62			0.40	1.00
Clearance Time (s)				4.0		4.0	4.0	4.0			4.0	
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				942		765	540	1899			1241	1376
v/s Ratio Prot				c0.27		0.10	c0.15	0.27			c0.26	
v/s Ratio Perm												0.22
v/c Ratio				0.85		0.31	0.80	0.44			0.64	0.22
Uniform Delay, d1				38.3		31.2	47.1	12.1			28.8	0.0
Progression Factor				1.00		1.00	0.80	0.21			0.63	1.00
Incremental Delay, d2				7.1		0.2	6.4	0.6			2.1	0.3
Delay (s)				45.4		31.4	44.2	3.1			20.3	0.3
Level of Service				D		C	D	A			C	A
Approach Delay (s)		0.0			40.4			17.0			14.8	
Approach LOS		A			D			B			B	

Intersection Summary				
HCM Average Control Delay	24.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	107.6%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	205	3	631	0	0	0	0	940	48	241	1192	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1461	1264	1307					3076	1376	2984	3076	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1461	1264	1307					3076	1376	2984	3076	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	228	3	701	0	0	0	0	1044	53	268	1324	0
RTOR Reduction (vph)	0	36	36	0	0	0	0	0	11	0	0	0
Lane Group Flow (vph)	205	326	329	0	0	0	0	1044	42	268	1324	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	36.2	36.2	36.2					57.4	57.4	14.4	75.8	
Effective Green, g (s)	36.2	36.2	36.2					57.4	57.4	14.4	75.8	
Actuated g/C Ratio	0.30	0.30	0.30					0.48	0.48	0.12	0.63	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	441	381	394					1471	658	358	1943	
v/s Ratio Prot	0.14	c0.26						0.34		0.09	c0.43	
v/s Ratio Perm			0.25						0.03			
v/c Ratio	0.46	0.85	0.83					0.71	0.06	0.75	0.68	
Uniform Delay, d1	34.0	39.4	39.1					24.7	16.8	51.0	14.3	
Progression Factor	1.00	1.00	1.00					1.16	1.20	1.05	0.28	
Incremental Delay, d2	0.8	16.8	14.1					2.8	0.2	5.9	1.4	
Delay (s)	34.8	56.2	53.2					31.5	20.5	59.4	5.4	
Level of Service	C	E	D					C	C	E	A	
Approach Delay (s)		50.3			0.0			31.0			14.5	
Approach LOS		D			A			C			B	

Intersection Summary				
HCM Average Control Delay	28.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	107.6%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	0	109	0	0	0	57	698	898	0	1637	186
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85				1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	3072		1417				1583	3167	1417		3167	1417
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	3072		1417				1583	3167	1417		3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	322	0	121	0	0	0	63	776	998	0	1819	207
RTOR Reduction (vph)	0	0	102	0	0	0	0	0	225	0	0	24
Lane Group Flow (vph)	322	0	19	0	0	0	63	776	773	0	1819	183
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Perm			Perm
Protected Phases	4						5	2			6	
Permitted Phases			4						2			6
Actuated Green, G (s)	19.1		19.1				8.9	92.9	92.9		80.0	80.0
Effective Green, g (s)	19.1		19.1				8.9	92.9	92.9		80.0	80.0
Actuated g/C Ratio	0.16		0.16				0.07	0.77	0.77		0.67	0.67
Clearance Time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	489		226				117	2452	1097		2111	945
v/s Ratio Prot	c0.10						0.04	0.25			c0.57	
v/s Ratio Perm			0.01						c0.55			0.13
v/c Ratio	0.66		0.09				0.54	0.32	0.70		0.86	0.19
Uniform Delay, d1	47.4		43.0				53.6	4.1	6.7		15.7	7.7
Progression Factor	1.00		1.00				1.00	1.00	1.00		1.08	0.92
Incremental Delay, d2	3.2		0.2				4.7	0.3	3.8		3.5	0.3
Delay (s)	50.6		43.2				58.3	4.4	10.5		20.3	7.4
Level of Service	D		D				E	A	B		C	A
Approach Delay (s)		48.6			0.0			9.6			19.0	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	18.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	68.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Forni Rd. & Missouri Flat Rd.

EPAP
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	449	52	48	117	46	141	83	1064	60	133	1312	300
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	499	58	53	130	51	157	92	1182	67	148	1458	333
RTOR Reduction (vph)	0	0	46	0	0	141	0	0	18	0	0	68
Lane Group Flow (vph)	499	58	7	130	51	16	92	1182	49	148	1458	265
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	18.3	13.5	13.5	15.6	10.8	10.8	7.8	48.3	48.3	12.1	52.6	52.6
Effective Green, g (s)	18.3	13.5	13.5	15.6	10.8	10.8	7.8	48.3	48.3	12.1	52.6	52.6
Actuated g/C Ratio	0.18	0.13	0.13	0.15	0.10	0.10	0.07	0.46	0.46	0.12	0.50	0.50
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	538	215	183	236	172	146	118	1464	655	183	1594	713
v/s Ratio Prot	c0.16	c0.03		0.08	0.03		0.06	0.37		c0.09	c0.46	
v/s Ratio Perm			0.00			0.01			0.03			0.19
v/c Ratio	0.93	0.27	0.04	0.55	0.30	0.11	0.78	0.81	0.07	0.81	0.91	0.37
Uniform Delay, d1	42.4	41.1	39.8	41.2	43.3	42.5	47.5	24.1	15.7	45.1	23.9	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.9	0.2	0.0	1.6	0.4	0.1	25.0	3.4	0.0	21.3	8.5	0.3
Delay (s)	64.4	41.3	39.8	42.8	43.7	42.6	72.5	27.5	15.7	66.4	32.4	16.2
Level of Service	E	D	D	D	D	D	E	C	B	E	C	B
Approach Delay (s)		60.0			42.8			30.0			32.2	
Approach LOS		E			D			C			C	

Intersection Summary				
HCM Average Control Delay	36.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	104.5	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	77.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: Golden Center Dr. & Missouri Flat Rd.

EPAP
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	9	6	112	6	94	35	823	35	116	1146	17
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1541			1527		1583	3147		1583	3167	1417
Flt Permitted		0.60			0.80		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		965			1254		1583	3147		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	139	10	7	124	7	104	39	914	39	129	1273	19
RTOR Reduction (vph)	0	2	0	0	43	0	0	3	0	0	0	5
Lane Group Flow (vph)	0	154	0	0	192	0	39	950	0	129	1273	14
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		15.4			15.4		1.6	27.0		6.7	32.1	32.1
Effective Green, g (s)		15.4			15.4		1.6	27.0		6.7	32.1	32.1
Actuated g/C Ratio		0.25			0.25		0.03	0.43		0.11	0.52	0.52
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		239			311		41	1368		171	1637	732
v/s Ratio Prot							0.02	0.30		c0.08	c0.40	
v/s Ratio Perm		c0.16			0.15							0.01
v/c Ratio		0.64			0.62		0.95	0.69		0.75	0.78	0.02
Uniform Delay, d1		20.9			20.7		30.2	14.2		26.9	12.1	7.3
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.2			3.1		121.0	1.5		16.3	2.4	0.0
Delay (s)		26.1			23.8		151.2	15.8		43.2	14.5	7.3
Level of Service		C			C		F	B		D	B	A
Approach Delay (s)		26.1			23.8			21.1			17.0	
Approach LOS		C			C			C			B	

Intersection Summary				
HCM Average Control Delay	19.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	63.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	739	379	202	663	15	516	11	111	3	11	17
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	3072	1439		1583	1513	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	3072	1439		1583	1513	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	821	421	224	737	17	573	12	123	3	12	19
RTOR Reduction (vph)	0	0	196	0	0	3	0	89	0	0	17	0
Lane Group Flow (vph)	13	821	225	224	737	14	573	46	0	3	14	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	1.2	30.9	47.5	16.6	46.3	46.3	16.6	24.5		1.0	8.9	
Effective Green, g (s)	1.2	30.9	47.5	16.6	46.3	46.3	16.6	24.5		1.0	8.9	
Actuated g/C Ratio	0.01	0.35	0.53	0.19	0.52	0.52	0.19	0.28		0.01	0.10	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	21	1100	820	295	1648	737	573	396		18	151	
v/s Ratio Prot	0.01	c0.26	0.05	c0.14	0.23		c0.19	c0.03		0.00	0.01	
v/s Ratio Perm			0.11			0.01						
v/c Ratio	0.62	0.75	0.27	0.76	0.45	0.02	1.00	0.12		0.17	0.09	
Uniform Delay, d1	43.7	25.6	11.3	34.3	13.3	10.3	36.2	24.1		43.6	36.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	43.9	2.8	0.2	10.7	0.2	0.0	37.6	0.1		4.3	0.3	
Delay (s)	87.6	28.4	11.5	45.0	13.5	10.4	73.8	24.3		47.9	36.6	
Level of Service	F	C	B	D	B	B	E	C		D	D	
Approach Delay (s)		23.3			20.7			64.4			37.6	
Approach LOS		C			C			E			D	

Intersection Summary				
HCM Average Control Delay	32.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	68.5%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	722	87	17	797	17	55	10	24	24	3	28
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1583	1667	1417	1583	3157			1553	1376		1475	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1583	1667	1417	1583	3157			1553	1376		1475	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	802	97	19	886	19	61	11	27	27	3	31
RTOR Reduction (vph)	0	0	23	0	1	0	0	0	24	0	28	0
Lane Group Flow (vph)	49	802	74	19	904	0	0	72	3	0	33	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	4.8	64.9	64.9	1.6	61.7			11.5	11.5		11.0	
Effective Green, g (s)	4.8	64.9	64.9	1.6	61.7			11.5	11.5		11.0	
Actuated g/C Ratio	0.05	0.62	0.62	0.02	0.59			0.11	0.11		0.10	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	72	1030	876	24	1855			170	151		155	
v/s Ratio Prot	c0.03	c0.48		0.01	0.29			c0.05			c0.02	
v/s Ratio Perm			0.05						0.00			
v/c Ratio	0.68	0.78	0.08	0.79	0.49			0.42	0.02		0.21	
Uniform Delay, d1	49.3	14.8	8.1	51.5	12.5			43.7	41.7		43.0	
Progression Factor	1.00	1.00	1.00	0.80	0.43			1.00	1.00		1.00	
Incremental Delay, d2	23.3	5.8	0.2	88.0	0.8			1.7	0.1		0.7	
Delay (s)	72.6	20.6	8.3	129.1	6.2			45.4	41.8		43.7	
Level of Service	E	C	A	F	A			D	D		D	
Approach Delay (s)		22.0			8.8			44.4			43.7	
Approach LOS		C			A			D			D	

Intersection Summary				
HCM Average Control Delay	17.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	59.4%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	183	587	11	478	214	255	353
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		2984	1619	1619	1376
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		2984	1619	1619	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	203	652	12	531	238	283	392
RTOR Reduction (vph)	0	527	0	0	0	0	301
Lane Group Flow (vph)	203	125	0	543	238	283	91
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%	5%
Turn Type		Perm	Prot	Prot			Perm
Protected Phases	4		5	5	2	6	
Permitted Phases		4					6
Actuated Green, G (s)	20.2	20.2		48.5	76.8	24.3	24.3
Effective Green, g (s)	20.2	20.2		48.5	76.8	24.3	24.3
Actuated g/C Ratio	0.19	0.19		0.46	0.73	0.23	0.23
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	305	273		1378	1184	375	318
v/s Ratio Prot	c0.13			c0.18	0.15	c0.17	
v/s Ratio Perm		0.09					0.07
v/c Ratio	0.67	0.46		0.39	0.20	0.75	0.29
Uniform Delay, d1	39.3	37.6		18.6	4.4	37.6	33.2
Progression Factor	0.61	4.72		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.9		0.8	0.1	8.4	0.5
Delay (s)	27.7	178.3		19.4	4.5	45.9	33.7
Level of Service	C	F		B	A	D	C
Approach Delay (s)	142.5				14.9	38.8	
Approach LOS	F				B	D	

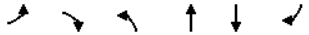
Intersection Summary				
HCM Average Control Delay	69.1	HCM Level of Service		E
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	81.2%	ICU Level of Service		D
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	17	14	11	386	597	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	16	12	429	663	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked						
vC, conflicting volume	1118	664	666			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1118	664	666			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	97	99			
cM capacity (veh/h)	223	455	910			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	34	441	666
Volume Left	19	12	0
Volume Right	16	0	2
cSH	290	910	1700
Volume to Capacity	0.12	0.01	0.39
Queue Length 95th (ft)	10	1	0
Control Delay (s)	19.1	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	19.1	0.4	0.0
Approach LOS	C		

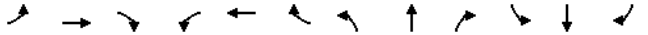
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	45.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	3	0	397	605	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	3	0	441	672	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.97					
vC, conflicting volume	1117	676	679			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1103	676	679			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	223	448	899			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	3	441	679
Volume Left	0	0	0
Volume Right	3	0	7
cSH	448	1700	1700
Volume to Capacity	0.01	0.26	0.40
Queue Length 95th (ft)	1	0	0
Control Delay (s)	13.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.1	0.0	0.0
Approach LOS	B		

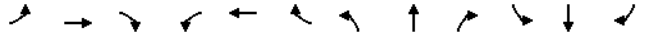
Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		46.0%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	77	0	0	56	42	646	34	24	762	66
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	86	0	0	62	47	718	38	27	847	73
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86		0.86					
vC, conflicting volume	1810	1786	883	1816	1803	737	920			756		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1862	1834	779	1869	1855	737	822			756		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	74	100	100	85	93			97		
cM capacity (veh/h)	37	58	335	32	56	414	680			842		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	86	62	47	756	27	920
Volume Left	0	0	47	0	27	0
Volume Right	86	62	0	38	0	73
cSH	335	414	680	1700	842	1700
Volume to Capacity	0.26	0.15	0.07	0.44	0.03	0.54
Queue Length 95th (ft)	25	13	6	0	2	0
Control Delay (s)	19.4	15.2	10.7	0.0	9.4	0.0
Lane LOS	C	C	B		A	
Approach Delay (s)	19.4	15.2	0.6		0.3	
Approach LOS	C	C				

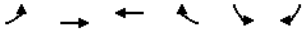
Intersection Summary				
Average Delay		1.8		
Intersection Capacity Utilization		61.3%	ICU Level of Service	B
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	373	66	21	238	334	38	46	47	788	68	154
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1538	3007		1583	1667	1417		1630	1417	2984	1451	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1538	3007		1583	1667	1417		1630	1417	2984	1451	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	214	414	73	23	264	371	42	51	52	876	76	171
RTOR Reduction (vph)	0	17	0	0	0	165	0	0	46	0	82	0
Lane Group Flow (vph)	214	470	0	23	264	206	0	93	6	876	165	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	13.5	27.9		3.2	17.6	43.6		6.0	9.2	26.0	26.0	
Effective Green, g (s)	13.5	27.9		3.2	17.6	43.6		6.0	9.2	26.0	26.0	
Actuated g/C Ratio	0.17	0.35		0.04	0.22	0.55		0.08	0.12	0.33	0.33	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	264	1067		64	373	786		124	166	987	480	
v/s Ratio Prot	c0.14	0.16		0.01	c0.16	0.09		c0.06	0.00	c0.29	0.11	
v/s Ratio Perm						0.06			0.00			
v/c Ratio	0.81	0.44		0.36	0.71	0.26		0.75	0.04	0.89	0.34	
Uniform Delay, d1	31.3	19.4		36.7	28.1	9.1		35.6	30.8	24.9	19.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.1	0.3		1.3	6.1	0.2		22.2	0.0	9.8	0.4	
Delay (s)	47.5	19.7		38.0	34.2	9.3		57.8	30.8	34.7	20.3	
Level of Service	D	B		D	C	A		E	C	C	C	
Approach Delay (s)		28.2			20.3			48.1			31.5	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM Average Control Delay	28.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	78.6	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	69.9%	ICU Level of Service	C	
Analysis Period (min)	15			

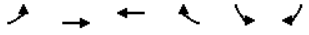
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	396	441	192	122	507	313
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	2984	1619	1619	1376	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2984	1619	1619	1376	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	440	490	213	136	563	348
RTOR Reduction (vph)	0	0	0	10	0	127
Lane Group Flow (vph)	440	490	213	126	563	221
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	12.1	27.3	12.2	39.9	27.7	39.8
Effective Green, g (s)	12.1	27.3	12.2	39.9	27.7	39.8
Actuated g/C Ratio	0.19	0.44	0.19	0.64	0.44	0.64
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	577	706	316	877	700	901
v/s Ratio Prot	c0.15	c0.30	0.13	0.06	c0.36	0.05
v/s Ratio Perm				0.03		0.11
v/c Ratio	0.76	0.69	0.67	0.14	0.80	0.25
Uniform Delay, d1	23.9	14.3	23.4	4.5	15.1	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	2.4	4.4	0.1	6.9	0.1
Delay (s)	29.2	16.7	27.8	4.6	22.0	5.0
Level of Service	C	B	C	A	C	A
Approach Delay (s)		22.6	18.7		15.5	
Approach LOS		C	B		B	

Intersection Summary				
HCM Average Control Delay	19.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	6.5	
Intersection Capacity Utilization	65.4%	ICU Level of Service	C	
Analysis Period (min)	15			

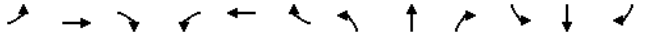
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	116	404	522	61	38	147
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	129	449	580	68	42	163
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	648				1321	614
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	648				1321	614
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				72	67
cM capacity (veh/h)	924				149	492

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	578	648	206
Volume Left	129	0	42
Volume Right	0	68	163
cSH	924	1700	334
Volume to Capacity	0.14	0.38	0.62
Queue Length 95th (ft)	12	0	97
Control Delay (s)	3.5	0.0	31.6
Lane LOS	A		D
Approach Delay (s)	3.5	0.0	31.6
Approach LOS			D

Intersection Summary				
Average Delay		6.0		
Intersection Capacity Utilization		88.3%	ICU Level of Service	E
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	74	645	65	24	425	4	33	1	76	1	3	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	82	717	72	27	472	4	37	1	84	1	3	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		873										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	477			789			1490	1447	753	1494	1481	474
vC1, stage 1 conf vol							917	917		528	528	
vC2, stage 2 conf vol							573	530		966	953	
vCu, unblocked vol	477			728			1489	1443	689	1493	1479	474
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			97			85	100	79	99	99	92
cM capacity (veh/h)	1086			806			237	267	411	181	250	590

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	82	789	27	477	122	50
Volume Left	82	0	27	0	37	1
Volume Right	0	72	0	4	84	46
cSH	1086	1700	806	1700	335	517
Volume to Capacity	0.08	0.46	0.03	0.28	0.36	0.10
Queue Length 95th (ft)	6	0	3	0	41	8
Control Delay (s)	8.6	0.0	9.6	0.0	21.8	12.7
Lane LOS	A		A		C	B
Approach Delay (s)	0.8		0.5		21.8	12.7
Approach LOS					C	B

Intersection Summary				
Average Delay		2.8		
Intersection Capacity Utilization		69.7%	ICU Level of Service	C
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	815	28	2	402	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	906	31	2	447	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			937		1372	921
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			937		1372	921
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			731		160	328

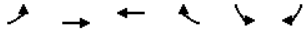
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	937	449	9
Volume Left	0	2	8
Volume Right	31	0	1
cSH	1700	731	171
Volume to Capacity	0.55	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.1	27.2
Lane LOS		A	D
Approach Delay (s)	0.0	0.1	27.2
Approach LOS			D

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		59.8%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	467	90	94	464	13	194	0	188	4	0	3
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1538	1619	1376	1538	1613			1583	1417		1527	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (perm)	1538	1619	1376	1538	1613			1583	1417		1527	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	519	100	104	516	14	216	0	209	4	0	3
RTOR Reduction (vph)	0	0	43	0	1	0	0	0	154	0	3	0
Lane Group Flow (vph)	4	519	57	104	529	0	0	216	55	0	4	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.6	33.9	33.9	7.1	40.4			21.3	21.3		3.3	
Effective Green, g (s)	0.6	33.9	33.9	7.1	40.4			21.3	21.3		3.3	
Actuated g/C Ratio	0.01	0.42	0.42	0.09	0.50			0.26	0.26		0.04	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	11	680	578	135	807			418	374		62	
v/s Ratio Prot	0.00	c0.32		c0.07	0.33			c0.14			c0.00	
v/s Ratio Perm			0.04						0.04			
v/c Ratio	0.36	0.76	0.10	0.77	0.66			0.52	0.15		0.07	
Uniform Delay, d1	39.9	20.0	14.2	36.0	15.0			25.3	22.7		37.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	7.3	7.9	0.3	23.5	2.1			4.5	0.8		0.2	
Delay (s)	47.2	27.9	14.5	59.5	17.1			29.8	23.6		37.4	
Level of Service	D	C	B	E	B			C	C		D	
Approach Delay (s)		25.9			24.1			26.8			37.4	
Approach LOS		C			C			C			D	

Intersection Summary				
HCM Average Control Delay	25.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	62.7%	ICU Level of Service	B	
Analysis Period (min)	15			

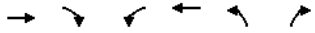
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	152	449	330	3	19	208
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	169	499	367	3	21	231
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	370				1205	368
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	370				1205	368
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				88	66
cM capacity (veh/h)	1172				174	677

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	668	370	252
Volume Left	169	0	21
Volume Right	0	3	231
cSH	1172	1700	545
Volume to Capacity	0.14	0.22	0.46
Queue Length 95th (ft)	13	0	61
Control Delay (s)	3.5	0.0	17.2
Lane LOS	A		C
Approach Delay (s)	3.5	0.0	17.2
Approach LOS			C

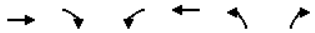
Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	592	116	156	550	91	142
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	658	129	173	611	101	158

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	787	784	259
Volume Left (vph)	0	173	101
Volume Right (vph)	129	0	158
Hadj (s)	-0.01	0.13	-0.25
Departure Headway (s)	5.8	5.9	6.7
Degree Utilization, x	1.27	1.29	0.48
Capacity (veh/h)	613	616	530
Control Delay (s)	152.2	163.9	15.9
Approach Delay (s)	152.2	163.9	15.9
Approach LOS	F	F	C

Intersection Summary			
Delay	137.9		
HCM Level of Service	F		
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	405	238	207	396	203	191
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	450	264	230	440	226	212

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	714	230	440	438
Volume Left (vph)	0	230	0	226
Volume Right (vph)	264	0	0	212
Hadj (s)	-0.19	0.58	0.09	-0.10
Departure Headway (s)	6.6	7.7	7.2	6.8
Degree Utilization, x	1.30	0.49	0.88	0.83
Capacity (veh/h)	551	460	493	523
Control Delay (s)	170.3	16.9	42.6	34.3
Approach Delay (s)	170.3	33.8		34.3
Approach LOS	F	D		D

Intersection Summary			
Delay	87.4		
HCM Level of Service	F		
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	51	32	22	566	858	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	36	24	629	953	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1644	966	979			
vC1, stage 1 conf vol	966					
vC2, stage 2 conf vol	678					
vCu, unblocked vol	1644	966	979			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	88	96			
cM capacity (veh/h)	300	305	693			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	92	24	629	979
Volume Left	57	24	0	0
Volume Right	36	0	0	26
cSH	302	693	1700	1700
Volume to Capacity	0.31	0.04	0.37	0.58
Queue Length 95th (ft)	31	3	0	0
Control Delay (s)	22.1	10.4	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	22.1	0.4		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	472	553	253	202	81	538	139	254	231	190	249	190
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2984	1528	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2984	1528	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	524	614	281	224	90	598	154	282	257	211	277	211
RTOR Reduction (vph)	0	1	149	0	0	47	0	0	225	0	0	0
Lane Group Flow (vph)	524	641	104	224	90	551	154	282	32	211	277	211
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	54.2	49.2	49.2	17.0	12.0	35.0	15.8	14.8	14.8	23.0	22.0	120.0
Effective Green, g (s)	54.2	49.2	49.2	17.0	12.0	35.0	15.8	14.8	14.8	23.0	22.0	120.0
Actuated g/C Ratio	0.45	0.41	0.41	0.14	0.10	0.29	0.13	0.12	0.12	0.19	0.18	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1348	626	536	218	162	401	203	379	170	295	564	1376
v/s Ratio Prot	0.18	c0.42		c0.15	0.06	c0.26	0.10	c0.09		0.14	0.09	
v/s Ratio Perm			0.08			0.14			0.02			0.15
v/c Ratio	0.39	1.02	0.19	1.03	0.56	1.37	0.76	0.74	0.19	0.72	0.49	0.15
Uniform Delay, d1	21.9	35.4	22.7	51.5	51.5	42.5	50.3	50.8	47.2	45.4	44.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.69	1.00
Incremental Delay, d2	0.2	42.1	0.2	68.3	4.1	183.7	14.9	12.5	2.4	10.5	2.3	0.2
Delay (s)	22.1	77.5	22.9	119.8	55.5	226.2	65.2	63.2	49.6	44.1	32.6	0.2
Level of Service	C	E	C	F	E	F	E	E	D	D	C	A
Approach Delay (s)		47.3			183.2			58.6			26.3	
Approach LOS		D			F			E			C	

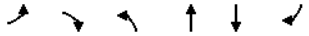
Intersection Summary				
HCM Average Control Delay	78.8	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	83.7%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	0	108	214	29	122	162	681	421	0	864	12
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.91	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1538		1376	1538	1393	1307	1538	3076	1376		3076	1376
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1538		1376	1538	1393	1307	1538	3076	1376		3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	0	120	238	32	136	180	757	468	0	960	13
RTOR Reduction (vph)	0	0	112	0	41	62	0	0	0	0	0	0
Lane Group Flow (vph)	20	0	8	238	45	20	180	757	468	0	960	13
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	3.5		8.2	25.0	29.7	29.7	17.5	74.8	120.0		53.3	53.3
Effective Green, g (s)	3.5		8.2	25.0	29.7	29.7	17.5	74.8	120.0		53.3	53.3
Actuated g/C Ratio	0.03		0.07	0.21	0.25	0.25	0.15	0.62	1.00		0.44	0.44
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	45		94	320	345	323	224	1917	1376		1366	611
v/s Ratio Prot	0.01		0.01	c0.15	0.03		c0.12	0.25			c0.31	0.01
v/s Ratio Perm						0.02			c0.34			
v/c Ratio	0.44		0.09	0.74	0.13	0.06	0.80	0.39	0.34		0.70	0.02
Uniform Delay, d1	57.3		52.4	44.5	35.1	34.5	49.6	11.3	0.0		26.9	18.7
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.15	1.00		1.00	1.00
Incremental Delay, d2	6.9		0.4	9.0	0.2	0.1	10.0	0.3	0.3		3.0	0.1
Delay (s)	64.1		52.8	53.5	35.3	34.6	59.4	13.3	0.3		30.0	18.8
Level of Service	E		D	D	D	C	E	B	A		C	B
Approach Delay (s)		54.4			45.8			14.9			29.8	
Approach LOS		D			D			B			C	

Intersection Summary				
HCM Average Control Delay	26.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	60.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	13	8	10	584	442	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	9	11	649	491	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1172	501	511			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1172	501	511			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	99			
cM capacity (veh/h)	210	570	1039			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	23	660	511
Volume Left	14	11	0
Volume Right	9	0	20
cSH	277	1039	1700
Volume to Capacity	0.08	0.01	0.30
Queue Length 95th (ft)	7	1	0
Control Delay (s)	19.2	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	19.2	0.3	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		53.3%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	30	13	472	20	1	389
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	14	524	22	1	432
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	970	536			547	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	970	536			547	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			100	
cM capacity (veh/h)	281	545			1008	

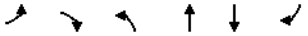
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	48	547	433
Volume Left	33	0	1
Volume Right	14	22	0
cSH	329	1700	1008
Volume to Capacity	0.15	0.32	0.00
Queue Length 95th (ft)	13	0	0
Control Delay (s)	17.8	0.0	0.0
Lane LOS	C		A
Approach Delay (s)	17.8	0.0	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		39.1%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	145	194	133	125	35	127	219	146	51	91	32
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1538	1480		1583	1612		1538	1522		1583	1601	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1538	1480		1583	1612		1538	1522		1583	1601	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	161	216	148	139	39	141	243	162	57	101	36
RTOR Reduction (vph)	0	69	0	0	14	0	0	34	0	0	18	0
Lane Group Flow (vph)	19	308	0	148	164	0	141	371	0	57	119	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.5	17.0		6.3	22.8		6.7	18.9		2.0	14.2	
Effective Green, g (s)	0.5	17.0		6.3	22.8		6.7	18.9		2.0	14.2	
Actuated g/C Ratio	0.01	0.29		0.11	0.40		0.12	0.33		0.03	0.25	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	13	436		173	637		179	499		55	394	
v/s Ratio Prot	0.01	c0.21		c0.09	0.10		c0.09	c0.24		c0.04	0.07	
v/s Ratio Perm												
v/c Ratio	1.46	0.71		0.86	0.26		0.79	0.74		1.04	0.30	
Uniform Delay, d1	28.6	18.1		25.3	11.8		24.8	17.2		27.9	17.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	423.0	4.2		30.6	0.1		18.7	5.2		132.0	0.2	
Delay (s)	451.6	22.4		55.8	11.8		43.5	22.4		159.8	17.9	
Level of Service	F	C		E	B		D	C		F	B	
Approach Delay (s)		42.9			31.8			27.9			59.6	
Approach LOS		D			C			C			E	

Intersection Summary				
HCM Average Control Delay	37.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	57.7	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

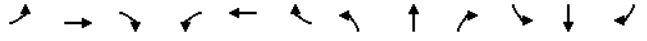
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	109	40	16	754	909	88
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	121	44	18	838	1010	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				914		
pX, platoon unblocked						
vC, conflicting volume	1932	1059	1108			
vC1, stage 1 conf vol	1059					
vC2, stage 2 conf vol	873					
vCu, unblocked vol	1932	1059	1108			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	53	84	97			
cM capacity (veh/h)	258	273	630			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	166	18	838	1108
Volume Left	121	18	0	0
Volume Right	44	0	0	98
cSH	262	630	1700	1700
Volume to Capacity	0.63	0.03	0.49	0.65
Queue Length 95th (ft)	98	2	0	0
Control Delay (s)	39.8	10.9	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	39.8	0.2		0.0
Approach LOS	E			

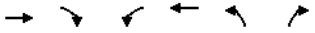
Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	75.6%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	9	52	3	198	0	468	115	102	608	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	10	58	3	220	0	520	128	113	676	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1644	1550	676	1496	1486	584	676			648		
vC1, stage 1 conf vol	902	902		584	584							
vC2, stage 2 conf vol	742	648		912	902							
vCu, unblocked vol	1644	1550	676	1496	1486	584	676			648		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	77	99	57	100			88		
cM capacity (veh/h)	107	245	448	251	275	512	916			938		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	281	0	648	113	676
Volume Left	0	58	0	0	113	0
Volume Right	10	220	0	128	0	0
cSH	448	418	1700	1700	938	1700
Volume to Capacity	0.02	0.67	0.00	0.38	0.12	0.40
Queue Length 95th (ft)	2	120	0	0	10	0
Control Delay (s)	13.2	29.6	0.0	0.0	9.4	0.0
Lane LOS	B	D			A	
Approach Delay (s)	13.2	29.6	0.0		1.3	
Approach LOS	B	D				

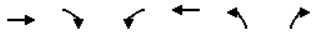
Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	75.4%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	853	0	0	880	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	948	0	0	978	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				679		
pX, platoon unblocked					0.86	
vC, conflicting volume			948		1437	948
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			948		1176	948
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			720		158	262

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	948	0	489	489	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.56	0.00	0.29	0.29	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	53.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	853	0	0	880	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	948	0	0	978	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				386		
pX, platoon unblocked					0.85	
vC, conflicting volume			948		1437	948
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			948		1153	948
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			720		161	262

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	948	0	489	489
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.56	0.00	0.29	0.29
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		53.5%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	702	852	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	780	947	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					247	
pX, platoon unblocked	0.84	0.84	0.84			
vC, conflicting volume	1207	947	947			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1152	843	843			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	161	259	648			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	0	260	260	260	947	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.15	0.15	0.15	0.56	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A					
Approach Delay (s)	0.0	0.0			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		53.5%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	307	290	220	238	507	411	359	81	444
v/c Ratio	0.87	0.42	0.79	0.75	0.84	0.33	0.37	0.57	0.53
Control Delay	61.9	10.6	67.0	47.1	54.2	23.8	4.2	67.8	41.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	10.6	67.0	47.1	54.2	23.8	4.2	67.8	41.9
Queue Length 50th (ft)	202	61	166	127	194	142	35	61	164
Queue Length 95th (ft)	#333	126	#286	229	262	183	103	113	225
Internal Link Dist (ft)	421			1192		356			1135
Turn Bay Length (ft)					235			85	
Base Capacity (vph)	406	686	305	343	644	1241	981	171	841
Starvation Cap Reductn	0	0	0	0	0	0	22	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	15
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.42	0.72	0.69	0.79	0.33	0.37	0.47	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	797	438	433	839	796	303
v/c Ratio	0.85	0.45	0.80	0.44	0.64	0.22
Control Delay	47.3	11.4	46.9	3.2	21.5	0.3
Queue Delay	5.5	0.0	0.0	0.7	0.3	0.0
Total Delay	52.8	11.4	46.9	3.9	21.8	0.3
Queue Length 50th (ft)	290	46	165	14	202	0
Queue Length 95th (ft)	357	92	225	28	256	m0
Internal Link Dist (ft)				269	356	
Turn Bay Length (ft)		600	125			235
Base Capacity (vph)	1044	1036	601	1899	1246	1376
Starvation Cap Reductn	0	0	0	663	101	0
Spillback Cap Reductn	190	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.42	0.72	0.68	0.70	0.22

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	205	362	365	1044	53	268	1324
v/c Ratio	0.46	0.87	0.85	0.71	0.08	0.75	0.68
Control Delay	36.5	53.9	51.4	33.8	16.3	63.4	5.8
Queue Delay	0.0	36.0	29.6	3.9	0.0	0.0	4.5
Total Delay	36.5	89.9	81.0	37.7	16.3	63.4	10.4
Queue Length 50th (ft)	130	245	234	393	20	90	277
Queue Length 95th (ft)	200	#380	355	484	52	m140	261
Internal Link Dist (ft)		1012		199			269
Turn Bay Length (ft)	675		545		85	100	
Base Capacity (vph)	511	477	491	1472	670	378	1943
Starvation Cap Reductn	0	0	0	337	0	0	311
Spillback Cap Reductn	0	131	135	0	0	0	536
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	1.05	1.03	0.92	0.08	0.71	0.94

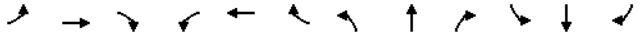
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	322	121	63	776	998	1819	207
v/c Ratio	0.66	0.37	0.47	0.32	0.75	0.85	0.21
Control Delay	53.2	10.1	63.0	5.0	4.7	22.6	6.5
Queue Delay	1.3	0.0	0.0	0.3	0.0	6.3	0.9
Total Delay	54.5	10.1	63.0	5.3	4.7	29.0	7.4
Queue Length 50th (ft)	123	0	47	75	0	647	27
Queue Length 95th (ft)	154	48	92	147	38	#987	m83
Internal Link Dist (ft)				311		199	
Turn Bay Length (ft)	185	185	200		300		105
Base Capacity (vph)	742	434	211	2451	1323	2131	977
Starvation Cap Reductn	0	0	0	0	0	276	525
Spillback Cap Reductn	238	0	0	1006	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.28	0.30	0.54	0.75	0.98	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	499	58	53	130	51	157	92	1182	67	148	1458	333
v/c Ratio	0.92	0.24	0.21	0.54	0.32	0.56	0.69	0.81	0.10	0.80	0.90	0.42
Control Delay	66.2	41.5	12.6	54.5	48.0	14.7	73.0	31.1	12.2	75.5	34.3	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	41.5	12.6	54.5	48.0	14.7	73.0	31.1	12.2	75.5	34.3	13.4
Queue Length 50th (ft)	158	33	0	80	32	0	57	310	11	91	407	66
Queue Length 95th (ft)	#369	75	33	175	69	55	132	#689	51	#218	#927	222
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	544	550	503	300	533	560	265	1481	681	265	1614	789
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.11	0.11	0.43	0.10	0.28	0.35	0.80	0.10	0.56	0.90	0.42

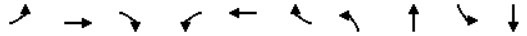
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	156	235	39	953	129	1273	19
v/c Ratio	0.63	0.65	0.46	0.70	0.56	0.76	0.03
Control Delay	33.4	25.2	55.1	20.7	41.1	18.2	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	25.2	55.1	20.7	41.1	18.2	8.1
Queue Length 50th (ft)	56	64	15	151	48	190	1
Queue Length 95th (ft)	110	129	#71	#340	#148	#460	14
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	511	690	84	1557	251	1903	856
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.34	0.46	0.61	0.51	0.67	0.02

Intersection Summary

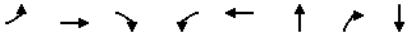
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	13	821	421	224	737	17	573	135	3	31
v/c Ratio	0.10	0.78	0.42	0.70	0.41	0.02	0.93	0.26	0.03	0.15
Control Delay	44.2	32.9	3.0	48.4	15.1	13.1	58.8	6.7	44.3	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	32.9	3.0	48.4	15.1	13.1	58.8	6.7	44.3	20.6
Queue Length 50th (ft)	7	194	0	113	98	2	156	4	2	6
Queue Length 95th (ft)	29	#426	55	#315	301	21	#375	45	12	29
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	318	1192	1002	318	1778	798	617	673	318	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.69	0.42	0.70	0.41	0.02	0.93	0.20	0.01	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	49	802	97	19	905	72	27	61
v/c Ratio	0.82	0.72	0.10	0.32	0.45	0.38	0.14	0.31
Control Delay	123.9	23.7	9.1	51.7	10.7	45.6	14.0	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.9	23.7	9.1	51.7	10.7	45.6	14.0	25.4
Queue Length 50th (ft)	33	256	6	13	50	47	0	19
Queue Length 95th (ft)	#104	#1069	62	m30	#509	76	22	45
Internal Link Dist (ft)		306			840	290		465
Turn Bay Length (ft)	175		200	100			100	
Base Capacity (vph)	60	1107	961	60	2000	399	374	471
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.72	0.10	0.32	0.45	0.18	0.07	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	203	652	543	238	283	392
v/c Ratio	0.67	0.82	0.39	0.20	0.75	0.63
Control Delay	31.1	20.4	22.7	6.0	49.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.1	20.4	22.7	6.0	49.9	8.0
Queue Length 50th (ft)	128	179	119	42	177	0
Queue Length 95th (ft)	m11	557	221	102	248	74
Internal Link Dist (ft)	840			167	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	467	878	1379	1185	493	692
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.74	0.39	0.20	0.57	0.57

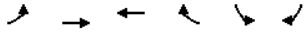
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	214	487	23	264	371	93	52	876	247
v/c Ratio	0.79	0.44	0.27	0.73	0.37	0.56	0.18	0.87	0.43
Control Delay	52.8	19.6	47.6	42.8	2.3	52.3	10.8	39.2	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	19.6	47.6	42.8	2.3	52.3	10.8	39.2	15.7
Queue Length 50th (ft)	105	92	12	123	0	46	0	220	47
Queue Length 95th (ft)	185	138	37	#232	39	#125	30	#410	132
Internal Link Dist (ft)		219		338		844			640
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	456	1478	149	472	1012	176	339	1005	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.33	0.15	0.56	0.37	0.53	0.15	0.87	0.43

Intersection Summary

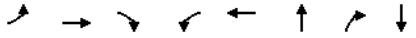
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	440	490	213	136	563	348
v/c Ratio	0.77	0.70	0.68	0.14	0.81	0.32
Control Delay	37.5	21.0	36.2	2.8	28.4	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	21.0	36.2	2.8	28.4	1.6
Queue Length 50th (ft)	87	162	84	11	176	0
Queue Length 95th (ft)	#194	258	146	23	#447	30
Internal Link Dist (ft)		1271	1500		834	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	644	1099	669	1084	828	1111
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.45	0.32	0.13	0.68	0.31

Intersection Summary

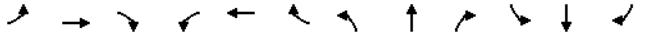
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	519	100	104	530	216	209	7
v/c Ratio	0.05	0.77	0.16	0.72	0.61	0.48	0.38	0.05
Control Delay	39.8	30.6	7.8	63.9	19.6	28.9	6.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	30.6	7.8	63.9	19.6	28.9	6.5	25.7
Queue Length 50th (ft)	2	178	6	45	129	76	0	2
Queue Length 95th (ft)	13	#521	47	#164	#506	196	57	13
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	83	673	615	145	865	448	550	434
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.77	0.16	0.72	0.61	0.48	0.38	0.02

Intersection Summary

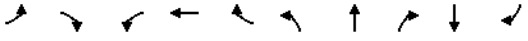
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	524	642	253	224	90	598	154	282	257	211	277	211
v/c Ratio	0.39	1.02	0.37	1.03	0.56	1.33	0.76	0.74	0.65	0.72	0.49	0.15
Control Delay	23.9	77.9	4.5	119.0	63.6	189.4	73.6	63.1	14.2	45.1	33.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	77.9	4.5	119.0	63.6	189.4	73.6	63.1	14.2	45.1	33.1	0.2
Queue Length 50th (ft)	138	~569	0	~186	68	~453	115	111	0	146	110	0
Queue Length 95th (ft)	198	#813	53	#345	118	#595	#199	160	82	m#227	m123	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	1347	627	685	218	472	448	231	410	406	295	565	1376
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	1.02	0.37	1.03	0.19	1.33	0.67	0.69	0.63	0.72	0.49	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	20	120	238	86	82	180	757	468	960	13
v/c Ratio	0.22	0.58	0.82	0.22	0.21	0.81	0.38	0.34	0.67	0.02
Control Delay	58.6	20.5	69.2	17.2	9.0	64.0	13.2	0.3	29.8	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	20.5	69.2	17.2	9.0	64.0	13.2	0.3	29.8	21.9
Queue Length 50th (ft)	15	0	175	18	0	120	146	0	303	5
Queue Length 95th (ft)	41	56	#299	65	42	m149	m175	m0	441	20
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	205	287	317	385	385	246	1981	1376	1431	640
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.42	0.75	0.22	0.21	0.73	0.38	0.34	0.67	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues

EPAP

27: Pacific St. & Sacramento St.

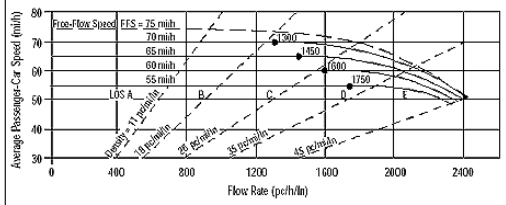
PM Peak

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	377	148	178	141	405	57	137
v/c Ratio	0.19	0.78	0.56	0.26	0.54	0.73	0.42	0.33
Control Delay	36.6	28.9	38.5	11.8	36.2	26.0	43.5	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	28.9	38.5	11.8	36.2	26.0	43.5	20.9
Queue Length 50th (ft)	7	100	55	34	51	122	22	37
Queue Length 95th (ft)	28	#237	#148	88	#131	#270	#79	85
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	100	712	309	925	334	783	137	605
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.53	0.48	0.19	0.42	0.52	0.42	0.23

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2464*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*935*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*14.4*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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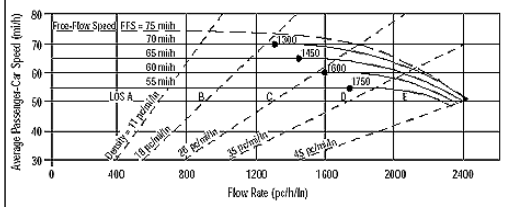
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*1946*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1108*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.0*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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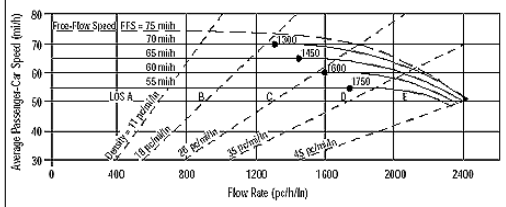
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3695*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1403*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.6*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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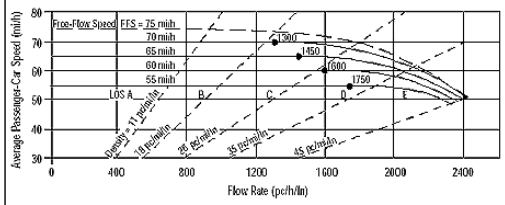
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3059*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1742*	pc/h/ln	Design LOS		
S	*64.3*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.1*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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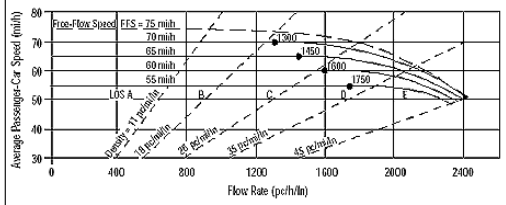
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*EPAP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3695*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1403*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.6*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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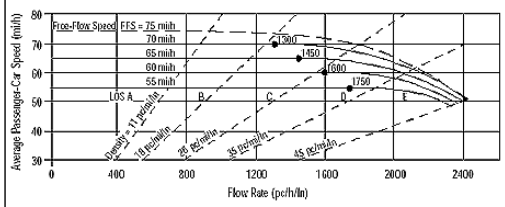
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst		Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*	From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*	Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*	Analysis Year	*EPAP*

Project Description

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3347*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1906*	pc/h/ln	Design LOS		
S	*62.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*30.3*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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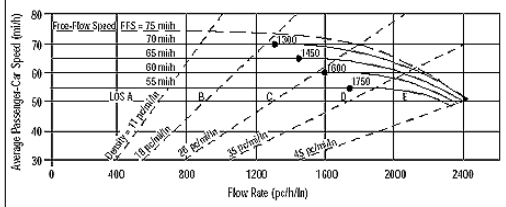
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst		Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*	From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*	Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*	Analysis Year	*EPAP*

Project Description

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2464*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*935*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*14.4*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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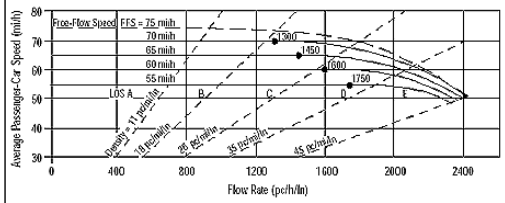
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*EPAP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2016*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1148*	pc/h/ln	Design LOS		
			v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*65.0*	mi/h	S		mi/h
D = v_p / S	*17.7*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*B*		Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		***Site Information***	
Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	EPAP
Project Description			

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
Vu = veh/h

Terrain: Level
S_{FF} = 65.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1946	0.90	Level	5	0	0.976	1.00	2216
Ramp	524	0.90	Level	5	0	0.976	1.00	597
UpStream								
DownStream								

Merge Areas | Diverge Areas

Estimation of v_{12}	***Estimation of v_{12}***
$V_{12} = V_F (P_{FM})$	$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-2 or 25-3)	L_{EQ} = (Equation 25-8 or 25-9)
P_{FM}= using Equation (Exhibit 25-5)	P_{FD} = 1.000 using Equation (Exhibit 25-11)
V_{12}= pc/h	V_{12} = 2216 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2216	4700	No
V_{12}	2216	4400:All	No
$V_{FO} = V_F - V_R$	1619	4700	No
V_R	597	2000	No

Level of Service Determination (if not F)	***Level of Service Determination (if not F)***
$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$	$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = (pc/ mi /ln)	D_R = 21.7 (pc/ mi /ln)
LOS = (Exhibit 25-4)	LOS= C (Exhibit 25-4)

Speed Estimation	***Speed Estimation***
M_S = (Exibit 25-19)	D_s = 0.482 (Exhibit 25-19)
S_R= mph (Exhibit 25-19)	S_R= 53.9 mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)	S_0= N/A mph (Exhibit 25-19)
S= mph (Exhibit 25-14)	S = 53.9 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	EPAP
Project Description			

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
Vu = veh/h

Terrain: Level
S_{FF} = 65.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	3347	0.90	Level	5	0	0.976	1.00	3812
Ramp	839	0.90	Level	5	0	0.976	1.00	956
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$
L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= using Equation (Exhibit 25-5)
V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = 1.000 using Equation (Exhibit 25-11)
V_{12} = 3812 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	3812	4700	No
V_{12}	3812	4400:All	No
$V_{FO} = V_F - V_R$	2856	4700	No
V_R	956	2000	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$
D_R = (pc/ mi /ln)
LOS = (Exhibit 25-4)

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = 35.4 (pc/ mi /ln)
LOS= E (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)
S_R= mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S= mph (Exhibit 25-14)

Speed Estimation

D_s = 0.514 (Exhibit 25-19)
S_R= 53.2 mph (Exhibit 25-19)
S_0= N/A mph (Exhibit 25-19)
S = 53.2 mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	EPAP
Project Description			

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Terrain: Level
S_{FF} = 65.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2492	0.90	Level	5	0	0.976	1.00	2838
Ramp	567	0.90	Level	5	0	0.976	1.00	646
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$
L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= 1.000 using Equation (Exhibit 25-5)
V_{12}= 2838 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3484	See Exhibit 25-7	No
V_{R12}	3484	4600:All	No

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = using Equation (Exhibit 25-11)
V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$
D_R = 29.8 (pc/ m/ln)
LOS = D (Exhibit 25-4)

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = (pc/ m/ln)
LOS= (Exhibit 25-4)

Speed Estimation

M_S = 0.420 (Exhibit 25-19)
S_R= 55.3 mph (Exhibit 25-19)
S_0= N/A mph(Exhibit 25-19)
S= 55.3 mph(Exhibit 25-14)

Speed Estimation

D_s = (Exhibit 25-19)
S_R= mph(Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S = mph (Exhibit 25-15)

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	EPAP

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1353	0.90	Level	5	0	0.976	1.00	1541
Ramp	663	0.90	Level	5	0	0.976	1.00	755
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 1541 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2296	See Exhibit 25-7	No
V_{R12}	2296	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 20.5 (pc/ m/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.332 (Exibit 25-19)

S_R= 57.4 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 57.4 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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Appendix E:

Analysis Worksheets for
Existing plus Approved Projects (2015) plus Proposed Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	27	359	279	68	176	454	411	322	51	278	32
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1428	1346	1504	1422		3072	3167	1417	1583	3117	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1346	1504	1422		3072	3167	1417	1583	3117	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	30	399	310	76	196	504	457	358	57	309	36
RTOR Reduction (vph)	0	51	79	0	63	0	0	0	155	0	9	0
Lane Group Flow (vph)	0	216	172	279	240	0	504	457	203	57	336	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		20.3	39.2	23.9	23.9		18.9	32.9	56.8	6.9	20.9	
Effective Green, g (s)		20.3	39.2	23.9	23.9		18.9	32.9	56.8	6.9	20.9	
Actuated g/C Ratio		0.20	0.39	0.24	0.24		0.19	0.33	0.57	0.07	0.21	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		290	581	359	340		581	1042	805	109	651	
v/s Ratio Prot		c0.15	0.06	c0.19	0.17		c0.16	0.14	0.06	0.04	c0.11	
v/s Ratio Perm			0.07						0.08			
v/c Ratio		0.74	0.30	0.78	0.71		0.87	0.44	0.25	0.52	0.52	
Uniform Delay, d1		37.4	20.9	35.6	34.8		39.3	26.3	10.9	45.0	35.1	
Progression Factor		1.00	1.00	1.00	1.00		0.86	0.79	2.65	1.00	1.00	
Incremental Delay, d2		9.9	0.3	10.1	6.5		11.8	1.2	0.1	4.5	2.9	
Delay (s)		47.4	21.2	45.7	41.4		45.8	21.9	29.0	49.4	38.0	
Level of Service		D	C	D	D		D	C	C	D	D	
Approach Delay (s)		34.7			43.4			33.0			39.6	
Approach LOS		C			D			C			D	

Intersection Summary				
HCM Average Control Delay	36.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	68.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	805	0	438	365	749	0	0	689	227
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		0.88	0.97	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				2984		2422	2984	3076			3076	1376
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				2984		2422	2984	3076			3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	894	0	487	406	832	0	0	766	252
RTOR Reduction (vph)	0	0	0	0	0	178	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	894	0	309	406	832	0	0	766	252
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type				Prot		custom	Prot					Free
Protected Phases				3		3	5	2			6	
Permitted Phases						3						Free
Actuated Green, G (s)				34.4		34.4	17.2	57.6			36.4	100.0
Effective Green, g (s)				34.4		34.4	17.2	57.6			36.4	100.0
Actuated g/C Ratio				0.34		0.34	0.17	0.58			0.36	1.00
Clearance Time (s)				4.0		4.0	4.0	4.0			4.0	
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				1026		833	513	1772			1120	1376
v/s Ratio Prot				c0.30		0.13	c0.14	0.27			c0.25	
v/s Ratio Perm												0.18
v/c Ratio				0.87		0.37	0.79	0.47			0.68	0.18
Uniform Delay, d1				30.7		24.7	39.7	12.3			26.9	0.0
Progression Factor				1.00		1.00	0.80	0.42			0.66	1.00
Incremental Delay, d2				8.2		0.3	6.6	0.7			2.8	0.2
Delay (s)				39.0		24.9	38.3	5.9			20.7	0.2
Level of Service				D		C	D	A			C	A
Approach Delay (s)		0.0			34.0			16.5			15.6	
Approach LOS		A			C			B			B	

Intersection Summary				
HCM Average Control Delay	22.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	101.7%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	2	431	0	0	0	0	983	43	212	1282	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1461	1264	1307					3076	1376	2984	3076	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1461	1264	1307					3076	1376	2984	3076	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	2	479	0	0	0	0	1092	48	236	1424	0
RTOR Reduction (vph)	0	51	51	0	0	0	0	0	12	0	0	0
Lane Group Flow (vph)	131	196	198	0	0	0	0	1092	36	236	1424	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	20.0	20.0	20.0					55.5	55.5	12.5	72.0	
Effective Green, g (s)	20.0	20.0	20.0					55.5	55.5	12.5	72.0	
Actuated g/C Ratio	0.20	0.20	0.20					0.56	0.56	0.12	0.72	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	292	253	261					1707	764	373	2215	
v/s Ratio Prot	0.09	c0.15						0.35		0.08	c0.46	
v/s Ratio Perm			0.15						0.03			
v/c Ratio	0.45	0.77	0.76					0.64	0.05	0.63	0.64	
Uniform Delay, d1	35.2	37.9	37.7					15.4	10.2	41.6	7.3	
Progression Factor	1.00	1.00	1.00					1.12	1.02	1.08	0.43	
Incremental Delay, d2	1.1	13.7	11.9					1.8	0.1	2.2	0.9	
Delay (s)	36.3	51.6	49.6					18.9	10.5	47.3	4.0	
Level of Service	D	D	D					B	B	D	A	
Approach Delay (s)		47.6			0.0			18.6			10.2	
Approach LOS		D			A			B			B	

Intersection Summary				
HCM Average Control Delay	19.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	101.7%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	266	0	103	0	0	0	53	760	813	0	1567	146
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85				1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	3072		1417				1583	3167	1417		3167	1417
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	3072		1417				1583	3167	1417		3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	296	0	114	0	0	0	59	844	903	0	1741	162
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	225	0	0	21
Lane Group Flow (vph)	296	0	19	0	0	0	59	844	678	0	1741	141
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Perm			Perm
Protected Phases	4						5	2			6	
Permitted Phases			4						2			6
Actuated Green, G (s)	16.9		16.9				8.0	75.1	75.1		63.1	63.1
Effective Green, g (s)	16.9		16.9				8.0	75.1	75.1		63.1	63.1
Actuated g/C Ratio	0.17		0.17				0.08	0.75	0.75		0.63	0.63
Clearance Time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	519		239				127	2378	1064		1998	894
v/s Ratio Prot	c0.10						0.04	0.27			c0.55	
v/s Ratio Perm			0.01						c0.48			0.10
v/c Ratio	0.57		0.08				0.46	0.35	0.64		0.87	0.16
Uniform Delay, d1	38.2		35.0				44.0	4.2	5.9		15.1	7.6
Progression Factor	1.00		1.00				1.00	1.00	1.00		0.69	0.52
Incremental Delay, d2	1.5		0.1				2.7	0.4	2.9		4.3	0.3
Delay (s)	39.7		35.2				46.6	4.6	8.9		14.7	4.2
Level of Service	D		D				D	A	A		B	A
Approach Delay (s)		38.5			0.0			8.1			13.8	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	13.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	64.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	22	25	49	19	60	87	1366	61	83	1398	187
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	219	24	28	54	21	67	97	1518	68	92	1553	208
RTOR Reduction (vph)	0	0	24	0	0	61	0	0	12	0	0	35
Lane Group Flow (vph)	219	24	4	54	21	6	97	1518	56	92	1553	173
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	9.5	13.4	13.4	4.1	8.0	8.0	7.2	51.2	51.2	7.0	51.0	51.0
Effective Green, g (s)	9.5	13.4	13.4	4.1	8.0	8.0	7.2	51.2	51.2	7.0	51.0	51.0
Actuated g/C Ratio	0.10	0.15	0.15	0.05	0.09	0.09	0.08	0.56	0.56	0.08	0.56	0.56
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	322	246	209	72	147	125	126	1788	800	122	1781	797
v/s Ratio Prot	c0.07	0.01		0.03	c0.01		c0.06	0.48		0.06	c0.49	
v/s Ratio Perm			0.00			0.00			0.04			0.12
v/c Ratio	0.68	0.10	0.02	0.75	0.14	0.05	0.77	0.85	0.07	0.75	0.87	0.22
Uniform Delay, d1	39.1	33.4	33.0	42.8	38.2	37.9	40.9	16.5	9.0	41.0	17.0	9.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.1	0.0	31.6	0.2	0.1	22.1	4.0	0.0	20.6	5.0	0.1
Delay (s)	43.8	33.5	33.1	74.4	38.3	37.9	63.0	20.5	9.0	61.6	22.1	10.0
Level of Service	D	C	C	E	D	D	E	C	A	E	C	B
Approach Delay (s)		41.8			51.9			22.5			22.7	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	25.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	72.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	1	1	58	3	41	61	1511	67	108	1171	15
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1539			1532		1583	3147		1583	3167	1417
Flt Permitted		0.80			0.81		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1290			1281		1583	3147		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	1	1	64	3	46	68	1679	74	120	1301	17
RTOR Reduction (vph)	0	1	0	0	30	0	0	2	0	0	0	3
Lane Group Flow (vph)	0	19	0	0	83	0	68	1751	0	120	1301	14
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		10.7			10.7		6.0	51.9		7.1	53.0	53.0
Effective Green, g (s)		10.7			10.7		6.0	51.9		7.1	53.0	53.0
Actuated g/C Ratio		0.13			0.13		0.07	0.63		0.09	0.64	0.64
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		167			166		115	1975		136	2030	908
v/s Ratio Prot							0.04	c0.56		c0.08	0.41	
v/s Ratio Perm		0.01			c0.06							0.01
v/c Ratio		0.11			0.50		0.59	0.89		0.88	0.64	0.02
Uniform Delay, d1		31.8			33.5		37.2	12.9		37.4	9.1	5.4
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			1.7		6.6	5.2		43.7	0.7	0.0
Delay (s)		32.0			35.2		43.8	18.1		81.1	9.7	5.4
Level of Service		C			D		D	B		F	A	A
Approach Delay (s)		32.0			35.2			19.1			15.7	
Approach LOS		C			D			B			B	

Intersection Summary				
HCM Average Control Delay	18.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	72.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	735	322	250	911	17	494	12	138	2	9	13
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	2984	1395		1583	1521	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	2984	1395		1583	1521	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	817	358	278	1012	19	549	13	153	2	10	14
RTOR Reduction (vph)	0	0	163	0	0	2	0	113	0	0	13	0
Lane Group Flow (vph)	12	817	195	278	1012	17	549	53	0	2	11	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	1.2	30.4	47.0	16.6	45.8	45.8	16.6	22.4		0.9	6.7	
Effective Green, g (s)	1.2	30.4	47.0	16.6	45.8	45.8	16.6	22.4		0.9	6.7	
Actuated g/C Ratio	0.01	0.35	0.54	0.19	0.53	0.53	0.19	0.26		0.01	0.08	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	22	1116	837	304	1681	752	574	362		17	118	
v/s Ratio Prot	0.01	c0.26	0.04	c0.18	0.32		c0.18	c0.04		0.00	0.01	
v/s Ratio Perm			0.09			0.01						
v/c Ratio	0.55	0.73	0.23	0.91	0.60	0.02	0.96	0.15		0.12	0.09	
Uniform Delay, d1	42.3	24.4	10.2	34.2	14.0	9.6	34.5	24.6		42.3	37.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.9	2.5	0.1	30.3	0.6	0.0	26.8	0.2		3.1	0.3	
Delay (s)	67.1	26.9	10.4	64.5	14.6	9.6	61.3	24.8		45.4	37.3	
Level of Service	E	C	B	E	B	A	E	C		D	D	
Approach Delay (s)		22.3			25.1			52.8			37.9	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM Average Control Delay	30.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	86.3	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	70.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	7	37	672	82	25	1062	19	81	8	13	21	2
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor		1.00	1.00	1.00	1.00	0.95		0.95	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98
Satd. Flow (prot)		1581	1667	1417	1583	3158		1461	1478	1376		1473
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98
Satd. Flow (perm)		1581	1667	1417	1583	3158		1461	1478	1376		1473
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	41	747	91	28	1180	21	90	9	14	23	2
RTOR Reduction (vph)	0	0	0	23	0	1	0	0	0	13	0	24
Lane Group Flow (vph)	0	49	747	68	28	1200	0	49	50	1	0	28
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%
Turn Type	Prot	Prot		Perm	Prot			Split		Perm	Split	
Protected Phases	7	7	4		3	8		2	2		6	6
Permitted Phases				4						2		
Actuated Green, G (s)		4.0	65.1	65.1	2.4	63.5		10.8	10.8	10.8		10.7
Effective Green, g (s)		4.0	65.1	65.1	2.4	63.5		10.8	10.8	10.8		10.7
Actuated g/C Ratio		0.04	0.62	0.62	0.02	0.60		0.10	0.10	0.10		0.10
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		60	1034	879	36	1910		150	152	142		150
v/s Ratio Prot		c0.03	c0.45		0.02	0.38		0.03	c0.03			c0.02
v/s Ratio Perm				0.05						0.00		
v/c Ratio		0.82	0.72	0.08	0.78	0.63		0.33	0.33	0.01		0.19
Uniform Delay, d1		50.1	13.7	8.0	51.0	13.2		43.7	43.7	42.3		43.2
Progression Factor		1.00	1.00	1.00	0.84	0.40		1.00	1.00	1.00		1.00
Incremental Delay, d2		55.6	4.4	0.2	58.8	1.3		1.3	1.3	0.0		0.6
Delay (s)		105.7	18.1	8.1	101.4	6.6		45.0	45.0	42.3		43.8
Level of Service		F	B	A	F	A		D	D	D		D
Approach Delay (s)			21.9			8.8			44.7			43.8
Approach LOS			C			A			D			D

Intersection Summary				
HCM Average Control Delay	16.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	57.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	24
Ideal Flow (vphpl)	1700
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	27
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	5%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	156	550	24	698	169	197	408
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		2984	1619	1619	1376
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		2984	1619	1619	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	611	27	776	188	219	453
RTOR Reduction (vph)	0	506	0	0	0	0	361
Lane Group Flow (vph)	173	105	0	803	188	219	92
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%	5%
Turn Type		Perm	Prot	Prot			Perm
Protected Phases	4		5	5	2	6	
Permitted Phases		4					6
Actuated Green, G (s)	18.1	18.1		53.6	78.9	21.3	21.3
Effective Green, g (s)	18.1	18.1		53.6	78.9	21.3	21.3
Actuated g/C Ratio	0.17	0.17		0.51	0.75	0.20	0.20
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	244		1523	1217	328	279
v/s Ratio Prot	c0.11			c0.27	0.12	c0.14	
v/s Ratio Perm		0.07					0.07
v/c Ratio	0.63	0.43		0.53	0.15	0.67	0.33
Uniform Delay, d1	40.4	38.9		17.2	3.7	38.6	35.7
Progression Factor	0.59	4.45		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.9		1.3	0.1	5.1	0.7
Delay (s)	27.3	173.6		18.5	3.7	43.7	36.4
Level of Service	C	F		B	A	D	D
Approach Delay (s)	141.4				15.7	38.8	
Approach LOS	F				B	D	

Intersection Summary				
HCM Average Control Delay	62.3	HCM Level of Service		E
HCM Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	82.7%	ICU Level of Service		E
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	4	8	317	605	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	4	9	352	672	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked						
vC, conflicting volume	1043	673	674			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1043	673	674			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	248	450	903			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	361	674
Volume Left	6	9	0
Volume Right	4	0	2
cSH	310	903	1700
Volume to Capacity	0.03	0.01	0.40
Queue Length 95th (ft)	2	1	0
Control Delay (s)	17.0	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	17.0	0.3	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		45.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	1	0	325	604	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	361	671	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.98					
vC, conflicting volume	1035	674	677			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1027	674	677			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	252	449	901			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	361	677
Volume Left	0	0	0
Volume Right	1	0	6
cSH	449	1700	1700
Volume to Capacity	0.00	0.21	0.40
Queue Length 95th (ft)	0	0	0
Control Delay (s)	13.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.0	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		45.9%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	55	0	0	67	40	824	26	17	665	86
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	61	0	0	74	44	916	29	19	739	96
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	1903	1858	787	1857	1891	930	834			944		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1949	1898	706	1897	1936	930	759			944		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	84	100	100	77	94			97		
cM capacity (veh/h)	31	56	387	37	53	320	754			714		

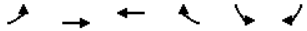
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	74	44	944	19	834
Volume Left	0	0	44	0	19	0
Volume Right	61	74	0	29	0	96
cSH	387	320	754	1700	714	1700
Volume to Capacity	0.16	0.23	0.06	0.56	0.03	0.49
Queue Length 95th (ft)	14	22	5	0	2	0
Control Delay (s)	16.0	19.6	10.1	0.0	10.2	0.0
Lane LOS	C	C	B		B	
Approach Delay (s)	16.0	19.6	0.5		0.2	
Approach LOS	C	C				

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	61.5%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	153	27	25	285	418	41	59	50	564	54	126
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1538	3007		1583	1667	1417		1633	1417	2984	1449	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1538	3007		1583	1667	1417		1633	1417	2984	1449	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	94	170	30	28	317	464	46	66	56	627	60	140
RTOR Reduction (vph)	0	18	0	0	0	203	0	0	47	0	89	0
Lane Group Flow (vph)	94	182	0	28	317	261	0	112	9	627	111	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	6.1	21.1		3.3	18.3	38.2		8.2	11.5	19.9	19.9	
Effective Green, g (s)	6.1	21.1		3.3	18.3	38.2		8.2	11.5	19.9	19.9	
Actuated g/C Ratio	0.09	0.31		0.05	0.27	0.56		0.12	0.17	0.29	0.29	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	138	933		77	449	796		197	240	873	424	
v/s Ratio Prot	c0.06	c0.06		0.02	c0.19	0.10		c0.07	0.00	c0.21	0.08	
v/s Ratio Perm						0.09			0.00			
v/c Ratio	0.68	0.20		0.36	0.71	0.33		0.57	0.04	0.72	0.26	
Uniform Delay, d1	30.0	17.2		31.3	22.4	8.0		28.2	23.6	21.5	18.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.5	0.1		1.1	5.1	0.2		3.7	0.0	2.8	0.3	
Delay (s)	40.5	17.3		32.4	27.5	8.2		32.0	23.7	24.4	18.8	
Level of Service	D	B		C	C	A		C	C	C	B	
Approach Delay (s)		24.7			16.6			29.2			23.0	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	19.9
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

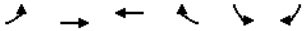
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	263	271	234	137	213	146
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	2984	1619	1619	1376	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2984	1619	1619	1376	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	292	301	260	152	237	162
RTOR Reduction (vph)	0	0	0	4	0	95
Lane Group Flow (vph)	292	301	260	148	237	67
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	5.9	19.8	10.9	20.1	9.2	15.1
Effective Green, g (s)	5.9	19.8	10.9	20.1	9.2	15.1
Actuated g/C Ratio	0.16	0.54	0.30	0.55	0.25	0.41
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	481	876	482	756	398	585
v/s Ratio Prot	c0.10	0.19	c0.16	0.05	c0.15	0.02
v/s Ratio Perm				0.06		0.03
v/c Ratio	0.61	0.34	0.54	0.20	0.60	0.11
Uniform Delay, d1	14.3	4.7	10.8	4.2	12.1	6.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.1	0.6	0.2	2.5	0.0
Delay (s)	15.8	4.8	11.3	4.3	14.6	6.7
Level of Service	B	A	B	A	B	A
Approach Delay (s)		10.2	8.7		11.4	
Approach LOS		B	A		B	

Intersection Summary				
HCM Average Control Delay	10.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	36.6	Sum of lost time (s)	10.6	
Intersection Capacity Utilization	45.4%	ICU Level of Service	A	
Analysis Period (min)	15			

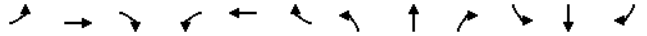
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	64	231	618	79	18	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	71	257	687	88	20	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	774				1129	731
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774				1129	731
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				90	70
cM capacity (veh/h)	828				206	422

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	328	774	148
Volume Left	71	0	20
Volume Right	0	88	128
cSH	828	1700	370
Volume to Capacity	0.09	0.46	0.40
Queue Length 95th (ft)	7	0	47
Control Delay (s)	2.9	0.0	21.1
Lane LOS	A		C
Approach Delay (s)	2.9	0.0	21.1
Approach LOS			C

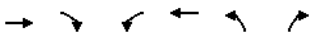
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	195	19	30	549	5	8	0	18	1	4	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	217	21	33	610	6	9	0	20	1	4	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		873										
pX, platoon unblocked												
vC, conflicting volume	616			238			1007	956	227	963	964	613
vC1, stage 1 conf vol							274	274		679	679	
vC2, stage 2 conf vol							733	682		283	284	
vCu, unblocked vol	616			238			1007	956	227	963	964	613
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			97			97	100	98	100	99	89
cM capacity (veh/h)	964			1329			315	388	812	392	401	493

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	23	238	33	616	29	60
Volume Left	23	0	33	0	9	1
Volume Right	0	21	0	6	20	54
cSH	964	1700	1329	1700	546	482
Volume to Capacity	0.02	0.14	0.03	0.36	0.05	0.12
Queue Length 95th (ft)	2	0	2	0	4	11
Control Delay (s)	8.8	0.0	7.8	0.0	12.0	13.5
Lane LOS	A		A		B	B
Approach Delay (s)	0.8		0.4		12.0	13.5
Approach LOS					B	B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	46.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	439	14	2	1016	12	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	488	16	2	1129	13	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			503		1629	496
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			503		1629	496
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		88	99
cM capacity (veh/h)			1061		112	574

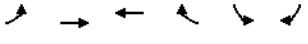
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	503	1131	18
Volume Left	0	2	13
Volume Right	16	0	4
cSH	1700	1061	140
Volume to Capacity	0.30	0.00	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.0	0.1	34.4
Lane LOS		A	D
Approach Delay (s)	0.0	0.1	34.4
Approach LOS			D

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	71.5%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	254	302	323	328	6	129	2	221	12	4	9
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1538	1619	1376	1538	1614			1588	1417		1546	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1538	1619	1376	1538	1614			1588	1417		1546	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	282	336	359	364	7	143	2	246	13	4	10
RTOR Reduction (vph)	0	0	234	0	1	0	0	0	182	0	9	0
Lane Group Flow (vph)	3	282	102	359	370	0	0	145	64	0	18	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.6	24.7	24.7	16.2	40.3			21.3	21.3		4.3	
Effective Green, g (s)	0.6	24.7	24.7	16.2	40.3			21.3	21.3		4.3	
Actuated g/C Ratio	0.01	0.30	0.30	0.20	0.49			0.26	0.26		0.05	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	11	490	417	305	797			415	370		81	
v/s Ratio Prot	0.00	c0.17		c0.23	0.23			c0.09			c0.01	
v/s Ratio Perm			0.07						0.05			
v/c Ratio	0.27	0.58	0.24	1.18	0.46			0.35	0.17		0.22	
Uniform Delay, d1	40.3	24.0	21.4	32.7	13.6			24.5	23.3		37.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	4.8	4.9	1.4	108.5	0.6			2.3	1.0		0.5	
Delay (s)	45.1	28.9	22.8	141.2	14.2			26.8	24.4		37.5	
Level of Service	D	C	C	F	B			C	C		D	
Approach Delay (s)		25.7			76.6			25.3			37.5	
Approach LOS		C			E			C			D	

Intersection Summary				
HCM Average Control Delay	46.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	60.4%	ICU Level of Service	B	
Analysis Period (min)	15			

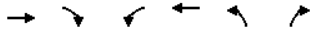
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	226	437	357	29	229	309
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	251	486	397	32	254	343
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	429				1401	413
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	429				1401	413
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	77				0	46
cM capacity (veh/h)	1115				120	639

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	737	429	598
Volume Left	251	0	254
Volume Right	0	32	343
cSH	1115	1700	225
Volume to Capacity	0.23	0.25	2.66
Queue Length 95th (ft)	22	0	1276
Control Delay (s)	5.0	0.0	793.8
Lane LOS	A		F
Approach Delay (s)	5.0	0.0	793.8
Approach LOS			F

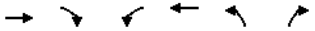
Intersection Summary				
Average Delay	271.2			
Intersection Capacity Utilization	108.0%	ICU Level of Service	G	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	541	73	68	528	127	171
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	601	81	76	587	141	190

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	682	662	331
Volume Left (vph)	0	76	141
Volume Right (vph)	81	0	190
Hadj (s)	0.01	0.11	-0.23
Departure Headway (s)	6.1	6.2	6.8
Degree Utilization, x	1.17	1.15	0.62
Capacity (veh/h)	580	581	520
Control Delay (s)	114.1	108.4	20.2
Approach Delay (s)	114.1	108.4	20.2
Approach LOS	F	F	C

Intersection Summary				
Delay		93.3		
HCM Level of Service		F		
Intersection Capacity Utilization		101.6%	ICU Level of Service	G
Analysis Period (min)		15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	310	175	210	331	243	329
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	344	194	233	368	270	366

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	539	233	368	636
Volume Left (vph)	0	233	0	270
Volume Right (vph)	194	0	0	366
Hadj (s)	-0.18	0.58	0.09	-0.18
Departure Headway (s)	6.8	8.2	7.7	6.7
Degree Utilization, x	1.01	0.53	0.78	1.18
Capacity (veh/h)	539	428	463	546
Control Delay (s)	68.0	18.8	32.0	121.0
Approach Delay (s)	68.0	26.9		121.0
Approach LOS	F	D		F

Intersection Summary				
Delay		73.0		
HCM Level of Service		F		
Intersection Capacity Utilization		90.8%	ICU Level of Service	E
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	35	17	16	705	503	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	19	18	783	559	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1393	574	590			
vC1, stage 1 conf vol	574					
vC2, stage 2 conf vol	819					
vCu, unblocked vol	1393	574	590			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	96	98			
cM capacity (veh/h)	355	512	971			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	58	18	783	590
Volume Left	39	18	0	0
Volume Right	19	0	0	31
cSH	395	971	1700	1700
Volume to Capacity	0.15	0.02	0.46	0.35
Queue Length 95th (ft)	13	1	0	0
Control Delay (s)	15.7	8.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.7	0.2		0.0
Approach LOS	C			

Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		51.5%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	297	322	124	140	32	482	99	259	87	248	248	240
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2984	1529	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2984	1529	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	330	358	138	156	36	536	110	288	97	276	276	267
RTOR Reduction (vph)	0	1	89	0	0	72	0	0	83	0	0	0
Lane Group Flow (vph)	330	371	35	156	36	464	110	288	14	276	276	267
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	25.0	25.6	25.6	13.4	14.0	35.9	10.2	13.1	13.1	21.9	24.8	90.0
Effective Green, g (s)	25.0	25.6	25.6	13.4	14.0	35.9	10.2	13.1	13.1	21.9	24.8	90.0
Actuated g/C Ratio	0.28	0.28	0.28	0.15	0.16	0.40	0.11	0.15	0.15	0.24	0.28	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	829	435	372	229	252	549	174	448	200	374	848	1376
v/s Ratio Prot	0.11	c0.24		c0.10	0.02	c0.21	0.07	c0.09		0.18	0.09	
v/s Ratio Perm			0.03			0.13			0.01			c0.19
v/c Ratio	0.40	0.85	0.09	0.68	0.14	0.84	0.63	0.64	0.07	0.74	0.33	0.19
Uniform Delay, d1	26.4	30.4	23.7	36.3	32.8	24.5	38.1	36.2	33.2	31.4	25.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.52	1.00
Incremental Delay, d2	0.3	14.8	0.1	8.1	0.3	11.4	7.3	6.9	0.7	5.4	0.7	0.2
Delay (s)	26.7	45.2	23.8	44.4	33.1	35.9	45.4	43.2	33.9	24.8	14.2	0.2
Level of Service	C	D	C	D	C	D	D	D	C	C	B	A
Approach Delay (s)		34.6			37.6			41.8			13.2	
Approach LOS		C			D			D			B	

Intersection Summary					
HCM Average Control Delay		30.5	HCM Level of Service		C
HCM Volume to Capacity ratio		0.78			
Actuated Cycle Length (s)		90.0	Sum of lost time (s)		16.0
Intersection Capacity Utilization		67.1%	ICU Level of Service		C
Analysis Period (min)		15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	0	70	121	12	158	40	445	553	0	1197	12
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.87	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1538		1376	1538	1339	1307	1538	3076	1376		3076	1376
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1538		1376	1538	1339	1307	1538	3076	1376		3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	0	78	134	13	176	44	494	614	0	1330	13
RTOR Reduction (vph)	0	0	72	0	66	75	0	0	0	0	0	0
Lane Group Flow (vph)	20	0	6	134	30	18	44	494	614	0	1330	13
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	3.2		6.9	14.2	17.9	17.9	3.2	56.9	90.0		49.7	49.7
Effective Green, g (s)	3.2		6.9	14.2	17.9	17.9	3.2	56.9	90.0		49.7	49.7
Actuated g/C Ratio	0.04		0.08	0.16	0.20	0.20	0.04	0.63	1.00		0.55	0.55
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	55		105	243	266	260	55	1945	1376		1699	760
v/s Ratio Prot	0.01		0.00	0.09	0.02		0.03	0.16			c0.43	0.01
v/s Ratio Perm						0.01			c0.45			
v/c Ratio	0.36		0.06	0.55	0.11	0.07	0.80	0.25	0.45		0.78	0.02
Uniform Delay, d1	42.4		38.5	35.0	29.5	29.3	43.1	7.3	0.0		15.9	9.1
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.03	1.11	1.00		1.00	1.00
Incremental Delay, d2	4.1		0.2	2.7	0.2	0.1	45.2	0.2	0.8		3.7	0.0
Delay (s)	46.5		38.8	37.7	29.7	29.4	89.5	8.3	0.8		19.6	9.1
Level of Service	D		D	D	C	C	F	A	A		B	A
Approach Delay (s)		40.3			32.9			7.4			19.5	
Approach LOS		D			C			A			B	

Intersection Summary				
HCM Average Control Delay	16.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0	
Intersection Capacity Utilization	59.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	16	3	0	374	366	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	3	0	416	407	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	827	411	416			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	827	411	416			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	100			
cM capacity (veh/h)	342	641	1127			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	21	416	416
Volume Left	18	0	0
Volume Right	3	0	9
cSH	369	1127	1700
Volume to Capacity	0.06	0.00	0.24
Queue Length 95th (ft)	5	0	0
Control Delay (s)	15.4	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.4	0.0	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	16	21	354	20	22	293
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	23	393	22	24	326
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	779	404			416	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	779	404			416	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			98	
cM capacity (veh/h)	357	646			1127	

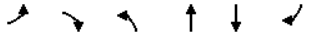
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	41	416	350
Volume Left	18	0	24
Volume Right	23	22	0
cSH	478	1700	1127
Volume to Capacity	0.09	0.24	0.02
Queue Length 95th (ft)	7	0	2
Control Delay (s)	13.2	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	13.2	0.0	0.8
Approach LOS	B		

Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		47.5%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	181	118	115	162	44	140	120	108	32	63	22
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1538	1523		1583	1613		1538	1504		1583	1603	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1538	1523		1583	1613		1538	1504		1583	1603	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	201	131	128	180	49	156	133	120	36	70	24
RTOR Reduction (vph)	0	35	0	0	14	0	0	63	0	0	21	0
Lane Group Flow (vph)	10	297	0	128	215	0	156	190	0	36	73	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.4	15.1		4.3	19.0		5.7	9.4		1.2	4.9	
Effective Green, g (s)	0.4	15.1		4.3	19.0		5.7	9.4		1.2	4.9	
Actuated g/C Ratio	0.01	0.35		0.10	0.44		0.13	0.22		0.03	0.11	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	14	529		156	705		202	325		44	181	
v/s Ratio Prot	0.01	c0.19		c0.08	0.13		c0.10	c0.13		0.02	0.05	
v/s Ratio Perm												
v/c Ratio	0.71	0.56		0.82	0.31		0.77	0.58		0.82	0.40	
Uniform Delay, d1	21.5	11.5		19.2	8.0		18.3	15.3		21.0	17.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	87.8	0.8		26.8	0.1		15.3	1.7		66.7	0.5	
Delay (s)	109.3	12.3		46.0	8.1		33.5	17.0		87.8	18.5	
Level of Service	F	B		D	A		C	B		F	B	
Approach Delay (s)		15.2			21.7			23.3			37.7	
Approach LOS		B			C			C			D	

Intersection Summary				
HCM Average Control Delay	22.1	HCM Level of Service		C
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	43.5	Sum of lost time (s)		9.5
Intersection Capacity Utilization	56.9%	ICU Level of Service		B
Analysis Period (min)	15			

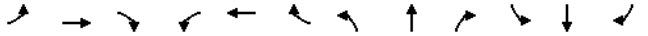
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	67	24	18	800	484	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	27	20	889	538	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				914		
pX, platoon unblocked						
vC, conflicting volume	1516	587	637			
vC1, stage 1 conf vol	587					
vC2, stage 2 conf vol	929					
vCu, unblocked vol	1516	587	637			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	95	98			
cM capacity (veh/h)	325	509	933			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	101	20	889	637
Volume Left	74	20	0	0
Volume Right	27	0	0	99
cSH	359	933	1700	1700
Volume to Capacity	0.28	0.02	0.52	0.37
Queue Length 95th (ft)	28	2	0	0
Control Delay (s)	18.9	8.9	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	18.9	0.2		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	59.5%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	3	45	3	114	0	579	138	56	356	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	3	50	3	127	0	643	153	62	396	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1292	1317	396	1243	1240	720	396			797		
vC1, stage 1 conf vol	520	520		720	720							
vC2, stage 2 conf vol	772	797		523	520							
vCu, unblocked vol	1292	1317	396	1243	1240	720	396			797		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	85	99	70	100			92		
cM capacity (veh/h)	197	294	647	339	351	428	1147			825		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	3	180	0	797	62	396
Volume Left	0	50	0	0	62	0
Volume Right	3	127	0	153	0	0
cSH	647	397	1700	1700	825	1700
Volume to Capacity	0.01	0.45	0.00	0.47	0.08	0.23
Queue Length 95th (ft)	0	57	0	0	6	0
Control Delay (s)	10.6	21.3	0.0	0.0	9.7	0.0
Lane LOS	B	C			A	
Approach Delay (s)	10.6	21.3	0.0		1.3	
Approach LOS	B	C				

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	74.4%	ICU Level of Service		D
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	829	18	0	1174	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	921	20	0	1304	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				679		
pX, platoon unblocked					0.77	
vC, conflicting volume			941		1573	921
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			941		1143	921
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			724		149	273

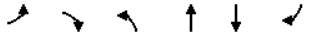
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	921	20	652	652	8
Volume Left	0	0	0	0	0
Volume Right	0	20	0	0	8
cSH	1700	1700	1700	1700	273
Volume to Capacity	0.54	0.01	0.38	0.38	0.03
Queue Length 95th (ft)	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	18.6
Lane LOS					C
Approach Delay (s)	0.0		0.0		18.6
Approach LOS					C

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	58.8%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	798	38	0	1174	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	887	42	0	1304	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				386		
pX, platoon unblocked					0.76	
vC, conflicting volume			929		1539	887
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			929		1086	887
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			732		161	287

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	887	42	652	652
Volume Left	0	0	0	0
Volume Right	0	42	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.52	0.02	0.38	0.38
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	50.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	15	0	891	753	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	17	0	990	837	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					247	
pX, platoon unblocked	0.88	0.88	0.88			
vC, conflicting volume	1167	837	857			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1122	748	771			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	100			
cM capacity (veh/h)	176	313	724			

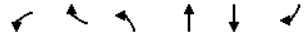
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	17	330	330	330	837	20
Volume Left	0	0	0	0	0	0
Volume Right	17	0	0	0	0	20
cSH	313	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.19	0.19	0.19	0.49	0.01
Queue Length 95th (ft)	4	0	0	0	0	0
Control Delay (s)	17.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	17.1	0.0			0.0	
Approach LOS	C					

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		54.3%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	267	251	279	303	504	457	358	57	345
v/c Ratio	0.78	0.39	0.78	0.75	0.90	0.43	0.37	0.45	0.50
Control Delay	43.5	10.0	51.9	38.5	55.6	24.2	3.7	55.2	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	10.0	51.9	38.5	55.6	24.2	3.7	55.2	38.3
Queue Length 50th (ft)	131	50	163	129	171	146	71	35	104
Queue Length 95th (ft)	202	94	#340	#298	#267	172	32	76	155
Internal Link Dist (ft)	421			1192		356			1135
Turn Bay Length (ft)					235			85	
Base Capacity (vph)	474	646	367	409	557	1069	973	142	684
Starvation Cap Reductn	0	0	0	0	0	0	11	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.39	0.76	0.74	0.90	0.43	0.37	0.40	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	894	487	406	832	766	252
v/c Ratio	0.87	0.48	0.79	0.47	0.68	0.18
Control Delay	40.9	12.1	41.8	6.2	21.5	0.2
Queue Delay	1.8	0.0	0.0	0.4	0.0	0.0
Total Delay	42.8	12.1	41.8	6.6	21.5	0.2
Queue Length 50th (ft)	260	53	130	136	186	0
Queue Length 95th (ft)	346	103	#195	42	232	m0
Internal Link Dist (ft)				269	356	
Turn Bay Length (ft)		600	125			235
Base Capacity (vph)	1079	1050	543	1777	1133	1376
Starvation Cap Reductn	0	0	0	451	7	0
Spillback Cap Reductn	79	0	0	0	1	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.46	0.75	0.63	0.68	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	131	247	249	1092	48	236	1424
v/c Ratio	0.45	0.81	0.80	0.64	0.06	0.63	0.64
Control Delay	38.6	47.9	45.8	21.1	8.1	49.9	4.6
Queue Delay	0.0	2.6	2.2	0.7	0.0	0.0	0.9
Total Delay	38.6	50.5	48.0	21.9	8.1	49.9	5.4
Queue Length 50th (ft)	76	123	117	302	3	64	0
Queue Length 95th (ft)	130	216	206	398	15	m93	318
Internal Link Dist (ft)		1012		199			269
Turn Bay Length (ft)	675		545		85	100	
Base Capacity (vph)	368	366	377	1715	779	422	2220
Starvation Cap Reductn	0	0	0	304	0	0	381
Spillback Cap Reductn	0	48	49	0	0	0	461
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.78	0.76	0.77	0.06	0.56	0.81

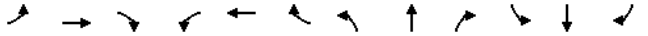
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	296	114	59	844	903	1741	162
v/c Ratio	0.57	0.34	0.41	0.35	0.70	0.86	0.17
Control Delay	41.5	8.7	50.5	5.5	3.9	17.7	4.0
Queue Delay	0.2	0.0	0.0	0.2	0.0	1.0	0.5
Total Delay	41.7	8.7	50.5	5.7	3.9	18.7	4.5
Queue Length 50th (ft)	92	0	36	71	0	395	10
Queue Length 95th (ft)	112	40	75	170	44	#841	m33
Internal Link Dist (ft)				311		199	
Turn Bay Length (ft)	185	185	200		300		105
Base Capacity (vph)	891	492	253	2378	1289	2023	926
Starvation Cap Reductn	0	0	0	0	0	108	456
Spillback Cap Reductn	145	0	0	650	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.23	0.23	0.49	0.70	0.91	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	219	24	28	54	21	67	97	1518	68	92	1553	208
v/c Ratio	0.67	0.10	0.12	0.49	0.12	0.33	0.65	0.83	0.08	0.63	0.86	0.25
Control Delay	51.9	35.3	13.5	60.7	39.6	14.1	63.8	25.4	11.1	63.0	26.7	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	35.3	13.5	60.7	39.6	14.1	63.8	25.4	11.1	63.0	26.7	10.8
Queue Length 50th (ft)	59	12	0	29	11	0	51	327	9	49	344	30
Queue Length 95th (ft)	131	36	23	87	35	37	135	#956	53	129	#992	136
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	616	650	570	318	639	585	318	1819	826	318	1812	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.04	0.05	0.17	0.03	0.11	0.31	0.83	0.08	0.29	0.86	0.25

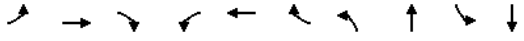
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	20	113	68	1753	120	1301	17
v/c Ratio	0.10	0.51	0.48	0.89	0.86	0.61	0.02
Control Delay	28.4	30.3	50.2	22.5	88.8	13.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	30.3	50.2	22.5	88.8	13.8	7.7
Queue Length 50th (ft)	9	37	32	340	60	198	2
Queue Length 95th (ft)	27	83	#94	#818	#200	463	14
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	486	504	159	1980	139	2121	952
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.22	0.43	0.89	0.86	0.61	0.02

Intersection Summary

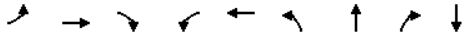
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	817	358	278	1012	19	549	166	2	24
v/c Ratio	0.09	0.77	0.36	0.84	0.56	0.02	0.88	0.33	0.02	0.12
Control Delay	43.0	31.5	2.8	57.7	16.5	13.1	51.0	6.7	43.5	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	31.5	2.8	57.7	16.5	13.1	51.0	6.7	43.5	21.2
Queue Length 50th (ft)	5	153	0	114	97	2	117	4	1	4
Queue Length 95th (ft)	28	#422	51	#408	#490	23	#360	49	10	25
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	330	1238	989	330	1819	816	622	693	330	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.66	0.36	0.84	0.56	0.02	0.88	0.24	0.01	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	49	747	91	28	1201	49	50	14	52
v/c Ratio	0.82	0.68	0.10	0.47	0.59	0.30	0.30	0.08	0.27
Control Delay	123.9	22.8	8.8	63.0	12.4	44.0	44.0	17.0	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.9	22.8	8.8	63.0	12.4	44.0	44.0	17.0	24.7
Queue Length 50th (ft)	33	283	6	20	56	33	33	0	16
Queue Length 95th (ft)	#104	#986	57	m36	#714	58	60	16	40
Internal Link Dist (ft)		306			840		290		465
Turn Bay Length (ft)	175		200	100		50		100	
Base Capacity (vph)	60	1097	953	60	2030	376	380	364	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.68	0.10	0.47	0.59	0.13	0.13	0.04	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	173	611	803	188	219	453
v/c Ratio	0.64	0.81	0.53	0.15	0.67	0.71
Control Delay	31.2	21.4	22.1	4.9	47.5	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	21.4	22.1	4.9	47.5	9.6
Queue Length 50th (ft)	110	207	173	29	138	0
Queue Length 95th (ft)	m8	531	#360	73	190	81
Internal Link Dist (ft)	840			167	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	422	826	1525	1217	493	734
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.74	0.53	0.15	0.44	0.62

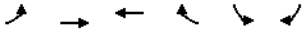
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	94	200	28	317	464	112	56	627	200
v/c Ratio	0.59	0.21	0.28	0.70	0.44	0.57	0.14	0.72	0.39
Control Delay	47.0	16.7	42.0	34.5	2.1	46.4	8.8	27.9	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	16.7	42.0	34.5	2.1	46.4	8.8	27.9	11.4
Queue Length 50th (ft)	41	28	12	125	0	49	0	129	25
Queue Length 95th (ft)	90	57	39	#263	32	#134	28	200	80
Internal Link Dist (ft)		219		338		844			640
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	524	1688	172	542	1155	202	453	1155	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.12	0.16	0.58	0.40	0.55	0.12	0.54	0.31

Intersection Summary

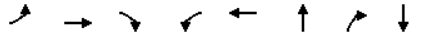
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	292	301	260	152	237	162
v/c Ratio	0.60	0.31	0.57	0.15	0.44	0.21
Control Delay	28.8	7.6	17.6	2.0	14.9	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	7.6	17.6	2.0	14.9	2.4
Queue Length 50th (ft)	27	32	44	6	36	0
Queue Length 95th (ft)	#132	100	116	13	121	25
Internal Link Dist (ft)		1271	1500		834	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	486	1385	1131	1268	964	773
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.22	0.23	0.12	0.25	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	3	282	336	359	371	145	246	27
v/c Ratio	0.04	0.60	0.53	1.11	0.44	0.33	0.43	0.18
Control Delay	41.0	32.6	6.8	114.8	16.5	27.2	6.7	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	32.6	6.8	114.8	16.5	27.2	6.7	26.5
Queue Length 50th (ft)	1	101	0	~164	79	48	0	7
Queue Length 95th (ft)	11	#279	74	#463	284	134	62	31
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	81	467	636	324	846	439	570	434
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.60	0.53	1.11	0.44	0.33	0.43	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

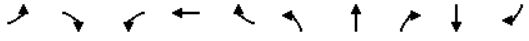
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	330	372	124	156	36	536	110	288	97	276	276	267
v/c Ratio	0.40	0.91	0.28	0.68	0.12	0.88	0.56	0.54	0.31	0.77	0.30	0.19
Control Delay	31.4	60.5	7.1	51.3	27.8	30.5	46.7	38.5	9.8	33.8	14.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	60.5	7.1	51.3	27.8	30.5	46.7	38.5	9.8	33.8	14.7	0.2
Queue Length 50th (ft)	91	211	0	84	15	73	60	81	0	149	67	0
Queue Length 95th (ft)	135	#405	44	146	40	#179	107	118	41	m#260	m71	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	835	411	441	273	417	609	273	601	347	360	929	1376
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.91	0.28	0.57	0.09	0.88	0.40	0.48	0.28	0.77	0.30	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

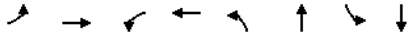
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	20	78	134	96	93	44	494	614	1330	13
v/c Ratio	0.17	0.40	0.62	0.29	0.28	0.62	0.24	0.45	0.74	0.02
Control Delay	41.8	15.0	48.8	11.1	8.7	72.9	9.0	1.2	20.3	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	15.0	48.8	11.1	8.7	72.9	9.0	1.2	20.3	12.7
Queue Length 50th (ft)	11	0	72	6	0	25	65	8	279	3
Queue Length 95th (ft)	33	37	127	45	37	m#49	m111	m1	#558	15
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	273	309	273	357	359	71	2028	1376	1809	809
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.25	0.49	0.27	0.26	0.62	0.24	0.45	0.74	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	332	128	229	156	253	36	94
v/c Ratio	0.06	0.61	0.39	0.30	0.42	0.48	0.16	0.25
Control Delay	26.1	19.9	30.2	10.5	27.6	13.9	25.9	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	19.9	30.2	10.5	27.6	13.9	25.9	16.2
Queue Length 50th (ft)	3	66	34	31	39	31	9	17
Queue Length 95th (ft)	16	#197	#127	108	#137	103	37	51
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	159	771	328	933	425	863	219	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.43	0.39	0.25	0.37	0.29	0.16	0.12

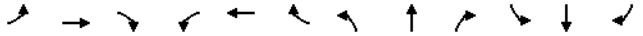
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	31	415	220	54	139	456	397	323	73	376	46
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1427	1346	1504	1422		3072	3167	1417	1583	3115	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1427	1346	1504	1422		3072	3167	1417	1583	3115	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	102	34	461	244	60	154	507	441	359	81	418	51
RTOR Reduction (vph)	0	40	87	0	56	0	0	0	154	0	7	0
Lane Group Flow (vph)	0	267	203	220	182	0	507	441	205	81	462	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		26.2	50.5	22.2	22.2		24.3	46.2	68.4	9.4	31.3	
Effective Green, g (s)		26.2	50.5	22.2	22.2		24.3	46.2	68.4	9.4	31.3	
Actuated g/C Ratio		0.22	0.42	0.18	0.18		0.20	0.39	0.57	0.08	0.26	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		312	611	278	263		622	1219	808	124	812	
v/s Ratio Prot		c0.19	0.07	c0.15	0.13		c0.17	0.14	0.05	0.05	c0.15	
v/s Ratio Perm			0.08						0.10			
v/c Ratio		0.86	0.33	0.79	0.69		0.82	0.36	0.25	0.65	0.57	
Uniform Delay, d1		45.1	23.4	46.7	45.7		45.7	26.4	13.0	53.7	38.5	
Progression Factor		1.00	1.00	1.00	1.00		0.83	0.74	3.12	1.00	1.00	
Incremental Delay, d2		20.0	0.3	14.2	7.6		7.4	0.8	0.2	11.7	2.9	
Delay (s)		65.0	23.7	60.9	53.3		45.5	20.2	40.6	65.4	41.4	
Level of Service		E	C	E	D		D	C	D	E	D	
Approach Delay (s)		45.0			57.0			35.7			44.9	
Approach LOS		D			E			D			D	

Intersection Summary				
HCM Average Control Delay	42.7	HCM Level of Service		D
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		16.0
Intersection Capacity Utilization	71.3%	ICU Level of Service		C
Analysis Period (min)	15			

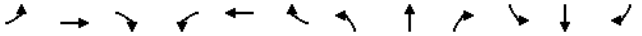
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	813	0	394	507	782	0	0	738	273
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		0.88	0.97	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				2984		2422	2984	3076			3076	1376
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				2984		2422	2984	3076			3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	903	0	438	563	869	0	0	820	303
RTOR Reduction (vph)	0	0	0	0	0	180	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	903	0	258	563	869	0	0	820	303
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type				Prot		custom	Prot					Free
Protected Phases				3		3	5	2			6	
Permitted Phases						3						Free
Actuated Green, G (s)				40.2		40.2	25.4	71.8			42.4	120.0
Effective Green, g (s)				40.2		40.2	25.4	71.8			42.4	120.0
Actuated g/C Ratio				0.34		0.34	0.21	0.60			0.35	1.00
Clearance Time (s)				4.0		4.0	4.0	4.0			4.0	
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				1000		811	632	1840			1087	1376
v/s Ratio Prot				c0.30		0.11	c0.19	0.28			c0.27	
v/s Ratio Perm												0.22
v/c Ratio				0.90		0.32	0.89	0.47			0.75	0.22
Uniform Delay, d1				38.0		29.7	46.0	13.5			34.2	0.0
Progression Factor				1.00		1.00	0.74	0.15			0.68	1.00
Incremental Delay, d2				11.2		0.2	9.0	0.5			4.0	0.3
Delay (s)				49.2		29.9	42.9	2.5			27.1	0.3
Level of Service				D		C	D	A			C	A
Approach Delay (s)		0.0			42.9			18.4			19.9	
Approach LOS		A			D			B			B	

Intersection Summary				
HCM Average Control Delay	27.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	120.3%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	205	3	727	0	0	0	0	1084	54	241	1310	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	0.97	0.95	
Frt	1.00	0.86	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1461	1263	1307					3076	1376	2984	3076	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1461	1263	1307					3076	1376	2984	3076	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	228	3	808	0	0	0	0	1204	60	268	1456	0
RTOR Reduction (vph)	0	25	25	0	0	0	0	0	12	0	0	0
Lane Group Flow (vph)	205	397	387	0	0	0	0	1204	48	268	1456	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Split		Perm						Perm	Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	40.4	40.4	40.4					53.4	53.4	14.2	71.6	
Effective Green, g (s)	40.4	40.4	40.4					53.4	53.4	14.2	71.6	
Actuated g/C Ratio	0.34	0.34	0.34					0.44	0.44	0.12	0.60	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	492	425	440					1369	612	353	1835	
v/s Ratio Prot	0.14	c0.31						c0.39		0.09	c0.47	
v/s Ratio Perm			0.30						0.03			
v/c Ratio	0.42	0.93	0.88					0.88	0.08	0.76	0.79	
Uniform Delay, d1	30.7	38.5	37.5					30.4	19.1	51.2	18.5	
Progression Factor	1.00	1.00	1.00					1.16	1.16	1.04	0.33	
Incremental Delay, d2	0.6	27.5	17.8					7.8	0.2	5.3	2.1	
Delay (s)	31.3	66.0	55.3					43.1	22.4	58.6	8.2	
Level of Service	C	E	E					D	C	E	A	
Approach Delay (s)		54.9			0.0			42.1			16.0	
Approach LOS		D			A			D			B	

Intersection Summary				
HCM Average Control Delay	34.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	120.3%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	0	122	0	0	0	73	848	1010	0	1851	186
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85				1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	3072		1417				1583	3167	1417		3167	1417
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	3072		1417				1583	3167	1417		3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	322	0	136	0	0	0	81	942	1122	0	2057	207
RTOR Reduction (vph)	0	0	114	0	0	0	0	0	246	0	0	22
Lane Group Flow (vph)	322	0	22	0	0	0	81	942	876	0	2057	185
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Perm			Perm
Protected Phases	4						5	2			6	
Permitted Phases			4						2			6
Actuated Green, G (s)	19.1		19.1				10.1	92.9	92.9		78.8	78.8
Effective Green, g (s)	19.1		19.1				10.1	92.9	92.9		78.8	78.8
Actuated g/C Ratio	0.16		0.16				0.08	0.77	0.77		0.66	0.66
Clearance Time (s)	4.0		4.0				4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	489		226				133	2452	1097		2080	930
v/s Ratio Prot	c0.10						0.05	0.30			c0.65	
v/s Ratio Perm			0.02						c0.62			0.13
v/c Ratio	0.66		0.10				0.61	0.38	0.80		0.99	0.20
Uniform Delay, d1	47.4		43.1				53.0	4.4	8.0		20.2	8.1
Progression Factor	1.00		1.00				1.00	1.00	1.00		1.09	0.98
Incremental Delay, d2	3.2		0.2				7.7	0.5	6.1		12.1	0.3
Delay (s)	50.6		43.3				60.7	4.8	14.1		34.0	8.2
Level of Service	D		D				E	A	B		C	A
Approach Delay (s)		48.4			0.0			11.8			31.6	
Approach LOS		D			A			B			C	

Intersection Summary				
HCM Average Control Delay	24.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	81.0%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	449	52	57	117	46	141	94	1342	60	133	1538	300
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	499	58	63	130	51	157	104	1491	67	148	1709	333
RTOR Reduction (vph)	0	0	55	0	0	141	0	0	15	0	0	60
Lane Group Flow (vph)	499	58	8	130	51	16	104	1491	52	148	1709	273
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	18.3	13.6	13.6	15.5	10.8	10.8	9.5	48.2	48.2	12.1	50.8	50.8
Effective Green, g (s)	18.3	13.6	13.6	15.5	10.8	10.8	9.5	48.2	48.2	12.1	50.8	50.8
Actuated g/C Ratio	0.18	0.13	0.13	0.15	0.10	0.10	0.09	0.46	0.46	0.12	0.49	0.49
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	538	217	185	235	172	147	144	1462	654	183	1541	689
v/s Ratio Prot	c0.16	c0.03		0.08	0.03		0.07	0.47		c0.09	c0.54	
v/s Ratio Perm			0.01			0.01			0.04			0.19
v/c Ratio	0.93	0.27	0.04	0.55	0.30	0.11	0.72	1.02	0.08	0.81	1.11	0.40
Uniform Delay, d1	42.4	40.9	39.7	41.2	43.3	42.4	46.2	28.1	15.7	45.0	26.8	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.9	0.2	0.0	1.6	0.4	0.1	14.0	28.6	0.1	21.3	58.9	0.4
Delay (s)	64.3	41.2	39.8	42.8	43.6	42.6	60.2	56.7	15.8	66.4	85.7	17.4
Level of Service	E	D	D	D	D	D	E	E	B	E	F	B
Approach Delay (s)		59.7			42.8			55.3			74.0	
Approach LOS		E			D			E			E	

Intersection Summary				
HCM Average Control Delay	63.5	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	104.4	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	85.2%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	9	6	134	6	94	35	1112	62	116	1381	17
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1541			1533		1583	3142		1583	3167	1417
Flt Permitted		0.60			0.79		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		964			1244		1583	3142		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	139	10	7	149	7	104	39	1236	69	129	1534	19
RTOR Reduction (vph)	0	2	0	0	36	0	0	4	0	0	0	4
Lane Group Flow (vph)	0	154	0	0	224	0	39	1301	0	129	1534	15
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		17.1			17.1		1.7	30.2		8.6	37.1	37.1
Effective Green, g (s)		17.1			17.1		1.7	30.2		8.6	37.1	37.1
Actuated g/C Ratio		0.25			0.25		0.02	0.44		0.12	0.54	0.54
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		239			309		39	1377		198	1705	763
v/s Ratio Prot							0.02	0.41		c0.08	c0.48	
v/s Ratio Perm		0.16			c0.18							0.01
v/c Ratio		0.64			0.72		1.00	0.94		0.65	0.90	0.02
Uniform Delay, d1		23.2			23.7		33.6	18.5		28.7	14.2	7.4
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.2			7.7		144.1	13.2		6.7	6.8	0.0
Delay (s)		28.3			31.4		177.7	31.7		35.4	21.0	7.4
Level of Service		C			C		F	C		D	C	A
Approach Delay (s)		28.3			31.4			35.9			22.0	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM Average Control Delay	28.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	71.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	996	379	291	945	15	549	11	188	3	11	17
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	2984	1389		1583	1513	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	2984	1389		1583	1513	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	1107	421	323	1050	17	610	12	209	3	12	19
RTOR Reduction (vph)	0	0	190	0	0	2	0	153	0	0	17	0
Lane Group Flow (vph)	13	1107	231	323	1050	15	610	68	0	3	14	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	1.3	34.2	50.5	16.3	49.2	49.2	16.3	24.6		1.0	9.3	
Effective Green, g (s)	1.3	34.2	50.5	16.3	49.2	49.2	16.3	24.6		1.0	9.3	
Actuated g/C Ratio	0.01	0.37	0.55	0.18	0.53	0.53	0.18	0.27		0.01	0.10	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	22	1176	839	280	1692	757	528	371		17	153	
v/s Ratio Prot	0.01	c0.35	0.05	c0.20	0.33		c0.20	c0.05		0.00	0.01	
v/s Ratio Perm			0.11			0.01						
v/c Ratio	0.59	0.94	0.28	1.15	0.62	0.02	1.16	0.18		0.18	0.09	
Uniform Delay, d1	45.1	28.0	11.1	37.9	14.9	10.1	37.9	26.0		45.1	37.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.0	14.4	0.2	101.9	0.7	0.0	89.7	0.2		4.9	0.3	
Delay (s)	81.1	42.4	11.2	139.8	15.7	10.1	127.6	26.2		50.1	37.8	
Level of Service	F	D	B	F	B	B	F	C		D	D	
Approach Delay (s)		34.2			44.4			100.6			38.9	
Approach LOS		C			D			F			D	

Intersection Summary				
HCM Average Control Delay	52.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	83.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	32	69	730	239	138	729	17	430	10	81	24	3
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor		1.00	1.00	1.00	1.00	0.95		0.95	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98
Satd. Flow (prot)		1578	1667	1417	1583	3156		1461	1468	1376		1475
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98
Satd. Flow (perm)		1578	1667	1417	1583	3156		1461	1468	1376		1475
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	77	811	266	153	810	19	478	11	90	27	3
RTOR Reduction (vph)	0	0	0	76	0	1	0	0	0	57	0	28
Lane Group Flow (vph)	0	113	811	190	153	828	0	244	245	33	0	33
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%
Turn Type	Prot	Prot		Perm	Prot			Split		Perm	Split	
Protected Phases	7	7	4		3	8		2	2		6	6
Permitted Phases				4						2		
Actuated Green, G (s)		16.2	62.0	62.0	7.1	52.9		23.8	23.8	23.8		11.1
Effective Green, g (s)		16.2	62.0	62.0	7.1	52.9		23.8	23.8	23.8		11.1
Actuated g/C Ratio		0.13	0.52	0.52	0.06	0.44		0.20	0.20	0.20		0.09
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		213	861	732	94	1391		290	291	273		136
v/s Ratio Prot		0.07	c0.49		c0.10	0.26		c0.17	0.17			c0.02
v/s Ratio Perm				0.13						0.02		
v/c Ratio		0.53	0.94	0.26	1.63	0.60		0.84	0.84	0.12		0.24
Uniform Delay, d1		48.4	27.3	16.2	56.5	25.4		46.3	46.3	39.5		50.5
Progression Factor		1.00	1.00	1.00	0.96	0.46		1.00	1.00	1.00		1.00
Incremental Delay, d2		2.5	19.4	0.9	320.2	1.6		19.3	19.3	0.2		0.9
Delay (s)		50.9	46.7	17.0	374.3	13.4		65.6	65.6	39.7		51.5
Level of Service		D	D	B	F	B		E	E	D		D
Approach Delay (s)			40.5			69.7			61.6			51.5
Approach LOS			D			E			E			D

Intersection Summary			
HCM Average Control Delay	55.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

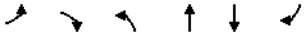
Movement	SBR
Lane Configurations	
Volume (vph)	28
Ideal Flow (vphpl)	1700
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	31
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	5%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	210	625	41	526	214	272	358
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		2984	1619	1619	1376
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		2984	1619	1619	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	233	694	46	584	238	302	398
RTOR Reduction (vph)	0	447	0	0	0	0	308
Lane Group Flow (vph)	233	247	0	630	238	302	90
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%	5%
Turn Type		Perm	Prot	Prot			Perm
Protected Phases	4		5	5	2	6	
Permitted Phases		4					6
Actuated Green, G (s)	27.2	27.2		53.6	84.8	27.2	27.2
Effective Green, g (s)	27.2	27.2		53.6	84.8	27.2	27.2
Actuated g/C Ratio	0.23	0.23		0.45	0.71	0.23	0.23
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	359	321		1333	1144	367	312
v/s Ratio Prot	0.15			c0.21	0.15	c0.19	
v/s Ratio Perm		c0.17					0.07
v/c Ratio	0.65	0.77		0.47	0.21	0.82	0.29
Uniform Delay, d1	42.1	43.5		23.3	6.1	44.1	38.4
Progression Factor	0.56	2.38		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	5.7		1.2	0.1	13.8	0.5
Delay (s)	25.5	109.1		24.5	6.1	57.9	38.9
Level of Service	C	F		C	A	E	D
Approach Delay (s)	88.1				19.5	47.1	
Approach LOS	F				B	D	

Intersection Summary				
HCM Average Control Delay	52.7	HCM Level of Service		D
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	87.3%	ICU Level of Service		E
Analysis Period (min)	15			

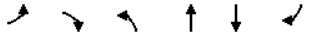
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	17	14	11	413	619	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	16	12	459	688	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked	0.99					
vC, conflicting volume	1172	689	690			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1168	689	690			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	96	99			
cM capacity (veh/h)	205	441	891			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	34	471	690
Volume Left	19	12	0
Volume Right	16	0	2
cSH	271	891	1700
Volume to Capacity	0.13	0.01	0.41
Queue Length 95th (ft)	11	1	0
Control Delay (s)	20.2	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	20.2	0.4	0.0
Approach LOS	C		

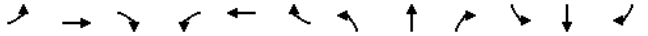
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	46.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	3	0	424	627	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	3	0	471	697	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.96					
vC, conflicting volume	1171	700	703			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1157	700	703			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	205	434	881			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	3	471	703
Volume Left	0	0	0
Volume Right	3	0	7
cSH	434	1700	1700
Volume to Capacity	0.01	0.28	0.41
Queue Length 95th (ft)	1	0	0
Control Delay (s)	13.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.4	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		47.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	121	0	0	56	48	725	34	24	861	98
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	134	0	0	62	53	806	38	27	957	109
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.85	0.85	0.85	0.85	0.85		0.85					
vC, conflicting volume	2039	2014	1011	2076	2050	824	1066			843		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2137	2108	922	2181	2150	824	986			843		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	51	100	100	83	91			97		
cM capacity (veh/h)	22	37	273	13	35	368	582			780		

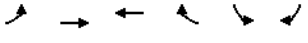
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	134	62	53	843	27	1066
Volume Left	0	0	53	0	27	0
Volume Right	134	62	0	38	0	109
cSH	273	368	582	1700	780	1700
Volume to Capacity	0.49	0.17	0.09	0.50	0.03	0.63
Queue Length 95th (ft)	63	15	8	0	3	0
Control Delay (s)	30.3	16.8	11.8	0.0	9.8	0.0
Lane LOS	D	C	B		A	
Approach Delay (s)	30.3	16.8	0.7		0.2	
Approach LOS	D	C				

Intersection Summary				
Average Delay		2.7		
Intersection Capacity Utilization		72.3%	ICU Level of Service	C
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	213	373	66	21	238	378	38	68	47	842	95	216
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1538	3007		1583	1667	1417		1638	1417	2984	1451	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1538	3007		1583	1667	1417		1638	1417	2984	1451	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	414	73	23	264	420	42	76	52	936	106	240
RTOR Reduction (vph)	0	17	0	0	0	150	0	0	45	0	85	0
Lane Group Flow (vph)	237	470	0	23	264	270	0	118	7	936	261	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	5%	5%	5%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	14.9	29.3		3.4	17.8	43.1		8.1	11.5	25.3	25.3	
Effective Green, g (s)	14.9	29.3		3.4	17.8	43.1		8.1	11.5	25.3	25.3	
Actuated g/C Ratio	0.18	0.36		0.04	0.22	0.53		0.10	0.14	0.31	0.31	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	281	1080		66	364	748		163	200	925	450	
v/s Ratio Prot	c0.15	0.16		0.01	c0.16	0.11		c0.07	0.00	c0.31	0.18	
v/s Ratio Perm						0.08			0.00			
v/c Ratio	0.84	0.44		0.35	0.73	0.36		0.72	0.04	1.01	0.58	
Uniform Delay, d1	32.2	19.9		38.0	29.6	11.2		35.7	30.3	28.1	23.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.3	0.3		1.2	7.1	0.3		14.7	0.0	32.6	1.9	
Delay (s)	51.5	20.2		39.2	36.7	11.5		50.4	30.3	60.7	25.6	
Level of Service	D	C		D	D	B		D	C	E	C	
Approach Delay (s)		30.4			21.8			44.2			51.2	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM Average Control Delay	38.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	74.1%	ICU Level of Service	D	
Analysis Period (min)	15			

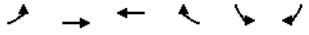
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	459	452	205	159	507	391
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	2984	1619	1619	1376	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2984	1619	1619	1376	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	510	502	228	177	563	434
RTOR Reduction (vph)	0	0	0	6	0	153
Lane Group Flow (vph)	510	502	228	171	563	281
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	13.4	29.1	12.7	40.5	27.8	41.2
Effective Green, g (s)	13.4	29.1	12.7	40.5	27.8	41.2
Actuated g/C Ratio	0.21	0.45	0.20	0.63	0.43	0.64
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	620	730	319	864	682	905
v/s Ratio Prot	c0.17	c0.31	0.14	0.09	c0.36	0.06
v/s Ratio Perm				0.04		0.13
v/c Ratio	0.82	0.69	0.71	0.20	0.83	0.31
Uniform Delay, d1	24.4	14.1	24.2	5.1	16.2	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.2	2.2	6.2	0.1	8.3	0.1
Delay (s)	32.7	16.2	30.4	5.2	24.5	5.3
Level of Service	C	B	C	A	C	A
Approach Delay (s)		24.5	19.4		16.1	
Approach LOS		C	B		B	

Intersection Summary				
HCM Average Control Delay	20.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	6.5	
Intersection Capacity Utilization	68.2%	ICU Level of Service	C	
Analysis Period (min)	15			

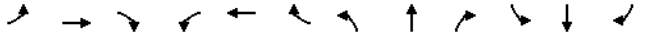
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	116	424	584	61	38	147
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	129	471	649	68	42	163
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	717				1412	683
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717				1412	683
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				67	64
cM capacity (veh/h)	870				130	449

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	600	717	206
Volume Left	129	0	42
Volume Right	0	68	163
cSH	870	1700	298
Volume to Capacity	0.15	0.42	0.69
Queue Length 95th (ft)	13	0	118
Control Delay (s)	3.7	0.0	40.1
Lane LOS	A		E
Approach Delay (s)	3.7	0.0	40.1
Approach LOS			E

Intersection Summary				
Average Delay		6.9		
Intersection Capacity Utilization	93.1%	ICU Level of Service	F	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	74	699	65	24	469	4	33	1	76	1	3	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	82	777	72	27	521	4	37	1	84	1	3	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		873										
pX, platoon unblocked				0.91			0.91	0.91	0.91	0.91	0.91	
vC, conflicting volume	526			849			1599	1556	813	1603	1590	523
vC1, stage 1 conf vol							977	977		577	577	
vC2, stage 2 conf vol							622	579		1026	1013	
vCu, unblocked vol	526			787			1608	1561	748	1612	1598	523
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			96			83	100	78	99	99	92
cM capacity (veh/h)	1041			760			214	245	377	159	229	554

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	82	849	27	526	122	50
Volume Left	82	0	27	0	37	1
Volume Right	0	72	0	4	84	46
cSH	1041	1700	760	1700	306	482
Volume to Capacity	0.08	0.50	0.04	0.31	0.40	0.10
Queue Length 95th (ft)	6	0	3	0	46	9
Control Delay (s)	8.8	0.0	9.9	0.0	24.4	13.3
Lane LOS	A		A		C	B
Approach Delay (s)	0.8		0.5		24.4	13.3
Approach LOS					C	B

Intersection Summary				
Average Delay		2.8		
Intersection Capacity Utilization	72.9%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	869	28	2	446	7	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	966	31	2	496	8	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			997		1481	981
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			997		1481	981
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		94	100
cM capacity (veh/h)			694		138	303

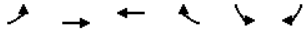
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	997	498	9
Volume Left	0	2	8
Volume Right	31	0	1
cSH	1700	694	148
Volume to Capacity	0.59	0.00	0.06
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.0	0.1	30.9
Lane LOS		A	D
Approach Delay (s)	0.0	0.1	30.9
Approach LOS			D

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		63.0%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	524	90	105	534	13	194	0	197	4	0	3
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1538	1619	1376	1538	1613			1583	1417		1527	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (perm)	1538	1619	1376	1538	1613			1583	1417		1527	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	582	100	117	593	14	216	0	219	4	0	3
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	161	0	3	0
Lane Group Flow (vph)	4	582	62	117	607	0	0	216	58	0	4	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.6	33.9	33.9	7.1	40.4			21.3	21.3		3.3	
Effective Green, g (s)	0.6	33.9	33.9	7.1	40.4			21.3	21.3		3.3	
Actuated g/C Ratio	0.01	0.42	0.42	0.09	0.50			0.26	0.26		0.04	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	11	680	578	135	807			418	374		62	
v/s Ratio Prot	0.00	c0.36		c0.08	0.38			c0.14			c0.00	
v/s Ratio Perm			0.04						0.04			
v/c Ratio	0.36	0.86	0.11	0.87	0.75			0.52	0.15		0.07	
Uniform Delay, d1	39.9	21.2	14.2	36.3	16.1			25.3	22.8		37.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	7.3	13.1	0.4	40.5	4.2			4.5	0.9		0.2	
Delay (s)	47.2	34.3	14.6	76.9	20.4			29.8	23.7		37.4	
Level of Service	D	C	B	E	C			C	C		D	
Approach Delay (s)		31.5			29.5			26.7			37.4	
Approach LOS		C			C			C			D	

Intersection Summary				
HCM Average Control Delay	29.6	HCM Level of Service		C
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	80.7	Sum of lost time (s)		15.1
Intersection Capacity Utilization	66.8%	ICU Level of Service		C
Analysis Period (min)	15			

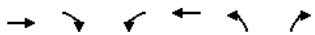
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	152	497	389	14	28	208
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	169	552	432	16	31	231
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	448				1330	440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	448				1330	440
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				78	63
cM capacity (veh/h)	1097				144	617

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	721	448	262
Volume Left	169	0	31
Volume Right	0	16	231
cSH	1097	1700	444
Volume to Capacity	0.15	0.26	0.59
Queue Length 95th (ft)	14	0	93
Control Delay (s)	3.6	0.0	24.1
Lane LOS	A		C
Approach Delay (s)	3.6	0.0	24.1
Approach LOS			C

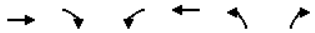
Intersection Summary			
Average Delay		6.2	
Intersection Capacity Utilization		88.6%	ICU Level of Service E
Analysis Period (min)		15	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	657	116	167	630	91	151
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	730	129	186	700	101	168

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	859	886	269
Volume Left (vph)	0	186	101
Volume Right (vph)	129	0	168
Hadj (s)	-0.01	0.13	-0.27
Departure Headway (s)	5.8	6.0	6.7
Degree Utilization, x	1.40	1.47	0.50
Capacity (veh/h)	612	606	532
Control Delay (s)	205.5	238.4	16.3
Approach Delay (s)	205.5	238.4	16.3
Approach LOS	F	F	C

Intersection Summary			
Delay		194.7	
HCM Level of Service		F	
Intersection Capacity Utilization		119.9%	ICU Level of Service H
Analysis Period (min)		15	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	431	238	234	428	203	213
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	479	264	260	476	226	237

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	743	260	476	462
Volume Left (vph)	0	260	0	226
Volume Right (vph)	264	0	0	237
Hadj (s)	-0.18	0.58	0.09	-0.12
Departure Headway (s)	6.8	7.9	7.4	6.8
Degree Utilization, x	1.40	0.57	0.97	0.88
Capacity (veh/h)	544	445	476	522
Control Delay (s)	209.2	19.5	60.3	40.8
Approach Delay (s)	209.2	45.9		40.8
Approach LOS	F	E		E

Intersection Summary			
Delay	107.2		
HCM Level of Service	F		
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	60	32	22	666	936	34
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	36	24	740	1040	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1848	1059	1078			
vC1, stage 1 conf vol	1059					
vC2, stage 2 conf vol	789					
vCu, unblocked vol	1848	1059	1078			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	87	96			
cM capacity (veh/h)	264	269	636			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	102	24	740	1078
Volume Left	67	24	0	0
Volume Right	36	0	0	38
cSH	266	636	1700	1700
Volume to Capacity	0.38	0.04	0.44	0.63
Queue Length 95th (ft)	43	3	0	0
Control Delay (s)	26.8	10.9	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	26.8	0.3		0.0
Approach LOS	D			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	472	553	253	202	81	538	139	254	231	190	249	203
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2984	1528	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2984	1528	1307	1538	1619	1376	1538	3076	1376	1538	3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	524	614	281	224	90	598	154	282	257	211	277	226
RTOR Reduction (vph)	0	1	149	0	0	47	0	0	225	0	0	0
Lane Group Flow (vph)	524	641	104	224	90	551	154	282	32	211	277	226
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	54.2	49.2	49.2	17.0	12.0	35.0	15.8	14.8	14.8	23.0	22.0	120.0
Effective Green, g (s)	54.2	49.2	49.2	17.0	12.0	35.0	15.8	14.8	14.8	23.0	22.0	120.0
Actuated g/C Ratio	0.45	0.41	0.41	0.14	0.10	0.29	0.13	0.12	0.12	0.19	0.18	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1348	626	536	218	162	401	203	379	170	295	564	1376
v/s Ratio Prot	0.18	c0.42		c0.15	0.06	c0.26	0.10	c0.09		0.14	0.09	
v/s Ratio Perm			0.08			0.14			0.02			0.16
v/c Ratio	0.39	1.02	0.19	1.03	0.56	1.37	0.76	0.74	0.19	0.72	0.49	0.16
Uniform Delay, d1	21.9	35.4	22.7	51.5	51.5	42.5	50.3	50.8	47.2	45.4	44.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.71	1.00
Incremental Delay, d2	0.2	42.1	0.2	68.3	4.1	183.7	14.9	12.5	2.4	10.7	2.3	0.2
Delay (s)	22.1	77.5	22.9	119.8	55.5	226.2	65.2	63.2	49.6	44.4	33.5	0.2
Level of Service	C	E	C	F	E	F	E	E	D	D	C	A
Approach Delay (s)		47.3			183.2			58.6			26.2	
Approach LOS		D			F			E			C	

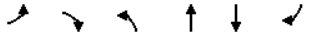
Intersection Summary				
HCM Average Control Delay	78.5	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	83.7%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	0	108	214	29	138	162	681	421	0	844	12
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.90	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1538		1376	1538	1385	1307	1538	3076	1376		3076	1376
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1538		1376	1538	1385	1307	1538	3076	1376		3076	1376
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	0	120	238	32	153	180	757	468	0	938	13
RTOR Reduction (vph)	0	0	112	0	47	68	0	0	0	0	0	0
Lane Group Flow (vph)	20	0	8	238	48	22	180	757	468	0	938	13
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	3.5		8.2	25.0	29.7	29.7	17.5	74.8	120.0		53.3	53.3
Effective Green, g (s)	3.5		8.2	25.0	29.7	29.7	17.5	74.8	120.0		53.3	53.3
Actuated g/C Ratio	0.03		0.07	0.21	0.25	0.25	0.15	0.62	1.00		0.44	0.44
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	45		94	320	343	323	224	1917	1376		1366	611
v/s Ratio Prot	0.01		0.01	c0.15	0.03		c0.12	0.25			c0.30	0.01
v/s Ratio Perm						0.02			c0.34			
v/c Ratio	0.44		0.09	0.74	0.14	0.07	0.80	0.39	0.34		0.69	0.02
Uniform Delay, d1	57.3		52.4	44.5	35.2	34.6	49.6	11.3	0.0		26.7	18.7
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.15	1.00		1.00	1.00
Incremental Delay, d2	6.9		0.4	9.0	0.2	0.1	10.0	0.3	0.3		2.8	0.1
Delay (s)	64.1		52.8	53.5	35.4	34.7	59.5	13.3	0.3		29.5	18.8
Level of Service	E		D	D	D	C	E	B	A		C	B
Approach Delay (s)		54.4			45.4			14.9			29.4	
Approach LOS		D			D			B			C	

Intersection Summary				
HCM Average Control Delay	25.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	59.4%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	13	8	10	611	464	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	9	11	679	516	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1227	526	536			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1227	526	536			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	99			
cM capacity (veh/h)	195	552	1017			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	23	690	536
Volume Left	14	11	0
Volume Right	9	0	20
cSH	259	1017	1700
Volume to Capacity	0.09	0.01	0.32
Queue Length 95th (ft)	7	1	0
Control Delay (s)	20.3	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	20.3	0.3	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.5		
Intersection Capacity Utilization		54.9%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	30	13	499	20	1	411
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	14	554	22	1	457
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	1024	566			577	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1024	566			577	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	97			100	
cM capacity (veh/h)	260	524			982	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	48	577	458
Volume Left	33	0	1
Volume Right	14	22	0
cSH	307	1700	982
Volume to Capacity	0.16	0.34	0.00
Queue Length 95th (ft)	14	0	0
Control Delay (s)	18.9	0.0	0.0
Lane LOS	C		A
Approach Delay (s)	18.9	0.0	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		40.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	145	198	137	125	35	132	235	151	51	104	32
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1538	1479		1583	1612		1538	1524		1583	1607	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1538	1479		1583	1612		1538	1524		1583	1607	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	161	220	152	139	39	147	261	168	57	116	36
RTOR Reduction (vph)	0	70	0	0	13	0	0	34	0	0	16	0
Lane Group Flow (vph)	19	311	0	152	165	0	147	395	0	57	136	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.5	18.0		8.7	26.2		7.0	19.2		2.0	14.2	
Effective Green, g (s)	0.5	18.0		8.7	26.2		7.0	19.2		2.0	14.2	
Actuated g/C Ratio	0.01	0.29		0.14	0.43		0.11	0.31		0.03	0.23	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	13	434		224	688		175	477		52	372	
v/s Ratio Prot	c0.01	c0.21		c0.10	0.10		c0.10	c0.26		c0.04	0.08	
v/s Ratio Perm												
v/c Ratio	1.46	0.72		0.68	0.24		0.84	0.83		1.10	0.37	
Uniform Delay, d1	30.4	19.4		25.0	11.2		26.7	19.6		29.7	19.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	423.0	4.7		6.3	0.1		27.2	10.8		154.1	0.2	
Delay (s)	453.4	24.1		31.3	11.3		53.9	30.4		183.8	20.0	
Level of Service	F	C		C	B		D	C		F	C	
Approach Delay (s)		44.5			20.5			36.4			64.7	
Approach LOS		D			C			D			E	

Intersection Summary				
HCM Average Control Delay	39.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	61.4	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	109	40	16	854	987	88
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	121	44	18	949	1097	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				914		
pX, platoon unblocked						
vC, conflicting volume	2130	1146	1194			
vC1, stage 1 conf vol	1146					
vC2, stage 2 conf vol	984					
vCu, unblocked vol	2130	1146	1194			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	47	82	97			
cM capacity (veh/h)	228	243	574			

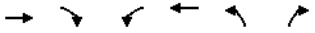
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	166	18	949	1194
Volume Left	121	18	0	0
Volume Right	44	0	0	98
cSH	232	574	1700	1700
Volume to Capacity	0.71	0.03	0.56	0.70
Queue Length 95th (ft)	119	2	0	0
Control Delay (s)	51.7	11.5	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	51.7	0.2		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	9	52	3	198	0	577	115	102	697	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	10	58	3	220	0	641	128	113	774	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1864	1770	774	1716	1706	705	774			769		
vC1, stage 1 conf vol	1001	1001		705	705							
vC2, stage 2 conf vol	863	769		1011	1001							
vCu, unblocked vol	1864	1770	774	1716	1706	705	774			769		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	73	99	50	100			87		
cM capacity (veh/h)	55	207	393	213	239	436	828			845		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	281	0	769	113	774
Volume Left	0	58	0	0	113	0
Volume Right	10	220	0	128	0	0
cSH	393	356	1700	1700	845	1700
Volume to Capacity	0.03	0.79	0.00	0.45	0.13	0.46
Queue Length 95th (ft)	2	165	0	0	12	0
Control Delay (s)	14.4	44.2	0.0	0.0	9.9	0.0
Lane LOS	B	E			A	
Approach Delay (s)	14.4	44.2	0.0		1.3	
Approach LOS	B	E				

Intersection Summary					
Average Delay	7.0				
Intersection Capacity Utilization	81.8%	ICU Level of Service		D	
Analysis Period (min)	15				



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1121	53	0	1219	0	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1246	59	0	1354	0	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				679		
pX, platoon unblocked					0.82	
vC, conflicting volume			1304		1923	1246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1304		1687	1246
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	60
cM capacity (veh/h)			527		69	165

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1246	59	677	677	66
Volume Left	0	0	0	0	0
Volume Right	0	59	0	0	66
cSH	1700	1700	1700	1700	165
Volume to Capacity	0.73	0.03	0.40	0.40	0.40
Queue Length 95th (ft)	0	0	0	0	43
Control Delay (s)	0.0	0.0	0.0	0.0	40.4
Lane LOS					E
Approach Delay (s)	0.0		0.0		40.4
Approach LOS					E

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	76.7%	ICU Level of Service		D
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1070	110	0	1219	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1189	122	0	1354	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				386		
pX, platoon unblocked					0.81	
vC, conflicting volume			1311		1866	1189
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1311		1604	1189
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			524		78	180

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1189	122	677	677
Volume Left	0	0	0	0
Volume Right	0	122	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.70	0.07	0.40	0.40
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	112	0	781	871	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	124	0	868	968	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					247	
pX, platoon unblocked	0.83	0.83	0.83			
vC, conflicting volume	1257	968	1042			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1207	859	949			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	50	100			
cM capacity (veh/h)	146	249	582			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	124	289	289	289	968	74
Volume Left	0	0	0	0	0	0
Volume Right	124	0	0	0	0	74
cSH	249	1700	1700	1700	1700	1700
Volume to Capacity	0.50	0.17	0.17	0.17	0.57	0.04
Queue Length 95th (ft)	64	0	0	0	0	0
Control Delay (s)	33.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	D					
Approach Delay (s)	33.1	0.0			0.0	
Approach LOS	D					

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	65.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	307	290	220	238	507	441	359	81	469
v/c Ratio	0.87	0.42	0.79	0.75	0.84	0.36	0.37	0.57	0.56
Control Delay	61.9	11.1	67.0	47.1	51.3	22.3	3.9	67.8	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	61.9	11.1	67.0	47.1	51.3	22.3	4.0	67.8	42.6
Queue Length 50th (ft)	202	64	166	127	202	129	50	61	175
Queue Length 95th (ft)	#333	129	#286	229	264	195	101	113	239
Internal Link Dist (ft)	421			1192		356			1135
Turn Bay Length (ft)					235			85	
Base Capacity (vph)	406	683	305	343	644	1241	981	171	841
Starvation Cap Reductn	0	0	0	0	0	0	21	0	0
Spillback Cap Reductn	0	1	0	0	0	0	0	0	19
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.43	0.72	0.69	0.79	0.36	0.37	0.47	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	903	438	563	869	820	303
v/c Ratio	0.90	0.44	0.89	0.47	0.75	0.22
Control Delay	51.3	12.4	45.6	2.6	27.7	0.3
Queue Delay	40.7	0.0	6.5	1.4	0.4	0.0
Total Delay	91.9	12.4	52.1	3.9	28.1	0.3
Queue Length 50th (ft)	333	51	228	13	216	0
Queue Length 95th (ft)	#430	100	m#293	m22	258	m0
Internal Link Dist (ft)				269	356	
Turn Bay Length (ft)		600	125			235
Base Capacity (vph)	1044	1024	634	1841	1115	1376
Starvation Cap Reductn	0	0	46	718	59	0
Spillback Cap Reductn	209	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.43	0.96	0.77	0.78	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	205	422	412	1204	60	268	1456
v/c Ratio	0.42	0.94	0.88	0.88	0.10	0.76	0.79
Control Delay	33.3	64.8	55.6	44.4	16.9	62.0	8.6
Queue Delay	0.5	302.6	265.3	21.0	0.0	0.0	20.0
Total Delay	33.8	367.4	320.9	65.3	16.9	62.0	28.5
Queue Length 50th (ft)	125	314	285	481	23	94	315
Queue Length 95th (ft)	200	#534	#480	#608	53	m127	407
Internal Link Dist (ft)		1012		199			269
Turn Bay Length (ft)	675		545		85	100	
Base Capacity (vph)	511	466	482	1369	624	373	1834
Starvation Cap Reductn	0	0	0	203	0	0	291
Spillback Cap Reductn	88	215	223	30	0	0	418
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	1.68	1.59	1.03	0.10	0.72	1.03

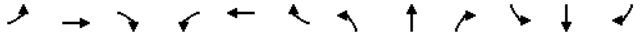
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	322	136	81	942	1122	2057	207
v/c Ratio	0.66	0.40	0.54	0.38	0.84	0.98	0.22
Control Delay	53.2	10.1	63.9	5.5	7.6	33.7	7.6
Queue Delay	1.2	0.0	0.0	0.5	0.0	44.6	1.0
Total Delay	54.4	10.1	63.9	6.0	7.6	78.2	8.6
Queue Length 50th (ft)	123	0	61	97	4	896	39
Queue Length 95th (ft)	154	51	109	190	48	#1215	m71
Internal Link Dist (ft)				311		199	
Turn Bay Length (ft)	185	185	200		300		105
Base Capacity (vph)	742	446	211	2451	1343	2100	961
Starvation Cap Reductn	0	0	0	0	0	244	525
Spillback Cap Reductn	228	0	0	984	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.30	0.38	0.64	0.84	1.11	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	499	58	63	130	51	157	104	1491	67	148	1709	333
v/c Ratio	0.92	0.25	0.25	0.55	0.32	0.56	0.72	1.01	0.10	0.80	1.10	0.44
Control Delay	67.3	41.5	12.3	54.8	48.1	14.7	73.4	55.9	13.8	76.2	83.8	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	41.5	12.3	54.8	48.1	14.7	73.4	55.9	13.8	76.2	83.8	15.3
Queue Length 50th (ft)	158	33	0	80	32	0	64	463	13	91	~618	76
Queue Length 95th (ft)	#369	75	37	175	69	55	144	#974	55	#218	#1172	242
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	541	546	507	298	530	558	263	1472	673	263	1549	752
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.11	0.12	0.44	0.10	0.28	0.40	1.01	0.10	0.56	1.10	0.44

Intersection Summary

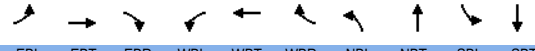
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	156	260	39	1305	129	1534	19
v/c Ratio	0.63	0.74	0.55	0.98	0.64	0.88	0.02
Control Delay	33.1	31.1	65.4	43.7	47.0	24.8	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.1	31.1	65.4	43.7	47.0	24.8	8.8
Queue Length 50th (ft)	56	79	16	265	50	290	2
Queue Length 95th (ft)	110	152	#71	#550	#148	#609	15
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	437	589	71	1330	215	1746	785
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.44	0.55	0.98	0.60	0.88	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	13	1107	421	323	1050	17	610	221	3	31
v/c Ratio	0.11	0.97	0.41	1.07	0.58	0.02	1.07	0.40	0.03	0.16
Control Delay	44.4	51.0	2.9	107.7	17.5	13.8	93.3	6.3	44.3	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	51.0	2.9	107.7	17.5	13.8	93.3	6.3	44.3	20.5
Queue Length 50th (ft)	7	299	0	~192	161	3	~187	4	2	6
Queue Length 95th (ft)	29	#655	55	#483	#522	22	#410	55	12	29
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	303	1136	1016	303	1823	818	571	681	303	590
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.97	0.41	1.07	0.58	0.02	1.07	0.32	0.01	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	113	811	266	153	829	244	245	90	61
v/c Ratio	0.53	0.93	0.33	1.66	0.59	0.84	0.84	0.27	0.34
Control Delay	61.0	47.0	10.5	370.0	14.8	70.4	70.4	14.8	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	47.0	10.5	370.0	14.8	70.4	70.4	14.8	30.4
Queue Length 50th (ft)	84	563	42	~176	252	187	188	12	23
Queue Length 95th (ft)	#208	#1124	144	#317	#305	#309	#308	56	53
Internal Link Dist (ft)		306			840		290		465
Turn Bay Length (ft)	175		200	100		50		100	
Base Capacity (vph)	212	873	817	92	1413	329	330	365	416
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.93	0.33	1.66	0.59	0.74	0.74	0.25	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	233	694	630	238	302	398
v/c Ratio	0.65	0.90	0.47	0.21	0.82	0.64
Control Delay	27.0	27.3	28.3	8.3	61.9	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	27.3	28.3	8.3	61.9	8.7
Queue Length 50th (ft)	142	427	167	51	221	0
Queue Length 95th (ft)	m111	m541	297	131	316	85
Internal Link Dist (ft)	840			167	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	554	872	1333	1145	433	660
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.80	0.47	0.21	0.70	0.60

Intersection Summary

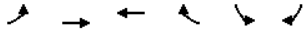
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	237	487	23	264	420	118	52	936	346
v/c Ratio	0.84	0.44	0.29	0.75	0.44	0.72	0.16	1.00	0.64
Control Delay	57.4	19.9	49.0	45.2	4.3	64.4	10.5	61.8	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	19.9	49.0	45.2	4.3	64.4	10.5	61.8	23.5
Queue Length 50th (ft)	118	92	12	126	22	60	0	~271	98
Queue Length 95th (ft)	204	138	37	#232	80	#165	30	#451	220
Internal Link Dist (ft)		219		338		844			640
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	423	1373	138	438	953	164	376	932	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.35	0.17	0.60	0.44	0.72	0.14	1.00	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	510	502	228	177	563	434
v/c Ratio	0.83	0.69	0.72	0.19	0.83	0.39
Control Delay	41.4	20.6	38.0	3.3	30.4	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	20.6	38.0	3.3	30.4	1.9
Queue Length 50th (ft)	106	168	91	17	180	1
Queue Length 95th (ft)	#236	267	156	33	#447	35
Internal Link Dist (ft)		1271	1500		834	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	616	1052	641	1051	792	1110
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.48	0.36	0.17	0.71	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	582	100	117	607	216	219	7
v/c Ratio	0.05	0.86	0.16	0.81	0.70	0.48	0.39	0.05
Control Delay	39.8	37.3	8.6	74.9	22.2	28.9	6.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	37.3	8.6	74.9	22.2	28.9	6.5	25.7
Queue Length 50th (ft)	2	212	8	51	159	76	0	2
Queue Length 95th (ft)	13	#607	51	#186	#614	196	58	13
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	83	673	610	145	865	448	558	434
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.86	0.16	0.81	0.70	0.48	0.39	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	524	642	253	224	90	598	154	282	257	211	277	226
v/c Ratio	0.39	1.02	0.37	1.03	0.56	1.33	0.76	0.74	0.65	0.72	0.49	0.16
Control Delay	23.9	77.9	4.5	119.0	63.6	189.4	73.6	63.1	14.2	45.3	33.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	77.9	4.5	119.0	63.6	189.4	73.6	63.1	14.2	45.3	33.9	0.2
Queue Length 50th (ft)	138	~569	0	~186	68	~453	115	111	0	154	112	0
Queue Length 95th (ft)	198	#813	53	#345	118	#595	#199	160	82	m#230	m124	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	1347	627	685	218	472	448	231	410	406	295	565	1376
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	1.02	0.37	1.03	0.19	1.33	0.67	0.69	0.63	0.72	0.49	0.16

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	20	120	238	95	90	180	757	468	938	13
v/c Ratio	0.22	0.58	0.82	0.24	0.23	0.81	0.38	0.34	0.66	0.02
Control Delay	58.6	20.5	69.2	16.2	8.8	64.0	13.1	0.3	29.3	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	20.5	69.2	16.2	8.8	64.0	13.1	0.3	29.3	21.9
Queue Length 50th (ft)	15	0	175	18	0	121	151	0	293	5
Queue Length 95th (ft)	41	56	#299	67	44	m149	m175	m0	427	20
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	205	287	317	390	391	246	1981	1376	1431	640
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.42	0.75	0.24	0.23	0.73	0.38	0.34	0.66	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
27: Pacific St. & Sacramento St.

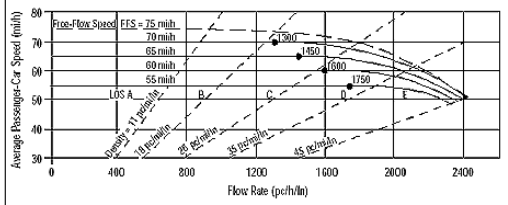
EPAP plus Proposed Project
PM Peak

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	381	152	178	147	429	57	152
v/c Ratio	0.22	0.83	0.64	0.24	0.62	0.80	0.48	0.39
Control Delay	38.5	32.9	42.9	11.8	40.8	30.9	48.3	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	32.9	42.9	11.8	40.8	30.9	48.3	22.5
Queue Length 50th (ft)	8	107	60	36	57	138	23	44
Queue Length 95th (ft)	28	#241	#152	88	#139	#297	#79	95
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	86	626	266	851	287	682	118	524
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.61	0.57	0.21	0.51	0.63	0.48	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			Site Information	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2490*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*945*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*14.5*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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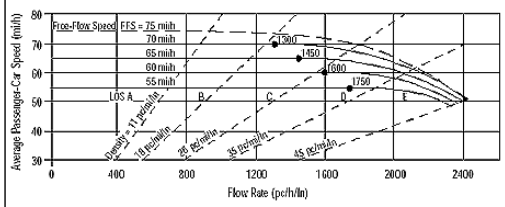
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*1986*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1131*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*17.4*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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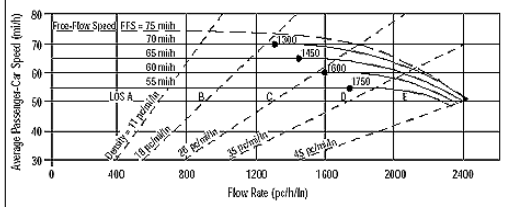
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3735*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1418*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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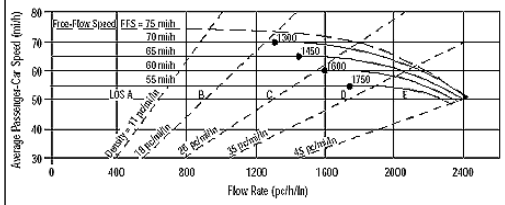
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3085*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1757*	pc/h/ln	Design LOS		
S	*64.2*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*27.4*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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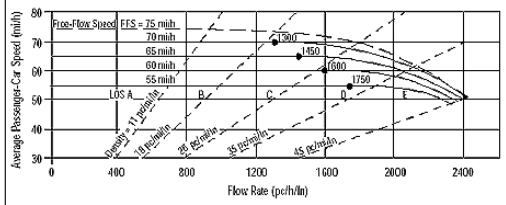
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3813*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1448*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*22.3*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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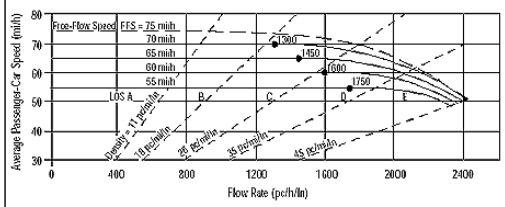
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3443*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1961*	pc/h/ln	Design LOS		
S	*62.1*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*31.6*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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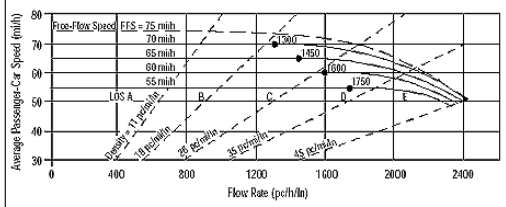
BASIC FREEWAY WORKSHEET Page 1 of 1

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2560*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*972*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*15.0*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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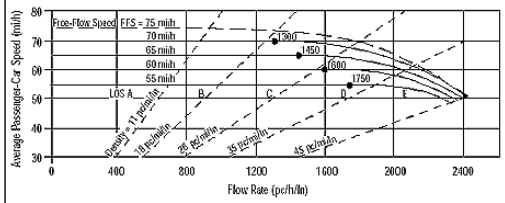
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*EPAP + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2134*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*5*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.976*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1215*	pc/h/ln	Design LOS		
			v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*65.0*	mi/h	S		mi/h
D = v_p / S	*18.7*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*C*		Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		***Site Information***	
Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	EPAP + PP
Project Description			

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{up} = ft
Vu = veh/h

Terrain: Level
S_{FF} = 65.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1986	0.90	Level	5	0	0.976	1.00	2262
Ramp	564	0.90	Level	5	0	0.976	1.00	642
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$
L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= using Equation (Exhibit 25-5)
V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$
D_R = (pc/ mi /ln)
LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)
S_R= mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = 1.000 using Equation (Exhibit 25-11)
V_{12} = 2262 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2262	4700	No
V_{12}	2262	4400:All	No
$V_{FO} = V_F - V_R$	1620	4700	No
V_R	642	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = 22.1 (pc/ mi /ln)
LOS= C (Exhibit 25-4)

Speed Estimation

D_s = 0.486 (Exhibit 25-19)
S_R= 53.8 mph (Exhibit 25-19)
S_0= N/A mph (Exhibit 25-19)
S = 53.8 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	EB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	Off-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	EPAP + PP
Project Description			

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

Vu = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	3443	0.90	Level	5	0	0.976	1.00	3921
Ramp	935	0.90	Level	5	0	0.976	1.00	1065
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}			
V_{R12}			

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 1.000 using Equation (Exhibit 25-11)

V_{12} = 3921 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	3921	4700	No
V_{12}	3921	4400:All	No
$V_{FO} = V_F - V_R$	2856	4700	No
V_R	1065	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 36.4 (pc/ mi /ln)

LOS= E (Exhibit 25-4)

Speed Estimation

D_s = 0.524 (Exhibit 25-19)

S_R= 53.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S = 53.0 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	EPAP + PP
Project Description			

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2492	0.90	Level	5	0	0.976	1.00	2838
Ramp	593	0.90	Level	5	0	0.976	1.00	675
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 2838 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3513	See Exhibit 25-7	No
V_{R12}	3513	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 30.1 (pc/ m/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.424 (Exhibit 25-19)

S_R= 55.3 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 55.3 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	EPAP + PP
Project Description			

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1353	0.90	Level	5	0	0.976	1.00	1541
Ramp	781	0.90	Level	5	0	0.976	1.00	889
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 1541 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2430	See Exhibit 25-7	No
V_{R12}	2430	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 21.5 (pc/ m/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.337 (Exibit 25-19)

S_R= 57.2 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 57.2 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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Appendix F:

Analysis Worksheets for
Cumulative (2025) Conditions

HCM Signalized Intersection Capacity Analysis
1: Plaza Dr. & Missouri Flat Rd.

Cumulative
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	36	475	341	84	215	601	473	426	68	332	42
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1428	1346	1504	1423		3072	3167	1417	1583	3113	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1346	1504	1423		3072	3167	1417	1583	3113	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	117	40	528	379	93	239	668	526	473	76	369	47
RTOR Reduction (vph)	0	38	51	0	54	0	0	0	212	0	8	0
Lane Group Flow (vph)	0	314	282	341	316	0	668	526	261	76	408	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		28.5	56.8	28.6	28.6		28.3	37.7	66.3	9.2	18.6	
Effective Green, g (s)		28.5	56.8	28.6	28.6		28.3	37.7	66.3	9.2	18.6	
Actuated g/C Ratio		0.24	0.47	0.24	0.24		0.24	0.31	0.55	0.08	0.16	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		339	682	358	339		724	995	783	121	483	
v/s Ratio Prot		c0.22	0.10	c0.23	0.22		c0.22	0.17	0.08	0.05	c0.13	
v/s Ratio Perm			0.11						0.10			
v/c Ratio		0.93	0.41	0.95	0.93		0.92	0.53	0.33	0.63	0.84	
Uniform Delay, d1		44.7	20.7	45.0	44.7		44.8	33.8	14.7	53.7	49.3	
Progression Factor		1.00	1.00	1.00	1.00		0.56	0.48	1.60	1.00	1.00	
Incremental Delay, d2		30.3	0.4	35.1	31.7		6.1	0.6	0.1	9.8	16.3	
Delay (s)		75.0	21.1	80.1	76.5		31.1	16.7	23.6	63.5	65.6	
Level of Service		E	C	F	E		C	B	C	E	E	
Approach Delay (s)		48.8			78.2			24.4			65.3	
Approach LOS		D			E			C			E	

Intersection Summary				
HCM Average Control Delay	45.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	84.1%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: EB US-50 Off Ramp & Missouri Flat Rd.

Cumulative
AM Peak

Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	169	518	1012	554	450	777	55	269	584	295
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	0.88	0.97	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	188	576	1124	616	500	863	61	299	649	328
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	188	576	1124	616	500	863	61	299	649	328
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	custom	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3	1	4	5	1	6		5	2	
Permitted Phases							Free			Free
Actuated Green, G (s)	40.0	29.0	40.0	27.0	29.0	32.0	120.0	27.0	30.0	120.0
Effective Green, g (s)	40.0	29.0	40.0	27.0	29.0	32.0	120.0	27.0	30.0	120.0
Actuated g/C Ratio	0.33	0.24	0.33	0.22	0.24	0.27	1.00	0.22	0.25	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1004	591	1004	550	728	828	1389	678	777	1389
v/s Ratio Prot	0.06	0.24	c0.37	c0.25	0.17	c0.28		0.10	0.21	
v/s Ratio Perm							0.04			c0.24
v/c Ratio	0.19	0.97	1.12	1.12	0.69	1.04	0.04	0.44	0.84	0.24
Uniform Delay, d1	28.4	45.1	40.0	46.5	41.4	44.0	0.0	40.0	42.7	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.97	0.86	1.00	1.04	0.81	1.00
Incremental Delay, d2	0.1	30.4	67.2	75.8	2.5	41.4	0.1	0.3	6.8	0.3
Delay (s)	28.5	75.5	107.2	122.3	42.6	79.1	0.1	42.1	41.4	0.3
Level of Service	C	E	F	F	D	E	A	D	D	A
Approach Delay (s)						62.9			31.0	
Approach LOS						E			C	

Intersection Summary				
HCM Average Control Delay	71.8	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	Err%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Mother Lode Dr. & Missouri Flat Rd.

Cumulative
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	347	0	130	0	0	0	66	935	1041	0	1922	192
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.91	
Frt	1.00		0.85				1.00	1.00	0.85		0.99	
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (prot)	3072		1417				1583	3167	1417		4488	
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (perm)	3072		1417				1583	3167	1417		4488	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	386	0	144	0	0	0	73	1039	1157	0	2136	213
RTOR Reduction (vph)	0	0	118	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	386	0	26	0	0	0	73	1039	1157	0	2342	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Free			
Protected Phases	4						5	2			6	
Permitted Phases			4						Free			
Actuated Green, G (s)	21.6		21.6				9.6	90.4	120.0		76.8	
Effective Green, g (s)	21.6		21.6				9.6	90.4	120.0		76.8	
Actuated g/C Ratio	0.18		0.18				0.08	0.75	1.00		0.64	
Clearance Time (s)	4.0		4.0				4.0	4.0			4.0	
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)	553		255				127	2386	1417		2872	
v/s Ratio Prot	0.13						0.05	0.33			0.52	
v/s Ratio Perm			0.02						c0.82			
v/c Ratio	0.70		0.10				0.57	0.44	0.82		0.82	
Uniform Delay, d1	46.1		41.1				53.2	5.4	0.0		16.3	
Progression Factor	1.00		1.00				1.00	1.00	1.00		0.66	
Incremental Delay, d2	3.8		0.2				6.2	0.6	5.3		0.2	
Delay (s)	50.0		41.3				59.4	6.0	5.3		11.0	
Level of Service	D		D				E	A	A		B	
Approach Delay (s)		47.6			0.0			7.4			11.0	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	13.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Forni Rd. & Missouri Flat Rd.

Cumulative
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	30	27	65	25	78	112	1707	81	109	1696	245
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	286	33	30	72	28	87	124	1897	90	121	1884	272
RTOR Reduction (vph)	0	0	26	0	0	80	0	0	14	0	0	41
Lane Group Flow (vph)	286	33	4	72	28	7	124	1897	76	121	1884	231
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	11.3	12.8	12.8	6.3	7.8	7.8	10.0	50.5	50.5	9.9	50.4	50.4
Effective Green, g (s)	11.3	12.8	12.8	6.3	7.8	7.8	10.0	50.5	50.5	9.9	50.4	50.4
Actuated g/C Ratio	0.12	0.14	0.14	0.07	0.08	0.08	0.11	0.53	0.53	0.10	0.53	0.53
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	367	226	192	106	138	117	168	1692	757	166	1689	756
v/s Ratio Prot	c0.09	0.02		0.05	c0.02		c0.08	c0.60		0.08	0.59	
v/s Ratio Perm			0.00			0.01			0.05			0.16
v/c Ratio	0.78	0.15	0.02	0.68	0.20	0.06	0.74	1.12	0.10	0.73	1.12	0.31
Uniform Delay, d1	40.4	36.0	35.4	43.1	40.4	40.0	41.0	22.0	10.8	41.0	22.1	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.2	0.1	0.0	12.8	0.3	0.1	13.5	63.0	0.1	12.7	60.8	0.2
Delay (s)	49.6	36.1	35.4	55.9	40.7	40.1	54.5	85.0	10.9	53.7	82.8	12.5
Level of Service	D	D	D	E	D	D	D	F	B	D	F	B
Approach Delay (s)		47.1			46.2			80.1			72.9	
Approach LOS		D			D			F			E	

Intersection Summary				
HCM Average Control Delay	73.1	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	85.2%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: Golden Center Dr. & Missouri Flat Rd.

Cumulative
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	2	1	54	4	54	61	1961	61	132	1431	27
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.93		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1588			1521		1583	3152		1583	3167	1417
Flt Permitted		0.72			0.83		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1195			1298		1583	3152		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	2	1	60	4	60	68	2179	68	147	1590	30
RTOR Reduction (vph)	0	1	0	0	30	0	0	1	0	0	0	5
Lane Group Flow (vph)	0	25	0	0	94	0	68	2246	0	147	1590	25
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		14.5			14.5		17.4	77.4		10.9	70.9	70.9
Effective Green, g (s)		14.5			14.5		17.4	77.4		10.9	70.9	70.9
Actuated g/C Ratio		0.13			0.13		0.15	0.67		0.09	0.61	0.61
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		150			163		238	2107		149	1939	868
v/s Ratio Prot							0.04	c0.71		c0.09	0.50	
v/s Ratio Perm		0.02			c0.07							0.02
v/c Ratio		0.17			0.58		0.29	1.07		0.99	0.82	0.03
Uniform Delay, d1		45.3			47.8		43.7	19.2		52.4	17.5	8.9
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.4			4.0		0.5	39.9		69.1	2.9	0.0
Delay (s)		45.6			51.8		44.2	59.1		121.5	20.4	8.9
Level of Service		D			D		D	E		F	C	A
Approach Delay (s)		45.6			51.8			58.7			28.6	
Approach LOS		D			D			E			C	

Intersection Summary				
HCM Average Control Delay	45.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	115.8	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	88.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
7: Missouri Flat Rd. & Diamond Springs Pkwy

Cumulative
AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	688	414	235	957	22	571	14	184	3	11	16
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	3072	1435		1583	1517	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	3072	1435		1583	1517	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	764	460	261	1063	24	634	16	204	3	12	18
RTOR Reduction (vph)	0	0	200	0	0	3	0	138	0	0	16	0
Lane Group Flow (vph)	16	764	260	261	1063	21	634	82	0	3	14	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	2.7	33.5	59.6	20.6	51.4	51.4	26.1	34.2		1.0	9.1	
Effective Green, g (s)	2.7	33.5	59.6	20.6	51.4	51.4	26.1	34.2		1.0	9.1	
Actuated g/C Ratio	0.03	0.32	0.57	0.20	0.49	0.49	0.25	0.32		0.01	0.09	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	41	1008	856	310	1546	692	761	466		15	131	
v/s Ratio Prot	0.01	c0.24	0.08	c0.16	0.34		c0.21	c0.06		0.00	0.01	
v/s Ratio Perm			0.11			0.02						
v/c Ratio	0.39	0.76	0.30	0.84	0.69	0.03	0.83	0.18		0.20	0.10	
Uniform Delay, d1	50.5	32.3	12.0	40.8	20.8	14.0	37.5	25.5		51.8	44.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	3.3	0.2	18.3	1.3	0.0	7.8	0.2		6.5	0.3	
Delay (s)	56.5	35.6	12.2	59.1	22.1	14.0	45.3	25.6		58.2	44.7	
Level of Service	E	D	B	E	C	B	D	C		E	D	
Approach Delay (s)		27.2			29.1			40.3			45.9	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM Average Control Delay	31.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	70.7%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	730	93	22	1139	22	47	13	24	27	3	28
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1583	1667	1417	1583	3158			1573	1389		1493	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1583	1667	1417	1583	3158			1573	1389		1493	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	811	103	24	1266	24	52	14	27	30	3	31
RTOR Reduction (vph)	0	0	24	0	1	0	0	0	24	0	28	0
Lane Group Flow (vph)	58	811	79	24	1289	0	0	66	3	0	36	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	6.4	65.0	65.0	1.6	60.2			11.3	11.3		11.1	
Effective Green, g (s)	6.4	65.0	65.0	1.6	60.2			11.3	11.3		11.1	
Actuated g/C Ratio	0.06	0.62	0.62	0.02	0.57			0.11	0.11		0.11	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	96	1032	877	24	1811			169	149		158	
v/s Ratio Prot	c0.04	c0.49		0.02	0.41			c0.04			c0.02	
v/s Ratio Perm			0.06						0.00			
v/c Ratio	0.60	0.79	0.09	1.00	0.71			0.39	0.02		0.23	
Uniform Delay, d1	48.1	14.8	8.1	51.7	16.1			43.6	41.9		43.0	
Progression Factor	1.00	1.00	1.00	0.90	0.69			1.00	1.00		1.00	
Incremental Delay, d2	10.3	6.0	0.2	157.2	1.8			1.5	0.1		0.7	
Delay (s)	58.3	20.9	8.3	203.8	12.8			45.1	41.9		43.8	
Level of Service	E	C	A	F	B			D	D		D	
Approach Delay (s)		21.8			16.3			44.2			43.8	
Approach LOS		C			B			D			D	

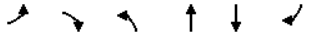
Intersection Summary				
HCM Average Control Delay	20.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	65.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	175	606	14	724	214	208	459
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		3013	1635	1635	1389
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		3013	1635	1635	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	194	673	16	804	238	231	510
RTOR Reduction (vph)	0	500	0	0	0	0	21
Lane Group Flow (vph)	194	173	0	820	238	231	489
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%	4%
Turn Type		Perm	Prot	Prot			pm+ov
Protected Phases	4		5	5	2	6	4
Permitted Phases		4					6
Actuated Green, G (s)	27.0	27.0		44.9	70.0	21.1	48.1
Effective Green, g (s)	27.0	27.0		44.9	70.0	21.1	48.1
Actuated g/C Ratio	0.26	0.26		0.43	0.67	0.20	0.46
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	364		1288	1090	329	689
v/s Ratio Prot	0.12			c0.27	0.15	0.14	c0.18
v/s Ratio Perm		0.12					0.17
v/c Ratio	0.48	0.48		0.64	0.22	0.70	0.71
Uniform Delay, d1	33.0	33.0		23.6	6.8	39.0	22.8
Progression Factor	0.55	4.76		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.7		2.4	0.1	6.6	3.4
Delay (s)	18.7	157.7		26.0	6.9	45.7	26.2
Level of Service	B	F		C	A	D	C
Approach Delay (s)	126.6				21.7	32.3	
Approach LOS	F				C	C	

Intersection Summary				
HCM Average Control Delay	58.8	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	87.7%	ICU Level of Service	E	
Analysis Period (min)	15			

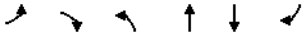
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	6	6	10	379	666	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	7	11	421	740	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked	0.99					
vC, conflicting volume	1185	742	743			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1180	742	743			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	99			
cM capacity (veh/h)	202	413	855			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	432	743
Volume Left	7	11	0
Volume Right	7	0	3
cSH	272	855	1700
Volume to Capacity	0.05	0.01	0.44
Queue Length 95th (ft)	4	1	0
Control Delay (s)	18.9	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	18.9	0.4	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		49.4%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	1	0	389	666	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	432	740	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.95					
vC, conflicting volume	1176	743	747			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1160	743	747			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	204	412	853			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	432	747
Volume Left	0	0	0
Volume Right	1	0	7
cSH	412	1700	1700
Volume to Capacity	0.00	0.25	0.44
Queue Length 95th (ft)	0	0	0
Control Delay (s)	13.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.8	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		49.6%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	25	0	0	94	37	858	43	15	753	60
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	28	0	0	104	41	953	48	17	837	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89					
vC, conflicting volume	1991	1987	870	1957	1996	977	903			1001		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2054	2049	789	2016	2060	977	827			1001		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	92	100	100	65	94			98		
cM capacity (veh/h)	22	45	343	33	44	302	705			684		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	28	41	1001	17	903
Volume Left	0	41	0	17	0
Volume Right	28	0	48	0	67
cSH	343	705	1700	684	1700
Volume to Capacity	0.08	0.06	0.59	0.02	0.53
Queue Length 95th (ft)	7	5	0	2	0
Control Delay (s)	16.4	10.4	0.0	10.4	0.0
Lane LOS	C	B		B	
Approach Delay (s)	16.4	0.4		0.2	
Approach LOS	C				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	66.6%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	188	31	28	315	531	46	56	50	604	51	123
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1553	3041		1583	1667	1417		1630	1417	3013	1461	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1553	3041		1583	1667	1417		1630	1417	3013	1461	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	103	209	34	31	350	590	51	62	56	671	57	137
RTOR Reduction (vph)	0	16	0	0	0	243	0	0	47	0	92	0
Lane Group Flow (vph)	103	227	0	31	350	347	0	113	9	671	102	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	6.6	23.1		3.5	20.0	41.1		8.1	11.6	21.1	21.1	
Effective Green, g (s)	6.6	23.1		3.5	20.0	41.1		8.1	11.6	21.1	21.1	
Actuated g/C Ratio	0.09	0.32		0.05	0.28	0.58		0.11	0.16	0.30	0.30	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	144	985		78	468	817		185	231	892	432	
v/s Ratio Prot	c0.07	0.07		0.02	c0.21	0.13		c0.07	0.00	c0.22	0.07	
v/s Ratio Perm						0.12			0.00			
v/c Ratio	0.72	0.23		0.40	0.75	0.43		0.61	0.04	0.75	0.24	
Uniform Delay, d1	31.4	17.6		32.9	23.4	8.5		30.1	25.2	22.7	19.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.1	0.1		1.2	6.5	0.4		5.9	0.0	3.6	0.3	
Delay (s)	44.5	17.7		34.1	29.9	8.8		36.0	25.2	26.4	19.3	
Level of Service	D	B		C	C	A		D	C	C	B	
Approach Delay (s)		25.7			17.2			32.4			24.8	
Approach LOS		C			B			C			C	

Intersection Summary				
HCM Average Control Delay	22.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	63.4%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	293	283	257	149	260	159
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3013	1635	1635	1389	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3013	1635	1635	1389	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	326	314	286	166	289	177
RTOR Reduction (vph)	0	0	0	2	0	96
Lane Group Flow (vph)	326	314	286	164	289	81
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	5.3	19.4	11.1	24.0	12.9	18.2
Effective Green, g (s)	5.3	19.4	11.1	24.0	12.9	18.2
Actuated g/C Ratio	0.13	0.49	0.28	0.60	0.32	0.46
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	400	795	455	835	512	646
v/s Ratio Prot	c0.11	0.19	c0.17	0.06	c0.18	0.02
v/s Ratio Perm				0.05		0.04
v/c Ratio	0.81	0.39	0.63	0.20	0.56	0.12
Uniform Delay, d1	16.8	6.5	12.6	3.6	11.2	6.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.1	2.0	0.1	1.6	0.0
Delay (s)	28.3	6.6	14.6	3.7	12.7	6.3
Level of Service	C	A	B	A	B	A
Approach Delay (s)		17.7	10.6		10.3	
Approach LOS		B	B		B	

Intersection Summary				
HCM Average Control Delay	13.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	39.9	Sum of lost time (s)	10.6	
Intersection Capacity Utilization	50.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	78	297	735	97	21	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	330	817	108	23	139
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	924				1374	871
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	924				1374	871
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				84	60
cM capacity (veh/h)	731				141	351

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	417	924	162
Volume Left	87	0	23
Volume Right	0	108	139
cSH	731	1700	289
Volume to Capacity	0.12	0.54	0.56
Queue Length 95th (ft)	10	0	80
Control Delay (s)	3.4	0.0	32.3
Lane LOS	A		D
Approach Delay (s)	3.4	0.0	32.3
Approach LOS			D

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	202	20	40	581	6	9	0	20	1	4	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	224	22	44	646	7	10	0	22	1	4	82
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		1091										
pX, platoon unblocked												
vC, conflicting volume	652			247			1106	1028	236	1036	1036	649
vC1, stage 1 conf vol							287	287		738	738	
vC2, stage 2 conf vol							819	741		298	298	
vCu, unblocked vol	652			247			1106	1028	236	1036	1036	649
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			96	100	97	100	99	82
cM capacity (veh/h)	934			1319			255	359	803	361	374	470

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	26	247	44	652	32	88
Volume Left	26	0	44	0	10	1
Volume Right	0	22	0	7	22	82
cSH	934	1700	1319	1700	482	462
Volume to Capacity	0.03	0.15	0.03	0.38	0.07	0.19
Queue Length 95th (ft)	2	0	3	0	5	17
Control Delay (s)	9.0	0.0	7.8	0.0	13.0	14.6
Lane LOS	A		A		B	B
Approach Delay (s)	0.8		0.5		13.0	14.6
Approach LOS					B	B

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	52.4%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	517	17	3	1165	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	574	19	3	1294	14	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			593		1885	584
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			593		1885	584
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		81	99
cM capacity (veh/h)			983		77	512

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	593	1298	20
Volume Left	0	3	14
Volume Right	19	0	6
cSH	1700	983	101
Volume to Capacity	0.35	0.00	0.20
Queue Length 95th (ft)	0	0	17
Control Delay (s)	0.0	0.1	49.1
Lane LOS		A	E
Approach Delay (s)	0.0	0.1	49.1
Approach LOS			E

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	81.2%	ICU Level of Service		D
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	284	374	338	329	6	147	2	247	13	5	10
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1553	1635	1389	1553	1630			1588	1417		1552	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1553	1635	1389	1553	1630			1588	1417		1552	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	316	416	376	366	7	163	2	274	14	6	11
RTOR Reduction (vph)	0	0	291	0	1	0	0	0	203	0	10	0
Lane Group Flow (vph)	4	316	125	376	372	0	0	165	71	0	21	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.7	24.7	24.7	16.2	40.2			21.3	21.3		5.2	
Effective Green, g (s)	0.7	24.7	24.7	16.2	40.2			21.3	21.3		5.2	
Actuated g/C Ratio	0.01	0.30	0.30	0.20	0.49			0.26	0.26		0.06	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	13	490	416	305	794			410	366		98	
v/s Ratio Prot	0.00	c0.19		c0.24	0.23			c0.10			c0.01	
v/s Ratio Perm			0.09						0.05			
v/c Ratio	0.31	0.64	0.30	1.23	0.47			0.40	0.19		0.21	
Uniform Delay, d1	40.7	25.1	22.2	33.1	14.1			25.3	23.9		36.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	4.8	6.4	1.8	129.9	0.6			2.9	1.2		0.4	
Delay (s)	45.5	31.5	24.1	163.1	14.7			28.3	25.1		37.1	
Level of Service	D	C	C	F	B			C	C		D	
Approach Delay (s)		27.4			89.2			26.3			37.1	
Approach LOS		C			F			C			D	

Intersection Summary				
HCM Average Control Delay	51.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	64.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	288	532	362	28	489	671
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	320	591	402	31	543	746
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	433				1649	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	433				1649	418
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				0	0
cM capacity (veh/h)	1116				78	635

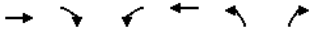
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	911	433	1289
Volume Left	320	0	543
Volume Right	0	31	746
cSH	1116	1700	158
Volume to Capacity	0.29	0.25	8.17
Queue Length 95th (ft)	30	0	Err
Control Delay (s)	6.1	0.0	Err
Lane LOS	A		F
Approach Delay (s)	6.1	0.0	Err
Approach LOS			F

Intersection Summary				
Average Delay	4896.1			
Intersection Capacity Utilization	158.6%	ICU Level of Service	H	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	660	93	68	528	146	192
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	733	103	76	587	162	213

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	837	662	376
Volume Left (vph)	0	76	162
Volume Right (vph)	103	0	213
Hadj (s)	-0.01	0.09	-0.22
Departure Headway (s)	6.3	6.4	6.8
Degree Utilization, x	1.47	1.18	0.71
Capacity (veh/h)	576	567	522
Control Delay (s)	238.9	121.4	24.4
Approach Delay (s)	238.9	121.4	24.4
Approach LOS	F	F	C

Intersection Summary			
Delay	154.4		
HCM Level of Service	F		
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	410	240	226	359	290	380
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	456	267	251	399	322	422

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	722	251	399	744
Volume Left (vph)	0	251	0	322
Volume Right (vph)	267	0	0	422
Hadj (s)	-0.19	0.57	0.07	-0.19
Departure Headway (s)	6.8	8.1	7.7	6.7
Degree Utilization, x	1.36	0.57	0.85	1.39
Capacity (veh/h)	542	430	466	550
Control Delay (s)	195.9	20.2	39.2	204.6
Approach Delay (s)	195.9	31.8		204.6
Approach LOS	F	D		F

Intersection Summary			
Delay	148.6		
HCM Level of Service	F		
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	42	23	22	890	595	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	47	26	24	989	661	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1717	679	697			
vC1, stage 1 conf vol	679					
vC2, stage 2 conf vol	1038					
vCu, unblocked vol	1717	679	697			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	94	97			
cM capacity (veh/h)	281	448	899			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	72	24	989	697
Volume Left	47	24	0	0
Volume Right	26	0	0	36
cSH	324	899	1700	1700
Volume to Capacity	0.22	0.03	0.58	0.41
Queue Length 95th (ft)	21	2	0	0
Control Delay (s)	19.3	9.1	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	19.3	0.2		0.0
Approach LOS	C			

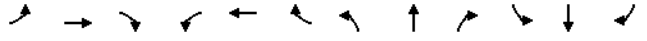
Intersection Summary				
Average Delay		0.9		
Intersection Capacity Utilization		63.2%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	368	399	153	150	34	517	122	320	107	308	308	289
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1544	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1544	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	409	443	170	167	38	574	136	356	119	342	342	321
RTOR Reduction (vph)	0	1	105	0	0	29	0	0	91	0	0	0
Lane Group Flow (vph)	409	459	48	167	38	545	136	356	28	342	342	321
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	27.1	39.5	39.5	16.8	29.2	63.2	22.5	18.7	18.7	34.0	30.2	125.0
Effective Green, g (s)	27.1	39.5	39.5	16.8	29.2	63.2	22.5	18.7	18.7	34.0	30.2	125.0
Actuated g/C Ratio	0.22	0.32	0.32	0.13	0.23	0.51	0.18	0.15	0.15	0.27	0.24	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	653	488	417	209	382	702	280	465	208	422	750	1389
v/s Ratio Prot	0.14	c0.30		0.11	0.02	c0.21	0.09	c0.11		c0.22	0.11	
v/s Ratio Perm			0.04			0.18			0.02			0.23
v/c Ratio	0.63	0.94	0.12	0.80	0.10	0.78	0.49	0.77	0.13	0.81	0.46	0.23
Uniform Delay, d1	44.4	41.6	30.4	52.5	37.6	25.2	46.1	51.0	46.1	42.5	40.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.74	1.00
Incremental Delay, d2	1.9	26.1	0.1	18.9	0.1	5.4	5.9	11.4	1.3	9.7	1.2	0.2
Delay (s)	46.2	67.7	30.5	71.3	37.7	30.6	52.0	62.5	47.5	42.3	31.0	0.2
Level of Service	D	E	C	E	D	C	D	E	D	D	C	A
Approach Delay (s)		53.5			39.6			57.2			25.0	
Approach LOS		D			D			E			C	

Intersection Summary				
HCM Average Control Delay		42.6	HCM Level of Service	D
HCM Volume to Capacity ratio		0.83		
Actuated Cycle Length (s)		125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization		78.5%	ICU Level of Service	D
Analysis Period (min)		15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Cumulative
24: WB US-50 Ramps & Ponderosa Rd. — AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	0	82	134	12	174	44	549	612	0	1478	15
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.87	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1553		1389	1553	1349	1320	1553	3106	1389		3106	1389
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1553		1389	1553	1349	1320	1553	3106	1389		3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	0	91	149	13	193	49	610	680	0	1642	17
RTOR Reduction (vph)	0	0	85	0	76	85	0	0	0	0	0	0
Lane Group Flow (vph)	23	0	6	149	28	17	49	610	680	0	1642	17
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	5.1		8.1	17.7	20.7	20.7	4.8	87.2	125.0		78.4	78.4
Effective Green, g (s)	5.1		8.1	17.7	20.7	20.7	4.8	87.2	125.0		78.4	78.4
Actuated g/C Ratio	0.04		0.06	0.14	0.17	0.17	0.04	0.70	1.00		0.63	0.63
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	63		90	220	223	219	60	2167	1389		1948	871
v/s Ratio Prot	0.01		0.00	c0.10	0.02		0.03	0.20			c0.53	0.01
v/s Ratio Perm						0.01			c0.49			
v/c Ratio	0.37		0.07	0.68	0.13	0.08	0.82	0.28	0.49		0.84	0.02
Uniform Delay, d1	58.4		54.9	50.9	44.4	44.1	59.7	7.1	0.0		18.4	8.8
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.98	0.88	1.00		1.00	1.00
Incremental Delay, d2	3.6		0.3	8.0	0.3	0.2	42.7	0.2	0.9		4.7	0.0
Delay (s)	61.9		55.2	58.9	44.7	44.2	101.2	6.5	0.9		23.1	8.8
Level of Service	E		E	E	D	D	F	A	A		C	A
Approach Delay (s)		56.6			50.5			7.1			22.9	
Approach LOS		E			D			A			C	

Intersection Summary				
HCM Average Control Delay	20.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis — Cumulative
25: Skyline Dr. & Diamond Rd. (SR-49) — AM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	17	3	0	415	562	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	3	0	461	624	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1092	631	638			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1092	631	638			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	99	100			
cM capacity (veh/h)	237	481	936			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	22	461	638
Volume Left	19	0	0
Volume Right	3	0	13
cSH	257	936	1700
Volume to Capacity	0.09	0.00	0.38
Queue Length 95th (ft)	7	0	0
Control Delay (s)	20.3	0.0	0.0
Lane LOS	C		
Approach Delay (s)	20.3	0.0	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	19	24	374	21	28	370
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	21	27	416	23	31	411
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	901	427			439	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	901	427			439	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			97	
cM capacity (veh/h)	300	627			1110	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	48	439	442
Volume Left	21	0	31
Volume Right	27	23	0
cSH	423	1700	1110
Volume to Capacity	0.11	0.26	0.03
Queue Length 95th (ft)	9	0	2
Control Delay (s)	14.6	0.0	0.9
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	0.9
Approach LOS	B		

Intersection Summary				
Average Delay		1.2		
Intersection Capacity Utilization		57.5%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	214	138	129	185	50	149	126	115	42	76	28
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1553	1539		1583	1613		1553	1518		1583	1599	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1553	1539		1583	1613		1553	1518		1583	1599	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	238	153	143	206	56	166	140	128	47	84	31
RTOR Reduction (vph)	0	36	0	0	14	0	0	59	0	0	26	0
Lane Group Flow (vph)	11	355	0	143	248	0	166	209	0	47	89	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.5	16.7		6.3	22.5		7.4	13.9		1.7	8.2	
Effective Green, g (s)	0.5	16.7		6.3	22.5		7.4	13.9		1.7	8.2	
Actuated g/C Ratio	0.01	0.32		0.12	0.43		0.14	0.27		0.03	0.16	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	15	493		191	697		221	405		52	252	
v/s Ratio Prot	0.01	c0.23		c0.09	0.15		c0.11	c0.14		0.03	0.06	
v/s Ratio Perm												
v/c Ratio	0.73	0.72		0.75	0.36		0.75	0.52		0.90	0.35	
Uniform Delay, d1	25.7	15.6		22.1	9.9		21.5	16.2		25.1	19.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	93.0	4.4		13.1	0.1		12.0	0.5		88.0	0.3	
Delay (s)	118.7	20.0		35.2	10.1		33.5	16.7		113.1	19.9	
Level of Service	F	B		D	B		C	B		F	B	
Approach Delay (s)		22.7			18.9			23.1			46.9	
Approach LOS		C			B			C			D	

Intersection Summary				
HCM Average Control Delay	24.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	52.1	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	61.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	91	32	24	1018	631	119
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	101	36	27	1131	701	132
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				833		
pX, platoon unblocked						
vC, conflicting volume	1952	767	833			
vC1, stage 1 conf vol	767					
vC2, stage 2 conf vol	1184					
vCu, unblocked vol	1952	767	833			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	58	91	97			
cM capacity (veh/h)	241	402	800			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	137	27	1131	833
Volume Left	101	27	0	0
Volume Right	36	0	0	132
cSH	269	800	1700	1700
Volume to Capacity	0.51	0.03	0.67	0.49
Queue Length 95th (ft)	67	3	0	0
Control Delay (s)	31.5	9.7	0.0	0.0
Lane LOS	D	A		
Approach Delay (s)	31.5	0.2		0.0
Approach LOS	D			

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	74.4%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	56	4	138	0	708	185	74	402	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	2	62	4	153	0	787	206	82	447	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1553	1603	447	1503	1501	889	447			992		
vC1, stage 1 conf vol	611	611		889	889							
vC2, stage 2 conf vol	942	992		613	611							
vCu, unblocked vol	1553	1603	447	1503	1501	889	447			992		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	77	98	55	100			88		
cM capacity (veh/h)	86	217	610	271	288	342	1114			697		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	220	0	992	82	447
Volume Left	0	62	0	0	82	0
Volume Right	2	153	0	206	0	0
cSH	610	317	1700	1700	697	1700
Volume to Capacity	0.00	0.69	0.00	0.58	0.12	0.26
Queue Length 95th (ft)	0	121	0	0	10	0
Control Delay (s)	10.9	38.4	0.0	0.0	10.9	0.0
Lane LOS	B	E			B	
Approach Delay (s)	10.9	38.4	0.0		1.7	
Approach LOS	B	E				

Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	88.7%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	875	0	0	1214	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	972	0	0	1349	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				686		
pX, platoon unblocked					0.71	
vC, conflicting volume			972		1647	972
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			972		1100	972
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			705		147	252

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	972	0	674	674	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.57	0.00	0.40	0.40	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	54.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	875	0	0	1214	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	972	0	0	1349	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				391		
pX, platoon unblocked					0.71	
vC, conflicting volume			972		1647	972
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			972		1092	972
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			705		148	252

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	972	0	674	674
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.57	0.00	0.40	0.40
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	54.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	952	828	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	1058	920	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					253	
pX, platoon unblocked	0.87	0.87	0.87			
vC, conflicting volume	1273	920	920			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1240	837	837			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	146	271	682			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	0	353	353	353	920	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.21	0.21	0.21	0.54	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A					
Approach Delay (s)	0.0	0.0			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		52.0%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	352	333	341	370	668	526	473	76	416
v/c Ratio	0.93	0.46	0.95	0.94	0.95	0.52	0.47	0.55	0.81
Control Delay	70.9	15.7	83.2	70.3	36.8	17.0	1.8	66.6	60.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.9	15.7	83.2	70.3	36.8	17.0	1.8	66.6	60.6
Queue Length 50th (ft)	243	117	~283	252	239	111	26	57	159
Queue Length 95th (ft)	#430	200	#486	#466	m226	m115	m24	108	217
Internal Link Dist (ft)	421			1192		570			1135
Turn Bay Length (ft)					125		500	105	
Base Capacity (vph)	395	722	358	393	706	1017	1007	171	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.46	0.95	0.94	0.95	0.52	0.47	0.44	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: EB US-50 Off Ramp & Missouri Flat Rd.

Cumulative
AM Peak

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	188	576	1124	616	500	863	61	299	649	328
v/c Ratio	0.19	0.97	1.12	1.12	0.69	1.04	0.04	0.44	0.84	0.24
Control Delay	29.1	76.8	104.9	118.7	45.4	79.0	0.1	43.5	42.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	76.8	104.9	118.7	45.4	79.0	0.1	43.5	42.0	0.3
Queue Length 50th (ft)	53	252	~516	~312	158	~384	0	93	265	0
Queue Length 95th (ft)	81	#382	#648	#440	217	#500	0	m117	m314	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	1004	591	1004	550	728	828	1389	678	777	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.97	1.12	1.12	0.69	1.04	0.04	0.44	0.84	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
4: Mother Lode Dr. & Missouri Flat Rd.

Cumulative
AM Peak

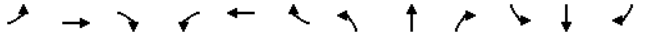
Lane Group	EBL	EBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	386	144	73	1039	1157	2349
v/c Ratio	0.70	0.39	0.51	0.44	0.82	0.81
Control Delay	52.4	9.0	63.5	6.8	5.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.5
Total Delay	52.4	9.0	63.5	6.8	5.3	14.6
Queue Length 50th (ft)	147	0	55	126	0	235
Queue Length 95th (ft)	178	50	101	238	0	m#206
Internal Link Dist (ft)				311		464
Turn Bay Length (ft)	185	185	200		300	
Base Capacity (vph)	819	483	211	2385	1417	2907
Starvation Cap Reductn	0	0	0	0	0	354
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.30	0.35	0.44	0.82	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Forni Rd. & Missouri Flat Rd.

Cumulative
AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	286	33	30	72	28	87	124	1897	90	121	1884	272
v/c Ratio	0.78	0.15	0.14	0.59	0.17	0.40	0.73	1.12	0.12	0.73	1.11	0.34
Control Delay	57.1	38.1	14.0	65.2	42.4	14.5	68.8	85.3	13.0	68.3	83.5	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	38.1	14.0	65.2	42.4	14.5	68.8	85.3	13.0	68.3	83.5	13.4
Queue Length 50th (ft)	81	17	0	40	16	0	69	~650	16	67	~643	52
Queue Length 95th (ft)	170	48	25	109	44	43	168	#1335	72	164	#1322	198
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	577	607	535	297	598	564	297	1701	774	297	1696	799
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.05	0.06	0.24	0.05	0.15	0.42	1.12	0.12	0.41	1.11	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
6: Golden Center Dr. & Missouri Flat Rd.

Cumulative
AM Peak

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	26	124	68	2247	147	1590	30
v/c Ratio	0.17	0.64	0.26	1.06	1.07	0.81	0.03
Control Delay	44.2	48.7	47.7	58.0	145.0	24.4	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	48.7	47.7	58.0	145.0	24.4	7.9
Queue Length 50th (ft)	17	63	40	~929	~116	526	6
Queue Length 95th (ft)	43	125	#134	#1349	#291	636	19
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	314	365	263	2121	138	2257	1013
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.34	0.26	1.06	1.07	0.70	0.03

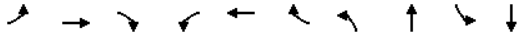
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
7: Missouri Flat Rd. & Diamond Springs Pkwy

Cumulative
AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	764	460	261	1063	24	634	220	3	30
v/c Ratio	0.15	0.78	0.44	0.80	0.65	0.03	0.79	0.35	0.03	0.17
Control Delay	53.9	40.5	2.8	59.8	25.5	19.5	43.5	5.4	54.0	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	40.5	2.8	59.8	25.5	19.5	43.5	5.4	54.0	26.1
Queue Length 50th (ft)	10	235	0	161	234	5	189	6	2	7
Queue Length 95th (ft)	38	#489	53	#414	#645	33	#357	55	13	34
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	261	981	1102	327	1634	734	983	697	523	529
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.78	0.42	0.80	0.65	0.03	0.64	0.32	0.01	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
8: Diamond Springs Pkwy & Throwita Way

Cumulative
AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	58	811	103	24	1290	66	27	64
v/c Ratio	0.97	0.73	0.11	0.40	0.67	0.35	0.14	0.32
Control Delay	159.8	23.8	9.0	59.1	16.7	45.0	14.1	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	159.8	23.8	9.0	59.1	16.7	45.0	14.1	26.1
Queue Length 50th (ft)	40	259	7	17	168	43	0	21
Queue Length 95th (ft)	#123	#1082	65	m26	#788	71	22	48
Internal Link Dist (ft)		311			840	290		465
Turn Bay Length (ft)	175			100			100	
Base Capacity (vph)	60	1110	965	60	1933	404	377	477
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.73	0.11	0.40	0.67	0.16	0.07	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
9: Diamond Springs Pkwy & Diamond Rd. (SR-49)

Cumulative
AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	194	673	820	238	231	510
v/c Ratio	0.48	0.78	0.64	0.22	0.70	0.72
Control Delay	21.3	19.2	28.0	7.4	49.7	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	19.2	28.0	7.4	49.7	24.6
Queue Length 50th (ft)	111	186	214	56	147	245
Queue Length 95th (ft)	m11	573	#346	89	199	289
Internal Link Dist (ft)	840			173	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	407	864	1289	1090	498	699
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.78	0.64	0.22	0.46	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49)

Cumulative
AM Peak

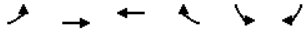
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	243	31	350	590	113	56	671	194
v/c Ratio	0.62	0.24	0.32	0.75	0.53	0.60	0.15	0.75	0.37
Control Delay	49.3	17.7	43.8	37.4	2.7	49.8	8.9	29.4	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	17.7	43.8	37.4	2.7	49.8	8.9	29.4	10.5
Queue Length 50th (ft)	47	38	14	148	3	51	0	143	22
Queue Length 95th (ft)	97	71	42	#309	41	#137	28	219	74
Internal Link Dist (ft)		215		260		844			629
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	499	1611	162	512	1173	190	431	1101	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.15	0.19	0.68	0.50	0.59	0.13	0.61	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
14: Pleasant Valley Rd. (SR-49) & Missouri Flat Rd.

Cumulative
AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	326	314	286	166	289	177
v/c Ratio	0.82	0.40	0.65	0.17	0.57	0.21
Control Delay	43.7	8.9	20.5	2.1	17.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	8.9	20.5	2.1	17.8	2.3
Queue Length 50th (ft)	35	38	53	7	48	0
Queue Length 95th (ft)	#149	104	129	14	149	26
Internal Link Dist (ft)		1271	1500		753	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	397	1348	1051	1251	834	851
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.23	0.27	0.13	0.35	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: Pleasant Valley Rd. (SR-49) & Oro Ln

Cumulative
AM Peak

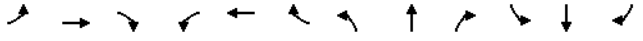
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	316	416	376	373	165	274	31
v/c Ratio	0.05	0.68	0.60	1.18	0.45	0.38	0.47	0.21
Control Delay	41.5	36.5	7.3	138.6	17.3	28.9	6.8	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	36.5	7.3	138.6	17.3	28.9	6.8	27.5
Queue Length 50th (ft)	2	136	0	~223	104	65	0	10
Queue Length 95th (ft)	13	#326	85	#486	285	151	66	33
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	80	462	690	320	836	430	583	428
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.68	0.60	1.18	0.45	0.38	0.47	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
23: EB US-50 Off-Ramp & Ponderosa Rd.

Cumulative
AM Peak



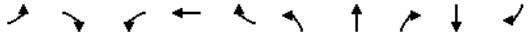
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	409	460	153	167	38	574	136	356	119	342	342	321
v/c Ratio	0.63	0.94	0.29	0.84	0.10	0.79	0.49	0.73	0.39	0.81	0.44	0.23
Control Delay	51.1	70.1	6.1	85.6	34.2	22.5	54.2	60.7	15.2	43.7	30.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	70.1	6.1	85.6	34.2	22.5	54.2	60.7	15.2	43.7	30.6	0.2
Queue Length 50th (ft)	164	371	0	133	23	143	102	148	9	267	126	0
Queue Length 95th (ft)	215	#585	50	#248	52	243	172	#218	66	m#362	m133	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	724	508	536	211	468	730	279	485	308	422	770	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.91	0.29	0.79	0.08	0.79	0.49	0.73	0.39	0.81	0.44	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
24: WB US-50 Ramps & Ponderosa Rd.

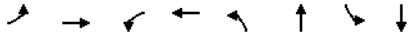
Cumulative
AM Peak



Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	23	91	149	104	102	49	610	680	1642	17
v/c Ratio	0.25	0.52	0.74	0.35	0.34	0.64	0.28	0.49	0.82	0.02
Control Delay	61.9	21.2	74.3	15.3	11.5	84.1	6.5	1.5	22.7	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	21.2	74.3	15.3	11.5	84.1	6.5	1.5	22.7	10.3
Queue Length 50th (ft)	18	0	116	9	0	40	99	14	488	5
Queue Length 95th (ft)	46	50	#221	64	52	m#67	141	15	#746	16
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	199	257	214	299	304	76	2205	1389	2007	898
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.35	0.70	0.35	0.34	0.64	0.28	0.49	0.82	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	391	143	262	166	268	47	115
v/c Ratio	0.11	0.80	0.68	0.34	0.69	0.54	0.28	0.37
Control Delay	28.1	30.6	46.6	11.5	44.2	15.7	28.4	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	30.6	46.6	11.5	44.2	15.7	28.4	17.5
Queue Length 50th (ft)	3	84	42	36	48	40	13	23
Queue Length 95th (ft)	17	#256	#144	126	#159	114	45	57
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	102	592	209	795	239	680	174	618
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.66	0.68	0.33	0.69	0.39	0.27	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Plaza Dr. & Missouri Flat Rd.

Cumulative
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	41	549	291	71	183	603	438	428	96	443	60
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1428	1346	1504	1423		3072	3167	1417	1583	3110	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1346	1504	1423		3072	3167	1417	1583	3110	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	46	610	323	79	203	670	487	476	107	492	67
RTOR Reduction (vph)	0	37	44	0	55	0	0	0	286	0	9	0
Lane Group Flow (vph)	0	371	340	291	259	0	670	487	190	107	550	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		31.0	58.0	24.0	24.0		27.0	23.9	47.9	25.1	22.0	
Effective Green, g (s)		31.0	58.0	24.0	24.0		27.0	23.9	47.9	25.1	22.0	
Actuated g/C Ratio		0.26	0.48	0.20	0.20		0.22	0.20	0.40	0.21	0.18	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		369	651	301	285		691	631	613	331	570	
v/s Ratio Prot		c0.26	0.12	c0.19	0.18		c0.22	0.15	0.06	c0.07	c0.18	
v/s Ratio Perm			0.13						0.07			
v/c Ratio		1.01	0.52	0.97	0.91		0.97	0.77	0.31	0.32	0.96	
Uniform Delay, d1		44.5	21.4	47.6	46.9		46.1	45.5	24.7	40.2	48.6	
Progression Factor		1.00	1.00	1.00	1.00		0.72	0.67	0.71	1.00	1.00	
Incremental Delay, d2		48.2	0.8	42.4	30.3		18.9	5.3	0.2	0.6	30.0	
Delay (s)		92.7	22.2	90.0	77.2		52.0	35.7	17.6	40.8	78.6	
Level of Service		F	C	F	E		D	D	B	D	E	
Approach Delay (s)		58.5			83.4			37.1			72.5	
Approach LOS		E			F			D			E	

Intersection Summary				
HCM Average Control Delay	55.7	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.00			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	88.2%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: EB US-50 Off Ramp & Missouri Flat Rd.

Cumulative
PM Peak

Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	265	835	948	504	516	700	63	316	613	354
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	0.88	0.97	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	294	928	1053	560	573	778	70	351	681	393
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	294	928	1053	560	573	778	70	351	681	393
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	custom	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3	1	4	5	1	6		5	2	
Permitted Phases							Free			Free
Actuated Green, G (s)	35.0	39.0	35.0	28.0	39.0	36.0	120.0	28.0	25.0	120.0
Effective Green, g (s)	35.0	39.0	35.0	28.0	39.0	36.0	120.0	28.0	25.0	120.0
Actuated g/C Ratio	0.29	0.32	0.29	0.23	0.32	0.30	1.00	0.23	0.21	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	879	795	879	571	979	932	1389	703	647	1389
v/s Ratio Prot	0.10	c0.38	c0.35	c0.23	0.19	0.25		0.12	0.22	
v/s Ratio Perm							0.05			c0.28
v/c Ratio	0.33	1.17	1.20	0.98	0.59	0.83	0.05	0.50	1.05	0.28
Uniform Delay, d1	33.4	40.5	42.5	45.7	33.8	39.2	0.0	39.9	47.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.79	0.83	1.00	0.93	0.93	1.00
Incremental Delay, d2	0.2	88.7	100.1	32.6	0.8	8.0	0.1	0.3	39.7	0.2
Delay (s)	33.6	129.2	142.6	78.4	27.6	40.4	0.1	37.4	83.7	0.2
Level of Service	C	F	F	E	C	D	A	D	F	A
Approach Delay (s)						33.2			49.3	
Approach LOS						C			D	

Intersection Summary				
HCM Average Control Delay	77.7	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	Err%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Mother Lode Dr. & Missouri Flat Rd.

Cumulative
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	379	0	144	0	0	0	76	900	1189	0	2151	245
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.91	
Frt	1.00		0.85				1.00	1.00	0.85		0.98	
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (prot)	3072		1417				1583	3167	1417		4480	
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (perm)	3072		1417				1583	3167	1417		4480	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	421	0	160	0	0	0	84	1000	1321	0	2390	272
RTOR Reduction (vph)	0	0	130	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	421	0	30	0	0	0	84	1000	1321	0	2653	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Free			
Protected Phases	4						5	2			6	
Permitted Phases			4						Free			
Actuated Green, G (s)	22.7		22.7				10.2	89.3	120.0		75.1	
Effective Green, g (s)	22.7		22.7				10.2	89.3	120.0		75.1	
Actuated g/C Ratio	0.19		0.19				0.08	0.74	1.00		0.63	
Clearance Time (s)	4.0		4.0				4.0	4.0			4.0	
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)	581		268				135	2357	1417		2804	
v/s Ratio Prot	0.14						0.05	0.32			0.59	
v/s Ratio Perm			0.02						c0.93			
v/c Ratio	0.72		0.11				0.62	0.42	0.93		0.95	
Uniform Delay, d1	45.7		40.3				53.0	5.7	0.0		20.6	
Progression Factor	1.00		1.00				1.00	1.00	1.00		0.79	
Incremental Delay, d2	4.5		0.2				8.6	0.6	12.4		1.0	
Delay (s)	50.2		40.5				61.7	6.3	12.4		17.3	
Level of Service	D		D				E	A	B		B	
Approach Delay (s)		47.5			0.0			11.6			17.3	
Approach LOS		D			A			B			B	

Intersection Summary				
HCM Average Control Delay	18.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	79.3%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
5: Forni Rd. & Missouri Flat Rd.

Cumulative
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	588	68	63	155	60	185	109	1392	79	175	1726	394
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	653	76	70	172	67	206	121	1547	88	194	1918	438
RTOR Reduction (vph)	0	0	59	0	0	186	0	0	19	0	0	70
Lane Group Flow (vph)	653	76	11	172	67	20	121	1547	69	194	1918	368
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	20.2	16.9	16.9	14.0	10.7	10.7	10.6	46.0	46.0	16.1	51.5	51.5
Effective Green, g (s)	20.2	16.9	16.9	14.0	10.7	10.7	10.6	46.0	46.0	16.1	51.5	51.5
Actuated g/C Ratio	0.19	0.16	0.16	0.13	0.10	0.10	0.10	0.43	0.43	0.15	0.48	0.48
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	575	261	222	205	165	140	155	1349	604	236	1510	676
v/s Ratio Prot	c0.21	0.05		0.11	c0.04		0.08	0.49		c0.12	c0.61	
v/s Ratio Perm			0.01			0.01			0.05			0.26
v/c Ratio	1.14	0.29	0.05	0.84	0.41	0.15	0.78	1.15	0.11	0.82	1.27	0.55
Uniform Delay, d1	43.9	40.3	38.7	45.9	45.7	44.5	47.6	31.0	18.7	44.6	28.2	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	80.8	0.2	0.0	23.9	0.6	0.2	20.5	75.2	0.1	19.2	127.0	0.9
Delay (s)	124.7	40.5	38.8	69.8	46.3	44.6	68.1	106.2	18.8	63.8	155.2	20.9
Level of Service	F	D	D	E	D	D	E	F	B	E	F	C
Approach Delay (s)		109.2			54.6			99.2			125.2	
Approach LOS		F			D			F			F	

Intersection Summary				
HCM Average Control Delay	109.0	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.04			
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	96.3%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: Golden Center Dr. & Missouri Flat Rd.

Cumulative
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	11	8	124	8	123	35	1115	35	141	1528	29
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.93		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1586			1521		1583	3152		1583	3167	1417
Flt Permitted		0.55			0.82		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		906			1271		1583	3152		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	182	12	9	138	9	137	39	1239	39	157	1698	32
RTOR Reduction (vph)	0	2	0	0	41	0	0	2	0	0	0	6
Lane Group Flow (vph)	0	201	0	0	243	0	39	1276	0	157	1698	26
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		21.6			21.6		2.3	36.7		11.0	45.4	45.4
Effective Green, g (s)		21.6			21.6		2.3	36.7		11.0	45.4	45.4
Actuated g/C Ratio		0.26			0.26		0.03	0.45		0.13	0.55	0.55
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		238			334		44	1406		212	1747	782
v/s Ratio Prot							0.02	0.40		c0.10	c0.54	
v/s Ratio Perm		c0.22			0.19							0.02
v/c Ratio		0.84			0.73		0.89	0.91		0.74	0.97	0.03
Uniform Delay, d1		28.8			27.7		39.9	21.2		34.3	17.8	8.4
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		22.6			7.2		91.8	8.7		12.4	15.3	0.0
Delay (s)		51.4			34.9		131.7	29.9		46.6	33.2	8.4
Level of Service		D			C		F	C		D	C	A
Approach Delay (s)		51.4			34.9			32.9			33.9	
Approach LOS		D			C			C			C	

Intersection Summary				
HCM Average Control Delay	34.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	80.6%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
7: Missouri Flat Rd. & Diamond Springs Pkwy

Cumulative
PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	808	487	204	745	19	622	13	184	4	13	20
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	3072	1433		1583	1514	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	3072	1433		1583	1514	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	898	541	227	828	21	691	14	204	4	14	22
RTOR Reduction (vph)	0	0	209	0	0	3	0	134	0	0	20	0
Lane Group Flow (vph)	18	898	332	227	828	18	691	84	0	4	16	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	2.9	37.6	66.2	16.4	51.1	51.1	28.6	36.9		1.1	9.4	
Effective Green, g (s)	2.9	37.6	66.2	16.4	51.1	51.1	28.6	36.9		1.1	9.4	
Actuated g/C Ratio	0.03	0.35	0.61	0.15	0.47	0.47	0.26	0.34		0.01	0.09	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	43	1103	921	240	1498	670	814	490		16	132	
v/s Ratio Prot	0.01	c0.28	0.10	c0.14	0.26		c0.22	c0.06		0.00	0.01	
v/s Ratio Perm			0.14			0.01						
v/c Ratio	0.42	0.81	0.36	0.95	0.55	0.03	0.85	0.17		0.25	0.12	
Uniform Delay, d1	51.7	32.0	10.4	45.4	20.3	15.2	37.7	24.9		53.0	45.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	4.7	0.2	42.9	0.4	0.0	8.2	0.2		8.1	0.4	
Delay (s)	58.2	36.7	10.6	88.3	20.7	15.2	45.9	25.0		61.1	45.9	
Level of Service	E	D	B	F	C	B	D	C		E	D	
Approach Delay (s)		27.3			34.9			40.9			47.4	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM Average Control Delay	33.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	74.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	826	109	19	872	19	63	17	32	32	4	33
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1583	1667	1417	1583	3157			1573	1389		1494	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1583	1667	1417	1583	3157			1573	1389		1494	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	918	121	21	969	21	70	19	36	36	4	37
RTOR Reduction (vph)	0	0	24	0	1	0	0	0	32	0	33	0
Lane Group Flow (vph)	68	918	97	21	989	0	0	89	4	0	44	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	7.4	73.4	73.4	1.6	67.6			12.5	12.5		11.5	
Effective Green, g (s)	7.4	73.4	73.4	1.6	67.6			12.5	12.5		11.5	
Actuated g/C Ratio	0.06	0.64	0.64	0.01	0.59			0.11	0.11		0.10	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	102	1064	904	22	1856			171	151		149	
v/s Ratio Prot	c0.04	c0.55		0.01	0.31			c0.06			c0.03	
v/s Ratio Perm			0.07						0.00			
v/c Ratio	0.67	0.86	0.11	0.95	0.53			0.52	0.03		0.29	
Uniform Delay, d1	52.6	16.7	8.1	56.7	14.2			48.4	45.8		48.0	
Progression Factor	1.00	1.00	1.00	0.89	0.57			1.00	1.00		1.00	
Incremental Delay, d2	15.2	9.3	0.2	156.7	0.9			2.8	0.1		1.1	
Delay (s)	67.8	26.0	8.3	207.0	9.1			51.3	45.9		49.1	
Level of Service	E	C	A	F	A			D	D		D	
Approach Delay (s)		26.6			13.2			49.7			49.1	
Approach LOS		C			B			D			D	

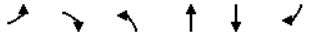
Intersection Summary				
HCM Average Control Delay	22.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	211	679	13	509	272	286	401
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		3013	1635	1635	1389
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		3013	1635	1635	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	234	754	14	566	302	318	446
RTOR Reduction (vph)	0	456	0	0	0	0	35
Lane Group Flow (vph)	234	298	0	580	302	318	411
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%	4%
Turn Type		Perm	Prot	Prot			pm+ov
Protected Phases	4		5	5	2	6	4
Permitted Phases		4					6
Actuated Green, G (s)	32.4	32.4		44.0	74.6	26.6	59.0
Effective Green, g (s)	32.4	32.4		44.0	74.6	26.6	59.0
Actuated g/C Ratio	0.28	0.28		0.38	0.65	0.23	0.51
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	446	399		1153	1061	378	761
v/s Ratio Prot	0.15			c0.19	0.18	c0.19	0.15
v/s Ratio Perm		c0.21					0.14
v/c Ratio	0.52	0.75		0.50	0.28	0.84	0.54
Uniform Delay, d1	34.8	37.6		27.1	8.7	42.2	18.9
Progression Factor	0.73	2.21		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	4.8		1.6	0.1	15.4	0.7
Delay (s)	26.1	87.8		28.7	8.9	57.6	19.6
Level of Service	C	F		C	A	E	B
Approach Delay (s)	73.2				21.9	35.4	
Approach LOS	E				C	D	

Intersection Summary				
HCM Average Control Delay	45.1	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	90.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	23	22	10	473	669	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	24	11	526	743	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked	0.95					
vC, conflicting volume	1293	746	748			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1282	746	748			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	94	99			
cM capacity (veh/h)	169	410	852			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	50	537	748
Volume Left	26	11	0
Volume Right	24	0	4
cSH	237	852	1700
Volume to Capacity	0.21	0.01	0.44
Queue Length 95th (ft)	19	1	0
Control Delay (s)	24.2	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	24.2	0.4	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	49.6%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	4	0	483	683	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	4	0	537	759	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.93					
vC, conflicting volume	1300	763	768			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1284	763	768			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	167	401	837			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	537	768
Volume Left	0	0	0
Volume Right	4	0	9
cSH	401	1700	1700
Volume to Capacity	0.01	0.32	0.45
Queue Length 95th (ft)	1	0	0
Control Delay (s)	14.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.1	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	50.7%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis — Cumulative
12: Lime Kiln Rd. & Diamond Rd. (SR-49) — PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	83	0	0	78	46	716	58	22	874	82
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	92	0	0	87	51	796	64	24	971	91
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	2007	2028	1017	2042	2041	828	1062			860		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2112	2138	916	2155	2154	828	971			860		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	66	100	100	76	91			97		
cM capacity (veh/h)	21	35	271	17	35	368	581			773		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	92	51	860	24	1062
Volume Left	0	51	0	24	0
Volume Right	92	0	64	0	91
cSH	271	581	1700	773	1700
Volume to Capacity	0.34	0.09	0.51	0.03	0.62
Queue Length 95th (ft)	36	7	0	2	0
Control Delay (s)	25.0	11.8	0.0	9.8	0.0
Lane LOS	D	B		A	
Approach Delay (s)	25.0	0.7		0.2	
Approach LOS	D				

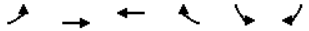
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	69.4%	ICU Level of Service	C	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis — Cumulative
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49) — PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	458	76	24	263	443	43	52	47	863	73	202
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1553	3040		1583	1667	1417		1630	1417	3013	1455	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1553	3040		1583	1667	1417		1630	1417	3013	1455	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	263	509	84	27	292	492	48	58	52	959	81	224
RTOR Reduction (vph)	0	15	0	0	0	153	0	0	45	0	105	0
Lane Group Flow (vph)	263	578	0	27	292	339	0	106	7	959	200	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	16.4	31.9		3.6	19.1	44.4		7.9	11.5	25.3	25.3	
Effective Green, g (s)	16.4	31.9		3.6	19.1	44.4		7.9	11.5	25.3	25.3	
Actuated g/C Ratio	0.19	0.38		0.04	0.23	0.53		0.09	0.14	0.30	0.30	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	302	1152		68	378	747		153	194	905	437	
v/s Ratio Prot	c0.17	0.19		0.02	c0.18	0.14		c0.07	0.00	c0.32	0.14	
v/s Ratio Perm						0.10			0.00			
v/c Ratio	0.87	0.50		0.40	0.77	0.45		0.69	0.04	1.06	0.46	
Uniform Delay, d1	32.9	20.1		39.2	30.5	12.4		37.0	31.5	29.4	23.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.3	0.4		1.4	9.6	0.4		12.7	0.0	47.0	0.8	
Delay (s)	55.1	20.4		40.6	40.1	12.8		49.7	31.6	76.5	24.6	
Level of Service	E	C		D	D	B		D	C	E	C	
Approach Delay (s)		31.1			23.5			43.7			64.0	
Approach LOS		C			C			D			E	

Intersection Summary				
HCM Average Control Delay	43.2	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	77.1%	ICU Level of Service	D	
Analysis Period (min)	15			

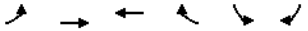
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	488	472	214	160	619	379
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3013	1635	1635	1389	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3013	1635	1635	1389	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	542	524	238	178	688	421
RTOR Reduction (vph)	0	0	0	6	0	113
Lane Group Flow (vph)	542	524	238	172	688	308
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	16.1	33.7	14.6	53.3	38.7	54.8
Effective Green, g (s)	16.1	33.7	14.6	53.3	38.7	54.8
Actuated g/C Ratio	0.20	0.42	0.18	0.67	0.48	0.68
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	606	689	298	925	766	971
v/s Ratio Prot	c0.18	c0.32	0.15	0.09	c0.43	0.06
v/s Ratio Perm				0.03		0.15
v/c Ratio	0.89	0.76	0.80	0.19	0.90	0.32
Uniform Delay, d1	31.1	19.7	31.3	5.1	18.9	5.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.3	4.5	13.0	0.1	13.5	0.1
Delay (s)	46.4	24.2	44.3	5.2	32.4	5.1
Level of Service	D	C	D	A	C	A
Approach Delay (s)		35.5	27.6		22.0	
Approach LOS		D	C		C	

Intersection Summary				
HCM Average Control Delay	28.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	6.5	
Intersection Capacity Utilization	76.6%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	142	540	648	81	46	159
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	158	600	720	90	51	177
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	810				1681	765
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	810				1681	765
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				39	56
cM capacity (veh/h)	807				84	403

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	758	810	228
Volume Left	158	0	51
Volume Right	0	90	177
cSH	807	1700	217
Volume to Capacity	0.20	0.48	1.05
Queue Length 95th (ft)	18	0	248
Control Delay (s)	4.7	0.0	121.6
Lane LOS	A		F
Approach Delay (s)	4.7	0.0	121.6
Approach LOS			F

Intersection Summary			
Average Delay	17.4		
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	82	714	71	32	465	5	37	1	86	1	3	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	91	793	79	36	517	6	41	1	96	1	3	69
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		1091										
pX, platoon unblocked				0.90			0.90	0.90	0.90	0.90	0.90	
vC, conflicting volume	522			872			1673	1608	833	1662	1645	519
vC1, stage 1 conf vol							1015	1015		591	591	
vC2, stage 2 conf vol							658	593		1072	1054	
vCu, unblocked vol	522			804			1692	1620	760	1680	1661	519
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			95			78	100	74	99	98	88
cM capacity (veh/h)	1044			740			191	230	366	130	207	557

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	91	872	36	522	138	73
Volume Left	91	0	36	0	41	1
Volume Right	0	79	0	6	96	69
cSH	1044	1700	740	1700	286	494
Volume to Capacity	0.09	0.51	0.05	0.31	0.48	0.15
Queue Length 95th (ft)	7	0	4	0	61	13
Control Delay (s)	8.8	0.0	10.1	0.0	28.7	13.6
Lane LOS	A		B		D	B
Approach Delay (s)	0.8		0.6		28.7	13.6
Approach LOS					D	B

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	75.1%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1025	35	2	413	8	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1139	39	2	459	9	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1178		1622	1158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1178		1622	1158
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		92	100
cM capacity (veh/h)			593		113	239

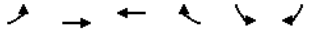
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1178	461	10
Volume Left	0	2	9
Volume Right	39	0	1
cSH	1700	593	120
Volume to Capacity	0.69	0.00	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.1	37.8
Lane LOS		A	E
Approach Delay (s)	0.0	0.1	37.8
Approach LOS			E

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	72.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	567	110	111	550	16	233	0	226	5	0	4
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1553	1635	1389	1553	1628			1583	1417		1531	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (perm)	1553	1635	1389	1553	1628			1583	1417		1531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	630	122	123	611	18	259	0	251	6	0	4
RTOR Reduction (vph)	0	0	42	0	1	0	0	0	180	0	4	0
Lane Group Flow (vph)	6	630	80	123	628	0	0	259	71	0	6	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.6	27.0	27.0	9.3	35.7			21.5	21.5		3.1	
Effective Green, g (s)	0.6	27.0	27.0	9.3	35.7			21.5	21.5		3.1	
Actuated g/C Ratio	0.01	0.36	0.36	0.12	0.47			0.28	0.28		0.04	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	12	581	493	190	765			448	401		62	
v/s Ratio Prot	0.00	c0.39		c0.08	0.39			c0.16			c0.00	
v/s Ratio Perm			0.06						0.05			
v/c Ratio	0.50	1.08	0.16	0.65	0.82			0.58	0.18		0.10	
Uniform Delay, d1	37.6	24.5	16.8	31.8	17.4			23.4	20.6		35.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	11.4	62.2	0.7	7.5	7.4			5.4	1.0		0.3	
Delay (s)	49.0	86.7	17.5	39.3	24.8			28.7	21.5		35.4	
Level of Service	D	F	B	D	C			C	C		D	
Approach Delay (s)		75.3			27.2			25.2			35.4	
Approach LOS		E			C			C			D	

Intersection Summary				
HCM Average Control Delay	44.7	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	72.1%	ICU Level of Service	C	
Analysis Period (min)	15			

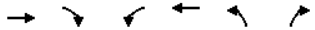
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	179	528	392	4	32	347
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	199	587	436	4	36	386
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	440				1422	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				1422	438
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	82				71	38
cM capacity (veh/h)	1109				123	619

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	786	440	421
Volume Left	199	0	36
Volume Right	0	4	386
cSH	1109	1700	462
Volume to Capacity	0.18	0.26	0.91
Queue Length 95th (ft)	16	0	257
Control Delay (s)	4.1	0.0	52.9
Lane LOS	A		F
Approach Delay (s)	4.1	0.0	52.9
Approach LOS			F

Intersection Summary				
Average Delay	15.5			
Intersection Capacity Utilization	101.4%	ICU Level of Service	G	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	680	133	183	646	105	165
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	756	148	203	718	117	183

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	903	921	300
Volume Left (vph)	0	203	117
Volume Right (vph)	148	0	183
Hadj (s)	-0.03	0.11	-0.25
Departure Headway (s)	6.0	6.1	6.7
Degree Utilization, x	1.50	1.56	0.56
Capacity (veh/h)	613	595	531
Control Delay (s)	248.9	277.9	18.0
Approach Delay (s)	248.9	277.9	18.0
Approach LOS	F	F	C

Intersection Summary			
Delay	228.8		
HCM Level of Service	F		
Intersection Capacity Utilization	126.2%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	478	280	258	494	259	245
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	531	311	287	549	288	272

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	842	287	549	560
Volume Left (vph)	0	287	0	288
Volume Right (vph)	311	0	0	272
Hadj (s)	-0.19	0.57	0.07	-0.12
Departure Headway (s)	6.9	8.1	7.7	6.8
Degree Utilization, x	1.61	0.65	1.17	1.07
Capacity (veh/h)	528	432	475	534
Control Delay (s)	301.5	23.8	120.5	83.7
Approach Delay (s)	301.5	87.4		83.7
Approach LOS	F	F		F

Intersection Summary			
Delay	167.0		
HCM Level of Service	F		
Intersection Capacity Utilization	106.0%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	69	44	29	808	1046	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	77	49	32	898	1162	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	2140	1178	1193			
vC1, stage 1 conf vol	1178					
vC2, stage 2 conf vol	962					
vCu, unblocked vol	2140	1178	1193			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	65	79	94			
cM capacity (veh/h)	221	230	585			

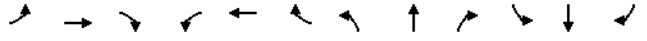
Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	126	32	898	1193
Volume Left	77	32	0	0
Volume Right	49	0	0	31
cSH	224	585	1700	1700
Volume to Capacity	0.56	0.06	0.53	0.70
Queue Length 95th (ft)	76	4	0	0
Control Delay (s)	39.6	11.5	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	39.6	0.4		0.0
Approach LOS	E			

Intersection Summary				
Average Delay		2.4		
Intersection Capacity Utilization		77.4%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	638	292	271	109	723	160	293	267	225	296	225
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1543	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1543	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	606	709	324	301	121	803	178	326	297	250	329	250
RTOR Reduction (vph)	0	1	189	0	0	35	0	0	242	0	0	0
Lane Group Flow (vph)	606	740	103	301	121	768	178	326	55	250	329	250
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	52.1	46.0	46.0	21.1	15.0	45.0	28.0	16.9	16.9	30.0	18.9	130.0
Effective Green, g (s)	52.1	46.0	46.0	21.1	15.0	45.0	28.0	16.9	16.9	30.0	18.9	130.0
Actuated g/C Ratio	0.40	0.35	0.35	0.16	0.12	0.35	0.22	0.13	0.13	0.23	0.15	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1208	546	467	252	189	481	334	404	181	358	452	1389
v/s Ratio Prot	0.20	c0.48		c0.19	0.07	c0.37	0.11	c0.10		0.16	0.11	
v/s Ratio Perm			0.08			0.18			0.04			0.18
v/c Ratio	0.50	1.35	0.22	1.19	0.64	1.60	0.53	0.81	0.30	0.70	0.73	0.18
Uniform Delay, d1	29.2	42.0	29.4	54.5	54.9	42.5	45.2	55.0	51.2	45.9	53.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.76	1.00
Incremental Delay, d2	0.3	171.4	0.2	119.6	7.2	277.9	1.6	15.8	4.3	3.3	5.7	0.2
Delay (s)	29.5	213.4	29.7	174.1	62.1	320.4	46.8	70.7	55.5	38.8	46.1	0.2
Level of Service	C	F	C	F	E	F	D	E	E	D	D	A
Approach Delay (s)		112.7			258.9			59.8			30.0	
Approach LOS		F			F			E			C	

Intersection Summary				
HCM Average Control Delay		127.9	HCM Level of Service	F
HCM Volume to Capacity ratio		1.32		
Actuated Cycle Length (s)		130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization		97.2%	ICU Level of Service	F
Analysis Period (min)		15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	0	129	269	36	153	197	842	522	0	996	13
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.91	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1553		1389	1553	1406	1320	1553	3106	1389		3106	1389
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1553		1389	1553	1406	1320	1553	3106	1389		3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	0	143	299	40	170	219	936	580	0	1107	14
RTOR Reduction (vph)	0	0	132	0	45	77	0	0	0	0	0	0
Lane Group Flow (vph)	23	0	11	299	63	25	219	936	580	0	1107	14
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	5.1		9.8	27.0	31.7	31.7	22.8	81.2	130.0		54.4	54.4
Effective Green, g (s)	5.1		9.8	27.0	31.7	31.7	22.8	81.2	130.0		54.4	54.4
Actuated g/C Ratio	0.04		0.08	0.21	0.24	0.24	0.18	0.62	1.00		0.42	0.42
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	61		105	323	343	322	272	1940	1389		1300	581
v/s Ratio Prot	0.01		0.01	c0.19	0.04		c0.14	0.30			c0.36	0.01
v/s Ratio Perm						0.02			c0.42			
v/c Ratio	0.38		0.10	0.93	0.18	0.08	0.81	0.48	0.42		0.85	0.02
Uniform Delay, d1	60.9		56.0	50.5	38.9	37.9	51.5	13.1	0.0		34.2	22.2
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.97	0.62	1.00		1.00	1.00
Incremental Delay, d2	3.9		0.4	31.3	0.3	0.1	1.6	0.1	0.1		7.2	0.1
Delay (s)	64.8		56.4	81.8	39.2	38.0	51.6	8.2	0.1		41.3	22.3
Level of Service	E		E	F	D	D	D	A	A		D	C
Approach Delay (s)		57.6			64.0			10.9			41.1	
Approach LOS		E			E			B			D	

Intersection Summary				
HCM Average Control Delay	30.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	14	9	15	873	537	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	10	17	970	597	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1612	608	620			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1612	608	620			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	98	98			
cM capacity (veh/h)	113	495	951			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	26	987	620
Volume Left	16	17	0
Volume Right	10	0	23
cSH	162	951	1700
Volume to Capacity	0.16	0.02	0.36
Queue Length 95th (ft)	14	1	0
Control Delay (s)	31.4	0.5	0.0
Lane LOS	D	A	
Approach Delay (s)	31.4	0.5	0.0
Approach LOS	D		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	74.8%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	36	15	589	25	1	438
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	40	17	654	28	1	487
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	1157	668			682	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1157	668			682	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	96			100	
cM capacity (veh/h)	217	458			901	

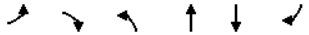
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	57	682	488
Volume Left	40	0	1
Volume Right	17	28	0
cSH	256	1700	901
Volume to Capacity	0.22	0.40	0.00
Queue Length 95th (ft)	21	0	0
Control Delay (s)	23.0	0.0	0.0
Lane LOS	C		A
Approach Delay (s)	23.0	0.0	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		1.1		
Intersection Capacity Utilization		46.3%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	147	198	141	132	37	159	273	182	66	117	41
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1553	1494		1583	1612		1553	1537		1583	1601	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1553	1494		1583	1612		1553	1537		1583	1601	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	163	220	157	147	41	177	303	202	73	130	46
RTOR Reduction (vph)	0	81	0	0	16	0	0	40	0	0	24	0
Lane Group Flow (vph)	19	302	0	157	172	0	177	465	0	73	152	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.5	15.7		6.2	21.4		9.8	18.6		2.7	11.5	
Effective Green, g (s)	0.5	15.7		6.2	21.4		9.8	18.6		2.7	11.5	
Actuated g/C Ratio	0.01	0.28		0.11	0.38		0.17	0.33		0.05	0.20	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	14	414		173	608		268	504		75	325	
v/s Ratio Prot	0.01	c0.20		c0.10	0.11		c0.11	c0.30		c0.05	0.09	
v/s Ratio Perm												
v/c Ratio	1.36	0.73		0.91	0.28		0.66	0.92		0.97	0.47	
Uniform Delay, d1	28.1	18.6		25.0	12.3		21.9	18.4		27.0	19.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	371.9	5.4		41.8	0.1		4.7	22.3		93.9	0.4	
Delay (s)	400.0	24.0		66.7	12.4		26.6	40.7		120.9	20.3	
Level of Service	F	C		E	B		C	D		F	C	
Approach Delay (s)		41.7			37.1			37.0			49.8	
Approach LOS		D			D			D			D	

Intersection Summary				
HCM Average Control Delay	40.1	HCM Level of Service		D
HCM Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	56.7	Sum of lost time (s)		9.5
Intersection Capacity Utilization	76.8%	ICU Level of Service		D
Analysis Period (min)	15			

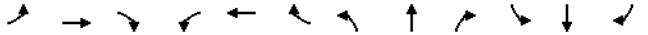
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	146	54	21	1060	1108	107
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	162	60	23	1178	1231	119
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				833		
pX, platoon unblocked						
vC, conflicting volume	2515	1291	1350			
vC1, stage 1 conf vol	1291					
vC2, stage 2 conf vol	1224					
vCu, unblocked vol	2515	1291	1350			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	10	70	95			
cM capacity (veh/h)	180	200	510			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	222	23	1178	1350
Volume Left	162	23	0	0
Volume Right	60	0	0	119
cSH	185	510	1700	1700
Volume to Capacity	1.20	0.05	0.69	0.79
Queue Length 95th (ft)	294	4	0	0
Control Delay (s)	182.6	12.4	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	182.6	0.2		0.0
Approach LOS	F			

Intersection Summary				
Average Delay		14.7		
Intersection Capacity Utilization		91.8%	ICU Level of Service	F
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	5	64	5	236	0	628	155	134	723	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	6	71	6	262	0	698	172	149	803	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	2064	1971	803	1891	1885	784	803			870		
vC1, stage 1 conf vol	1101	1101		784	784							
vC2, stage 2 conf vol	963	870		1107	1101							
vCu, unblocked vol	2064	1971	803	1891	1885	784	803			870		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	60	97	33	100			81		
cM capacity (veh/h)	11	163	382	179	202	393	821			775		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	6	339	0	870	149	803
Volume Left	0	71	0	0	149	0
Volume Right	6	262	0	172	0	0
cSH	382	310	1700	1700	775	1700
Volume to Capacity	0.01	1.09	0.00	0.51	0.19	0.47
Queue Length 95th (ft)	1	330	0	0	18	0
Control Delay (s)	14.6	115.8	0.0	0.0	10.7	0.0
Lane LOS	B	F			B	
Approach Delay (s)	14.6	115.8	0.0		1.7	
Approach LOS	B	F				

Intersection Summary				
Average Delay		18.9		
Intersection Capacity Utilization		92.9%	ICU Level of Service	F
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	996	0	0	968	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1107	0	0	1076	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				686		
pX, platoon unblocked					0.83	
vC, conflicting volume			1107		1644	1107
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1107		1365	1107
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			627		115	205

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1107	0	538	538	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.65	0.00	0.32	0.32	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	61.9%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	996	0	0	968	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1107	0	0	1076	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				391		
pX, platoon unblocked					0.82	
vC, conflicting volume			1107		1644	1107
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1107		1350	1107
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			627		116	205

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1107	0	538	538
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.65	0.00	0.32	0.32
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	61.9%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	794	978	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	882	1087	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					253	
pX, platoon unblocked	0.82	0.82	0.82			
vC, conflicting volume	1381	1087	1087			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1354	995	995			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	115	199	556			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	0	294	294	294	1087	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.17	0.17	0.17	0.64	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A					
Approach Delay (s)	0.0	0.0			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		60.9%	ICU Level of Service	B
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	408	384	291	314	670	487	476	107	559
v/c Ratio	1.00	0.55	0.97	0.92	0.97	0.77	0.54	0.32	0.97
Control Delay	85.4	11.6	92.3	70.1	54.1	35.5	2.6	45.3	77.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.4	11.6	92.3	70.1	54.1	35.5	2.6	45.3	77.7
Queue Length 50th (ft)	~303	73	237	203	256	160	12	71	224
Queue Length 95th (ft)	#527	121	#425	#390	m#339	m177	m19	134	#341
Internal Link Dist (ft)	421			1192		570			1135
Turn Bay Length (ft)					125		500	105	
Base Capacity (vph)	406	695	301	340	691	871	883	331	579
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.55	0.97	0.92	0.97	0.56	0.54	0.32	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
2: EB US-50 Off Ramp & Missouri Flat Rd.

Cumulative
PM Peak

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	294	928	1053	560	573	778	70	351	681	393
v/c Ratio	0.33	1.17	1.20	0.98	0.59	0.83	0.05	0.50	1.05	0.28
Control Delay	34.7	125.8	138.0	79.3	29.4	40.9	0.1	38.7	82.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	125.8	138.0	79.3	29.4	40.9	0.1	38.7	82.6	0.2
Queue Length 50th (ft)	92	~485	~509	246	180	312	0	127	~305	0
Queue Length 95th (ft)	131	#627	#641	#376	194	322	0	m140	m#351	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	879	795	879	571	979	932	1389	703	647	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	1.17	1.20	0.98	0.59	0.83	0.05	0.50	1.05	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
4: Mother Lode Dr. & Missouri Flat Rd.

Cumulative
PM Peak

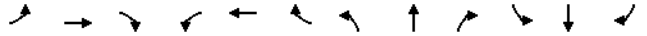
Lane Group	EBL	EBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	421	160	84	1000	1321	2662
v/c Ratio	0.72	0.40	0.55	0.42	0.93	0.94
Control Delay	52.7	8.7	64.5	7.0	13.9	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	28.0
Total Delay	52.7	8.7	64.5	7.0	13.9	47.3
Queue Length 50th (ft)	160	0	63	127	0	363
Queue Length 95th (ft)	194	53	113	226	#106	m#305
Internal Link Dist (ft)				311		464
Turn Bay Length (ft)	185	185	200		300	
Base Capacity (vph)	819	495	211	2357	1417	2843
Starvation Cap Reductn	0	0	0	0	0	333
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.32	0.40	0.42	0.93	1.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Forni Rd. & Missouri Flat Rd.

Cumulative
PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	653	76	70	172	67	206	121	1547	88	194	1918	438
v/c Ratio	1.14	0.29	0.25	0.84	0.41	0.63	0.78	1.15	0.14	0.82	1.27	0.59
Control Delay	122.5	44.0	11.5	78.9	51.7	14.8	80.2	106.7	15.4	72.8	155.0	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.5	44.0	11.5	78.9	51.7	14.8	80.2	106.7	15.4	72.8	155.0	20.3
Queue Length 50th (ft)	~257	48	0	112	44	0	80	~627	21	125	~827	134
Queue Length 95th (ft)	#494	93	38	#256	85	62	164	#1048	71	#314	#1387	371
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	574	537	504	266	506	574	251	1346	621	251	1508	744
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.14	0.14	0.65	0.13	0.36	0.48	1.15	0.14	0.77	1.27	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
6: Golden Center Dr. & Missouri Flat Rd.

Cumulative
PM Peak

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	203	284	39	1278	157	1698	32
v/c Ratio	0.84	0.75	0.66	0.90	0.81	0.96	0.04
Control Delay	55.9	34.5	91.6	32.6	68.3	35.5	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	34.5	91.6	32.6	68.3	35.5	8.2
Queue Length 50th (ft)	97	107	21	311	81	~447	4
Queue Length 95th (ft)	#195	195	#81	#527	#203	#716	20
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	338	508	59	1447	196	1763	794
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.56	0.66	0.88	0.80	0.96	0.04

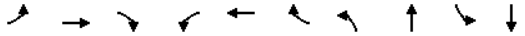
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
7: Missouri Flat Rd. & Diamond Springs Pkwy

Cumulative
PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	898	541	227	828	21	691	218	4	36
v/c Ratio	0.17	0.83	0.48	0.89	0.52	0.03	0.80	0.34	0.04	0.21
Control Delay	54.8	41.3	2.7	80.1	24.1	19.9	43.6	5.1	54.5	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	41.3	2.7	80.1	24.1	19.9	43.6	5.1	54.5	25.8
Queue Length 50th (ft)	12	292	0	151	179	5	212	6	3	9
Queue Length 95th (ft)	41	#577	52	#391	424	30	#405	54	16	38
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	254	1080	1156	254	1584	711	987	697	508	501
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.83	0.47	0.89	0.52	0.03	0.70	0.31	0.01	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
8: Diamond Springs Pkwy & Throwita Way

Cumulative
PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	68	918	121	21	990	89	36	77
v/c Ratio	0.99	0.81	0.12	0.38	0.50	0.47	0.18	0.39
Control Delay	160.4	26.8	8.8	65.1	12.2	53.0	14.3	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.4	26.8	8.8	65.1	12.2	53.0	14.3	30.0
Queue Length 50th (ft)	51	373	11	16	65	64	0	29
Queue Length 95th (ft)	#147	#1259	76	m29	#546	100	27	60
Internal Link Dist (ft)		311			840	290		465
Turn Bay Length (ft)	175			100			100	
Base Capacity (vph)	69	1133	985	55	1966	369	354	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.81	0.12	0.38	0.50	0.24	0.10	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
9: Diamond Springs Pkwy & Diamond Rd. (SR-49)

Cumulative
PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	234	754	580	302	318	446
v/c Ratio	0.52	0.88	0.50	0.28	0.84	0.56
Control Delay	27.4	22.3	31.7	10.6	61.4	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	22.3	31.7	10.6	61.4	15.6
Queue Length 50th (ft)	137	303	169	88	224	169
Queue Length 95th (ft)	m74	#400	261	159	316	198
Internal Link Dist (ft)	840			173	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	537	900	1153	1061	455	794
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.84	0.50	0.28	0.70	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49)

Cumulative
PM Peak

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	263	593	27	292	492	106	52	959	305
v/c Ratio	0.86	0.50	0.33	0.80	0.52	0.69	0.16	1.05	0.56
Control Delay	59.3	20.8	51.1	49.2	6.0	63.5	10.5	76.4	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	20.8	51.1	49.2	6.0	63.5	10.5	76.4	18.2
Queue Length 50th (ft)	140	120	15	148	41	58	0	~313	69
Queue Length 95th (ft)	#244	175	42	#279	122	#146	30	#463	164
Internal Link Dist (ft)		215		260		844			629
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	413	1348	134	423	952	158	362	911	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.44	0.20	0.69	0.52	0.67	0.14	1.05	0.56

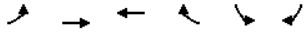
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
14: Pleasant Valley Rd. (SR-49) & Missouri Flat Rd.

Cumulative
PM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	542	524	238	178	688	421
v/c Ratio	0.90	0.76	0.80	0.18	0.90	0.37
Control Delay	52.1	27.7	50.6	3.6	37.7	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	27.7	50.6	3.6	37.7	2.1
Queue Length 50th (ft)	135	215	114	21	295	7
Queue Length 95th (ft)	#265	330	189	38	#620	44
Internal Link Dist (ft)		1271	1500		753	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	605	901	511	1001	766	1129
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.58	0.47	0.18	0.90	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: Pleasant Valley Rd. (SR-49) & Oro Ln

Cumulative
PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	6	630	122	123	629	259	251	10
v/c Ratio	0.07	1.09	0.23	0.52	0.76	0.54	0.41	0.07
Control Delay	39.0	91.0	13.2	37.3	24.9	28.6	6.2	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	91.0	13.2	37.3	24.9	28.6	6.2	25.1
Queue Length 50th (ft)	2	~302	15	45	168	82	0	2
Queue Length 95th (ft)	17	#768	77	124	#642	#259	62	16
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	90	580	535	360	823	481	606	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	1.09	0.23	0.34	0.76	0.54	0.41	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
23: EB US-50 Off-Ramp & Ponderosa Rd.

Cumulative
PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	606	741	292	301	121	803	178	326	297	250	329	250
v/c Ratio	0.50	1.35	0.45	1.20	0.64	1.56	0.53	0.80	0.70	0.70	0.73	0.18
Control Delay	32.1	204.6	5.6	167.6	69.8	283.3	52.7	70.4	17.3	42.4	45.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	204.6	5.6	167.6	69.8	283.3	52.7	70.4	17.3	42.4	45.6	0.2
Queue Length 50th (ft)	197	~876	0	~307	99	~856	133	141	14	194	139	0
Queue Length 95th (ft)	275	#1134	67	#491	158	#1147	221	#197	111	m246	m166	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	1207	548	656	251	377	516	334	430	432	358	621	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	1.35	0.45	1.20	0.32	1.56	0.53	0.76	0.69	0.70	0.53	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
24: WB US-50 Ramps & Ponderosa Rd.

Cumulative
PM Peak

Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	23	143	299	108	102	219	936	580	1107	14
v/c Ratio	0.26	0.64	0.93	0.28	0.26	0.81	0.47	0.42	0.83	0.02
Control Delay	64.9	22.2	85.2	21.2	8.8	52.3	8.2	0.1	40.6	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	22.2	85.2	21.2	8.8	52.3	8.2	0.1	40.6	24.9
Queue Length 50th (ft)	19	0	247	35	0	161	152	0	433	7
Queue Length 95th (ft)	49	64	#414	86	47	m187	m177	m0	#617	22
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	191	296	334	393	403	281	1976	1389	1336	598
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.48	0.90	0.27	0.25	0.78	0.47	0.42	0.83	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
27: Pacific St. & Sacramento St.

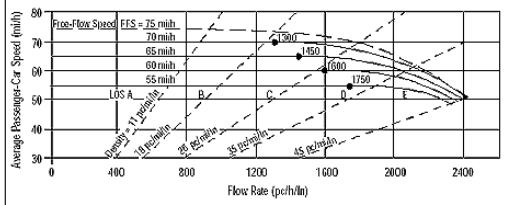
Cumulative
PM Peak

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	383	157	188	177	505	73	176
v/c Ratio	0.21	0.84	0.85	0.28	0.61	0.87	0.48	0.44
Control Delay	33.0	32.9	69.6	12.3	41.5	36.7	39.2	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	32.9	69.6	12.3	41.5	36.7	39.2	18.4
Queue Length 50th (ft)	7	89	57	36	64	155	26	41
Queue Length 95th (ft)	25	#220	#160	90	#172	#337	#76	88
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	91	555	184	696	288	605	154	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.69	0.85	0.27	0.61	0.83	0.47	0.32

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			Site Information	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2684*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			Calc Speed Adj and FFS		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1014*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*15.6*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		Factor Location	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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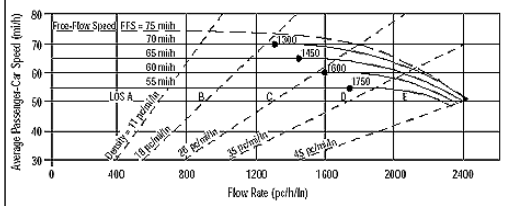
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2006*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*758*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*11.7*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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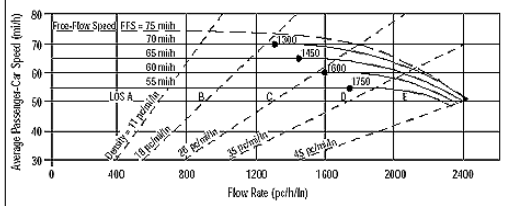
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4027*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1521*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.4*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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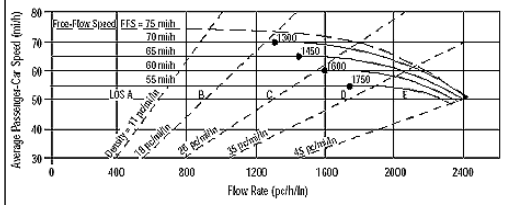

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3206*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1817*	pc/h/ln	Design LOS		
S	*63.8*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.5*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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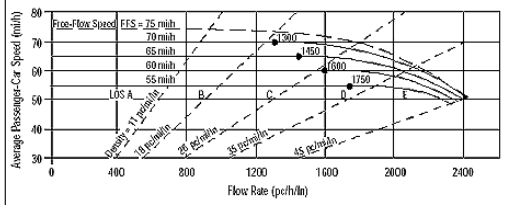

Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4027*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1521*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.4*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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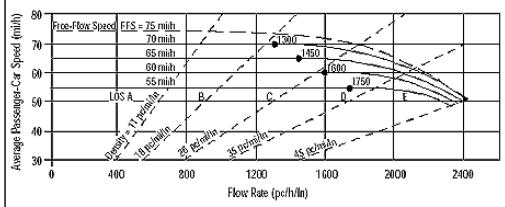
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3559*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1345*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*20.7*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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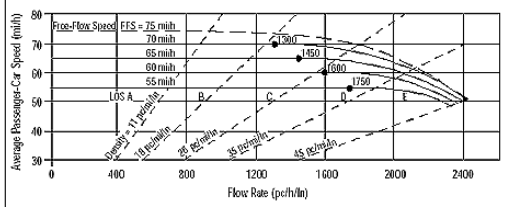
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2684*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1014*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*15.6*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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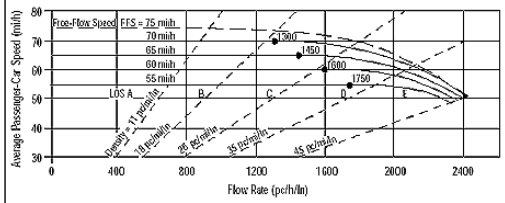
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2102*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1191*	pc/h/ln	Design LOS		
			v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S	*65.0*	mi/h	S		mi/h
D = v_p / S	*18.3*	pc/mi/ln	D = v_p / S		pc/mi/ln
LOS	*C*		Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		***Site Information***	
Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	Cumulative
Project Description			

Inputs

Upstream Adj Ramp	Terrain: Level	Downstream Adj Ramp
☐ Yes ☐ On		☐ Yes ☐ On
☑ No ☐ Off		☑ No ☐ Off
L_{up} = ft		L_{down} = ft
V_u = veh/h	S_{FF} = 65.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_I)	V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2461	0.90	Level	4	0	0.980	1.00	2789
Ramp	745	0.90	Level	4	0	0.980	1.00	844
UpStream								
DownStream								

Merge Areas	Diverge Areas
Estimation of v_{12}	***Estimation of v_{12}***
$V_{12} = V_F (P_{FM})$	$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-2 or 25-3)	L_{EQ} = (Equation 25-8 or 25-9)
P_{FM}= 1.000 using Equation (Exhibit 25-5)	P_{FD} = using Equation (Exhibit 25-11)
V_{12}= 2789 pc/h	V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3633	See Exhibit 25-7	No
V_{R12}	3633	4600:All	No

Capacity Checks

	Actual	Maximum	LOS F?
V_{FI}=V_F			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)	***Level of Service Determination (if not F)***
$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$	$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = 30.9 (pc/ m/ln)	D_R = (pc/ m/ln)
LOS = D (Exhibit 25-4)	LOS= (Exhibit 25-4)

Speed Estimation	***Speed Estimation***
M_S = 0.441 (Exhibit 25-19)	D_S = (Exhibit 25-19)
S_R= 54.9 mph (Exhibit 25-19)	S_R= mph(Exhibit 25-19)
S_0= N/A mph(Exhibit 25-19)	S_0= mph (Exhibit 25-19)
S= 54.9 mph(Exhibit 25-14)	S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	Cumulative

Project Description

Inputs

Upstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{up} = ft
V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_I)

Downstream Adj Ramp
☐ Yes ☐ On
☑ No ☐ Off
L_{down} = ft
V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1232	0.90	Level	4	0	0.980	1.00	1396
Ramp	870	0.90	Level	4	0	0.980	1.00	986
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 1396 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2382	See Exhibit 25-7	No
V_{R12}	2382	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 21.1 (pc/ m/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.335 (Exibit 25-19)

S_R= 57.3 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 57.3 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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Appendix G:

Analysis Worksheets for
Cumulative (2025) plus Proposed Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	36	475	341	84	215	601	477	426	68	329	42
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1428	1346	1504	1423		3072	3167	1417	1583	3113	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1346	1504	1423		3072	3167	1417	1583	3113	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	117	40	528	379	93	239	668	530	473	76	366	47
RTOR Reduction (vph)	0	38	52	0	54	0	0	0	212	0	8	0
Lane Group Flow (vph)	0	314	281	341	316	0	668	530	261	76	405	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		28.5	56.9	28.6	28.6		28.4	37.7	66.3	9.2	18.5	
Effective Green, g (s)		28.5	56.9	28.6	28.6		28.4	37.7	66.3	9.2	18.5	
Actuated g/C Ratio		0.24	0.47	0.24	0.24		0.24	0.31	0.55	0.08	0.15	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		339	683	358	339		727	995	783	121	480	
v/s Ratio Prot		c0.22	0.10	c0.23	0.22		c0.22	0.17	0.08	0.05	c0.13	
v/s Ratio Perm			0.11						0.10			
v/c Ratio		0.93	0.41	0.95	0.93		0.92	0.53	0.33	0.63	0.84	
Uniform Delay, d1		44.7	20.6	45.0	44.7		44.7	33.9	14.7	53.7	49.3	
Progression Factor		1.00	1.00	1.00	1.00		0.56	0.47	1.58	1.00	1.00	
Incremental Delay, d2		30.3	0.4	35.1	31.7		5.6	0.6	0.1	9.8	16.3	
Delay (s)		75.0	21.0	80.1	76.5		30.4	16.6	23.4	63.5	65.7	
Level of Service		E	C	F	E		C	B	C	E	E	
Approach Delay (s)		48.8			78.2			24.1			65.3	
Approach LOS		D			E			C			E	

Intersection Summary				
HCM Average Control Delay	45.3	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	84.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	169	506	1000	554	469	781	56	269	581	295
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	0.88	0.97	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	188	562	1111	616	521	868	62	299	646	328
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	188	562	1111	616	521	868	62	299	646	328
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	custom	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3	1	4	5	1	6		5	2	
Permitted Phases							Free			Free
Actuated Green, G (s)	40.0	29.0	40.0	27.0	29.0	32.0	120.0	27.0	30.0	120.0
Effective Green, g (s)	40.0	29.0	40.0	27.0	29.0	32.0	120.0	27.0	30.0	120.0
Actuated g/C Ratio	0.33	0.24	0.33	0.22	0.24	0.27	1.00	0.22	0.25	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1004	591	1004	550	728	828	1389	678	777	1389
v/s Ratio Prot	0.06	0.23	c0.37	c0.25	0.17	c0.28		0.10	0.21	
v/s Ratio Perm							0.04			c0.24
v/c Ratio	0.19	0.95	1.11	1.12	0.72	1.05	0.04	0.44	0.83	0.24
Uniform Delay, d1	28.4	44.8	40.0	46.5	41.7	44.0	0.0	40.0	42.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.97	0.86	1.00	1.04	0.81	1.00
Incremental Delay, d2	0.1	25.3	62.3	75.8	3.1	43.2	0.1	0.3	6.7	0.3
Delay (s)	28.5	70.1	102.3	122.3	43.7	81.1	0.1	42.1	41.2	0.3
Level of Service	C	E	F	F	D	F	A	D	D	A
Approach Delay (s)						64.2			30.9	
Approach LOS						E			C	

Intersection Summary				
HCM Average Control Delay	70.4	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.02			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	Err%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project
4: Mother Lode Dr. & Missouri Flat Rd. — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	347	0	128	0	0	0	68	959	1059	0	1895	192
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.91	
Frt	1.00		0.85				1.00	1.00	0.85		0.99	
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (prot)	3072		1417				1583	3167	1417		4487	
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (perm)	3072		1417				1583	3167	1417		4487	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	386	0	142	0	0	0	76	1066	1177	0	2106	213
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	386	0	26	0	0	0	76	1066	1177	0	2312	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Free			
Protected Phases	4						5	2			6	
Permitted Phases			4						Free			
Actuated Green, G (s)	21.6		21.6				9.8	90.4	120.0		76.6	
Effective Green, g (s)	21.6		21.6				9.8	90.4	120.0		76.6	
Actuated g/C Ratio	0.18		0.18				0.08	0.75	1.00		0.64	
Clearance Time (s)	4.0		4.0				4.0	4.0			4.0	
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)	553		255				129	2386	1417		2864	
v/s Ratio Prot	0.13						0.05	0.34			0.52	
v/s Ratio Perm			0.02						c0.83			
v/c Ratio	0.70		0.10				0.59	0.45	0.83		0.81	
Uniform Delay, d1	46.1		41.1				53.2	5.5	0.0		16.2	
Progression Factor	1.00		1.00				1.00	1.00	1.00		0.66	
Incremental Delay, d2	3.8		0.2				6.7	0.6	5.8		0.6	
Delay (s)	50.0		41.3				59.9	6.1	5.8		11.3	
Level of Service	D		D				E	A	A		B	
Approach Delay (s)		47.6			0.0			7.7			11.3	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	13.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	0.0	
Intersection Capacity Utilization	71.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project
5: Forni Rd. & Missouri Flat Rd. — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	30	26	65	25	78	113	1750	81	109	1668	245
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	286	33	29	72	28	87	126	1944	90	121	1853	272
RTOR Reduction (vph)	0	0	25	0	0	80	0	0	13	0	0	42
Lane Group Flow (vph)	286	33	4	72	28	7	126	1944	77	121	1853	230
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	11.3	12.8	12.8	6.3	7.8	7.8	10.1	50.6	50.6	9.9	50.4	50.4
Effective Green, g (s)	11.3	12.8	12.8	6.3	7.8	7.8	10.1	50.6	50.6	9.9	50.4	50.4
Actuated g/C Ratio	0.12	0.14	0.14	0.07	0.08	0.08	0.11	0.53	0.53	0.10	0.53	0.53
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	367	226	192	105	137	117	169	1694	758	166	1687	755
v/s Ratio Prot	c0.09	0.02		0.05	c0.02		c0.08	c0.61		0.08	0.59	
v/s Ratio Perm			0.00			0.01			0.05			0.16
v/c Ratio	0.78	0.15	0.02	0.69	0.20	0.06	0.75	1.15	0.10	0.73	1.10	0.31
Uniform Delay, d1	40.4	36.1	35.5	43.2	40.5	40.0	41.0	22.0	10.8	41.0	22.1	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.2	0.1	0.0	13.8	0.3	0.1	14.4	73.8	0.1	12.7	54.0	0.2
Delay (s)	49.6	36.2	35.5	57.0	40.8	40.1	55.4	95.8	10.9	53.7	76.1	12.6
Level of Service	D	D	D	E	D	D	E	F	B	D	E	B
Approach Delay (s)		47.2			46.7			89.9			67.2	
Approach LOS		D			D			F			E	

Intersection Summary				
HCM Average Control Delay	75.0	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	86.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	2	1	51	4	54	61	2007	65	132	1402	27
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.93		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.96			0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1588			1519		1583	3152		1583	3167	1417
Flt Permitted		0.72			0.84		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1194			1302		1583	3152		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	2	1	57	4	60	68	2230	72	147	1558	30
RTOR Reduction (vph)	0	1	0	0	31	0	0	1	0	0	0	5
Lane Group Flow (vph)	0	25	0	0	90	0	68	2301	0	147	1558	25
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		14.3			14.3		17.5	77.4		10.9	70.8	70.8
Effective Green, g (s)		14.3			14.3		17.5	77.4		10.9	70.8	70.8
Actuated g/C Ratio		0.12			0.12		0.15	0.67		0.09	0.61	0.61
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		148			161		240	2110		149	1940	868
v/s Ratio Prot							0.04	c0.73		c0.09	0.49	
v/s Ratio Perm		0.02			c0.07							0.02
v/c Ratio		0.17			0.56		0.28	1.09		0.99	0.80	0.03
Uniform Delay, d1		45.3			47.7		43.5	19.1		52.3	17.1	8.8
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.4			3.6		0.5	49.2		69.1	2.5	0.0
Delay (s)		45.7			51.3		44.0	68.3		121.4	19.6	8.9
Level of Service		D			D		D	E		F	B	A
Approach Delay (s)		45.7			51.3			67.6			28.0	
Approach LOS		D			D			E			C	

Intersection Summary				
HCM Average Control Delay	50.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	1.01			
Actuated Cycle Length (s)	115.6	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	90.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	656	414	248	981	22	596	14	176	3	11	16
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	3013	1408		1583	1517	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	3013	1408		1583	1517	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	729	460	276	1090	24	662	16	196	3	12	18
RTOR Reduction (vph)	0	0	197	0	0	3	0	130	0	0	16	0
Lane Group Flow (vph)	16	729	263	276	1090	21	662	82	0	3	14	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	2.8	32.9	60.8	20.5	50.6	50.6	27.9	36.1		1.0	9.2	
Effective Green, g (s)	2.8	32.9	60.8	20.5	50.6	50.6	27.9	36.1		1.0	9.2	
Actuated g/C Ratio	0.03	0.31	0.57	0.19	0.48	0.48	0.26	0.34		0.01	0.09	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	42	978	862	305	1505	673	789	477		15	131	
v/s Ratio Prot	0.01	0.23	0.08	c0.17	c0.34		c0.22	c0.06		0.00	0.01	
v/s Ratio Perm			0.11			0.02						
v/c Ratio	0.38	0.75	0.30	0.90	0.72	0.03	0.84	0.17		0.20	0.10	
Uniform Delay, d1	51.0	33.0	11.9	42.0	22.4	14.9	37.2	24.7		52.4	44.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.7	3.1	0.2	28.4	1.8	0.0	7.8	0.2		6.5	0.3	
Delay (s)	56.7	36.2	12.1	70.4	24.1	14.9	45.0	24.9		58.8	45.2	
Level of Service	E	D	B	E	C	B	D	C		E	D	
Approach Delay (s)		27.2			33.2			40.1			46.4	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM Average Control Delay	33.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	106.5	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	71.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	7	52	775	82	25	1095	22	81	13	13	27	3
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor		1.00	1.00	1.00	1.00	0.95		0.95	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98
Satd. Flow (prot)		1581	1667	1417	1583	3157		1475	1498	1389		1493
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98
Satd. Flow (perm)		1581	1667	1417	1583	3157		1475	1498	1389		1493
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	58	861	91	28	1217	24	90	14	14	30	3
RTOR Reduction (vph)	0	0	0	20	0	1	0	0	0	13	0	28
Lane Group Flow (vph)	0	66	861	71	28	1240	0	51	53	1	0	36
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%
Turn Type	Prot	Prot		Perm	Prot			Split		Perm	Split	
Protected Phases	7	7	4		3	8		2	2		6	6
Permitted Phases				4						2		
Actuated Green, G (s)		5.6	64.6	64.6	2.4	61.4		10.9	10.9	10.9		11.1
Effective Green, g (s)		5.6	64.6	64.6	2.4	61.4		10.9	10.9	10.9		11.1
Actuated g/C Ratio		0.05	0.62	0.62	0.02	0.58		0.10	0.10	0.10		0.11
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		84	1026	872	36	1846		153	156	144		158
v/s Ratio Prot		c0.04	c0.52		0.02	0.39		0.03	c0.04			c0.02
v/s Ratio Perm				0.05						0.00		
v/c Ratio		0.79	0.84	0.08	0.78	0.67		0.33	0.34	0.01		0.23
Uniform Delay, d1		49.1	16.1	8.2	51.0	14.9		43.7	43.7	42.2		43.0
Progression Factor		1.00	1.00	1.00	0.88	0.70		1.00	1.00	1.00		1.00
Incremental Delay, d2		37.0	8.2	0.2	53.9	1.5		1.3	1.3	0.0		0.7
Delay (s)		86.1	24.3	8.4	98.9	11.9		45.0	45.0	42.2		43.8
Level of Service		F	C	A	F	B		D	D	D		D
Approach Delay (s)			26.9			13.8			44.7			43.8
Approach LOS			C			B			D			D

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

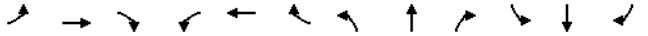
Movement	SBR
Lane Configurations	
Volume (vph)	28
Ideal Flow (vphpl)	1700
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	31
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	4%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	179	636	27	697	214	219	445
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		3013	1635	1635	1389
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		3013	1635	1635	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	199	707	30	774	238	243	494
RTOR Reduction (vph)	0	492	0	0	0	0	18
Lane Group Flow (vph)	199	215	0	804	238	243	476
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%	4%
Turn Type		Perm	Prot	Prot			pm+ov
Protected Phases	4		5	5	2	6	4
Permitted Phases		4					6
Actuated Green, G (s)	28.6	28.6		42.7	68.4	21.7	50.3
Effective Green, g (s)	28.6	28.6		42.7	68.4	21.7	50.3
Actuated g/C Ratio	0.27	0.27		0.41	0.65	0.21	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	431	386		1225	1065	338	718
v/s Ratio Prot	0.13			c0.27	0.15	0.15	c0.18
v/s Ratio Perm		0.15					0.16
v/c Ratio	0.46	0.56		0.66	0.22	0.72	0.66
Uniform Delay, d1	31.8	32.8		25.2	7.5	38.8	20.9
Progression Factor	0.53	4.23		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.1		2.8	0.1	7.1	2.3
Delay (s)	17.4	139.6		28.0	7.6	46.0	23.2
Level of Service	B	F		C	A	D	C
Approach Delay (s)	112.8				23.3	30.7	
Approach LOS	F				C	C	

Intersection Summary				
HCM Average Control Delay	55.5	HCM Level of Service		E
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	105.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	90.0%	ICU Level of Service		E
Analysis Period (min)	15			

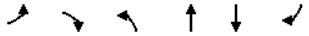
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	58	0	0	94	43	844	43	15	767	97
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	64	0	0	104	48	938	48	17	852	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88					
vC, conflicting volume	2025	2021	906	2007	2051	962	960			986		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2096	2091	826	2076	2125	962	887			986		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	80	100	100	66	93			98		
cM capacity (veh/h)	20	41	325	25	39	308	665			693		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	64	48	986	17	960
Volume Left	0	48	0	17	0
Volume Right	64	0	48	0	108
cSH	325	665	1700	693	1700
Volume to Capacity	0.20	0.07	0.58	0.02	0.56
Queue Length 95th (ft)	18	6	0	2	0
Control Delay (s)	18.8	10.8	0.0	10.3	0.0
Lane LOS	C	B		B	
Approach Delay (s)	18.8	0.5		0.2	
Approach LOS	C				

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	65.7%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	6	6	10	383	663	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	7	11	426	737	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked	0.97					
vC, conflicting volume	1186	738	740			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1175	738	740			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	99			
cM capacity (veh/h)	200	414	858			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	437	740
Volume Left	7	11	0
Volume Right	7	0	3
cSH	270	858	1700
Volume to Capacity	0.05	0.01	0.44
Queue Length 95th (ft)	4	1	0
Control Delay (s)	19.0	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	19.0	0.4	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		49.2%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	1	0	393	663	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	0	437	737	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.95					
vC, conflicting volume	1177	740	743			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1158	740	743			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	203	413	855			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	437	743
Volume Left	0	0	0
Volume Right	1	0	7
cSH	413	1700	1700
Volume to Capacity	0.00	0.26	0.44
Queue Length 95th (ft)	0	0	0
Control Delay (s)	13.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	13.7	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		49.4%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	58	0	0	94	43	844	43	15	767	97
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	64	0	0	104	48	938	48	17	852	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	2025	2021	906	2007	2051	962	960			986		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2101	2096	820	2081	2131	962	882			986		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	80	100	100	66	93			98		
cM capacity (veh/h)	20	41	325	25	39	308	662			693		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	64	48	986	17	960
Volume Left	0	48	0	17	0
Volume Right	64	0	48	0	108
cSH	325	662	1700	693	1700
Volume to Capacity	0.20	0.07	0.58	0.02	0.56
Queue Length 95th (ft)	18	6	0	2	0
Control Delay (s)	18.8	10.9	0.0	10.3	0.0
Lane LOS	C	B		B	
Approach Delay (s)	18.8	0.5		0.2	
Approach LOS	C				

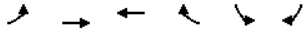
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	65.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	188	31	28	315	525	46	53	50	613	55	157
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1553	3041		1583	1667	1417		1629	1417	3013	1453	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1553	3041		1583	1667	1417		1629	1417	3013	1453	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	103	209	34	31	350	583	51	59	56	681	61	174
RTOR Reduction (vph)	0	16	0	0	0	245	0	0	47	0	108	0
Lane Group Flow (vph)	103	227	0	31	350	338	0	110	9	681	127	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	6.6	23.1		3.5	20.0	41.3		8.1	11.6	21.3	21.3	
Effective Green, g (s)	6.6	23.1		3.5	20.0	41.3		8.1	11.6	21.3	21.3	
Actuated g/C Ratio	0.09	0.32		0.05	0.28	0.58		0.11	0.16	0.30	0.30	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	143	982		77	466	818		185	230	898	433	
v/s Ratio Prot	c0.07	0.07		0.02	c0.21	0.12		c0.07	0.00	c0.23	0.09	
v/s Ratio Perm						0.12			0.00			
v/c Ratio	0.72	0.23		0.40	0.75	0.41		0.59	0.04	0.76	0.29	
Uniform Delay, d1	31.6	17.7		33.0	23.5	8.4		30.1	25.3	22.8	19.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.0	0.1		1.3	6.8	0.3		5.1	0.0	3.7	0.4	
Delay (s)	45.6	17.8		34.2	30.3	8.7		35.2	25.3	26.5	19.7	
Level of Service	D	B		C	C	A		D	C	C	B	
Approach Delay (s)		26.1			17.4			31.8			24.7	
Approach LOS		C			B			C			C	

Intersection Summary				
HCM Average Control Delay	22.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	63.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project
14: Pleasant Valley Rd. (SR-49) & Missouri Flat Rd. — AM Peak

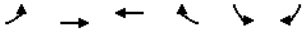


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	283	284	260	177	260	169
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3013	1635	1635	1389	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3013	1635	1635	1389	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	314	316	289	197	289	188
RTOR Reduction (vph)	0	0	0	2	0	102
Lane Group Flow (vph)	314	316	289	195	289	86
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	5.3	19.5	11.2	24.2	13.0	18.3
Effective Green, g (s)	5.3	19.5	11.2	24.2	13.0	18.3
Actuated g/C Ratio	0.13	0.49	0.28	0.60	0.32	0.46
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	398	795	457	838	513	647
v/s Ratio Prot	c0.10	0.19	c0.18	0.08	c0.18	0.02
v/s Ratio Perm				0.06		0.04
v/c Ratio	0.79	0.40	0.63	0.23	0.56	0.13
Uniform Delay, d1	16.9	6.6	12.6	3.7	11.2	6.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.2	0.1	2.1	0.2	1.5	0.0
Delay (s)	26.1	6.7	14.7	3.8	12.7	6.3
Level of Service	C	A	B	A	B	A
Approach Delay (s)		16.4	10.3		10.2	
Approach LOS		B	B		B	

Intersection Summary				
HCM Average Control Delay	12.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	40.1	Sum of lost time (s)	10.6	
Intersection Capacity Utilization	50.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

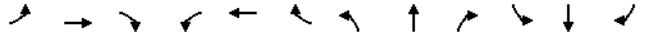
HCM Unsignalized Intersection Capacity Analysis — Cumulative plus Proposed Project
15: Pleasant Valley Rd. (SR-49) & China Garden Rd. — AM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	78	297	769	97	21	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	330	854	108	23	139
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	962				1412	908
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	962				1412	908
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				83	58
cM capacity (veh/h)	707				134	333

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	417	962	162
Volume Left	87	0	23
Volume Right	0	108	139
cSH	707	1700	274
Volume to Capacity	0.12	0.57	0.59
Queue Length 95th (ft)	10	0	87
Control Delay (s)	3.5	0.0	35.5
Lane LOS	A		E
Approach Delay (s)	3.5	0.0	35.5
Approach LOS			E

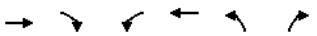
Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	211	20	40	575	6	9	0	20	1	4	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	234	22	44	639	7	10	0	22	1	4	82
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		1091										
pX, platoon unblocked												
vC, conflicting volume	646			257			1109	1031	246	1039	1039	642
vC1, stage 1 conf vol							297	297		731	731	
vC2, stage 2 conf vol							812	734		308	308	
vCu, unblocked vol	646			257			1109	1031	246	1039	1039	642
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			96	100	97	100	99	83
cM capacity (veh/h)	940			1308			258	361	793	362	374	474

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	26	257	44	646	32	88
Volume Left	26	0	44	0	10	1
Volume Right	0	22	0	7	22	82
cSH	940	1700	1308	1700	482	466
Volume to Capacity	0.03	0.15	0.03	0.38	0.07	0.19
Queue Length 95th (ft)	2	0	3	0	5	17
Control Delay (s)	8.9	0.0	7.8	0.0	13.0	14.5
Lane LOS	A		A		B	B
Approach Delay (s)	0.8		0.5		13.0	14.5
Approach LOS					B	B

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	52.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	526	17	3	1159	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	584	19	3	1288	14	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			603		1888	594
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			603		1888	594
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		81	99
cM capacity (veh/h)			974		77	505

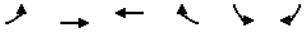
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	603	1291	20
Volume Left	0	3	14
Volume Right	19	0	6
cSH	1700	974	101
Volume to Capacity	0.35	0.00	0.20
Queue Length 95th (ft)	0	0	17
Control Delay (s)	0.0	0.1	49.4
Lane LOS		A	E
Approach Delay (s)	0.0	0.1	49.4
Approach LOS			E

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	80.8%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	277	374	339	340	6	147	2	246	13	5	10
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1553	1635	1389	1553	1630			1588	1417		1552	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.98	
Satd. Flow (perm)	1553	1635	1389	1553	1630			1588	1417		1552	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	308	416	377	378	7	163	2	273	14	6	11
RTOR Reduction (vph)	0	0	291	0	1	0	0	0	203	0	10	0
Lane Group Flow (vph)	4	308	125	377	384	0	0	165	70	0	21	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.7	24.7	24.7	16.2	40.2			21.3	21.3		5.2	
Effective Green, g (s)	0.7	24.7	24.7	16.2	40.2			21.3	21.3		5.2	
Actuated g/C Ratio	0.01	0.30	0.30	0.20	0.49			0.26	0.26		0.06	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	13	490	416	305	794			410	366		98	
v/s Ratio Prot	0.00	c0.19		c0.24	0.24			c0.10			c0.01	
v/s Ratio Perm			0.09						0.05			
v/c Ratio	0.31	0.63	0.30	1.24	0.48			0.40	0.19		0.21	
Uniform Delay, d1	40.7	24.9	22.2	33.1	14.2			25.3	23.9		36.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	4.8	6.0	1.8	131.2	0.6			2.9	1.2		0.4	
Delay (s)	45.5	30.9	24.1	164.4	14.8			28.3	25.1		37.1	
Level of Service	D	C	C	F	B			C	C		D	
Approach Delay (s)		27.1			88.8			26.3			37.1	
Approach LOS		C			F			C			D	

Intersection Summary				
HCM Average Control Delay	51.1	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	63.9%	ICU Level of Service	B	
Analysis Period (min)	15			

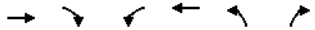
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	288	526	371	29	488	671
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	320	584	412	32	542	746
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	444				1653	428
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	444				1653	428
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				0	0
cM capacity (veh/h)	1105				77	627

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	904	444	1288
Volume Left	320	0	542
Volume Right	0	32	746
cSH	1105	1700	156
Volume to Capacity	0.29	0.26	8.24
Queue Length 95th (ft)	30	0	Err
Control Delay (s)	6.1	0.0	Err
Lane LOS	A		F
Approach Delay (s)	6.1	0.0	Err
Approach LOS			F

Intersection Summary				
Average Delay	4885.7			
Intersection Capacity Utilization	158.8%	ICU Level of Service	H	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	652	93	69	540	146	191
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	724	103	77	600	162	212

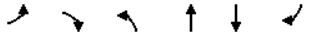
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	828	677	374
Volume Left (vph)	0	77	162
Volume Right (vph)	103	0	212
Hadj (s)	-0.01	0.09	-0.22
Departure Headway (s)	6.3	6.4	6.8
Degree Utilization, x	1.45	1.21	0.70
Capacity (veh/h)	576	568	522
Control Delay (s)	231.6	130.8	24.3
Approach Delay (s)	231.6	130.8	24.3
Approach LOS	F	F	C

Intersection Summary			
Delay	154.0		
HCM Level of Service	F		
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	407	240	230	364	290	377
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	452	267	256	404	322	419

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	719	256	404	741
Volume Left (vph)	0	256	0	322
Volume Right (vph)	267	0	0	419
Hadj (s)	-0.19	0.57	0.07	-0.18
Departure Headway (s)	6.8	8.1	7.7	6.7
Degree Utilization, x	1.36	0.58	0.86	1.38
Capacity (veh/h)	541	430	466	549
Control Delay (s)	193.9	20.5	40.8	202.8
Approach Delay (s)	193.9	32.9		202.8
Approach LOS	F	D		F

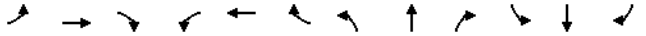
Intersection Summary			
Delay	146.9		
HCM Level of Service	F		
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	41	23	22	908	605	33
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	46	26	24	1009	672	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	1748	691	709			
vC1, stage 1 conf vol	691					
vC2, stage 2 conf vol	1058					
vCu, unblocked vol	1748	691	709			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	94	97			
cM capacity (veh/h)	275	441	881			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	71	24	1009	709
Volume Left	46	24	0	0
Volume Right	26	0	0	37
cSH	318	881	1700	1700
Volume to Capacity	0.22	0.03	0.59	0.42
Queue Length 95th (ft)	21	2	0	0
Control Delay (s)	19.5	9.2	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	19.5	0.2		0.0
Approach LOS	C			

Intersection Summary				
Average Delay		0.9		
Intersection Capacity Utilization		64.2%	ICU Level of Service	C
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	368	399	153	150	34	517	122	320	107	308	308	287
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1544	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1544	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	409	443	170	167	38	574	136	356	119	342	342	319
RTOR Reduction (vph)	0	1	105	0	0	29	0	0	91	0	0	0
Lane Group Flow (vph)	409	459	48	167	38	545	136	356	28	342	342	319
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	27.1	39.5	39.5	16.8	29.2	63.2	22.5	18.7	18.7	34.0	30.2	125.0
Effective Green, g (s)	27.1	39.5	39.5	16.8	29.2	63.2	22.5	18.7	18.7	34.0	30.2	125.0
Actuated g/C Ratio	0.22	0.32	0.32	0.13	0.23	0.51	0.18	0.15	0.15	0.27	0.24	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	653	488	417	209	382	702	280	465	208	422	750	1389
v/s Ratio Prot	0.14	c0.30		0.11	0.02	c0.21	0.09	c0.11		c0.22	0.11	
v/s Ratio Perm			0.04			0.18			0.02			0.23
v/c Ratio	0.63	0.94	0.12	0.80	0.10	0.78	0.49	0.77	0.13	0.81	0.46	0.23
Uniform Delay, d1	44.4	41.6	30.4	52.5	37.6	25.2	46.1	51.0	46.1	42.5	40.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.74	1.00
Incremental Delay, d2	1.9	26.1	0.1	18.9	0.1	5.4	5.9	11.4	1.3	9.7	1.2	0.2
Delay (s)	46.2	67.7	30.5	71.3	37.7	30.6	52.0	62.5	47.5	42.3	31.0	0.2
Level of Service	D	E	C	E	D	C	D	E	D	D	C	A
Approach Delay (s)		53.5			39.6			57.2			25.1	
Approach LOS		D			D			E			C	

Intersection Summary				
HCM Average Control Delay	42.7	HCM Level of Service		D
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	78.5%	ICU Level of Service		D
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	0	82	134	12	176	44	549	612	0	1476	15
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.87	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1553		1389	1553	1349	1320	1553	3106	1389		3106	1389
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1553		1389	1553	1349	1320	1553	3106	1389		3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	0	91	149	13	196	49	610	680	0	1640	17
RTOR Reduction (vph)	0	0	85	0	77	87	0	0	0	0	0	0
Lane Group Flow (vph)	23	0	6	149	28	17	49	610	680	0	1640	17
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	5.1		8.1	17.7	20.7	20.7	4.8	87.2	125.0		78.4	78.4
Effective Green, g (s)	5.1		8.1	17.7	20.7	20.7	4.8	87.2	125.0		78.4	78.4
Actuated g/C Ratio	0.04		0.06	0.14	0.17	0.17	0.04	0.70	1.00		0.63	0.63
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	63		90	220	223	219	60	2167	1389		1948	871
v/s Ratio Prot	0.01		0.00	c0.10	0.02		0.03	0.20			c0.53	0.01
v/s Ratio Perm						0.01			c0.49			
v/c Ratio	0.37		0.07	0.68	0.13	0.08	0.82	0.28	0.49		0.84	0.02
Uniform Delay, d1	58.4		54.9	50.9	44.4	44.1	59.7	7.1	0.0		18.4	8.8
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.98	0.88	1.00		1.00	1.00
Incremental Delay, d2	3.6		0.3	8.0	0.3	0.2	42.7	0.2	0.9		4.6	0.0
Delay (s)	61.9		55.2	58.9	44.7	44.2	101.2	6.5	0.9		23.0	8.8
Level of Service	E		E	E	D	D	F	A	A		C	A
Approach Delay (s)		56.6			50.5			7.1			22.9	
Approach LOS		E			D			A			C	

Intersection Summary				
HCM Average Control Delay	20.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	69.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	17	3	0	419	559	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	3	0	466	621	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1093	628	634			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1093	628	634			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	99	100			
cM capacity (veh/h)	237	483	939			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	22	466	634
Volume Left	19	0	0
Volume Right	3	0	13
cSH	257	939	1700
Volume to Capacity	0.09	0.00	0.37
Queue Length 95th (ft)	7	0	0
Control Delay (s)	20.4	0.0	0.0
Lane LOS	C		
Approach Delay (s)	20.4	0.0	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis — Cumulative plus Proposed Project
26: Fiske St. & Sacramento St (SR-49) — AM Peak

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	19	24	378	21	28	367
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	21	27	420	23	31	408
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	902	432			443	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	902	432			443	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			97	
cM capacity (veh/h)	300	624			1106	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	48	443	439
Volume Left	21	0	31
Volume Right	27	23	0
cSH	422	1700	1106
Volume to Capacity	0.11	0.26	0.03
Queue Length 95th (ft)	9	0	2
Control Delay (s)	14.6	0.0	0.9
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	0.9
Approach LOS	B		

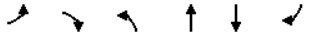
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	57.4%	ICU Level of Service		B
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project
27: Pacific St. & Sacramento St. — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	214	138	129	185	50	150	128	116	42	74	28
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1553	1539		1583	1613		1553	1518		1583	1598	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1553	1539		1583	1613		1553	1518		1583	1598	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	238	153	143	206	56	167	142	129	47	82	31
RTOR Reduction (vph)	0	36	0	0	14	0	0	59	0	0	26	0
Lane Group Flow (vph)	11	355	0	143	248	0	167	212	0	47	87	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.5	16.7		6.3	22.5		7.4	13.9		1.7	8.2	
Effective Green, g (s)	0.5	16.7		6.3	22.5		7.4	13.9		1.7	8.2	
Actuated g/C Ratio	0.01	0.32		0.12	0.43		0.14	0.27		0.03	0.16	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	15	493		191	697		221	405		52	252	
v/s Ratio Prot	0.01	c0.23		c0.09	0.15		c0.11	c0.14		0.03	0.05	
v/s Ratio Perm												
v/c Ratio	0.73	0.72		0.75	0.36		0.76	0.52		0.90	0.34	
Uniform Delay, d1	25.7	15.6		22.1	9.9		21.5	16.3		25.1	19.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	93.0	4.4		13.1	0.1		12.2	0.6		88.0	0.3	
Delay (s)	118.7	20.0		35.2	10.1		33.7	16.8		113.1	19.9	
Level of Service	F	B		D	B		C	B		F	B	
Approach Delay (s)		22.7			18.9			23.3			47.2	
Approach LOS		C			B			C			D	

Intersection Summary						
HCM Average Control Delay	24.6	HCM Level of Service		C		
HCM Volume to Capacity ratio	0.66					
Actuated Cycle Length (s)	52.1	Sum of lost time (s)		9.5		
Intersection Capacity Utilization	62.1%	ICU Level of Service		B		
Analysis Period (min)	15					

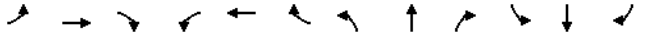
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	91	32	24	1036	641	119
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	101	36	27	1151	712	132
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				833		
pX, platoon unblocked						
vC, conflicting volume	1983	778	844			
vC1, stage 1 conf vol	778					
vC2, stage 2 conf vol	1204					
vCu, unblocked vol	1983	778	844			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	57	91	97			
cM capacity (veh/h)	235	396	783			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	137	27	1151	844
Volume Left	101	27	0	0
Volume Right	36	0	0	132
cSH	263	783	1700	1700
Volume to Capacity	0.52	0.03	0.68	0.50
Queue Length 95th (ft)	69	3	0	0
Control Delay (s)	32.6	9.8	0.0	0.0
Lane LOS	D	A		
Approach Delay (s)	32.6	0.2		0.0
Approach LOS	D			

Intersection Summary				
Average Delay		2.2		
Intersection Capacity Utilization		75.4%	ICU Level of Service	D
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	56	4	138	0	725	185	74	415	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	2	62	4	153	0	806	206	82	461	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1587	1637	461	1536	1534	908	461			1011		
vC1, stage 1 conf vol	626	626		908	908							
vC2, stage 2 conf vol	961	1011		628	626							
vCu, unblocked vol	1587	1637	461	1536	1534	908	461			1011		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	76	98	54	100			88		
cM capacity (veh/h)	79	211	598	264	282	333	1090			686		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	220	0	1011	82	461
Volume Left	0	62	0	0	82	0
Volume Right	2	153	0	206	0	0
cSH	598	309	1700	1700	686	1700
Volume to Capacity	0.00	0.71	0.00	0.59	0.12	0.27
Queue Length 95th (ft)	0	127	0	0	10	0
Control Delay (s)	11.0	40.8	0.0	0.0	11.0	0.0
Lane LOS	B	E			B	
Approach Delay (s)	11.0	40.8	0.0		1.7	
Approach LOS	B	E				

Intersection Summary				
Average Delay		5.6		
Intersection Capacity Utilization		89.7%	ICU Level of Service	E
Analysis Period (min)		15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	947	18	0	1211	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1052	20	0	1346	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				686		
pX, platoon unblocked					0.77	
vC, conflicting volume			1072		1725	1052
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1072		1344	1052
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			646		110	223

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1052	20	673	673	8
Volume Left	0	0	0	0	0
Volume Right	0	20	0	0	8
cSH	1700	1700	1700	1700	223
Volume to Capacity	0.62	0.01	0.40	0.40	0.03
Queue Length 95th (ft)	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	21.7
Lane LOS					C
Approach Delay (s)	0.0		0.0		21.7
Approach LOS					C

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	65.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	916	38	0	1211	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1018	42	0	1346	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				391		
pX, platoon unblocked					0.77	
vC, conflicting volume			1060		1691	1018
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1060		1292	1018
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			653		119	235

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1018	42	673	673
Volume Left	0	0	0	0
Volume Right	0	42	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.60	0.02	0.40	0.40
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	15	0	938	864	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	17	0	1042	960	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					253	
pX, platoon unblocked	0.86	0.86	0.86			
vC, conflicting volume	1307	960	980			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1277	875	898			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	100			
cM capacity (veh/h)	137	253	639			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	17	347	347	347	960	20
Volume Left	0	0	0	0	0	0
Volume Right	17	0	0	0	0	20
cSH	253	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.20	0.20	0.20	0.56	0.01
Queue Length 95th (ft)	5	0	0	0	0	0
Control Delay (s)	20.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	20.2	0.0			0.0	
Approach LOS	C					

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		60.8%	ICU Level of Service	B
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	352	333	341	370	668	530	473	76	413
v/c Ratio	0.93	0.46	0.95	0.94	0.94	0.52	0.47	0.55	0.81
Control Delay	70.9	15.6	82.7	69.9	36.4	17.0	1.7	66.6	60.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.9	15.6	82.7	69.9	36.4	17.0	1.7	66.6	60.5
Queue Length 50th (ft)	243	116	~283	252	239	111	26	57	158
Queue Length 95th (ft)	#430	200	#486	#466	m225	m115	m23	108	215
Internal Link Dist (ft)	421			1192		570			1135
Turn Bay Length (ft)					125		500	105	
Base Capacity (vph)	395	723	359	394	707	1015	1007	171	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.46	0.95	0.94	0.94	0.52	0.47	0.44	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	188	562	1111	616	521	868	62	299	646	328
v/c Ratio	0.19	0.95	1.11	1.12	0.72	1.05	0.04	0.44	0.83	0.24
Control Delay	29.1	72.1	100.2	118.7	46.5	80.8	0.1	43.5	41.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	72.1	100.2	118.7	46.5	80.8	0.1	43.5	41.8	0.3
Queue Length 50th (ft)	53	244	~505	~312	166	~388	0	93	263	0
Queue Length 95th (ft)	81	#368	#638	#440	231	#504	0	m117	m313	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	1004	591	1004	550	728	828	1389	678	777	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.95	1.11	1.12	0.72	1.05	0.04	0.44	0.83	0.24

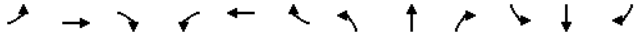
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	386	142	76	1066	1177	2319
v/c Ratio	0.70	0.38	0.52	0.45	0.83	0.80
Control Delay	52.4	9.0	63.7	6.9	5.8	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.3
Total Delay	52.4	9.0	63.7	6.9	5.8	14.7
Queue Length 50th (ft)	147	0	57	132	0	223
Queue Length 95th (ft)	178	50	105	247	0	m#206
Internal Link Dist (ft)				311		464
Turn Bay Length (ft)	185	185	200		300	
Base Capacity (vph)	819	482	211	2385	1417	2901
Starvation Cap Reductn	0	0	0	0	0	351
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.29	0.36	0.45	0.83	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	286	33	29	72	28	87	126	1944	90	121	1853	272
v/c Ratio	0.78	0.15	0.13	0.59	0.17	0.40	0.74	1.14	0.12	0.72	1.09	0.34
Control Delay	57.2	38.1	13.9	65.3	42.5	14.5	69.3	96.3	13.1	68.2	76.9	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	38.1	13.9	65.3	42.5	14.5	69.3	96.3	13.1	68.2	76.9	13.3
Queue Length 50th (ft)	81	17	0	40	16	0	70	~679	16	67	~624	51
Queue Length 95th (ft)	170	48	24	109	44	43	170	#1376	73	164	#1294	197
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	576	606	534	297	598	564	297	1701	774	297	1694	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.05	0.05	0.24	0.05	0.15	0.42	1.14	0.12	0.41	1.09	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

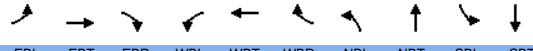
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	26	121	68	2302	147	1558	30
v/c Ratio	0.17	0.63	0.26	1.08	1.06	0.80	0.03
Control Delay	44.4	47.2	47.5	66.9	144.4	23.4	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	47.2	47.5	66.9	144.4	23.4	7.9
Queue Length 50th (ft)	17	60	40	~966	~115	503	6
Queue Length 95th (ft)	43	120	#134	#1400	#291	612	19
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	314	368	265	2125	139	2261	1015
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.33	0.26	1.08	1.06	0.69	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	729	460	276	1090	24	662	212	3	30
v/c Ratio	0.15	0.77	0.44	0.85	0.69	0.03	0.79	0.34	0.03	0.18
Control Delay	54.3	41.0	2.8	66.5	26.8	19.7	43.3	5.4	54.0	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	41.0	2.8	66.5	26.8	19.7	43.3	5.4	54.0	26.3
Queue Length 50th (ft)	10	233	0	179	263	6	201	6	2	8
Queue Length 95th (ft)	38	#456	53	#443	#671	33	#389	55	13	34
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	258	969	1088	323	1591	714	953	683	517	522
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.75	0.42	0.85	0.69	0.03	0.69	0.31	0.01	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	66	861	91	28	1241	51	53	14	64
v/c Ratio	1.10	0.79	0.10	0.47	0.64	0.30	0.31	0.08	0.32
Control Delay	194.9	26.6	9.8	63.0	16.3	44.1	44.2	16.9	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	194.9	26.6	9.8	63.0	16.3	44.1	44.2	16.9	26.1
Queue Length 50th (ft)	~50	382	8	19	155	34	35	0	21
Queue Length 95th (ft)	#140	#1156	62	m29	#750	61	63	16	48
Internal Link Dist (ft)		311			840		290		465
Turn Bay Length (ft)	175			100		50		100	
Base Capacity (vph)	60	1090	945	60	1945	379	385	368	477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.79	0.10	0.47	0.64	0.13	0.14	0.04	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	199	707	804	238	243	494
v/c Ratio	0.46	0.81	0.66	0.22	0.72	0.67
Control Delay	19.3	20.2	30.3	8.3	50.2	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	20.2	30.3	8.3	50.2	21.4
Queue Length 50th (ft)	116	292	226	64	155	212
Queue Length 95th (ft)	m8	601	#369	95	210	260
Internal Link Dist (ft)	840			173	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	445	885	1225	1073	498	735
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.80	0.66	0.22	0.49	0.67

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

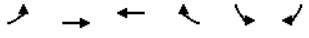
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	243	31	350	583	110	56	681	235
v/c Ratio	0.62	0.24	0.32	0.75	0.52	0.59	0.15	0.75	0.43
Control Delay	49.5	17.8	43.9	37.6	2.5	49.2	8.9	29.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	17.8	43.9	37.6	2.5	49.2	8.9	29.6	11.1
Queue Length 50th (ft)	47	38	14	149	1	50	0	145	28
Queue Length 95th (ft)	97	71	42	#309	37	#133	28	222	89
Internal Link Dist (ft)		215		260		844			629
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	498	1606	161	510	1173	190	429	1098	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.15	0.19	0.69	0.50	0.58	0.13	0.62	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

14: Pleasant Valley Rd. (SR-49) & Missouri Flat Rd.

AM Peak



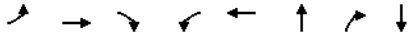
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	314	316	289	197	289	188
v/c Ratio	0.79	0.40	0.65	0.20	0.57	0.22
Control Delay	41.1	9.0	20.7	2.2	17.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	9.0	20.7	2.2	17.8	2.3
Queue Length 50th (ft)	33	38	54	9	48	0
Queue Length 95th (ft)	#143	105	130	17	149	27
Internal Link Dist (ft)		1271	1500		753	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	396	1345	1049	1250	832	855
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.23	0.28	0.16	0.35	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

18: Pleasant Valley Rd. (SR-49) & Oro Ln

AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	308	416	377	385	165	273	31
v/c Ratio	0.05	0.67	0.60	1.18	0.46	0.38	0.47	0.21
Control Delay	41.5	35.8	7.3	139.7	17.5	28.9	6.8	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	35.8	7.3	139.7	17.5	28.9	6.8	27.5
Queue Length 50th (ft)	2	132	0	~224	109	65	0	10
Queue Length 95th (ft)	13	#314	85	#488	297	151	65	33
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	80	462	690	320	836	430	583	428
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.67	0.60	1.18	0.46	0.38	0.47	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

23: EB US-50 Off-Ramp & Ponderosa Rd.

AM Peak

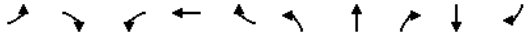
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	409	460	153	167	38	574	136	356	119	342	342	319
v/c Ratio	0.63	0.94	0.29	0.84	0.10	0.79	0.49	0.73	0.39	0.81	0.44	0.23
Control Delay	51.1	70.1	6.1	85.6	34.2	22.5	54.2	60.7	15.2	43.7	30.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	70.1	6.1	85.6	34.2	22.5	54.2	60.7	15.2	43.7	30.6	0.2
Queue Length 50th (ft)	164	371	0	133	23	143	102	148	9	267	127	0
Queue Length 95th (ft)	215	#585	50	#248	52	243	172	#218	66	m#362	m133	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	724	508	536	211	468	730	279	485	308	422	770	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.91	0.29	0.79	0.08	0.79	0.49	0.73	0.39	0.81	0.44	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

24: WB US-50 Ramps & Ponderosa Rd.

AM Peak



Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	23	91	149	105	104	49	610	680	1640	17
v/c Ratio	0.25	0.52	0.74	0.35	0.34	0.64	0.28	0.49	0.82	0.02
Control Delay	61.9	21.2	74.3	15.2	11.6	83.4	6.5	1.5	22.7	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	21.2	74.3	15.2	11.6	83.4	6.5	1.5	22.7	10.3
Queue Length 50th (ft)	18	0	116	9	0	40	99	14	489	5
Queue Length 95th (ft)	46	50	#221	64	52	m#67	141	15	#742	16
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	199	257	214	300	306	77	2205	1389	2006	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.35	0.70	0.35	0.34	0.64	0.28	0.49	0.82	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	391	143	262	167	271	47	113
v/c Ratio	0.11	0.80	0.68	0.34	0.70	0.55	0.28	0.36
Control Delay	28.2	30.7	46.7	11.5	44.6	15.8	28.4	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	30.7	46.7	11.5	44.6	15.8	28.4	17.2
Queue Length 50th (ft)	3	84	42	36	48	41	13	22
Queue Length 95th (ft)	17	#256	#144	126	#161	115	45	57
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	102	592	209	795	239	681	174	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.66	0.68	0.33	0.70	0.40	0.27	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	41	549	291	71	183	603	452	428	96	463	60
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	0.95	0.95	0.95		0.97	0.95	1.00	1.00	0.95	
Frt		0.92	0.85	1.00	0.90		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1428	1346	1504	1423		3072	3167	1417	1583	3112	
Flt Permitted		0.98	1.00	0.95	0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1346	1504	1423		3072	3167	1417	1583	3112	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	136	46	610	323	79	203	670	502	476	107	514	67
RTOR Reduction (vph)	0	37	44	0	55	0	0	0	283	0	8	0
Lane Group Flow (vph)	0	371	340	291	259	0	670	502	193	107	573	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split		pm+ov	Split			Prot		pm+ov	Prot		
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		31.0	58.0	24.0	24.0		27.0	24.6	48.6	24.4	22.0	
Effective Green, g (s)		31.0	58.0	24.0	24.0		27.0	24.6	48.6	24.4	22.0	
Actuated g/C Ratio		0.26	0.48	0.20	0.20		0.22	0.21	0.41	0.20	0.18	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		369	651	301	285		691	649	621	322	571	
v/s Ratio Prot		c0.26	0.12	c0.19	0.18		c0.22	0.16	0.06	0.07	c0.18	
v/s Ratio Perm			0.14						0.07			
v/c Ratio		1.01	0.52	0.97	0.91		0.97	0.77	0.31	0.33	1.00	
Uniform Delay, d1		44.5	21.4	47.6	46.9		46.1	45.1	24.3	40.8	49.0	
Progression Factor		1.00	1.00	1.00	1.00		0.72	0.66	0.70	1.00	1.00	
Incremental Delay, d2		48.2	0.8	42.4	30.3		18.7	5.1	0.2	0.6	38.5	
Delay (s)		92.7	22.2	90.0	77.2		51.7	34.9	17.2	41.5	87.5	
Level of Service		F	C	F	E		D	C	B	D	F	
Approach Delay (s)		58.5			83.4			36.6			80.3	
Approach LOS		E			F			D			F	

Intersection Summary				
HCM Average Control Delay	56.9	HCM Level of Service		E
HCM Volume to Capacity ratio	0.98			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		16.0
Intersection Capacity Utilization	88.8%	ICU Level of Service		E
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	265	924	1037	504	579	714	66	316	633	354
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	0.88	0.97	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	2445	3013	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	custom	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3	1	4	5	1	6		5	2	
Permitted Phases							Free			Free
Actuated Green, G (s)	35.0	39.0	35.0	28.0	39.0	36.0	120.0	28.0	25.0	120.0
Effective Green, g (s)	35.0	39.0	35.0	28.0	39.0	36.0	120.0	28.0	25.0	120.0
Actuated g/C Ratio	0.29	0.32	0.29	0.23	0.32	0.30	1.00	0.23	0.21	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	879	795	879	571	979	932	1389	703	647	1389
v/s Ratio Prot	0.10	c0.42	c0.38	c0.23	0.21	0.26		0.12	0.23	
v/s Ratio Perm							0.05			c0.28
v/c Ratio	0.33	1.29	1.31	0.98	0.66	0.85	0.05	0.50	1.09	0.28
Uniform Delay, d1	33.4	40.5	42.5	45.7	34.8	39.5	0.0	39.9	47.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.82	0.84	1.00	0.92	0.92	1.00
Incremental Delay, d2	0.2	140.7	147.9	32.6	1.4	8.7	0.1	0.3	51.1	0.2
Delay (s)	33.6	181.2	190.4	78.4	29.9	42.0	0.1	37.1	94.9	0.2
Level of Service	C	F	F	E	C	D	A	D	F	A
Approach Delay (s)						34.8			55.2	
Approach LOS						C			E	

Intersection Summary			
HCM Average Control Delay	98.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	379	0	156	0	0	0	84	980	1249	0	2349	245
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0				4.0	4.0	4.0		4.0	
Lane Util. Factor	0.97		1.00				1.00	0.95	1.00		0.91	
Frt	1.00		0.85				1.00	1.00	0.85		0.99	
Flt Protected	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (prot)	3072		1417				1583	3167	1417		4486	
Flt Permitted	0.95		1.00				0.95	1.00	1.00		1.00	
Satd. Flow (perm)	3072		1417				1583	3167	1417		4486	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	421	0	173	0	0	0	93	1089	1388	0	2610	272
RTOR Reduction (vph)	0	0	140	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	421	0	33	0	0	0	93	1089	1388	0	2874	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		custom				Prot		Free			
Protected Phases	4						5	2			6	
Permitted Phases			4						Free			
Actuated Green, G (s)	22.7		22.7				12.1	89.3	120.0		73.2	
Effective Green, g (s)	22.7		22.7				12.1	89.3	120.0		73.2	
Actuated g/C Ratio	0.19		0.19				0.10	0.74	1.00		0.61	
Clearance Time (s)	4.0		4.0				4.0	4.0			4.0	
Vehicle Extension (s)	3.0		3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)	581		268				160	2357	1417		2736	
v/s Ratio Prot	0.14						0.06	0.34			c0.64	
v/s Ratio Perm			0.02						c0.98			
v/c Ratio	0.72		0.12				0.58	0.46	0.98		1.05	
Uniform Delay, d1	45.7		40.4				51.5	6.0	0.0		23.4	
Progression Factor	1.00		1.00				1.00	1.00	1.00		0.77	
Incremental Delay, d2	4.5		0.2				5.3	0.7	19.5		23.8	
Delay (s)	50.2		40.6				56.8	6.6	19.5		41.8	
Level of Service	D		D				E	A	B		D	
Approach Delay (s)		47.4			0.0			15.4			41.8	
Approach LOS		D			A			B			D	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	588	68	71	155	60	185	115	1540	79	175	1934	394
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	653	76	79	172	67	206	128	1711	88	194	2149	438
RTOR Reduction (vph)	0	0	67	0	0	186	0	0	17	0	0	63
Lane Group Flow (vph)	653	76	12	172	67	20	128	1711	71	194	2149	375
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	20.2	16.9	16.9	14.0	10.7	10.7	10.9	45.9	45.9	16.1	51.1	51.1
Effective Green, g (s)	20.2	16.9	16.9	14.0	10.7	10.7	10.9	45.9	45.9	16.1	51.1	51.1
Actuated g/C Ratio	0.19	0.16	0.16	0.13	0.10	0.10	0.10	0.43	0.43	0.15	0.47	0.47
Clearance Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	575	261	222	205	165	141	160	1347	603	236	1500	671
v/s Ratio Prot	c0.21	0.05		0.11	c0.04		0.08	0.54		c0.12	c0.68	
v/s Ratio Perm			0.01			0.01			0.05			0.26
v/c Ratio	1.14	0.29	0.06	0.84	0.41	0.14	0.80	1.27	0.12	0.82	1.43	0.56
Uniform Delay, d1	43.9	40.2	38.7	45.8	45.6	44.4	47.4	31.0	18.7	44.5	28.4	20.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	80.8	0.2	0.0	23.9	0.6	0.2	22.9	127.6	0.1	19.2	198.6	1.0
Delay (s)	124.7	40.4	38.7	69.7	46.2	44.6	70.4	158.6	18.8	63.7	227.0	21.4
Level of Service	F	D	D	E	D	D	E	F	B	E	F	C
Approach Delay (s)		108.4			54.6			146.3			183.2	
Approach LOS		F			D			F			F	

Intersection Summary				
HCM Average Control Delay	151.5	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.18			
Actuated Cycle Length (s)	107.9	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	103.1%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	11	8	144	8	123	35	1269	49	141	1745	29
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt		0.99			0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1586			1526		1583	3149		1583	3167	1417
Flt Permitted		0.56			0.81		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		921			1261		1583	3149		1583	3167	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	182	12	9	160	9	137	39	1410	54	157	1939	32
RTOR Reduction (vph)	0	2	0	0	36	0	0	3	0	0	0	5
Lane Group Flow (vph)	0	201	0	0	270	0	39	1461	0	157	1939	27
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)		21.7			21.7		2.3	37.3		10.9	45.9	45.9
Effective Green, g (s)		21.7			21.7		2.3	37.3		10.9	45.9	45.9
Actuated g/C Ratio		0.26			0.26		0.03	0.45		0.13	0.55	0.55
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)		2.5			2.5		2.5	3.0		2.5	3.0	3.0
Lane Grp Cap (vph)		241			330		44	1417		208	1754	785
v/s Ratio Prot							0.02	0.46		c0.10	c0.61	
v/s Ratio Perm		c0.22			0.21							0.02
v/c Ratio		0.83			0.82		0.89	1.03		0.75	1.11	0.03
Uniform Delay, d1		28.9			28.7		40.2	22.8		34.7	18.5	8.4
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		20.8			14.1		91.8	32.3		13.7	56.5	0.0
Delay (s)		49.7			42.9		132.0	55.1		48.5	75.0	8.4
Level of Service		D			D		F	E		D	E	A
Approach Delay (s)		49.7			42.9			57.1			72.0	
Approach LOS		D			D			E			E	

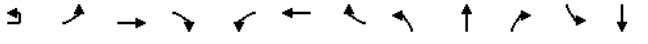
Intersection Summary				
HCM Average Control Delay	63.4	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.98			
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	86.2%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	1045	487	251	879	19	655	13	255	4	13	20
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1583	3167	1417	1583	3167	1417	3072	1428		1583	1514	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1583	3167	1417	1583	3167	1417	3072	1428		1583	1514	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	1161	541	279	977	21	728	14	283	4	14	22
RTOR Reduction (vph)	0	0	207	0	0	3	0	183	0	0	20	0
Lane Group Flow (vph)	18	1161	334	279	977	18	728	114	0	4	16	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot			Prot		
Protected Phases	5	2	7	1	6		7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	2.9	37.3	67.6	16.3	50.7	50.7	30.3	38.7		1.1	9.5	
Effective Green, g (s)	2.9	37.3	67.6	16.3	50.7	50.7	30.3	38.7		1.1	9.5	
Actuated g/C Ratio	0.03	0.34	0.62	0.15	0.46	0.46	0.28	0.35		0.01	0.09	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	42	1080	927	236	1468	657	851	505		16	131	
v/s Ratio Prot	0.01	c0.37	0.10	c0.18	0.31		c0.24	c0.08		0.00	0.01	
v/s Ratio Perm			0.14			0.01						
v/c Ratio	0.43	1.07	0.36	1.18	0.67	0.03	0.86	0.23		0.25	0.12	
Uniform Delay, d1	52.4	36.1	10.3	46.6	22.8	16.0	37.5	24.8		53.7	46.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.9	49.9	0.2	116.7	1.2	0.0	8.4	0.2		8.1	0.4	
Delay (s)	59.3	86.0	10.5	163.3	23.9	16.0	45.9	25.1		61.8	46.5	
Level of Service	E	F	B	F	C	B	D	C		E	D	
Approach Delay (s)		61.9			54.2			39.9			48.0	
Approach LOS		E			D			D			D	

Intersection Summary				
HCM Average Control Delay	53.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	109.4	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	85.4%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	32	86	781	239	138	798	19	430	17	81	32	4
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor		1.00	1.00	1.00	1.00	0.95		0.95	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.94
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98
Satd. Flow (prot)		1579	1667	1417	1583	3156		1475	1484	1389		1494
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00		0.98
Satd. Flow (perm)		1579	1667	1417	1583	3156		1475	1484	1389		1494
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	96	868	266	153	887	21	478	19	90	36	4
RTOR Reduction (vph)	0	0	0	68	0	1	0	0	0	51	0	31
Lane Group Flow (vph)	0	132	868	198	153	907	0	249	248	39	0	46
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%
Turn Type	Prot	Prot		Perm	Prot			Split		Perm	Split	
Protected Phases	7	7	4		3	8		2	2		6	6
Permitted Phases				4						2		
Actuated Green, G (s)		12.0	69.1	69.1	8.0	65.1		25.0	25.0	25.0		11.9
Effective Green, g (s)		12.0	69.1	69.1	8.0	65.1		25.0	25.0	25.0		11.9
Actuated g/C Ratio		0.09	0.53	0.53	0.06	0.50		0.19	0.19	0.19		0.09
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		146	886	753	97	1580		284	285	267		137
v/s Ratio Prot		c0.08	c0.52		c0.10	0.29		c0.17	0.17			c0.03
v/s Ratio Perm				0.14						0.03		
v/c Ratio		0.90	0.98	0.26	1.58	0.57		0.88	0.87	0.15		0.34
Uniform Delay, d1		58.4	29.8	16.6	61.0	22.7		51.0	50.9	43.6		55.4
Progression Factor		1.00	1.00	1.00	0.89	0.64		1.00	1.00	1.00		1.00
Incremental Delay, d2		46.8	25.7	0.8	296.4	1.3		24.7	23.8	0.3		1.5
Delay (s)		105.3	55.5	17.4	351.0	15.8		75.7	74.7	43.9		56.8
Level of Service		F	E	B	F	B		E	E	D		E
Approach Delay (s)			52.7			64.1			70.4			56.8
Approach LOS			D			E			E			E

Intersection Summary				
HCM Average Control Delay	60.3	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	85.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

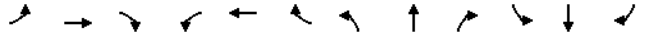
Movement	SBR
Lane Configurations	
Volume (vph)	33
Ideal Flow (vphpl)	1700
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	37
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	4%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	225	669	43	551	272	303	404
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00
Frt	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1583	1417		3013	1635	1635	1389
Flt Permitted	0.95	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1583	1417		3013	1635	1635	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	250	743	48	612	302	337	449
RTOR Reduction (vph)	0	376	0	0	0	0	24
Lane Group Flow (vph)	250	367	0	660	302	337	425
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%	4%
Turn Type		Perm	Prot	Prot			pm+ov
Protected Phases	4		5	5	2	6	4
Permitted Phases		4					6
Actuated Green, G (s)	39.6	39.6		48.0	82.4	30.4	70.0
Effective Green, g (s)	39.6	39.6		48.0	82.4	30.4	70.0
Actuated g/C Ratio	0.30	0.30		0.37	0.63	0.23	0.54
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	482	432		1112	1036	382	791
v/s Ratio Prot	0.16			c0.22	0.18	c0.21	0.16
v/s Ratio Perm		c0.26					0.14
v/c Ratio	0.52	0.85		0.59	0.29	0.88	0.54
Uniform Delay, d1	37.3	42.4		33.1	10.7	48.1	19.5
Progression Factor	0.42	1.40		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	7.2		2.3	0.2	20.5	0.7
Delay (s)	16.1	66.7		35.5	10.8	68.6	20.2
Level of Service	B	E		D	B	E	C
Approach Delay (s)	54.0				27.7	41.0	
Approach LOS	D				C	D	

Intersection Summary				
HCM Average Control Delay	41.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	127	0	0	78	52	788	58	22	924	114
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	141	0	0	87	58	876	64	24	1027	127
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.82	0.82	0.82	0.82	0.82		0.82					
vC, conflicting volume	2173	2194	1090	2240	2226	908	1153			940		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2322	2348	1000	2403	2386	908	1077			940		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	41	100	100	74	89			97		
cM capacity (veh/h)	14	25	240	7	24	331	524			721		

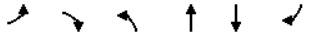
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	141	58	940	24	1153
Volume Left	0	58	0	24	0
Volume Right	141	0	64	0	127
cSH	240	524	1700	721	1700
Volume to Capacity	0.59	0.11	0.55	0.03	0.68
Queue Length 95th (ft)	84	9	0	3	0
Control Delay (s)	39.5	12.7	0.0	10.2	0.0
Lane LOS	E	B		B	
Approach Delay (s)	39.5	0.7		0.2	
Approach LOS	E				

Intersection Summary				
Average Delay		Err		
Intersection Capacity Utilization		77.5%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	23	22	10	487	689	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	24	11	541	766	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				899		
pX, platoon unblocked	0.94					
vC, conflicting volume	1331	768	770			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1320	768	770			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	94	99			
cM capacity (veh/h)	159	399	836			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	50	552	770
Volume Left	26	11	0
Volume Right	24	0	4
cSH	225	836	1700
Volume to Capacity	0.22	0.01	0.45
Queue Length 95th (ft)	21	1	0
Control Delay (s)	25.5	0.4	0.0
Lane LOS	D	A	
Approach Delay (s)	25.5	0.4	0.0
Approach LOS	D		

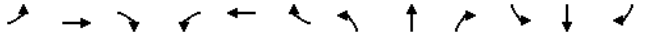
Intersection Summary				
Average Delay		1.1		
Intersection Capacity Utilization		50.8%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	4	0	497	703	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	4	0	552	781	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				361		
pX, platoon unblocked	0.92					
vC, conflicting volume	1338	786	790			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1324	786	790			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	157	389	821			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	552	790
Volume Left	0	0	0
Volume Right	4	0	9
cSH	389	1700	1700
Volume to Capacity	0.01	0.32	0.46
Queue Length 95th (ft)	1	0	0
Control Delay (s)	14.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.4	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		51.9%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	127	0	0	78	52	788	58	22	924	114
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	141	0	0	87	58	876	64	24	1027	127
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											690	
pX, platoon unblocked	0.82	0.82	0.82	0.82	0.82		0.82					
vC, conflicting volume	2173	2194	1090	2240	2226	908	1153			940		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2320	2345	1001	2401	2383	908	1078			940		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	41	100	100	74	89			97		
cM capacity (veh/h)	14	25	240	7	24	331	525			721		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	141	58	940	24	1153
Volume Left	0	58	0	24	0
Volume Right	141	0	64	0	127
cSH	240	525	1700	721	1700
Volume to Capacity	0.59	0.11	0.55	0.03	0.68
Queue Length 95th (ft)	84	9	0	3	0
Control Delay (s)	39.4	12.7	0.0	10.2	0.0
Lane LOS	E	B		B	
Approach Delay (s)	39.4	0.7		0.2	
Approach LOS	E				

Intersection Summary				
Average Delay		Err		
Intersection Capacity Utilization		77.5%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	458	76	24	263	484	43	72	47	892	87	254
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00	0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1553	3040		1583	1667	1417		1636	1417	3013	1452	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1553	3040		1583	1667	1417		1636	1417	3013	1452	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	284	509	84	27	292	538	48	80	52	991	97	282
RTOR Reduction (vph)	0	15	0	0	0	127	0	0	45	0	111	0
Lane Group Flow (vph)	284	578	0	27	292	411	0	128	7	991	268	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot			Prot		pm+ov	Split		pm+ov	Split		
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases						6			8			
Actuated Green, G (s)	17.6	33.1		3.7	19.2	44.4		8.1	11.8	25.2	25.2	
Effective Green, g (s)	17.6	33.1		3.7	19.2	44.4		8.1	11.8	25.2	25.2	
Actuated g/C Ratio	0.21	0.39		0.04	0.22	0.52		0.09	0.14	0.29	0.29	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0	3.0	4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0	0.2	3.0	3.0	
Lane Grp Cap (vph)	319	1176		68	374	735		155	195	887	427	
v/s Ratio Prot	c0.18	0.19		0.02	c0.18	0.16		c0.08	0.00	c0.33	0.18	
v/s Ratio Perm						0.13			0.00			
v/c Ratio	0.89	0.49		0.40	0.78	0.56		0.83	0.04	1.12	0.63	
Uniform Delay, d1	33.1	19.9		39.9	31.2	14.0		38.1	32.0	30.2	26.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	24.5	0.3		1.4	10.2	0.9		28.7	0.0	67.8	2.9	
Delay (s)	57.6	20.2		41.3	41.5	14.9		66.8	32.0	98.0	29.0	
Level of Service	E	C		D	D	B		E	C	F	C	
Approach Delay (s)		32.3			24.8			56.7			78.9	
Approach LOS		C			C			E			E	

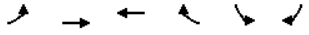
Intersection Summary				
HCM Average Control Delay	51.1	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	85.6	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	80.4%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	546	482	222	197	619	420
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3013	1635	1635	1389	1583	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3013	1635	1635	1389	1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	607	536	247	219	688	467
RTOR Reduction (vph)	0	0	0	3	0	109
Lane Group Flow (vph)	607	536	247	216	688	358
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot			pm+ov		pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases				6		4
Actuated Green, G (s)	16.1	34.1	15.0	53.7	38.7	54.8
Effective Green, g (s)	16.1	34.1	15.0	53.7	38.7	54.8
Actuated g/C Ratio	0.20	0.42	0.19	0.67	0.48	0.68
Clearance Time (s)	3.0	4.1	4.1	3.5	3.5	3.0
Vehicle Extension (s)	0.2	0.2	0.2	3.5	3.5	0.2
Lane Grp Cap (vph)	603	693	305	928	762	966
v/s Ratio Prot	c0.20	c0.33	0.15	0.11	c0.43	0.07
v/s Ratio Perm				0.04		0.18
v/c Ratio	1.01	0.77	0.81	0.23	0.90	0.37
Uniform Delay, d1	32.2	19.8	31.3	5.2	19.1	5.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	38.3	4.9	13.8	0.2	14.2	0.1
Delay (s)	70.4	24.7	45.2	5.4	33.4	5.5
Level of Service	E	C	D	A	C	A
Approach Delay (s)		49.0	26.5		22.1	
Approach LOS		D	C		C	

Intersection Summary			
HCM Average Control Delay	34.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	6.5
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

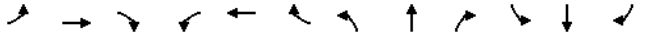
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	142	559	700	81	46	159
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	158	621	778	90	51	177
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	868				1759	823
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	868				1759	823
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	79				31	53
cM capacity (veh/h)	768				74	374

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	779	868	228
Volume Left	158	0	51
Volume Right	0	90	177
cSH	768	1700	196
Volume to Capacity	0.21	0.51	1.16
Queue Length 95th (ft)	19	0	287
Control Delay (s)	5.0	0.0	165.5
Lane LOS	A		F
Approach Delay (s)	5.0	0.0	165.5
Approach LOS			F

Intersection Summary				
Average Delay	22.2			
Intersection Capacity Utilization	112.1%	ICU Level of Service	H	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	82	743	71	32	506	5	37	1	86	1	3	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	91	826	79	36	562	6	41	1	96	1	3	69
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage veh)					2							
Upstream signal (ft)		1091										
pX, platoon unblocked				0.90			0.90	0.90	0.90	0.90	0.90	
vC, conflicting volume	568			904			1751	1686	865	1740	1723	565
vC1, stage 1 conf vol							1047	1047		636	636	
vC2, stage 2 conf vol							704	639		1104	1087	
vCu, unblocked vol	568			837			1779	1707	793	1767	1748	565
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			95			77	99	73	99	98	87
cM capacity (veh/h)	1004			716			177	217	349	119	196	524

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	91	904	36	568	138	73
Volume Left	91	0	36	0	41	1
Volume Right	0	79	0	6	96	69
cSH	1004	1700	716	1700	269	465
Volume to Capacity	0.09	0.53	0.05	0.33	0.51	0.16
Queue Length 95th (ft)	7	0	4	0	67	14
Control Delay (s)	8.9	0.0	10.3	0.0	31.6	14.2
Lane LOS	A		B		D	B
Approach Delay (s)	0.8		0.6		31.6	14.2
Approach LOS					D	B

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	76.8%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1054	35	2	454	8	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1171	39	2	504	9	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1210		1699	1191
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1210		1699	1191
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		91	100
cM capacity (veh/h)			577		101	228

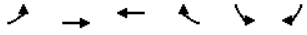
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1210	507	10
Volume Left	0	2	9
Volume Right	39	0	1
cSH	1700	577	108
Volume to Capacity	0.71	0.00	0.09
Queue Length 95th (ft)	0	0	8
Control Delay (s)	0.0	0.1	41.9
Lane LOS		A	E
Approach Delay (s)	0.0	0.1	41.9
Approach LOS			E

Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		74.4%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	620	110	117	587	16	233	0	234	5	0	4
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (prot)	1553	1635	1389	1553	1628			1583	1417		1531	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.95	1.00		0.97	
Satd. Flow (perm)	1553	1635	1389	1553	1628			1583	1417		1531	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	689	122	130	652	18	259	0	260	6	0	4
RTOR Reduction (vph)	0	0	38	0	1	0	0	0	187	0	4	0
Lane Group Flow (vph)	6	689	84	130	669	0	0	259	73	0	6	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	0.6	27.0	27.0	9.5	35.9			21.5	21.5		3.1	
Effective Green, g (s)	0.6	27.0	27.0	9.5	35.9			21.5	21.5		3.1	
Actuated g/C Ratio	0.01	0.35	0.35	0.12	0.47			0.28	0.28		0.04	
Clearance Time (s)	3.0	4.9	4.9	3.0	4.9			3.7	3.7		3.5	
Vehicle Extension (s)	0.2	4.0	4.0	3.2	4.0			0.2	0.2		0.2	
Lane Grp Cap (vph)	12	579	492	194	767			447	400		62	
v/s Ratio Prot	0.00	c0.42		c0.08	0.41			c0.16			c0.00	
v/s Ratio Perm			0.06						0.05			
v/c Ratio	0.50	1.19	0.17	0.67	0.87			0.58	0.18		0.10	
Uniform Delay, d1	37.7	24.6	16.9	31.9	18.1			23.5	20.7		35.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	11.4	101.8	0.8	8.9	11.0			5.4	1.0		0.3	
Delay (s)	49.1	126.4	17.7	40.7	29.1			28.9	21.7		35.5	
Level of Service	D	F	B	D	C			C	C		D	
Approach Delay (s)		109.6			31.0			25.3			35.5	
Approach LOS		F			C			C			D	

Intersection Summary				
HCM Average Control Delay	59.6	HCM Level of Service		E
HCM Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	76.2	Sum of lost time (s)		15.1
Intersection Capacity Utilization	75.6%	ICU Level of Service		D
Analysis Period (min)	15			

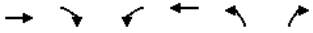
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	179	572	423	10	40	347
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	199	636	470	11	44	386
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	481				1509	476
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	481				1509	476
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	81				59	35
cM capacity (veh/h)	1071				108	589

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	834	481	430
Volume Left	199	0	44
Volume Right	0	11	386
cSH	1071	1700	404
Volume to Capacity	0.19	0.28	1.07
Queue Length 95th (ft)	17	0	361
Control Delay (s)	4.2	0.0	95.7
Lane LOS	A		F
Approach Delay (s)	4.2	0.0	95.7
Approach LOS			F

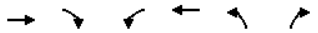
Intersection Summary			
Average Delay		25.6	
Intersection Capacity Utilization		106.7%	ICU Level of Service G
Analysis Period (min)		15	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	740	133	189	688	105	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	822	148	210	764	117	192

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	970	974	309
Volume Left (vph)	0	210	117
Volume Right (vph)	148	0	192
Hadj (s)	-0.02	0.11	-0.26
Departure Headway (s)	6.0	6.1	6.7
Degree Utilization, x	1.62	1.66	0.58
Capacity (veh/h)	607	592	532
Control Delay (s)	302.1	321.7	18.5
Approach Delay (s)	302.1	321.7	18.5
Approach LOS	F	F	C

Intersection Summary			
Delay		271.7	
HCM Level of Service		F	
Intersection Capacity Utilization		133.1%	ICU Level of Service H
Analysis Period (min)		15	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	502	280	272	511	259	265
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	558	311	302	568	288	294

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	869	302	568	582
Volume Left (vph)	0	302	0	288
Volume Right (vph)	311	0	0	294
Hadj (s)	-0.18	0.57	0.07	-0.14
Departure Headway (s)	6.9	8.1	7.7	6.8
Degree Utilization, x	1.66	0.68	1.21	1.11
Capacity (veh/h)	528	433	477	530
Control Delay (s)	324.4	25.8	135.4	96.4
Approach Delay (s)	324.4	97.4		96.4
Approach LOS	F	F		F

Intersection Summary			
Delay	182.1		
HCM Level of Service	F		
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	77	44	29	903	1087	34
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	86	49	32	1003	1208	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)					1251	
pX, platoon unblocked						
vC, conflicting volume	2294	1227	1246			
vC1, stage 1 conf vol	1227					
vC2, stage 2 conf vol	1068					
vCu, unblocked vol	2294	1227	1246			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	58	77	94			
cM capacity (veh/h)	202	215	559			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	134	32	1003	1246
Volume Left	86	32	0	0
Volume Right	49	0	0	38
cSH	206	559	1700	1700
Volume to Capacity	0.65	0.06	0.59	0.73
Queue Length 95th (ft)	98	5	0	0
Control Delay (s)	50.1	11.8	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	50.1	0.4		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	638	292	271	109	723	160	293	267	225	296	237
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1543	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1543	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	606	709	324	301	121	803	178	326	297	250	329	263
RTOR Reduction (vph)	0	1	189	0	0	35	0	0	242	0	0	0
Lane Group Flow (vph)	606	740	103	301	121	768	178	326	55	250	329	263
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		pm+ov	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			Free
Actuated Green, G (s)	52.1	46.0	46.0	21.1	15.0	45.0	28.0	16.9	16.9	30.0	18.9	130.0
Effective Green, g (s)	52.1	46.0	46.0	21.1	15.0	45.0	28.0	16.9	16.9	30.0	18.9	130.0
Actuated g/C Ratio	0.40	0.35	0.35	0.16	0.12	0.35	0.22	0.13	0.13	0.23	0.15	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1208	546	467	252	189	481	334	404	181	358	452	1389
v/s Ratio Prot	0.20	c0.48		c0.19	0.07	c0.37	0.11	c0.10		0.16	0.11	
v/s Ratio Perm			0.08			0.18			0.04			0.19
v/c Ratio	0.50	1.35	0.22	1.19	0.64	1.60	0.53	0.81	0.30	0.70	0.73	0.19
Uniform Delay, d1	29.2	42.0	29.4	54.5	54.9	42.5	45.2	55.0	51.2	45.9	53.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.76	1.00
Incremental Delay, d2	0.3	171.4	0.2	119.6	7.2	277.9	1.6	15.8	4.3	3.3	5.6	0.2
Delay (s)	29.5	213.4	29.7	174.1	62.1	320.4	46.8	70.7	55.5	38.6	45.8	0.2
Level of Service	C	F	C	F	E	F	D	E	E	D	D	A
Approach Delay (s)		112.7			258.9			59.8			29.4	
Approach LOS		F			F			E			C	

Intersection Summary				
HCM Average Control Delay	127.5	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.32			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	97.2%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	0	129	269	36	161	197	842	522	0	1008	13
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	0.95	0.95	1.00	0.95	1.00		0.95	1.00
Frt	1.00		0.85	1.00	0.90	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1553		1389	1553	1402	1320	1553	3106	1389		3106	1389
Flt Permitted	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1553		1389	1553	1402	1320	1553	3106	1389		3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	0	143	299	40	179	219	936	580	0	1120	14
RTOR Reduction (vph)	0	0	132	0	48	80	0	0	0	0	0	0
Lane Group Flow (vph)	23	0	11	299	65	26	219	936	580	0	1120	14
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		custom	Prot		Perm	Prot		Free			Prot
Protected Phases	7		4	3	8		5	2			6	6
Permitted Phases						8			Free			
Actuated Green, G (s)	5.1		9.8	27.0	31.7	31.7	22.8	81.2	130.0		54.4	54.4
Effective Green, g (s)	5.1		9.8	27.0	31.7	31.7	22.8	81.2	130.0		54.4	54.4
Actuated g/C Ratio	0.04		0.08	0.21	0.24	0.24	0.18	0.62	1.00		0.42	0.42
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	61		105	323	342	322	272	1940	1389		1300	581
v/s Ratio Prot	0.01		0.01	c0.19	0.05		c0.14	0.30			c0.36	0.01
v/s Ratio Perm						0.02			c0.42			
v/c Ratio	0.38		0.10	0.93	0.19	0.08	0.81	0.48	0.42		0.86	0.02
Uniform Delay, d1	60.9		56.0	50.5	39.0	37.9	51.5	13.1	0.0		34.4	22.2
Progression Factor	1.00		1.00	1.00	1.00	1.00	0.97	0.62	1.00		1.00	1.00
Incremental Delay, d2	3.9		0.4	31.3	0.3	0.1	1.6	0.1	0.1		7.7	0.1
Delay (s)	64.8		56.4	81.8	39.2	38.0	51.5	8.2	0.1		42.0	22.3
Level of Service	E		E	F	D	D	D	A	A		D	C
Approach Delay (s)		57.6			63.6			10.9			41.8	
Approach LOS		E			E			B			D	

Intersection Summary				
HCM Average Control Delay	30.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	70.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	14	9	15	887	557	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	10	17	986	619	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1649	631	642			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1649	631	642			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	98	98			
cM capacity (veh/h)	107	481	933			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	26	1002	642
Volume Left	16	17	0
Volume Right	10	0	23
cSH	154	933	1700
Volume to Capacity	0.17	0.02	0.38
Queue Length 95th (ft)	14	1	0
Control Delay (s)	33.1	0.5	0.0
Lane LOS	D	A	
Approach Delay (s)	33.1	0.5	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	36	15	603	25	1	458
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	40	17	670	28	1	509
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						724
pX, platoon unblocked						
vC, conflicting volume	1195	684			698	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1195	684			698	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	96			100	
cM capacity (veh/h)	206	449			889	

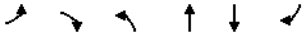
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	57	698	510
Volume Left	40	0	1
Volume Right	17	28	0
cSH	245	1700	889
Volume to Capacity	0.23	0.41	0.00
Queue Length 95th (ft)	22	0	0
Control Delay (s)	24.1	0.0	0.0
Lane LOS	C		A
Approach Delay (s)	24.1	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	147	202	145	132	37	161	281	184	66	129	41
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1553	1493		1583	1612		1553	1538		1583	1606	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1553	1493		1583	1612		1553	1538		1583	1606	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	163	224	161	147	41	179	312	204	73	143	46
RTOR Reduction (vph)	0	83	0	0	16	0	0	38	0	0	21	0
Lane Group Flow (vph)	19	304	0	161	172	0	179	478	0	73	168	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	0.5	15.8		6.1	21.4		10.3	19.3		2.7	11.7	
Effective Green, g (s)	0.5	15.8		6.1	21.4		10.3	19.3		2.7	11.7	
Actuated g/C Ratio	0.01	0.28		0.11	0.37		0.18	0.34		0.05	0.20	
Clearance Time (s)	3.0	3.5		3.0	3.5		3.0	4.0		3.0	4.0	
Vehicle Extension (s)	1.0	1.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	14	411		168	601		279	517		74	327	
v/s Ratio Prot	0.01	c0.20		c0.10	0.11		0.12	c0.31		c0.05	0.10	
v/s Ratio Perm												
v/c Ratio	1.36	0.74		0.96	0.29		0.64	0.92		0.99	0.51	
Uniform Delay, d1	28.4	18.9		25.5	12.6		21.8	18.4		27.3	20.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	371.9	6.2		56.1	0.1		3.7	22.2		99.0	0.6	
Delay (s)	400.3	25.1		81.7	12.7		25.6	40.5		126.4	20.9	
Level of Service	F	C		F	B		C	D		F	C	
Approach Delay (s)		42.7			44.5			36.7			50.3	
Approach LOS		D			D			D			D	

Intersection Summary				
HCM Average Control Delay	41.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	78.0%	ICU Level of Service	D	
Analysis Period (min)	15			

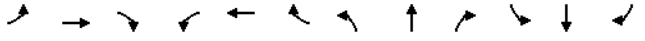
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	146	54	21	1155	1149	107
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	162	60	23	1283	1277	119
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				833		
pX, platoon unblocked						
vC, conflicting volume	2666	1336	1396			
vC1, stage 1 conf vol	1336					
vC2, stage 2 conf vol	1330					
vCu, unblocked vol	2666	1336	1396			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	1	68	95			
cM capacity (veh/h)	164	188	490			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	222	23	1283	1396
Volume Left	162	23	0	0
Volume Right	60	0	0	119
cSH	170	490	1700	1700
Volume to Capacity	1.31	0.05	0.75	0.82
Queue Length 95th (ft)	325	4	0	0
Control Delay (s)	227.7	12.7	0.0	0.0
Lane LOS	F	B		
Approach Delay (s)	227.7	0.2		0.0
Approach LOS	F			

Intersection Summary			
Average Delay	17.4		
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	5	64	5	236	0	731	155	134	770	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	6	71	6	262	0	812	172	149	856	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	2231	2138	856	2057	2052	898	856			984		
vC1, stage 1 conf vol	1153	1153		898	898							
vC2, stage 2 conf vol	1077	984		1159	1153							
vCu, unblocked vol	2231	2138	856	2057	2052	898	856			984		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	55	97	22	100			79		
cM capacity (veh/h)	6	137	356	159	182	338	784			702		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	6	339	0	984	149	856
Volume Left	0	71	0	0	149	0
Volume Right	6	262	0	172	0	0
cSH	356	270	1700	1700	702	1700
Volume to Capacity	0.02	1.25	0.00	0.58	0.21	0.50
Queue Length 95th (ft)	1	408	0	0	20	0
Control Delay (s)	15.3	179.0	0.0	0.0	11.5	0.0
Lane LOS	C	F			B	
Approach Delay (s)	15.3	179.0	0.0		1.7	
Approach LOS	C	F				

Intersection Summary					
Average Delay	26.8				
Intersection Capacity Utilization	99.0%	ICU Level of Service		F	
Analysis Period (min)	15				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1189	53	0	1293	0	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1321	59	0	1437	0	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				686		
pX, platoon unblocked					0.81	
vC, conflicting volume			1380		2039	1321
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1380		1815	1321
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	55
cM capacity (veh/h)			493		56	147

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1321	59	718	718	66
Volume Left	0	0	0	0	0
Volume Right	0	59	0	0	66
cSH	1700	1700	1700	1700	147
Volume to Capacity	0.78	0.03	0.42	0.42	0.45
Queue Length 95th (ft)	0	0	0	0	50
Control Delay (s)	0.0	0.0	0.0	0.0	47.9
Lane LOS					E
Approach Delay (s)	0.0		0.0		47.9
Approach LOS					E

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	80.7%	ICU Level of Service		D
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1138	110	0	1293	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1264	122	0	1437	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				391		
pX, platoon unblocked					0.80	
vC, conflicting volume			1387		1983	1264
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1387		1733	1264
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			490		63	160

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	1264	122	718	718
Volume Left	0	0	0	0
Volume Right	0	122	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.74	0.07	0.42	0.42
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				
Approach Delay (s)	0.0		0.0	
Approach LOS				

Intersection Summary				
Average Delay			0.0	
Intersection Capacity Utilization			70.3%	ICU Level of Service C
Analysis Period (min)			15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	112	0	866	948	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	124	0	962	1053	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					253	
pX, platoon unblocked	0.81	0.81	0.81			
vC, conflicting volume	1374	1053	1128			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1344	948	1040			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	41	100			
cM capacity (veh/h)	116	212	528			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	124	321	321	321	1053	74
Volume Left	0	0	0	0	0	0
Volume Right	124	0	0	0	0	74
cSH	212	1700	1700	1700	1700	1700
Volume to Capacity	0.59	0.19	0.19	0.19	0.62	0.04
Queue Length 95th (ft)	82	0	0	0	0	0
Control Delay (s)	43.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	E					
Approach Delay (s)	43.7	0.0			0.0	
Approach LOS	E					

Intersection Summary				
Average Delay			2.5	
Intersection Capacity Utilization			70.2%	ICU Level of Service C
Analysis Period (min)			15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	408	384	291	314	670	502	476	107	581
v/c Ratio	1.00	0.55	0.97	0.92	0.97	0.77	0.54	0.33	1.00
Control Delay	85.4	11.7	92.3	70.1	53.8	34.6	2.5	46.2	86.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.4	11.7	92.3	70.1	53.8	34.6	2.5	46.2	86.5
Queue Length 50th (ft)	~303	74	237	203	252	164	12	71	~236
Queue Length 95th (ft)	#527	122	#425	#390	m#334	m178	m18	135	#362
Internal Link Dist (ft)	421			1192		570			1135
Turn Bay Length (ft)					125		500	105	
Base Capacity (vph)	406	694	301	340	691	871	888	322	579
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.55	0.97	0.92	0.97	0.58	0.54	0.33	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
v/c Ratio	0.33	1.29	1.31	0.98	0.66	0.85	0.05	0.50	1.09	0.28
Control Delay	34.7	175.4	183.5	79.3	31.8	42.5	0.1	38.3	92.9	0.2
Queue Delay	0.0	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	175.4	204.9	79.3	31.8	42.5	0.1	38.3	92.9	0.2
Queue Length 50th (ft)	92	~576	~592	246	211	318	0	127	~324	0
Queue Length 95th (ft)	131	#720	#724	#376	221	#352	0	m137	m#361	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	879	795	879	571	979	932	1389	703	647	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	31	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	1.29	1.36	0.98	0.66	0.85	0.05	0.50	1.09	0.28

Intersection Summary

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Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBR	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	421	173	93	1089	1388	2882
v/c Ratio	0.72	0.42	0.58	0.46	0.98	1.05
Control Delay	52.7	8.6	65.7	7.4	22.2	43.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	62.3
Total Delay	52.7	8.6	65.7	7.4	22.2	105.7
Queue Length 50th (ft)	160	0	70	144	0	~554
Queue Length 95th (ft)	194	55	123	255	#218	m#289
Internal Link Dist (ft)				311		464
Turn Bay Length (ft)	185	185	200		300	
Base Capacity (vph)	819	505	211	2357	1417	2746
Starvation Cap Reductn	0	0	0	0	0	330
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.34	0.44	0.46	0.98	1.19

Intersection Summary

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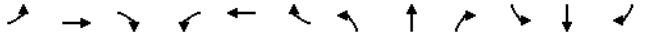
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	653	76	79	172	67	206	128	1711	88	194	2149	438
v/c Ratio	1.14	0.29	0.27	0.84	0.41	0.63	0.80	1.27	0.14	0.82	1.43	0.60
Control Delay	122.5	44.0	11.1	78.9	51.7	14.8	81.9	157.2	16.0	72.8	225.5	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.5	44.0	11.1	78.9	51.7	14.8	81.9	157.2	16.0	72.8	225.5	21.5
Queue Length 50th (ft)	~257	48	0	112	44	0	85	~748	22	125	~1001	143
Queue Length 95th (ft)	#494	93	40	#256	85	62	172	#1198	73	#314	#1596	385
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	574	537	510	266	506	574	251	1346	619	251	1498	733
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.14	0.15	0.65	0.13	0.36	0.51	1.27	0.14	0.77	1.43	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	203	306	39	1464	157	1939	32
v/c Ratio	0.83	0.83	0.67	1.02	0.81	1.10	0.04
Control Delay	54.4	42.5	92.9	54.8	69.5	74.6	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	42.5	92.9	54.8	69.5	74.6	8.4
Queue Length 50th (ft)	96	125	20	~435	81	~630	5
Queue Length 95th (ft)	#185	221	#81	#650	#203	#870	21
Internal Link Dist (ft)	329	566		846		1035	
Turn Bay Length (ft)			130		160		95
Base Capacity (vph)	341	495	58	1432	194	1770	797
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.62	0.67	1.02	0.81	1.10	0.04

Intersection Summary

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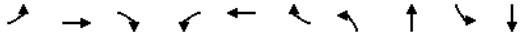
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	1161	541	279	977	21	728	297	4	36
v/c Ratio	0.17	1.10	0.48	1.12	0.63	0.03	0.81	0.42	0.04	0.21
Control Delay	55.1	92.1	2.6	134.9	26.5	19.9	43.6	4.9	54.5	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	92.1	2.6	134.9	26.5	19.9	43.6	4.9	54.5	25.8
Queue Length 50th (ft)	12	~473	0	~220	229	5	226	6	3	9
Queue Length 95th (ft)	41	#825	52	#498	#576	30	#440	60	16	38
Internal Link Dist (ft)		191			465			499		239
Turn Bay Length (ft)	100		250	325		50	325		50	
Base Capacity (vph)	249	1059	1144	249	1550	696	967	736	499	491
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	1.10	0.47	1.12	0.63	0.03	0.75	0.40	0.01	0.07

Intersection Summary

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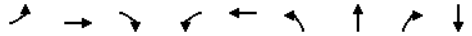

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	132	868	266	153	908	249	248	90	77
v/c Ratio	0.90	0.97	0.32	1.58	0.57	0.88	0.87	0.28	0.43
Control Delay	110.9	54.4	10.9	332.3	17.8	80.7	79.1	18.7	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.9	54.4	10.9	332.3	17.8	80.7	79.1	18.7	37.0
Queue Length 50th (ft)	112	681	49	~186	199	212	211	19	35
Queue Length 95th (ft)	#237	#1242	151	#330	#471	#356	#353	67	72
Internal Link Dist (ft)		311			840		290		465
Turn Bay Length (ft)	175			100				100	
Base Capacity (vph)	146	896	829	97	1601	306	308	338	393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.97	0.32	1.58	0.57	0.81	0.81	0.27	0.20

Intersection Summary

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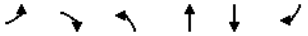
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	250	743	660	302	337	449
v/c Ratio	0.52	0.92	0.59	0.29	0.88	0.55
Control Delay	16.9	24.5	38.8	13.2	72.0	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	24.5	38.8	13.2	72.0	16.9
Queue Length 50th (ft)	118	529	237	108	270	191
Queue Length 95th (ft)	m26	m630	343	192	#407	222
Internal Link Dist (ft)	840			173	281	
Turn Bay Length (ft)	350		350			
Base Capacity (vph)	597	871	1113	1036	428	813
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.85	0.59	0.29	0.79	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	284	593	27	292	538	128	52	991	379
v/c Ratio	0.88	0.49	0.33	0.81	0.59	0.83	0.16	1.11	0.70
Control Delay	61.8	20.6	51.7	50.5	9.1	79.7	10.5	95.6	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	20.6	51.7	50.5	9.1	79.7	10.5	95.6	24.7
Queue Length 50th (ft)	153	120	15	153	83	72	0	~346	112
Queue Length 95th (ft)	#274	175	42	#279	188	#182	30	#484	#241
Internal Link Dist (ft)		215		260		844			629
Turn Bay Length (ft)	180		105		180		75	525	
Base Capacity (vph)	406	1331	131	416	917	155	360	894	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.45	0.21	0.70	0.59	0.83	0.14	1.11	0.70

Intersection Summary

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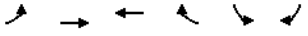
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

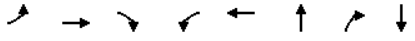


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	607	536	247	219	688	467
v/c Ratio	1.01	0.77	0.81	0.22	0.90	0.42
Control Delay	73.5	28.3	51.6	4.1	38.5	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.5	28.3	51.6	4.1	38.5	2.7
Queue Length 50th (ft)	~158	222	120	28	299	15
Queue Length 95th (ft)	#309	342	196	49	#620	62
Internal Link Dist (ft)		1271	1500		753	
Turn Bay Length (ft)	135			150		165
Base Capacity (vph)	603	897	509	1001	762	1122
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.60	0.49	0.22	0.90	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	6	689	122	130	670	259	260	10
v/c Ratio	0.07	1.19	0.23	0.53	0.81	0.54	0.43	0.07
Control Delay	39.0	129.4	14.1	37.8	27.4	28.7	6.2	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	129.4	14.1	37.8	27.4	28.7	6.2	25.1
Queue Length 50th (ft)	2	~354	17	48	186	82	0	2
Queue Length 95th (ft)	17	#849	81	131	#699	#259	63	16
Internal Link Dist (ft)		420			519	1061		477
Turn Bay Length (ft)	55		145	165			295	
Base Capacity (vph)	90	579	530	359	826	480	611	467
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	1.19	0.23	0.36	0.81	0.54	0.43	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	606	741	292	301	121	803	178	326	297	250	329	263
v/c Ratio	0.50	1.35	0.45	1.20	0.64	1.56	0.53	0.80	0.70	0.70	0.73	0.19
Control Delay	32.1	204.6	5.6	167.6	69.8	283.3	52.7	70.4	17.3	42.1	45.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	204.6	5.6	167.6	69.8	283.3	52.7	70.4	17.3	42.1	45.3	0.2
Queue Length 50th (ft)	197	~876	0	~307	99	~856	133	141	14	195	139	0
Queue Length 95th (ft)	275	#1134	67	#491	158	#1147	221	#197	111	m243	m164	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	1207	548	656	251	377	516	334	430	432	358	621	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	1.35	0.45	1.20	0.32	1.56	0.53	0.76	0.69	0.70	0.53	0.19

Intersection Summary

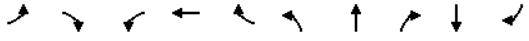
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

24: WB US-50 Ramps & Ponderosa Rd.

PM Peak



Lane Group	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	23	143	299	113	106	219	936	580	1120	14
v/c Ratio	0.26	0.64	0.93	0.29	0.26	0.81	0.47	0.42	0.84	0.02
Control Delay	64.9	22.2	85.2	20.9	8.6	52.2	8.2	0.1	41.1	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	22.2	85.2	20.9	8.6	52.2	8.2	0.1	41.1	24.9
Queue Length 50th (ft)	19	0	247	35	0	161	152	0	441	7
Queue Length 95th (ft)	49	64	#414	88	48	m187	m177	m0	#630	22
Internal Link Dist (ft)				743			609		1345	
Turn Bay Length (ft)	100		300		300					150
Base Capacity (vph)	191	296	334	394	406	281	1976	1389	1336	598
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.48	0.90	0.29	0.26	0.78	0.47	0.42	0.84	0.02

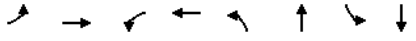
Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

27: Pacific St. & Sacramento St.

PM Peak



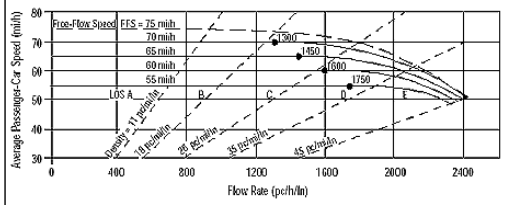
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	387	161	188	179	516	73	189
v/c Ratio	0.21	0.85	0.89	0.29	0.60	0.88	0.49	0.48
Control Delay	33.3	33.7	76.8	12.3	40.6	37.4	39.8	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	33.7	76.8	12.3	40.6	37.4	39.8	19.5
Queue Length 50th (ft)	7	90	~60	36	65	162	26	46
Queue Length 95th (ft)	25	#223	#165	90	#174	#349	#76	96
Internal Link Dist (ft)		318		762		644		250
Turn Bay Length (ft)	30		45		95		75	
Base Capacity (vph)	89	547	181	686	299	593	151	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.71	0.89	0.27	0.60	0.87	0.48	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2703*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1021*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*15.7*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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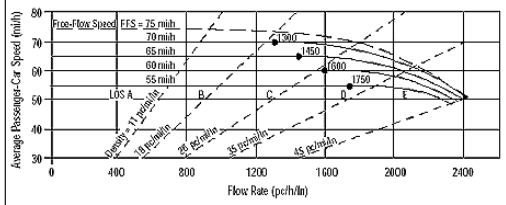
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*1994*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*761*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*11.7*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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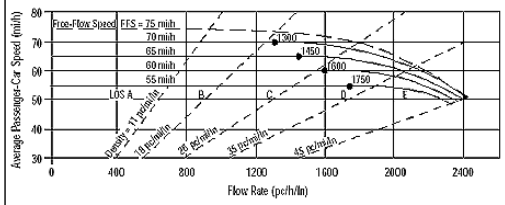
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4015*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1517*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.3*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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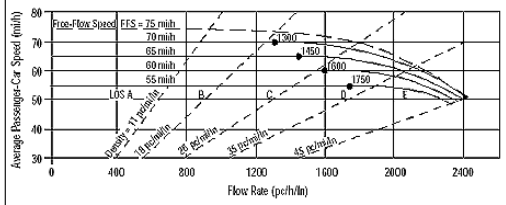
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*AM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3225*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1828*	pc/h/ln	Design LOS		
S	*63.7*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*28.7*	pc/mi/ln	S		mi/h
LOS	*D*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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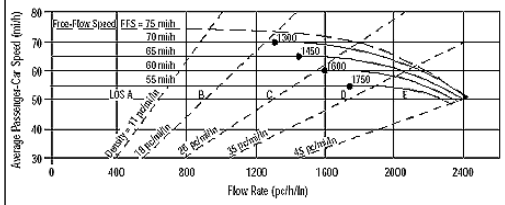
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*4090*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1545*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*23.8*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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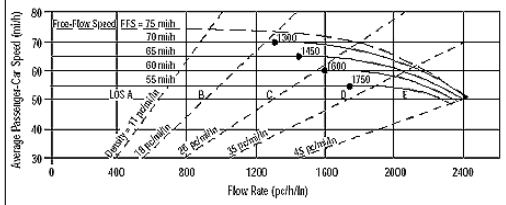
BASIC FREEWAY WORKSHEET Page 1 of 1

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Eastbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*3648*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*6*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.971*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1392*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*21.4*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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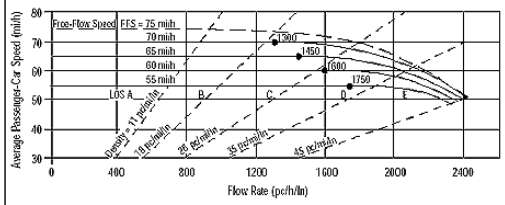
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*East of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2773*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*3*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1048*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*16.1*	pc/mi/ln	S		mi/h
LOS	*B*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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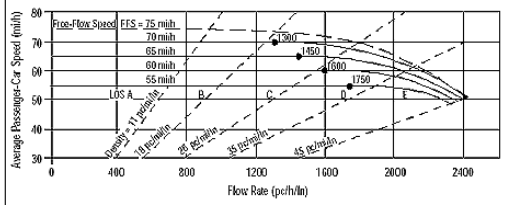
BASIC FREEWAY WORKSHEET Page 1 of 1

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information			***Site Information***	
Analyst			Highway/Direction of Travel	*Westbound US-50*
Agency or Company	*Kimley-Horn and Assoc.*		From/To	*West of Missouri Flat Road*
Date Performed	*6/23/2009*		Jurisdiction	*El Dorado County*
Analysis Time Period	*PM Peak*		Analysis Year	*Cumulative + PP*
Project Description				

☑ Oper.(LOS) ☐ Des.(N) ☐ Planning Data

Flow Inputs				
Volume, V	*2165*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*4*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Level*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*1.2*
E_T	*1.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.980*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*65.0*	mi/h	FFS	*65.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*1227*	pc/h/ln	Design LOS		
S	*65.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*18.9*	pc/mi/ln	S		mi/h
LOS	*C*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	AM Peak	Analysis Year	Cumulative + PP

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2461	0.90	Level	4	0	0.980	1.00	2789
Ramp	762	0.90	Level	4	0	0.980	1.00	864
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 2789 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3653	See Exhibit 25-7	No
V_{R12}	3653	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 31.1 (pc/ m/ln)

LOS = D (Exhibit 25-4)

Speed Estimation

M_S = 0.444 (Exibit 25-19)

S_R= 54.8 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 54.8 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst		Freeway/Dir of Travel	WB US-50
Agency or Company	Kimley-Horn and Assoc.	Junction	On-Ramp @ Missouri Flat Road
Date Performed	6/23/2009	Jurisdiction	El Dorado County
Analysis Time Period	PM Peak	Analysis Year	Cumulative + PP

Project Description

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{up} = ft

V_u = veh/h

Terrain: Level

S_{FF} = 65.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D,V_R,V_f)

Downstream Adj Ramp: ☐ Yes ☐ On ☑ No ☐ Off

L_{down} = ft

V_D = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1232	0.90	Level	4	0	0.980	1.00	1396
Ramp	933	0.90	Level	4	0	0.980	1.00	1057
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 1.000 using Equation (Exhibit 25-5)

V_{12}= 1396 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2453	See Exhibit 25-7	No
V_{R12}	2453	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 21.6 (pc/ m/ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.338 (Exibit 25-19)

S_R= 57.2 mph (Exhibit 25-19)

S_0= N/A mph(Exhibit 25-19)

S= 57.2 mph(Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$			
V_{12}			
$V_{FO} = V_F - V_R$			
V_R			

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ m/ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_S = (Exhibit 25-19)

S_R= mph(Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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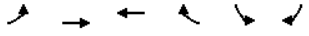
Appendix H:

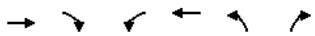
Analysis Worksheets for Mitigated Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	226	437	357	29	229	309
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.92	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1538	1619	1603		1505	
Flt Permitted	0.95	1.00	1.00		0.98	
Satd. Flow (perm)	1538	1619	1603		1505	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	251	486	397	32	254	343
RTOR Reduction (vph)	0	0	4	0	69	0
Lane Group Flow (vph)	251	486	425	0	528	0
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type	Prot					
Protected Phases	7	4	8		6	
Permitted Phases						
Actuated Green, G (s)	12.5	36.8	20.3		25.2	
Effective Green, g (s)	12.5	36.8	20.3		25.2	
Actuated g/C Ratio	0.18	0.53	0.29		0.36	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	275	851	465		542	
v/s Ratio Prot	c0.16	0.30	c0.27		c0.35	
v/s Ratio Perm						
v/c Ratio	0.91	0.57	0.91		0.97	
Uniform Delay, d1	28.2	11.3	24.0		22.1	
Progression Factor	0.72	0.45	1.00		1.00	
Incremental Delay, d2	4.7	0.3	24.9		31.8	
Delay (s)	24.9	5.3	48.9		53.9	
Level of Service	C	A	D		D	
Approach Delay (s)		12.0	48.9		53.9	
Approach LOS		B	D		D	

Intersection Summary				
HCM Average Control Delay	35.2	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	82.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	541	73	68	528	127	171
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1593		1538	1619	1505	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	1593		1538	1619	1505	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	601	81	76	587	141	190
RTOR Reduction (vph)	8	0	0	0	84	0
Lane Group Flow (vph)	674	0	76	587	247	0
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	25.6		2.9	32.5	12.8	
Effective Green, g (s)	25.6		2.9	32.5	12.8	
Actuated g/C Ratio	0.48		0.05	0.61	0.24	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	765		84	987	361	
v/s Ratio Prot	c0.42		c0.05	0.36	c0.16	
v/s Ratio Perm						
v/c Ratio	0.88		0.90	0.59	0.69	
Uniform Delay, d1	12.5		25.1	6.4	18.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	11.6		66.8	1.0	5.3	
Delay (s)	24.1		91.9	7.3	23.7	
Level of Service	C		F	A	C	
Approach Delay (s)	24.1			17.0	23.7	
Approach LOS	C			B	C	

Intersection Summary				
HCM Average Control Delay	21.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	70.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	310	175	210	331	243	329
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.95		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1586		1538	1619	1462	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	1586		1538	1619	1462	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	344	194	233	368	270	366
RTOR Reduction (vph)	29	0	0	0	69	0
Lane Group Flow (vph)	509	0	233	368	567	0
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	22.0		11.0	37.0	25.0	
Effective Green, g (s)	22.0		11.0	37.0	25.0	
Actuated g/C Ratio	0.31		0.16	0.53	0.36	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	498		242	856	522	
v/s Ratio Prot	c0.32		c0.15	0.23	c0.39	
v/s Ratio Perm						
v/c Ratio	1.02		0.96	0.43	1.09	
Uniform Delay, d1	24.0		29.3	10.1	22.5	
Progression Factor	1.00		0.91	0.63	1.00	
Incremental Delay, d2	46.2		25.9	0.6	64.5	
Delay (s)	70.2		52.6	6.9	87.0	
Level of Service	E		D	A	F	
Approach Delay (s)	70.2			24.6	87.0	
Approach LOS	E			C	F	

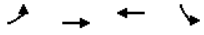
Intersection Summary				
HCM Average Control Delay	60.8	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.04			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	90.8%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	67	24	18	800	484	89
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	27	20	889	538	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				914		
pX, platoon unblocked						
vC, conflicting volume	1516	587	637			
vC1, stage 1 conf vol	587					
vC2, stage 2 conf vol	929					
vCu, unblocked vol	1516	587	637			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	95	98			
cM capacity (veh/h)	325	509	933			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	101	20	889	637
Volume Left	74	20	0	0
Volume Right	27	0	0	99
cSH	441	933	1700	1700
Volume to Capacity	0.23	0.02	0.52	0.37
Queue Length 95th (ft)	22	2	0	0
Control Delay (s)	17.5	8.9	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	17.5	0.2		0.0
Approach LOS	C			

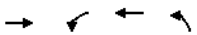
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	251	486	429	597
v/c Ratio	0.92	0.57	0.91	0.98
Control Delay	31.5	5.5	50.7	52.4
Queue Delay	0.0	0.7	0.0	0.0
Total Delay	31.5	6.2	50.7	52.4
Queue Length 50th (ft)	100	78	172	212
Queue Length 95th (ft)	m97	m75	#335	#424
Internal Link Dist (ft)		305	1234	1392
Turn Bay Length (ft)	150			
Base Capacity (vph)	274	856	485	611
Starvation Cap Reductn	0	135	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	0.67	0.88	0.98

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	682	76	587	331
v/c Ratio	0.87	0.61	0.61	0.74
Control Delay	28.9	53.0	10.3	24.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	28.9	53.0	10.3	24.8
Queue Length 50th (ft)	198	27	106	69
Queue Length 95th (ft)	#420	#91	201	#174
Internal Link Dist (ft)	876		269	1362
Turn Bay Length (ft)		150		
Base Capacity (vph)	912	125	1124	564
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.61	0.52	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	538	233	368	636
v/c Ratio	1.02	0.96	0.43	1.08
Control Delay	70.0	58.5	7.2	81.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	70.0	58.5	7.2	81.1
Queue Length 50th (ft)	~225	113	71	~280
Queue Length 95th (ft)	#421	m#127	m78	#473
Internal Link Dist (ft)	3002		305	2284
Turn Bay Length (ft)		45		
Base Capacity (vph)	527	242	856	591
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.02	0.96	0.43	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	152	497	389	14	28	208
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	1.00		0.88	
Flt Protected	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1538	1619	1611		1460	
Flt Permitted	0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1538	1619	1611		1460	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	552	432	16	31	231
RTOR Reduction (vph)	0	0	1	0	208	0
Lane Group Flow (vph)	169	552	447	0	54	0
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type	Prot					
Protected Phases	7	4	8		6	
Permitted Phases						
Actuated Green, G (s)	15.6	77.4	57.8		9.6	
Effective Green, g (s)	15.6	77.4	57.8		9.6	
Actuated g/C Ratio	0.16	0.81	0.61		0.10	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	253	1319	980		148	
v/s Ratio Prot	c0.11	0.34	c0.28		c0.04	
v/s Ratio Perm						
v/c Ratio	0.67	0.42	0.46		0.37	
Uniform Delay, d1	37.3	2.5	10.1		39.9	
Progression Factor	1.13	0.50	1.00		1.00	
Incremental Delay, d2	0.6	0.1	1.5		1.5	
Delay (s)	42.6	1.3	11.6		41.4	
Level of Service	D	A	B		D	
Approach Delay (s)		11.0	11.6		41.4	
Approach LOS		B	B		D	

Intersection Summary

HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	657	116	167	630	91	151
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1586		1538	1619	1498	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	1586		1538	1619	1498	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	730	129	186	700	101	168
RTOR Reduction (vph)	7	0	0	0	69	0
Lane Group Flow (vph)	852	0	186	700	200	0
Heavy Vehicles (%)	5%	5%	5%	5%	2%	2%
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	48.1		12.0	64.1	15.1	
Effective Green, g (s)	48.1		12.0	64.1	15.1	
Actuated g/C Ratio	0.55		0.14	0.74	0.17	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	875		212	1190	259	
v/s Ratio Prot	c0.54		c0.12	0.43	c0.13	
v/s Ratio Perm						
v/c Ratio	0.97		0.88	0.59	0.77	
Uniform Delay, d1	18.9		36.9	5.4	34.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	24.0		30.9	0.7	13.4	
Delay (s)	43.0		67.7	6.1	47.8	
Level of Service	D		E	A	D	
Approach Delay (s)	43.0			19.1	47.8	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	33.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	87.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	431	238	234	428	203	213
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.95		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1587		1538	1619	1471	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	1587		1538	1619	1471	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	479	264	260	476	226	237
RTOR Reduction (vph)	21	0	0	0	40	0
Lane Group Flow (vph)	722	0	260	476	423	0
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	42.0		16.0	62.0	25.0	
Effective Green, g (s)	42.0		16.0	62.0	25.0	
Actuated g/C Ratio	0.44		0.17	0.65	0.26	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	702		259	1057	387	
v/s Ratio Prot	c0.46		c0.17	0.29	c0.29	
v/s Ratio Perm						
v/c Ratio	1.03		1.00	0.45	1.09	
Uniform Delay, d1	26.5		39.5	8.1	35.0	
Progression Factor	1.00		0.93	0.75	1.00	
Incremental Delay, d2	41.6		54.5	1.3	73.3	
Delay (s)	68.1		91.3	7.4	108.3	
Level of Service	E		F	A	F	
Approach Delay (s)	68.1			37.0	108.3	
Approach LOS	E			D	F	

Intersection Summary			
HCM Average Control Delay	65.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	109	40	16	854	987	88
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	121	44	18	949	1097	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				914		
pX, platoon unblocked						
vC, conflicting volume	2130	1146	1194			
vC1, stage 1 conf vol	1146					
vC2, stage 2 conf vol	984					
vCu, unblocked vol	2130	1146	1194			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	47	82	97			
cM capacity (veh/h)	228	243	574			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	166	18	949	1194
Volume Left	121	18	0	0
Volume Right	44	0	0	98
cSH	312	574	1700	1700
Volume to Capacity	0.53	0.03	0.56	0.70
Queue Length 95th (ft)	73	2	0	0
Control Delay (s)	33.5	11.5	0.0	0.0
Lane LOS	D	B		
Approach Delay (s)	33.5	0.2		0.0
Approach LOS	D			

Intersection Summary				
Average Delay		2.5		
Intersection Capacity Utilization		77.4%	ICU Level of Service	D
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	169	552	448	262
v/c Ratio	0.67	0.42	0.46	0.74
Control Delay	42.4	1.7	14.1	20.8
Queue Delay	0.0	1.0	0.0	0.0
Total Delay	42.4	2.7	14.1	20.8
Queue Length 50th (ft)	110	47	126	18
Queue Length 95th (ft)	m84	m57	294	90
Internal Link Dist (ft)		305	1234	1392
Turn Bay Length (ft)	150			
Base Capacity (vph)	329	1319	982	490
Starvation Cap Reductn	0	492	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.67	0.46	0.53

Intersection Summary
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	859	186	700	269
v/c Ratio	0.97	0.88	0.59	0.82
Control Delay	46.1	76.9	8.4	44.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	46.1	76.9	8.4	44.6
Queue Length 50th (ft)	451	105	167	100
Queue Length 95th (ft)	#744	#230	267	#214
Internal Link Dist (ft)	876		269	1362
Turn Bay Length (ft)		150		
Base Capacity (vph)	882	212	1190	376
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.97	0.88	0.59	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	743	260	476	463
v/c Ratio	1.03	1.00	0.45	1.08
Control Delay	67.9	93.8	7.6	99.6
Queue Delay	0.0	0.0	0.5	0.0
Total Delay	67.9	93.8	8.1	99.6
Queue Length 50th (ft)	~470	~162	90	~290
Queue Length 95th (ft)	#695	#314	136	#484
Internal Link Dist (ft)	3002		305	2284
Turn Bay Length (ft)		45		
Base Capacity (vph)	722	259	1057	427
Starvation Cap Reductn	0	0	234	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	1.00	0.58	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

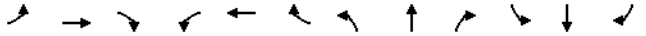
HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
2: EB US-50 Off Ramp & Missouri Flat Rd. — AM Peak

Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	169	506	1000	554	469	781	56	269	581	295
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	4.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	1.00	0.97	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1389	3013	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1389	3013	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	188	562	1111	616	521	868	62	299	646	328
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	188	562	1111	616	521	868	62	299	646	328
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Free	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3		4	5	1	6		5	2	
Permitted Phases		Free					Free			Free
Actuated Green, G (s)	38.0	115.0	38.0	26.0	22.3	30.0	115.0	26.0	33.7	115.0
Effective Green, g (s)	38.0	115.0	38.0	26.0	22.3	30.0	115.0	26.0	33.7	115.0
Actuated g/C Ratio	0.33	1.00	0.33	0.23	0.19	0.26	1.00	0.23	0.29	1.00
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	996	1389	996	553	584	810	1389	681	910	1389
v/s Ratio Prot	0.06		c0.37	c0.25	0.17	c0.28		0.10	0.21	
v/s Ratio Perm		c0.40					0.04			0.24
v/c Ratio	0.19	0.40	1.12	1.11	0.89	1.07	0.04	0.44	0.71	0.24
Uniform Delay, d1	27.5	0.0	38.5	44.5	45.2	42.5	0.0	38.2	36.3	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.03	0.87	1.00	1.04	0.80	1.00
Incremental Delay, d2	0.1	0.9	65.8	73.5	14.7	51.2	0.1	0.3	3.1	0.3
Delay (s)	27.6	0.9	104.3	118.0	61.1	88.2	0.1	40.0	32.2	0.3
Level of Service	C	A	F	F	E	F	A	D	C	A
Approach Delay (s)						74.7			25.8	
Approach LOS						E			C	

Intersection Summary				
HCM Average Control Delay	64.5	HCM Level of Service		E
HCM Volume to Capacity ratio	1.12			
Actuated Cycle Length (s)	115.0	Sum of lost time (s)		21.0
Intersection Capacity Utilization	Err%	ICU Level of Service		H
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
5: Forni Rd. & Missouri Flat Rd. — AM Peak

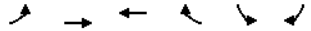


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	30	26	65	25	78	113	1750	81	109	1668	245
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	4550	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	4550	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	286	33	29	72	28	87	126	1944	90	121	1853	272
RTOR Reduction (vph)	0	0	23	0	0	13	0	0	14	0	0	59
Lane Group Flow (vph)	286	33	6	72	28	74	126	1944	76	121	1853	213
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	11.1	8.9	18.9	8.8	6.6	16.4	10.0	50.9	59.7	9.8	50.7	61.8
Effective Green, g (s)	11.1	8.9	18.9	8.8	6.6	16.4	10.0	50.9	59.7	9.8	50.7	61.8
Actuated g/C Ratio	0.12	0.10	0.20	0.09	0.07	0.18	0.11	0.54	0.64	0.10	0.54	0.66
Clearance Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	0.2	0.2	3.0	0.2
Lane Grp Cap (vph)	365	159	287	149	118	249	169	1726	906	166	2470	938
v/s Ratio Prot	c0.09	0.02	0.00	0.05	0.02	c0.03	c0.08	c0.61	0.01	0.08	0.41	0.03
v/s Ratio Perm			0.00			0.02			0.05			0.12
v/c Ratio	0.78	0.21	0.02	0.48	0.24	0.30	0.75	1.13	0.08	0.73	0.75	0.23
Uniform Delay, d1	40.0	39.0	29.8	40.1	41.0	33.5	40.5	21.3	6.4	40.5	16.5	6.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.7	0.2	0.0	0.9	0.4	0.2	14.4	65.0	0.0	12.7	1.3	0.0
Delay (s)	49.7	39.2	29.8	41.0	41.4	33.7	54.9	86.2	6.4	53.2	17.8	6.3
Level of Service	D	D	C	D	D	C	D	F	A	D	B	A
Approach Delay (s)		47.1			37.7			81.1			18.3	
Approach LOS		D			D			F			B	

Intersection Summary				
HCM Average Control Delay	48.5	HCM Level of Service		D
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	93.4	Sum of lost time (s)		9.0
Intersection Capacity Utilization	86.5%	ICU Level of Service		E
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
15: Pleasant Valley Rd. (SR-49) & China Garden Rd. — AM Peak

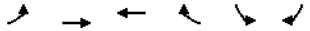


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	78	297	769	97	21	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	87	330	854	108	23	139
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	962				1412	908
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	962				1412	908
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				83	58
cM capacity (veh/h)	707				134	333

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	417	962	162
Volume Left	87	0	23
Volume Right	0	108	139
cSH	707	1700	389
Volume to Capacity	0.12	0.57	0.42
Queue Length 95th (ft)	10	0	50
Control Delay (s)	3.5	0.0	25.3
Lane LOS	A		D
Approach Delay (s)	3.5	0.0	25.3
Approach LOS			D

Intersection Summary				
Average Delay		3.6		
Intersection Capacity Utilization		87.4%	ICU Level of Service	E
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
19: Pleasant Valley Rd. (SR-49) & Forni Rd. — AM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	288	526	371	29	488	671
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1553	1635	1619		1583	1417
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1553	1635	1619		1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	320	584	412	32	542	746
RTOR Reduction (vph)	0	0	4	0	0	361
Lane Group Flow (vph)	320	584	440	0	542	385
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	19.7	50.4	26.7		31.6	31.6
Effective Green, g (s)	19.7	50.4	26.7		31.6	31.6
Actuated g/C Ratio	0.22	0.56	0.30		0.35	0.35
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	340	916	480		556	498
v/s Ratio Prot	c0.21	0.36	c0.27		c0.34	
v/s Ratio Perm						0.27
v/c Ratio	0.94	0.64	0.92		0.97	0.77
Uniform Delay, d1	34.6	13.5	30.6		28.8	26.0
Progression Factor	0.76	0.54	1.00		1.00	1.00
Incremental Delay, d2	24.9	2.2	25.0		31.5	7.3
Delay (s)	51.1	9.4	55.6		60.3	33.4
Level of Service	D	A	E		E	C
Approach Delay (s)		24.2	55.6		44.7	
Approach LOS		C	E		D	

Intersection Summary				
HCM Average Control Delay		39.5	HCM Level of Service	D
HCM Volume to Capacity ratio		0.95		
Actuated Cycle Length (s)		90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization		81.8%	ICU Level of Service	D
Analysis Period (min)		15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	652	93	69	540	146	191
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1607		1553	1635	1506	
Flt Permitted	1.00		0.18	1.00	0.98	
Satd. Flow (perm)	1607		297	1635	1506	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	724	103	77	600	162	212
RTOR Reduction (vph)	8	0	0	0	80	0
Lane Group Flow (vph)	819	0	77	600	294	0
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type			Perm			
Protected Phases	4			8	2	
Permitted Phases			8			
Actuated Green, G (s)	30.3		30.3	30.3	14.1	
Effective Green, g (s)	30.3		30.3	30.3	14.1	
Actuated g/C Ratio	0.58		0.58	0.58	0.27	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	929		172	945	405	
v/s Ratio Prot	c0.51			0.37	c0.19	
v/s Ratio Perm			0.26			
v/c Ratio	0.88		0.45	0.63	0.72	
Uniform Delay, d1	9.5		6.3	7.4	17.4	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	9.8		1.9	1.4	6.3	
Delay (s)	19.3		8.1	8.8	23.7	
Level of Service	B		A	A	C	
Approach Delay (s)	19.3			8.7	23.7	
Approach LOS	B			A	C	

Intersection Summary				
HCM Average Control Delay	16.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	81.1%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	407	240	230	364	290	377
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1583		1553	1635	1553	1389
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1583		1553	1635	1553	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	452	267	256	404	322	419
RTOR Reduction (vph)	24	0	0	0	0	327
Lane Group Flow (vph)	695	0	256	404	322	92
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	42.3		15.9	62.2	19.8	19.8
Effective Green, g (s)	42.3		15.9	62.2	19.8	19.8
Actuated g/C Ratio	0.47		0.18	0.69	0.22	0.22
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	744		274	1130	342	306
v/s Ratio Prot	c0.44		c0.16	0.25	c0.21	
v/s Ratio Perm						0.07
v/c Ratio	0.93		0.93	0.36	0.94	0.30
Uniform Delay, d1	22.5		36.5	5.7	34.5	29.3
Progression Factor	1.00		1.09	0.45	1.00	1.00
Incremental Delay, d2	20.3		22.0	0.4	33.6	0.6
Delay (s)	42.8		62.0	3.0	68.2	29.9
Level of Service	D		E	A	E	C
Approach Delay (s)	42.8			25.8	46.5	
Approach LOS	D			C	D	

Intersection Summary				
HCM Average Control Delay	38.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	82.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	41	23	22	908	605	33
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	46	26	24	1009	672	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				1147	1251	
pX, platoon unblocked	0.48					
vC, conflicting volume	1748	691	709			
vC1, stage 1 conf vol	691					
vC2, stage 2 conf vol	1058					
vCu, unblocked vol	2015	691	709			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	94	97			
cM capacity (veh/h)	222	441	881			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	71	24	1009	709
Volume Left	46	24	0	0
Volume Right	26	0	0	37
cSH	346	881	1700	1700
Volume to Capacity	0.21	0.03	0.59	0.42
Queue Length 95th (ft)	19	2	0	0
Control Delay (s)	21.2	9.2	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	21.2	0.2		0.0
Approach LOS	C			

Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		63.4%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	368	399	153	150	34	517	122	320	107	308	308	287
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1544	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1544	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	409	443	170	167	38	574	136	356	119	342	342	319
RTOR Reduction (vph)	0	1	104	0	0	0	0	0	102	0	0	0
Lane Group Flow (vph)	409	459	49	167	38	574	136	356	17	342	342	319
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Free	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			2			Free
Actuated Green, G (s)	40.1	32.3	32.3	14.3	6.5	100.0	17.0	14.4	14.4	23.0	20.4	100.0
Effective Green, g (s)	40.1	32.3	32.3	14.3	6.5	100.0	17.0	14.4	14.4	23.0	20.4	100.0
Actuated g/C Ratio	0.40	0.32	0.32	0.14	0.06	1.00	0.17	0.14	0.14	0.23	0.20	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1208	499	426	222	106	1389	264	447	200	357	634	1389
v/s Ratio Prot	0.14	c0.30		c0.11	0.02		0.09	c0.11		c0.22	0.11	
v/s Ratio Perm			0.04			c0.41			0.01			0.23
v/c Ratio	0.34	0.92	0.12	0.75	0.36	0.41	0.52	0.80	0.09	0.96	0.54	0.23
Uniform Delay, d1	20.8	32.6	23.8	41.1	44.8	0.0	37.8	41.4	37.1	38.0	35.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.64	0.60	1.00
Incremental Delay, d2	0.2	21.9	0.1	13.4	2.1	0.9	7.0	13.7	0.8	26.7	1.8	0.2
Delay (s)	20.9	54.5	23.9	54.6	46.8	0.9	44.8	55.1	37.9	51.1	23.1	0.2
Level of Service	C	D	C	D	D	A	D	E	D	D	C	A
Approach Delay (s)		36.5			14.6			49.4			25.4	
Approach LOS		D			B			D			C	

Intersection Summary					
HCM Average Control Delay		30.6	HCM Level of Service		C
HCM Volume to Capacity ratio		0.85			
Actuated Cycle Length (s)		100.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization		78.5%	ICU Level of Service		D
Analysis Period (min)		15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
28: Enterprise Dr. & Missouri Flat Rd. — AM Peak

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	91	32	24	1036	641	119
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1583	1417	1553	1635	1631	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1583	1417	1553	1635	1631	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	36	27	1151	712	132
RTOR Reduction (vph)	0	32	0	0	6	0
Lane Group Flow (vph)	101	4	27	1151	838	0
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.4	8.4	1.4	61.6	56.2	
Effective Green, g (s)	8.4	8.4	1.4	61.6	56.2	
Actuated g/C Ratio	0.11	0.11	0.02	0.79	0.72	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	170	153	28	1291	1175	
v/s Ratio Prot	c0.06		0.02	c0.70	0.51	
v/s Ratio Perm		0.00				
v/c Ratio	0.59	0.03	0.96	0.89	0.71	
Uniform Delay, d1	33.2	31.1	38.3	5.8	6.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.5	0.1	153.8	8.1	2.1	
Delay (s)	38.7	31.2	192.0	13.9	8.3	
Level of Service	D	C	F	B	A	
Approach Delay (s)	36.7			18.0	8.3	
Approach LOS	D			B	A	

Intersection Summary				
HCM Average Control Delay	15.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	78.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	73.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
29: China Garden Rd. & Missouri Flat Rd. — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	2	56	4	138	0	725	185	74	415	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	2	62	4	153	0	806	206	82	461	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						6						
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	1510	1637	461	1536	1534	908	461			1011		
vC1, stage 1 conf vol	626	626		908	908							
vC2, stage 2 conf vol	884	1011		628	626							
vCu, unblocked vol	1510	1637	461	1536	1534	908	461			1011		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	76	98	54	100			88		
cM capacity (veh/h)	95	211	598	264	282	333	1090			686		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	2	220	0	1011	82	461
Volume Left	0	62	0	0	82	0
Volume Right	2	153	0	206	0	0
cSH	598	478	1700	1700	686	1700
Volume to Capacity	0.00	0.46	0.00	0.59	0.12	0.27
Queue Length 95th (ft)	0	59	0	0	10	0
Control Delay (s)	11.0	24.2	0.0	0.0	11.0	0.0
Lane LOS	B	C			B	
Approach Delay (s)	11.0	24.2	0.0		1.7	
Approach LOS	B	C				

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	80.2%	ICU Level of Service	D	
Analysis Period (min)	15			

Queues
2: EB US-50 Off Ramp & Missouri Flat Rd.

Cumulative plus Proposed Project (Mitg.)
AM Peak

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	188	562	1111	616	521	868	62	299	646	328
v/c Ratio	0.19	0.40	1.12	1.11	0.89	1.07	0.04	0.44	0.71	0.24
Control Delay	28.1	0.9	102.4	115.0	63.6	87.6	0.1	41.5	32.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	0.9	102.4	115.0	63.6	87.6	0.1	41.5	32.7	0.3
Queue Length 50th (ft)	51	0	~487	~297	175	~380	0	90	234	0
Queue Length 95th (ft)	79	0	#618	#423	#279	#494	0	m112	m281	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	996	1389	996	553	603	810	1389	681	909	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.40	1.12	1.11	0.86	1.07	0.04	0.44	0.71	0.24

Intersection Summary

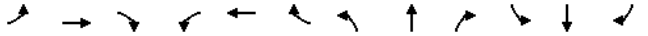
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Forni Rd. & Missouri Flat Rd.

Cumulative plus Proposed Project (Mitg.)
AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	286	33	29	72	28	87	126	1944	90	121	1853	272
v/c Ratio	0.77	0.16	0.08	0.47	0.17	0.29	0.74	1.11	0.09	0.72	0.74	0.25
Control Delay	56.0	38.3	8.4	55.9	42.1	26.2	67.8	82.4	6.5	66.8	22.2	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	38.3	8.4	55.9	42.1	26.2	67.8	82.4	6.5	66.8	22.2	4.0
Queue Length 50th (ft)	81	17	0	40	16	34	70	~679	9	67	280	14
Queue Length 95th (ft)	170	48	19	109	44	73	170	#1376	50	164	#735	90
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	593	624	464	306	615	420	306	1750	1145	306	2505	1169
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.05	0.06	0.24	0.05	0.21	0.41	1.11	0.08	0.40	0.74	0.23

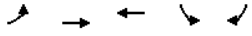
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

19: Pleasant Valley Rd. (SR-49) & Forni Rd.

AM Peak



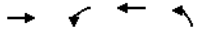
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	320	584	444	542	746
v/c Ratio	0.94	0.64	0.92	0.98	0.87
Control Delay	57.0	9.7	55.8	63.9	19.8
Queue Delay	0.0	1.7	0.0	0.0	0.0
Total Delay	57.0	11.4	55.8	63.9	19.8
Queue Length 50th (ft)	181	89	235	304	99
Queue Length 95th (ft)	m#287	m149	#411	#518	#373
Internal Link Dist (ft)		305	1234	1392	
Turn Bay Length (ft)	150				250
Base Capacity (vph)	339	927	507	555	858
Starvation Cap Reductn	0	190	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.79	0.88	0.98	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

20: Pleasant Valley Rd. (SR-49) & Patterson Dr.

AM Peak



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	827	77	600	374
v/c Ratio	0.89	0.45	0.64	0.77
Control Delay	24.4	17.6	11.8	26.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.4	17.6	11.8	26.4
Queue Length 50th (ft)	217	14	124	84
Queue Length 95th (ft)	#468	53	218	#206
Internal Link Dist (ft)	876		269	1362
Turn Bay Length (ft)		150		
Base Capacity (vph)	1120	205	1134	581
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.74	0.38	0.53	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
21: Pleasant Valley Rd. & SR-49 (South)

Cumulative plus Proposed Project (Mitg.)
AM Peak

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	719	256	404	322	419
v/c Ratio	0.93	0.93	0.36	0.94	0.66
Control Delay	42.2	66.6	3.0	73.0	9.0
Queue Delay	0.3	0.0	0.6	0.0	0.0
Total Delay	42.4	66.6	3.6	73.0	9.1
Queue Length 50th (ft)	339	144	33	184	0
Queue Length 95th (ft)	#585	m#197	m33	#351	85
Internal Link Dist (ft)	3002		305	2284	
Turn Bay Length (ft)		45			250
Base Capacity (vph)	797	274	1145	342	633
Starvation Cap Reductn	0	0	413	0	0
Spillback Cap Reductn	4	0	0	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.91	0.93	0.55	0.94	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
23: EB US-50 Off-Ramp & Ponderosa Rd.

Cumulative plus Proposed Project (Mitg.)
AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	409	460	153	167	38	574	136	356	119	342	342	319
v/c Ratio	0.34	0.97	0.30	0.75	0.26	0.41	0.52	0.72	0.37	0.96	0.50	0.23
Control Delay	23.7	70.4	6.2	62.1	45.0	0.9	45.6	48.9	10.6	54.3	22.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	70.4	6.2	62.1	45.0	0.9	45.6	48.9	10.6	54.3	22.1	0.2
Queue Length 50th (ft)	95	~329	0	101	23	0	80	114	0	219	98	0
Queue Length 95th (ft)	155	#537	48	#189	51	0	141	165	49	m#301	m96	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	1208	475	511	248	409	1389	264	497	322	357	683	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.97	0.30	0.67	0.09	0.41	0.52	0.72	0.37	0.96	0.50	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Queues
28: Enterprise Dr. & Missouri Flat Rd.

Cumulative plus Proposed Project (Mitg.)
AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	101	36	27	1151	844
v/c Ratio	0.43	0.15	0.28	0.87	0.66
Control Delay	39.8	12.7	48.5	17.7	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	12.7	48.5	17.7	11.0
Queue Length 50th (ft)	51	0	14	344	149
Queue Length 95th (ft)	99	26	#46	#902	493
Internal Link Dist (ft)	901			753	1067
Turn Bay Length (ft)		50	100		
Base Capacity (vph)	386	373	95	1350	1270
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.10	0.28	0.85	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: EB US-50 Off Ramp & Missouri Flat Rd.

Cumulative plus Proposed Project (Mitg.)
PM Peak

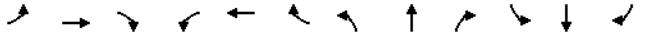
Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	265	924	1037	504	579	714	66	316	633	354
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	4.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	1.00	0.97	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1389	3013	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1389	3013	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	Free	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3		4	5	1	6		5	2	
Permitted Phases		Free					Free			Free
Actuated Green, G (s)	38.0	115.0	38.0	26.0	29.5	30.0	115.0	26.0	26.5	115.0
Effective Green, g (s)	38.0	115.0	38.0	26.0	29.5	30.0	115.0	26.0	26.5	115.0
Actuated g/C Ratio	0.33	1.00	0.33	0.23	0.26	0.26	1.00	0.23	0.23	1.00
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	996	1389	996	553	773	810	1389	681	716	1389
v/s Ratio Prot	0.10		c0.38	c0.23	0.21	c0.26		0.12	0.23	
v/s Ratio Perm		c0.74					0.05			0.28
v/c Ratio	0.30	0.74	1.16	1.01	0.83	0.98	0.05	0.52	0.98	0.28
Uniform Delay, d1	28.6	0.0	38.5	44.5	40.4	42.2	0.0	39.0	44.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.13	0.88	1.00	1.14	0.75	1.00
Incremental Delay, d2	0.2	3.6	82.0	41.5	6.9	25.3	0.1	0.3	20.0	0.3
Delay (s)	28.7	3.6	120.5	86.0	52.5	62.2	0.1	44.6	52.9	0.3
Level of Service	C	A	F	F	D	E	A	D	D	A
Approach Delay (s)						55.1			36.6	
Approach LOS						E			D	

Intersection Summary

HCM Average Control Delay	55.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
5: Forni Rd. & Missouri Flat Rd. — PM Peak

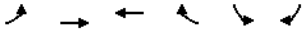


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	588	68	71	155	60	185	115	1540	79	175	1934	394
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	4550	1417
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3072	1667	1417	1583	1667	1417	1583	3167	1417	1583	4550	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	653	76	79	172	67	206	128	1711	88	194	2149	438
RTOR Reduction (vph)	0	0	47	0	0	2	0	0	17	0	0	80
Lane Group Flow (vph)	653	76	32	172	67	204	128	1711	71	194	2149	358
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Actuated Green, G (s)	20.3	13.1	23.9	16.7	9.5	25.5	10.8	46.2	62.9	16.0	51.4	71.7
Effective Green, g (s)	20.3	13.1	23.9	16.7	9.5	25.5	10.8	46.2	62.9	16.0	51.4	71.7
Actuated g/C Ratio	0.19	0.12	0.22	0.16	0.09	0.24	0.10	0.43	0.59	0.15	0.48	0.67
Clearance Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	3.0	0.2	0.2	3.0	0.2
Lane Grp Cap (vph)	583	204	317	247	148	338	160	1367	833	237	2186	950
v/s Ratio Prot	c0.21	0.05	0.01	0.11	0.04	c0.09	0.08	c0.54	0.01	c0.12	0.47	0.07
v/s Ratio Perm			0.01			0.05			0.04			0.18
v/c Ratio	1.12	0.37	0.10	0.70	0.45	0.60	0.80	1.25	0.09	0.82	0.98	0.38
Uniform Delay, d1	43.4	43.2	33.0	42.7	46.3	36.3	47.0	30.4	9.6	44.1	27.4	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	74.8	0.4	0.1	6.7	0.8	2.1	22.9	119.4	0.0	18.4	15.4	0.1
Delay (s)	118.2	43.6	33.1	49.5	47.1	38.4	70.0	149.8	9.6	62.5	42.7	7.9
Level of Service	F	D	C	D	D	D	E	F	A	E	D	A
Approach Delay (s)		102.8			44.0			138.1			38.6	
Approach LOS		F			D			F			D	

Intersection Summary				
HCM Average Control Delay	79.9	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.07			
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	14.0	
Intersection Capacity Utilization	94.7%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

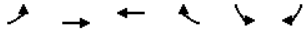
HCM Unsignalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg.)
15: Pleasant Valley Rd. (SR-49) & China Garden Rd. — PM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	142	559	700	81	46	159
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	158	621	778	90	51	177
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	868				1759	823
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	868				1759	823
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	79				31	53
cM capacity (veh/h)	768				74	374

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	779	868	228
Volume Left	158	0	51
Volume Right	0	90	177
cSH	768	1700	329
Volume to Capacity	0.21	0.51	0.69
Queue Length 95th (ft)	19	0	122
Control Delay (s)	5.0	0.0	46.0
Lane LOS	A		E
Approach Delay (s)	5.0	0.0	46.0
Approach LOS			E

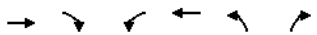
Intersection Summary				
Average Delay	7.7			
Intersection Capacity Utilization	101.7%	ICU Level of Service	G	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	179	572	423	10	40	347
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1553	1635	1630		1583	1417
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1553	1635	1630		1583	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	199	636	470	11	44	386
RTOR Reduction (vph)	0	0	0	0	0	349
Lane Group Flow (vph)	199	636	481	0	44	37
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	19.2	91.4	68.2		10.6	10.6
Effective Green, g (s)	19.2	91.4	68.2		10.6	10.6
Actuated g/C Ratio	0.17	0.83	0.62		0.10	0.10
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	271	1359	1011		153	137
v/s Ratio Prot	c0.13	c0.39	0.29		c0.03	
v/s Ratio Perm						0.03
v/c Ratio	0.73	0.47	0.48		0.29	0.27
Uniform Delay, d1	43.0	2.6	11.3		46.2	46.1
Progression Factor	0.75	0.44	1.00		1.00	1.00
Incremental Delay, d2	4.6	0.5	1.6		1.0	1.1
Delay (s)	36.7	1.7	12.9		47.2	47.2
Level of Service	D	A	B		D	D
Approach Delay (s)		10.0	12.9		47.2	
Approach LOS		A	B		D	

Intersection Summary				
HCM Average Control Delay	19.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	56.2%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	740	133	189	688	105	173
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1601		1553	1635	1498	
Flt Permitted	1.00		0.19	1.00	0.98	
Satd. Flow (perm)	1601		304	1635	1498	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	822	148	210	764	117	192
RTOR Reduction (vph)	7	0	0	0	66	0
Lane Group Flow (vph)	963	0	210	764	243	0
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type			Perm			
Protected Phases	4			8	2	
Permitted Phases			8			
Actuated Green, G (s)	60.0		60.0	60.0	15.9	
Effective Green, g (s)	60.0		60.0	60.0	15.9	
Actuated g/C Ratio	0.72		0.72	0.72	0.19	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1145		217	1169	284	
v/s Ratio Prot	0.60			0.47	c0.16	
v/s Ratio Perm			c0.69			
v/c Ratio	0.84		0.97	0.65	0.86	
Uniform Delay, d1	8.5		11.1	6.4	32.9	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	5.7		51.3	1.3	21.6	
Delay (s)	14.3		62.4	7.7	54.5	
Level of Service	B		E	A	D	
Approach Delay (s)	14.3			19.5	54.5	
Approach LOS	B			B	D	

Intersection Summary				
HCM Average Control Delay	22.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	92.6%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	502	280	272	511	259	265
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1586		1553	1635	1553	1389
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1586		1553	1635	1553	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	558	311	302	568	288	294
RTOR Reduction (vph)	18	0	0	0	0	241
Lane Group Flow (vph)	851	0	302	568	288	53
Heavy Vehicles (%)	2%	2%	4%	4%	4%	4%
Turn Type			Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	57.0		21.0	82.0	20.0	20.0
Effective Green, g (s)	57.0		21.0	82.0	20.0	20.0
Actuated g/C Ratio	0.52		0.19	0.75	0.18	0.18
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	822		296	1219	282	253
v/s Ratio Prot	c0.54		c0.19	0.35	c0.19	
v/s Ratio Perm						0.04
v/c Ratio	1.03		1.02	0.47	1.02	0.21
Uniform Delay, d1	26.5		44.5	5.5	45.0	38.3
Progression Factor	1.00		1.05	0.57	1.00	1.00
Incremental Delay, d2	40.7		53.9	1.1	59.2	0.4
Delay (s)	67.2		100.7	4.2	104.2	38.7
Level of Service	E		F	A	F	D
Approach Delay (s)	67.2			37.7	71.1	
Approach LOS	E			D	E	

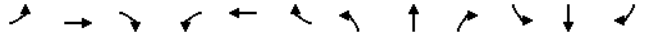
Intersection Summary				
HCM Average Control Delay	57.1	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	91.5%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	77	44	29	903	1087	34
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	86	49	32	1003	1208	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				TWLTL	TWLTL	
Median storage veh)				2	2	
Upstream signal (ft)				1147	1251	
pX, platoon unblocked	0.40					
vC, conflicting volume	2294	1227	1246			
vC1, stage 1 conf vol	1227					
vC2, stage 2 conf vol	1068					
vCu, unblocked vol	3488	1227	1246			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	50	77	94			
cM capacity (veh/h)	170	215	552			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	134	32	1003	1246
Volume Left	86	32	0	0
Volume Right	49	0	0	38
cSH	226	552	1700	1700
Volume to Capacity	0.59	0.06	0.59	0.73
Queue Length 95th (ft)	85	5	0	0
Control Delay (s)	41.9	11.9	0.0	0.0
Lane LOS	E	B		
Approach Delay (s)	41.9	0.4		0.0
Approach LOS	E			

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	77.7%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	638	292	271	109	723	160	293	267	225	296	237
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	1543	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	1543	1320	1553	1635	1389	1553	3106	1389	1553	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	606	709	324	301	121	803	178	326	297	250	329	263
RTOR Reduction (vph)	0	1	171	0	0	0	0	0	249	0	0	0
Lane Group Flow (vph)	606	740	121	301	121	803	178	326	48	250	329	263
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot		Perm	Prot		Free	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			2			Free
Actuated Green, G (s)	59.4	52.0	52.0	22.0	14.6	125.0	18.0	16.0	16.0	19.0	17.0	125.0
Effective Green, g (s)	59.4	52.0	52.0	22.0	14.6	125.0	18.0	16.0	16.0	19.0	17.0	125.0
Actuated g/C Ratio	0.48	0.42	0.42	0.18	0.12	1.00	0.14	0.13	0.13	0.15	0.14	1.00
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1432	642	549	273	191	1389	224	398	178	236	422	1389
v/s Ratio Prot	0.20	c0.48		c0.19	0.07		0.11	0.10		c0.16	c0.11	
v/s Ratio Perm			0.09			c0.58			0.03			0.19
v/c Ratio	0.42	1.15	0.22	1.10	0.63	0.58	0.79	0.82	0.27	1.06	0.78	0.19
Uniform Delay, d1	21.5	36.5	23.5	51.5	52.6	0.0	51.7	53.1	49.2	53.0	52.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	0.67	1.00
Incremental Delay, d2	0.2	85.6	0.2	84.8	6.7	1.8	24.6	16.9	3.7	61.2	8.1	0.2
Delay (s)	21.7	122.1	23.7	136.3	59.3	1.8	76.3	70.0	53.0	117.7	43.2	0.2
Level of Service	C	F	C	F	E	A	E	E	D	F	D	A
Approach Delay (s)		67.4			40.5			65.1			51.9	
Approach LOS		E			D			E			D	

Intersection Summary				
HCM Average Control Delay	56.8	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.05			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	97.2%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	146	54	21	1155	1149	107
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1583	1417	1553	1635	1647	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1583	1417	1553	1635	1647	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	162	60	23	1283	1277	119
RTOR Reduction (vph)	0	31	0	0	2	0
Lane Group Flow (vph)	162	29	23	1283	1394	0
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	15.3	15.3	2.4	106.1	99.7	
Effective Green, g (s)	15.3	15.3	2.4	106.1	99.7	
Actuated g/C Ratio	0.12	0.12	0.02	0.82	0.77	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	187	168	29	1341	1269	
v/s Ratio Prot	c0.10		0.01	c0.78	c0.85	
v/s Ratio Perm		0.02				
v/c Ratio	0.87	0.17	0.79	0.96	1.10	
Uniform Delay, d1	56.0	51.4	63.3	9.7	14.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	31.7	0.5	83.5	15.3	56.6	
Delay (s)	87.7	51.9	146.8	25.0	71.5	
Level of Service	F	D	F	C	E	
Approach Delay (s)	78.0			27.2	71.5	
Approach LOS	E			C	E	

Intersection Summary				
HCM Average Control Delay	52.2	HCM Level of Service	D	
HCM Volume to Capacity ratio	1.08			
Actuated Cycle Length (s)	129.4	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	90.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	5	64	5	236	0	731	155	134	770	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	6	71	6	262	0	812	172	149	856	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						6						
Median type								TWLTL			None	
Median storage veh)								2				
Upstream signal (ft)											579	
pX, platoon unblocked												
vC, conflicting volume	2099	2138	856	2057	2052	898	856			984		
vC1, stage 1 conf vol	1153	1153		898	898							
vC2, stage 2 conf vol	946	984		1159	1153							
vCu, unblocked vol	2099	2138	856	2057	2052	898	856			984		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	55	97	22	100			79		
cM capacity (veh/h)	7	137	356	159	182	338	776			702		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	6	339	0	984	149	856
Volume Left	0	71	0	0	149	0
Volume Right	6	262	0	172	0	0
cSH	356	437	1700	1700	702	1700
Volume to Capacity	0.02	0.78	0.00	0.58	0.21	0.50
Queue Length 95th (ft)	1	168	0	0	20	0
Control Delay (s)	15.3	44.8	0.0	0.0	11.5	0.0
Lane LOS	C	E			B	
Approach Delay (s)	15.3	44.8	0.0		1.7	
Approach LOS	C	E				

Intersection Summary					
Average Delay	7.3				
Intersection Capacity Utilization	83.2%	ICU Level of Service		E	
Analysis Period (min)	15				

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
v/c Ratio	0.30	0.74	1.16	1.01	0.83	0.98	0.05	0.52	0.98	0.28
Control Delay	29.6	3.6	117.8	86.1	54.5	63.1	0.1	46.1	55.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	3.6	117.8	86.1	54.5	63.1	0.1	46.1	55.5	0.3
Queue Length 50th (ft)	82	0	~520	~242	223	251	0	121	238	0
Queue Length 95th (ft)	119	0	#652	#371	269	#432	0	m140	m#384	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	996	1389	996	553	917	810	1389	681	717	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.74	1.16	1.01	0.70	0.98	0.05	0.52	0.98	0.28

Intersection Summary

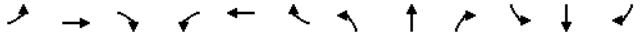
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Forni Rd. & Missouri Flat Rd.

Cumulative plus Proposed Project (Mitg.)
PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	653	76	79	172	67	206	128	1711	88	194	2149	438
v/c Ratio	1.11	0.34	0.19	0.69	0.40	0.54	0.80	1.24	0.10	0.82	0.98	0.40
Control Delay	112.8	45.4	10.6	60.8	51.5	36.9	80.9	144.2	6.7	71.4	43.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.8	45.4	10.6	60.8	51.5	36.9	80.9	144.2	6.7	71.4	43.1	5.4
Queue Length 50th (ft)	~257	48	9	112	44	117	85	~748	11	125	484	34
Queue Length 95th (ft)	#494	93	40	#256	85	183	172	#1198	46	#314	#956	176
Internal Link Dist (ft)		905			863			1035			1524	
Turn Bay Length (ft)	180		150	180		170	250		155	295		155
Base Capacity (vph)	587	550	488	279	518	399	257	1378	948	257	2202	1091
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.14	0.16	0.62	0.13	0.52	0.50	1.24	0.09	0.75	0.98	0.40

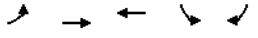
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
19: Pleasant Valley Rd. (SR-49) & Forni Rd.

Cumulative plus Proposed Project (Mitg.)
PM Peak



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	199	636	481	44	386
v/c Ratio	0.73	0.47	0.48	0.29	0.79
Control Delay	39.1	2.0	15.7	48.3	17.2
Queue Delay	0.0	1.1	0.0	0.0	0.0
Total Delay	39.1	3.1	15.7	48.3	17.2
Queue Length 50th (ft)	122	56	159	30	0
Queue Length 95th (ft)	m150	m33	364	59	91
Internal Link Dist (ft)		305	1234	1392	
Turn Bay Length (ft)	150				250
Base Capacity (vph)	345	1358	1010	403	648
Starvation Cap Reductn	0	458	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.71	0.48	0.11	0.60

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

20: Pleasant Valley Rd. (SR-49) & Patterson Dr.

PM Peak

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	970	210	764	309
v/c Ratio	0.84	0.97	0.66	0.89
Control Delay	17.3	70.7	9.8	53.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.3	70.7	9.8	53.7
Queue Length 50th (ft)	314	90	190	129
Queue Length 95th (ft)	#556	#131	298	#283
Internal Link Dist (ft)	876		269	1362
Turn Bay Length (ft)		150		
Base Capacity (vph)	1250	237	1272	375
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.89	0.60	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

21: Pleasant Valley Rd. & SR-49 (South)

PM Peak

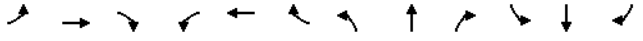
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	869	302	568	288	294
v/c Ratio	1.03	1.02	0.47	1.02	0.60
Control Delay	66.3	100.7	4.3	104.5	10.1
Queue Delay	0.0	0.0	0.5	0.0	0.0
Total Delay	66.3	100.7	4.8	104.5	10.1
Queue Length 50th (ft)	~648	~194	48	~216	0
Queue Length 95th (ft)	#891	#406	86	#386	79
Internal Link Dist (ft)	3002		305	2284	
Turn Bay Length (ft)		45			250
Base Capacity (vph)	841	296	1219	282	493
Starvation Cap Reductn	0	0	275	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.03	1.02	0.60	1.02	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

23: EB US-50 Off-Ramp & Ponderosa Rd.

PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	606	741	292	301	121	803	178	326	297	250	329	263
v/c Ratio	0.42	1.15	0.41	1.10	0.63	0.58	0.79	0.82	0.70	1.06	0.78	0.19
Control Delay	23.4	119.9	4.4	132.2	66.6	1.8	77.0	70.4	16.3	114.4	43.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	119.9	4.4	132.2	66.6	1.8	77.0	70.4	16.3	114.4	43.8	0.2
Queue Length 50th (ft)	161	~744	0	~276	95	0	141	137	9	~229	140	0
Queue Length 95th (ft)	230	#998	56	#458	152	0	#259	#211	103	m#329	m158	m0
Internal Link Dist (ft)		2352			1487			1685			609	
Turn Bay Length (ft)	400		400	75		215	150		100	400		50
Base Capacity (vph)	1431	643	720	273	523	1389	224	398	426	236	422	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	1.15	0.41	1.10	0.23	0.58	0.79	0.82	0.70	1.06	0.78	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

28: Enterprise Dr. & Missouri Flat Rd.

PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	162	60	23	1283	1396
v/c Ratio	0.86	0.30	0.47	0.96	1.08
Control Delay	92.0	30.5	91.6	28.3	67.9
Queue Delay	0.0	0.0	0.0	9.6	0.0
Total Delay	92.0	30.5	91.6	37.9	67.9
Queue Length 50th (ft)	135	19	20	747	~1357
Queue Length 95th (ft)	#258	63	#62	#1344	#1625
Internal Link Dist (ft)	901			753	1067
Turn Bay Length (ft)		50	100		
Base Capacity (vph)	199	208	49	1359	1288
Starvation Cap Reductn	0	0	0	83	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.29	0.47	1.01	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg. Alt)
2: EB US-50 Off Ramp & Missouri Flat Rd. — AM Peak

Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	169	506	1000	554	469	781	56	269	581	295
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	0.88	0.94	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	2445	4379	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	2445	4379	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	188	562	1111	616	521	868	62	299	646	328
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	188	562	1111	616	521	868	62	299	646	328
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	custom	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3	1	4	5	1	6		5	2	
Permitted Phases							Free			Free
Actuated Green, G (s)	31.5	30.7	31.5	31.2	30.7	36.3	120.0	31.2	36.8	120.0
Effective Green, g (s)	31.5	30.7	31.5	31.2	30.7	36.3	120.0	31.2	36.8	120.0
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.30	1.00	0.26	0.31	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	791	626	1149	636	771	940	1389	783	953	1389
v/s Ratio Prot	0.06	0.23	c0.25	c0.25	0.17	c0.28		0.10	0.21	
v/s Ratio Perm							0.04			c0.24
v/c Ratio	0.24	0.90	0.97	0.97	0.68	0.92	0.04	0.38	0.68	0.24
Uniform Delay, d1	34.8	43.1	43.7	43.9	40.2	40.5	0.0	36.5	36.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.98	0.85	1.00	1.06	0.79	1.00
Incremental Delay, d2	0.2	15.5	18.9	27.6	2.1	14.7	0.1	0.2	2.5	0.3
Delay (s)	35.0	58.7	62.6	71.5	41.6	49.2	0.1	38.8	31.3	0.3
Level of Service	C	E	E	E	D	D	A	D	C	A
Approach Delay (s)						44.4			25.1	
Approach LOS						D			C	

Intersection Summary				
HCM Average Control Delay	48.0	HCM Level of Service		D
HCM Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		21.0
Intersection Capacity Utilization	Err%	ICU Level of Service		H
Analysis Period (min)	15			

c Critical Lane Group

Queues — Cumulative plus Proposed Project (Mitg. Alt)
2: EB US-50 Off Ramp & Missouri Flat Rd. — AM Peak

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	188	562	1111	616	521	868	62	299	646	328
v/c Ratio	0.24	0.90	0.97	0.97	0.68	0.92	0.04	0.38	0.68	0.24
Control Delay	36.0	61.7	63.5	73.1	43.9	49.8	0.1	39.9	31.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	61.7	63.5	73.1	43.9	49.8	0.1	39.9	31.8	0.3
Queue Length 50th (ft)	59	235	304	269	164	353	0	93	250	0
Queue Length 95th (ft)	92	#340	#402	#403	218	#447	0	m116	m297	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	792	652	1151	636	803	958	1389	783	953	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.86	0.97	0.97	0.65	0.91	0.04	0.38	0.68	0.24

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis — Cumulative plus Proposed Project (Mitg. Alt)
2: EB US-50 Off Ramp & Missouri Flat Rd. — PM Peak

Movement	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Configurations										
Volume (vph)	265	924	1037	504	579	714	66	316	633	354
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	4.0
Lane Util. Factor	0.97	0.88	0.94	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3013	2445	4379	2445	3013	3106	1389	3013	3106	1389
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3013	2445	4379	2445	3013	3106	1389	3013	3106	1389
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Prot	custom	Prot	custom	Prot		Free	Prot		Free
Protected Phases	3	1	4	5	1	6		5	2	
Permitted Phases							Free			Free
Actuated Green, G (s)	27.0	43.0	27.0	29.4	43.0	37.6	115.0	29.4	24.0	115.0
Effective Green, g (s)	27.0	43.0	27.0	29.4	43.0	37.6	115.0	29.4	24.0	115.0
Actuated g/C Ratio	0.23	0.37	0.23	0.26	0.37	0.33	1.00	0.26	0.21	1.00
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	707	914	1028	625	1127	1016	1389	770	648	1389
v/s Ratio Prot	0.10	c0.42	c0.26	0.23	0.21	0.26		0.12	c0.23	
v/s Ratio Perm							0.05			0.28
v/c Ratio	0.42	1.12	1.12	0.90	0.57	0.78	0.05	0.46	1.08	0.28
Uniform Delay, d1	37.3	36.0	44.0	41.3	28.7	35.0	0.0	36.1	45.5	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.81	0.84	1.00	0.91	0.90	1.00
Incremental Delay, d2	0.4	69.9	67.4	15.4	0.6	5.4	0.1	0.2	50.7	0.2
Delay (s)	37.7	105.9	111.4	56.7	23.7	34.9	0.1	33.0	91.7	0.2
Level of Service	D	F	F	E	C	C	A	C	F	A
Approach Delay (s)						28.4			52.6	
Approach LOS						C			D	

Intersection Summary			
HCM Average Control Delay	66.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues — Cumulative plus Proposed Project (Mitg. Alt)
2: EB US-50 Off Ramp & Missouri Flat Rd. — PM Peak

Lane Group	EBL	EBR2	WBL	WBR2	NBL	NBT	NBR2	SBL	SBT	SBR2
Lane Group Flow (vph)	294	1027	1152	560	643	793	73	351	703	393
v/c Ratio	0.42	1.12	1.12	0.90	0.57	0.78	0.05	0.46	1.08	0.28
Control Delay	39.5	104.4	108.2	59.4	25.2	35.7	0.1	33.6	90.3	0.2
Queue Delay	0.0	53.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	157.9	108.2	59.4	25.2	35.7	0.1	33.6	90.3	0.2
Queue Length 50th (ft)	95	~499	~348	223	168	300	0	112	~310	0
Queue Length 95th (ft)	138	#642	#439	#324	202	311	0	m124	m#351	m0
Internal Link Dist (ft)						464			570	
Turn Bay Length (ft)		525		350	325		100	350		300
Base Capacity (vph)	707	914	1028	659	1127	1015	1389	812	648	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	90	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	1.25	1.12	0.85	0.57	0.78	0.05	0.43	1.08	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis — Cumulative plus Project (Mitg. for Queuing)
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49) — AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	188	31	28	315	525	46	53	50	613	55	157
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0		4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		0.95		0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		0.95		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1553	3041		1583	1667	1417		2961		3013	1453	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1553	3041		1583	1667	1417		2961		3013	1453	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	103	209	34	31	350	583	51	59	56	681	61	174
RTOR Reduction (vph)	0	18	0	0	0	219	0	53	0	0	99	0
Lane Group Flow (vph)	103	225	0	31	350	364	0	113	0	681	136	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot			Prot		pm+ov	Split			Split		
Protected Phases	5	2		1	6	4	8	8		4	4	
Permitted Phases						6						
Actuated Green, G (s)	6.1	24.6		2.0	20.5	40.8		3.0		20.3	20.3	
Effective Green, g (s)	6.1	24.6		2.0	20.5	40.8		3.0		20.3	20.3	
Actuated g/C Ratio	0.09	0.38		0.03	0.31	0.62		0.05		0.31	0.31	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0		4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	145	1144		48	523	884		136		935	451	
v/s Ratio Prot	c0.07	0.07		0.02	c0.21	0.13		c0.04		c0.23	0.09	
v/s Ratio Perm						0.13						
v/c Ratio	0.71	0.20		0.65	0.67	0.41		0.83		0.73	0.30	
Uniform Delay, d1	28.8	13.7		31.3	19.5	6.2		30.9		20.1	17.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	12.8	0.1		20.2	3.3	0.3		32.0		2.9	0.4	
Delay (s)	41.5	13.8		51.5	22.8	6.5		63.0		23.0	17.5	
Level of Service	D	B		D	C	A		E		C	B	
Approach Delay (s)		22.1			13.9			63.0			21.6	
Approach LOS		C			B			E			C	

Intersection Summary				
HCM Average Control Delay	21.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	62.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Queues — Cumulative plus Project (Mitg. for Queuing)
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49) — AM Peak

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	103	243	31	350	583	166	681	235
v/c Ratio	0.61	0.20	0.30	0.69	0.50	0.85	0.71	0.42
Control Delay	43.6	12.3	38.1	29.2	2.2	61.5	26.0	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	12.3	38.1	29.2	2.2	61.5	26.0	11.0
Queue Length 50th (ft)	41	24	12	122	0	24	128	27
Queue Length 95th (ft)	85	56	37	#245	30	#82	#220	88
Internal Link Dist (ft)		215		260		844		629
Turn Bay Length (ft)	180		105		180		525	
Base Capacity (vph)	793	2239	177	559	1160	195	961	561
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.11	0.18	0.63	0.50	0.85	0.71	0.42

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis — Cumulative plus Project (Mitg. for Queuing)
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49) — PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	458	76	24	263	484	43	72	47	892	87	254
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.0	4.4		3.0	4.4	4.1		4.0		4.1	4.1	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		0.95		0.97	1.00	
Frt	1.00	0.98		1.00	1.00	0.85		0.96		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1553	3040		1583	1667	1417		2990		3013	1452	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (perm)	1553	3040		1583	1667	1417		2990		3013	1452	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	284	509	84	27	292	538	48	80	52	991	97	282
RTOR Reduction (vph)	0	16	0	0	0	163	0	47	0	0	106	0
Lane Group Flow (vph)	284	577	0	27	292	375	0	133	0	991	273	0
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot			Prot		pm+ov	Split			Split		
Protected Phases	5	2		1	6	4	8	8		4	4	
Permitted Phases						6						
Actuated Green, G (s)	16.2	33.5		2.0	19.3	39.7		3.1		20.4	20.4	
Effective Green, g (s)	16.2	33.5		2.0	19.3	39.7		3.1		20.4	20.4	
Actuated g/C Ratio	0.22	0.45		0.03	0.26	0.53		0.04		0.27	0.27	
Clearance Time (s)	3.0	4.4		3.0	4.4	4.1		4.0		4.1	4.1	
Vehicle Extension (s)	0.2	3.2		0.2	3.2	3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	338	1367		42	432	755		124		825	398	
v/s Ratio Prot	c0.18	0.19		0.02	c0.18	0.14		c0.04		c0.33	0.19	
v/s Ratio Perm						0.13						
v/c Ratio	0.84	0.42		0.64	0.68	0.50		1.07		1.20	0.69	
Uniform Delay, d1	27.9	13.9		35.9	24.8	11.0		35.7		27.1	24.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	16.3	0.2		22.5	4.2	0.5		101.7		102.1	4.9	
Delay (s)	44.2	14.2		58.4	29.0	11.6		137.4		129.1	29.0	
Level of Service	D	B		E	C	B		F		F	C	
Approach Delay (s)		23.9			19.0			137.4			101.5	
Approach LOS		C			B			F			F	

Intersection Summary				
HCM Average Control Delay	61.2	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	74.5	Sum of lost time (s)	15.5	
Intersection Capacity Utilization	78.8%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Queues — Cumulative plus Project (Mitg. for Queuing)
13: Pleasant Valley Rd. (SR-49) & Diamond Rd. (SR-49) — PM Peak

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	284	593	27	292	538	180	991	379
v/c Ratio	0.82	0.42	0.30	0.74	0.56	1.04	1.17	0.74
Control Delay	46.6	13.6	44.6	38.9	6.1	111.3	119.1	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	13.6	44.6	38.9	6.1	111.3	119.1	27.1
Queue Length 50th (ft)	123	74	12	120	37	~36	~290	96
Queue Length 95th (ft)	213	139	40	#251	138	#114	#488	#276
Internal Link Dist (ft)		215		260		844		629
Turn Bay Length (ft)	180		105		180		525	
Base Capacity (vph)	696	1969	155	490	969	173	844	512
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.30	0.17	0.60	0.56	1.04	1.17	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix I:

Traffic Signal Warrant Worksheets

Scenario Report

Scenario:	Existing AM
Command:	Default Command
Volume:	Existing AM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / Yes	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	Yes / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	No / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	No / No	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	No / No	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	1 0	0 0	1! 0	0 0	0	0
Initial Vol:	3	244	0	0	294	11	7	0	7	0	0	0
ApproachDel:	xxxxxx			xxxxxx			11.2			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=14]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=566]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	1 0	0 0	1! 0	0 0	0	0
Initial Vol:	3	244	0	0	294	11	7	0	7	0	0	0

Major Street Volume: 552
Minor Approach Volume: 14
Minor Approach Volume Threshold: 378

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	1	0 0	1!	0	0 0	0	0
Initial Vol:	22	236	0	0	286	15	11	0	24	0	0	0
ApproachDel:	xxxxxx			xxxxxx			11.0			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=35]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=594]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	1	0 0	1!	0	0 0	0	0
Initial Vol:	22	236	0	0	286	15	11	0	24	0	0	0

Major Street Volume: 559
Minor Approach Volume: 35
Minor Approach Volume Threshold: 375

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	1!	0	0	0	1	0
Initial Vol:	0	0	0	11	0	110	57	396	0	0	1044	61
ApproachDel:	xxxxxx			34.6			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=121]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1679]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	1!	0	0	0	1	0
Initial Vol:	0	0	0	11	0	110	57	396	0	0	1044	61

Major Street Volume: 1558
Minor Approach Volume: 121
Minor Approach Volume Threshold: 101

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	7	0	16	1	4	59	20	175	18	25	506	4
ApproachDel:	12.5			12.7			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=23]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=835]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=64]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=835]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	7	0	16	1	4	59	20	175	18	25	506	4

Major Street Volume: 748
Minor Approach Volume: 64
Minor Approach Volume Threshold: 385

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	11	0	4		0	0	0		0	388	13		2	924	0	
ApproachDel:	22.9				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=15]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1342]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	11	0	4		0	0	0		0	388	13		2	924	0	

Major Street Volume: 1327
Minor Approach Volume: 15
Minor Approach Volume Threshold: 144

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	153	0	210	200	369	0	0	335	26
ApproachDel:	xxxxxx			105.1			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=10.6]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=363]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1293]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	153	0	210	200	369	0	0	335	26

Major Street Volume: 930
Minor Approach Volume: 363
Minor Approach Volume Threshold: 239

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0 0
Initial Vol:	118	0	155	0	0	0	0	453	64	65	502	0
ApproachDel:	46.9			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=3.6]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=273]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1357]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0 0	0	1	0 0 0
Initial Vol:	118	0	155	0	0	0	0	453	64	65	502	0

Major Street Volume: 1084
Minor Approach Volume: 273
Minor Approach Volume Threshold: 198

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	1	0	1 0
Initial Vol:	223	0	293	0	0	0	0	256	150	194	308	0
ApproachDel:	218.0			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=31.2]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=516]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1424]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	1 0
Initial Vol:	223	0	293	0	0	0	0	256	150	194	308	0

Major Street Volume: 908
Minor Approach Volume: 516
Minor Approach Volume Threshold: 318

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	18	708		0		0	540		29		27		0		15	0		0		0
ApproachDel:	xxxxxx					xxxxxx					23.8					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=42]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1337]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	18	708		0		0	540		29		27		0		15	0		0		0

Major Street Volume: 1295
Minor Approach Volume: 42
Minor Approach Volume Threshold: 196

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	346	0	0	285	6	16	0	3	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=19]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=656]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	346	0	0	285	6	16	0	3	0	0	0

Major Street Volume: 637
Minor Approach Volume: 19
Minor Approach Volume Threshold: 340

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	336	19	19	249	0	0	0	0	15	0	19
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.9		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=34]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=657]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	336	19	19	249	0	0	0	0	15	0	19

Major Street Volume: 623
Minor Approach Volume: 34
Minor Approach Volume Threshold: 346

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	1	0	1	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	0	0 0
Initial Vol:	19	813		0	0	519		98	58		0	20	0		0	0
ApproachDel:	xxxxxx				xxxxxx				38.4				xxxxxx			

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.8]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=78]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1527]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	1	0	1	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	0	0 0
Initial Vol:	19	813		0	0	519		98	58		0	20	0		0	0

Major Street Volume: 1449
Minor Approach Volume: 78
Minor Approach Volume Threshold: 157

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	1	0	0	1 0	1	0	0	1 0	0	0	1!	0 0	0	0	1!	0 0
Initial Vol:	0	598		143	111	334		0	0	0		0	39	2		126
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				26.3			

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=167]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1353]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	1	0	0	1 0	1	0	0	1 0	0	0	1!	0 0	0	0	1!	0 0
Initial Vol:	0	598		143	111	334		0	0	0		0	39	2		126

Major Street Volume: 1186
Minor Approach Volume: 167
Minor Approach Volume Threshold: 226

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Scenario Report

Scenario:	Existing PM
Command:	Default Command
Volume:	Existing PM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / Yes	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	No / No	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	No / Yes	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0	0 0	1	0	0 0	1! 0	0	0 0	0	0
Initial Vol:	4	325	0	0	400	15	25	0	25	0	0	0
ApproachDel:	xxxxxx			xxxxxx			13.3			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=50]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=794]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1!	0	0	0 1	0		0 0	0	0	0 0	0	0
Initial Vol:	4	325	0	0	400	15	25	0	25	0	0	0

Major Street Volume: 744
Minor Approach Volume: 50
Minor Approach Volume Threshold: 298

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1!	0	0	0 1	0		0 0	0	0	0 0	0	0
Initial Vol:	28	304	0	0	400	25	25	0	55	0	0	0
ApproachDel:	xxxxxx			xxxxxx			13.2			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=80]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=837]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	28	304		0		0	400		25	25		0	55		0	0		0		

Major Street Volume: 757
Minor Approach Volume: 80
Minor Approach Volume Threshold: 294

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	1	0
Initial Vol:	0	0		0		14	0	140	103	720		0	0	870		51		
ApproachDel:	xxxxxx			37.1			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.6]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=154]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1898]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	0	0	1	0	0
Initial Vol:	0	0	0	14	0	140	103	720	0	0	870	51

Major Street Volume: 1744
Minor Approach Volume: 154
Minor Approach Volume Threshold: 71 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	0	1	0
Initial Vol:	30	1	70	1	3	50	70	620	62	20	405	3
ApproachDel:	27.7			12.8			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.8]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=101]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1335]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=54]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1335]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	30		1	70	1		3	50	70	620		62	20	405		3

Major Street Volume: 1180
Minor Approach Volume: 101
Minor Approach Volume Threshold: 228

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	7		0	1	0		0	0	0	726		25	2	397		0
ApproachDel:	20.7				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=8]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1158]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Initial Vol:	7	0	1	0	0	0	0	726	25	2	397	0

Major Street Volume: 1150
Minor Approach Volume: 8
Minor Approach Volume Threshold: 182

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1! 0	0	0	1	0	0	0	0	1	0
Initial Vol:	0	0	0	15	0	161	140	414	0	0	303	3
ApproachDel:	xxxxxx			12.9			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.6]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=176]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1036]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	1	0	0	1	0
Initial Vol:	0		0		0	15		0	161		140	414		0		0	303		3	

Major Street Volume: 860
Minor Approach Volume: 176
Minor Approach Volume Threshold: 260

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Initial Vol:	84		0	132		0		0	0		0	552		108	144	507		0		
ApproachDel:	73.8					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=4.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=216]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1527]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0
Initial Vol:	84	0	132	0	0	0	0	552	108	144	507	0

Major Street Volume: 1311
Minor Approach Volume: 216
Minor Approach Volume Threshold: 147

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	0	1 0	1	0 1 0	0
Initial Vol:	179	0	169	0	0	0	0	373	219	185	354	0
ApproachDel:	201.1			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=19.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=348]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1479]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	1	0	1 0
Initial Vol:	179	0	169	0	0	0	0	373	219	185	354	0

Major Street Volume: 1131
Minor Approach Volume: 348
Minor Approach Volume Threshold: 242

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1 0	0	0	0	1	0	0 0	1!	0	0 0 0 0
Initial Vol:	24	581	0	0	949	25	44	0	28	0	0	0
ApproachDel:	xxxxxx			xxxxxx			47.3			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.9]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=72]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1651]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	24		581		0	0		949		25	44		0		28	0		0		0

Major Street Volume: 1579
Minor Approach Volume: 72
Minor Approach Volume Threshold: 127

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	8		478		0	0		401		16	13		0		8	0		0		0
ApproachDel:	xxxxxx					xxxxxx					14.9					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=21]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=924]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	1	0 0	1!	0	0 0	0	0
Initial Vol:	8	478	0	0	401	16	13	0	8	0	0	0

Major Street Volume: 903
Minor Approach Volume: 21
Minor Approach Volume Threshold: 247

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0	0	1	0 0	1	0	0 0	0	0	0 0	1!	0
Initial Vol:	0	423	18	1	366	0	0	0	0	28	0	12
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			14.7		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=40]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=848]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 0	1 0	0	1 0	0 0	0	0 0	0 0 0	0	0 1!	0 0
Initial Vol:	0	423	18	1	366	0	0	0	0	28	0	12

Major Street Volume: 808
Minor Approach Volume: 40
Minor Approach Volume Threshold: 276

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0 0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	17	788	0	0	1006	97	94	0	35	0	0	0
ApproachDel:	xxxxxx			xxxxxx			283.6			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=10.2]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=129]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2037]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	17		788		0	0		1006		97	94		0		35	0		0		0

Major Street Volume: 1908
Minor Approach Volume: 129
Minor Approach Volume Threshold: 62 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	0		500		120	200		600		0	0		0		0	45		2		145
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					47.4				

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.5]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=192]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1612]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 0	1 0	1	0 0	1 0	0	0 1!	0 0	0	0 1!	0 0
Initial Vol:	0	500	120	200	600	0	0	0	0	45	2	145

Major Street Volume: 1420
Minor Approach Volume: 192
Minor Approach Volume Threshold: 164

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Scenario Report

Scenario:	EPAP AM
Command:	Default Command
Volume:	EPAP AM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / No	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	Yes / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	No / No	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	No / No	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	0 1	0	0	0 0	0	0
Initial Vol:	8	311	0	0	596	2	5	0	4	0	0	0
ApproachDel:	xxxxxx			xxxxxx			15.1			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=9]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=926]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	0 1	0	0	0 0	0	0
Initial Vol:	8	311	0	0	596	2	5	0	4	0	0	0

Major Street Volume: 917
Minor Approach Volume: 9
Minor Approach Volume Threshold: 243

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 1	0	0	0 0	1	0	0 0	0
Initial Vol:	0	319	0	0	595	5	0	0	1	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.1			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=1]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=920]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 1	0	0	0 0	1	0	0 0	0
Initial Vol:	0	319	0	0	595	5	0	0	1	0	0	0

Major Street Volume: 919
Minor Approach Volume: 1
Minor Approach Volume Threshold: 242

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0		0		0	18		0		115	64		222		0	0		583		79
ApproachDel:	xxxxxx					16.7					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.6]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=133]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1081]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0		0		0	18		0		115	64		222		0	0		583		79

Major Street Volume: 948
Minor Approach Volume: 133
Minor Approach Volume Threshold: 234

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	8	0	18	1	4	49	21	183	19	30	531	5
ApproachDel:	12.9			12.9			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=26]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=869]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=54]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=869]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	8	0	18	1	4	49	21	183	19	30	531	5

Major Street Volume: 789
Minor Approach Volume: 54
Minor Approach Volume Threshold: 366

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	12	0	4		0	0	0		0	427	14		2	998	0	
ApproachDel:	26.5				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=16]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1457]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	12	0	4		0	0	0		0	427	14		2	998	0	

Major Street Volume: 1441
Minor Approach Volume: 16
Minor Approach Volume Threshold: 122

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	225	0	309	226	417	0	0	344	27
ApproachDel:	xxxxxx			404.0			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=59.9]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=534]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1548]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	225	0	309	226	417	0	0	344	27

Major Street Volume: 1014
Minor Approach Volume: 534
Minor Approach Volume Threshold: 216

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0 0
Initial Vol:	127	0	167	0	0	0	0	514	73	66	511	0
ApproachDel:	77.8			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=6.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=294]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1458]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	1	0 0 0
Initial Vol:	127	0	167	0	0	0	0	514	73	66	511	0

Major Street Volume: 1164
Minor Approach Volume: 294
Minor Approach Volume Threshold: 179

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	1	0	1 0
Initial Vol:	243	0	320	0	0	0	0	299	175	204	324	0
ApproachDel:	358.9			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=56.1]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=563]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1565]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	1 0
Initial Vol:	243	0	320	0	0	0	0	299	175	204	324	0

Major Street Volume: 1002
Minor Approach Volume: 563
Minor Approach Volume Threshold: 284

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	16	652	0	0	488	26	31	0	17	0	0	0
ApproachDel:	xxxxxx			xxxxxx			21.3			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=48]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1230]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	16	652	0	0	488	26	31	0	17	0	0	0

Major Street Volume: 1182
Minor Approach Volume: 48
Minor Approach Volume Threshold: 227

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	368	0	0	357	8	16	0	3	0	0	0
ApproachDel:	xxxxxx			xxxxxx			13.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=19]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=752]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	368	0	0	357	8	16	0	3	0	0	0

Major Street Volume: 733
Minor Approach Volume: 19
Minor Approach Volume Threshold: 302

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	348	20	22	284	0	0	0	0	16	0	21
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.3		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=37]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=711]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	348	20	22	284	0	0	0	0	16	0	21

Major Street Volume: 674
Minor Approach Volume: 37
Minor Approach Volume Threshold: 325

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0	0	0
Initial Vol:	18	747	0	0	469	89	67	0	24	0	0	0
ApproachDel:	xxxxxx			xxxxxx			33.0			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.8]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=91]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1414]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0	0	0
Initial Vol:	18	747	0	0	469	89	67	0	24	0	0	0

Major Street Volume: 1323
Minor Approach Volume: 91
Minor Approach Volume Threshold: 188

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	0	1	0	1	0	0	0	1	0	0
Initial Vol:	0	522	138	56	338	0	0	0	3	45	3	114
ApproachDel:	xxxxxx			xxxxxx			10.1			23.9		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=3]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1219]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=162]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1219]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	0	1	0	1	0	0	0	1	0	0
Initial Vol:	0	522	138	56	338	0	0	0	3	45	3	114

Major Street Volume: 1054
Minor Approach Volume: 162
Minor Approach Volume Threshold: 267

SIGNAL WARRANT DISCLAIMER
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Scenario Report

Scenario:	EPAP PM
Command:	Default Command
Volume:	EPAP PM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / No	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	No / No	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	No / Yes	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	0	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	11	386	0	0	597	2	17	0	14	0	0	0
ApproachDel:	xxxxxx			xxxxxx			16.7			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=31]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1027]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	11		386		0	0		597		2	17		0		14	0		0		0

Major Street Volume: 996
Minor Approach Volume: 31
Minor Approach Volume Threshold: 220

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0		397		0	0		605		6	0		0		3	0		0		0
ApproachDel:	xxxxxx					xxxxxx					12.3					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=3]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1011]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	397		0		0	605		6		0		0		3	0		0		0

Major Street Volume: 1008
Minor Approach Volume: 3
Minor Approach Volume Threshold: 217

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0	0		0		38	0		147		116	404		0		0	522		61	
ApproachDel:	xxxxxx					22.3					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=185]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1288]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	0	0	1	0	0
Initial Vol:	0	0	0	38	0	147	116	404	0	0	522	61

Major Street Volume: 1103
Minor Approach Volume: 185
Minor Approach Volume Threshold: 193

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0
Initial Vol:	33	1	76	1	3	41	74	645	65	24	425	4
ApproachDel:	32.2			13.5			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=110]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1392]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=45]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1392]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	1!	0 0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	33		1	76	1		3	41	74	645		65	24	425		4

Major Street Volume: 1237
Minor Approach Volume: 110
Minor Approach Volume Threshold: 212

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	7		0	1	0		0	0	0	815		28	2	402		0
ApproachDel:	22.9				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=8]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1255]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0 1 0	0	1	0 0 0
Initial Vol:	7	0	1	0	0	0	0	815	28	2	402	0

Major Street Volume: 1247
Minor Approach Volume: 8
Minor Approach Volume Threshold: 161

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0 0 0	0	0	1! 0	0	1	0 0 0	0	0	0 1 0
Initial Vol:	0	0	0	19	0	208	152	449	0	0	330	3
ApproachDel:	xxxxxx			14.6			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.9]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=227]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1161]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	0	0	1	0	0
Initial Vol:	0	0	0	19	0	208	152	449	0	0	330	3

Major Street Volume: 934
Minor Approach Volume: 227
Minor Approach Volume Threshold: 238

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Initial Vol:	91	0	142	0	0	0	0	592	116	156	550	0
ApproachDel:	138.3			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=8.9]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=233]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1647]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0
Initial Vol:	91	0	142	0	0	0	0	592	116	156	550	0

Major Street Volume: 1414
Minor Approach Volume: 233
Minor Approach Volume Threshold: 127

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	0	1 0	1	0 1 0	0
Initial Vol:	203	0	191	0	0	0	0	405	238	207	396	0
ApproachDel:	399.7			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=43.7]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=394]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1640]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	0
Initial Vol:	203	0	191	0	0	0	0	405	238	207	396	0

Major Street Volume: 1246
Minor Approach Volume: 394
Minor Approach Volume Threshold: 209

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1 0	0	0	0	1	0	0	1!	0	0
Initial Vol:	22	566	0	0	858	23	51	0	32	0	0	0
ApproachDel:	xxxxxx			xxxxxx			41.3			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=83]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1552]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	22	566		0		0	858		23		51		0		32	0		0		0

Major Street Volume: 1469
Minor Approach Volume: 83
Minor Approach Volume Threshold: 152

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	584		0		0	442		18		13		0		8	0		0		0
ApproachDel:	xxxxxx					xxxxxx					16.9					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=21]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1075]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0	0 0	1	0	0 0	1! 0	0	0 0	0 0
Initial Vol:	10	584	0	0	442	18	13	0	8	0	0	0

Major Street Volume: 1054
Minor Approach Volume: 21
Minor Approach Volume Threshold: 205

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0	0	1	0	0 1	0	0	0 0	0 0	0	0 0	1! 0
Initial Vol:	0	472	20	1	389	0	0	0	0	30	0	13
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			15.9		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=43]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=925]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0 0	0 0	0	0 1!	0 0
Initial Vol:	0	472	20	1	389	0	0	0	0	30	0	13

Major Street Volume: 882
Minor Approach Volume: 43
Minor Approach Volume Threshold: 253

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0 0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	16	754	0	0	909	88	109	0	40	0	0	0
ApproachDel:	xxxxxx			xxxxxx			242.7			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=10.0]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=149]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1916]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0 0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	16	754	0	0	909	88	109	0	40	0	0	0

Major Street Volume: 1767
Minor Approach Volume: 149
Minor Approach Volume Threshold: 89 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 0	1 0	1	0 0	1 0	0	0 0	0 1	0	0 1! 0	0
Initial Vol:	0	468	115	102	608	0	0	0	9	52	3	198
ApproachDel:	xxxxxx			xxxxxx			12.3			52.8		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=9]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1555]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=3.7]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=253]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1555]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	0	1 0	1 0	0	1 0	0 0	0	1	0 0	1! 0	0
Initial Vol:	0	468	115	102	608	0	0	0	9	52	3	198

Major Street Volume: 1293
Minor Approach Volume: 253
Minor Approach Volume Threshold: 196

SIGNAL WARRANT DISCLAIMER

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Scenario Report

Scenario:	EPAP+PP AM
Command:	Default Command
Volume:	EPAP+PP AM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / No	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	Yes / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	No / No	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	No / No	??? / ???
# 30 Diamond Springs Pkwy & Western DW	No / No	??? / ???
# 31 Diamond Springs Pkwy & Right-in DW	No / No	??? / ???
# 32 Right-in/Right-out DW & Diamond Rd.	No / No	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	0 1!	0	0	0 0	0	0
Initial Vol:	8	317	0	0	605	2	5	0	4	0	0	0
ApproachDel:	xxxxxx			xxxxxx			15.3			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=9]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=941]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	0 1!	0	0	0 0	0	0
Initial Vol:	8	317	0	0	605	2	5	0	4	0	0	0

Major Street Volume: 932
Minor Approach Volume: 9
Minor Approach Volume Threshold: 238

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	1	0	0	1	0	0	0	1	0	0	0
Initial Vol:	0	325	0	0	604	5	0	0	1	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.2			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=1]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=935]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	1	0	0	1	0	0	0	1	0	0	0
Initial Vol:	0	325	0	0	604	5	0	0	1	0	0	0

Major Street Volume: 934
Minor Approach Volume: 1
Minor Approach Volume Threshold: 238

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0		0		0	18		0		115	64		231		0	0		618		79
ApproachDel:	xxxxxx					17.5					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.6]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=133]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1125]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0		0		0	18		0		115	64		231		0	0		618		79

Major Street Volume: 992
Minor Approach Volume: 133
Minor Approach Volume Threshold: 222

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1! 0	0	0	0	1! 0	0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	8	0	18		1	4	49		21	195		19	30	549		5
ApproachDel:	13.2				13.2				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=26]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=899]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=54]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=899]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1! 0	0	0	0	1! 0	0	1	0	0	1 0	1	0	0	1 0
Initial Vol:	8	0	18		1	4	49		21	195		19	30	549		5

Major Street Volume: 819
Minor Approach Volume: 54
Minor Approach Volume Threshold: 354

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0 0
Initial Vol:	12	0	4	0	0	0	0	439	14	2	1016	0
ApproachDel:	27.5			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=16]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1487]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0 0	0	1	0 0 0
Initial Vol:	12	0	4	0	0	0	0	439	14	2	1016	0

Major Street Volume: 1471
Minor Approach Volume: 16
Minor Approach Volume Threshold: 116

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	229	0	309	226	437	0	0	357	29
ApproachDel:	xxxxxx			450.6			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=67.3]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=538]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1587]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	229	0	309	226	437	0	0	357	29

Major Street Volume: 1049
Minor Approach Volume: 538
Minor Approach Volume Threshold: 207

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0 0
Initial Vol:	127	0	171	0	0	0	0	541	73	68	528	0
ApproachDel:	96.8			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=8.0]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=298]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1508]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	1	0 0 1 0
Initial Vol:	127	0	171	0	0	0	0	541	73	68	528	0

Major Street Volume: 1210
Minor Approach Volume: 298
Minor Approach Volume Threshold: 169

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	1 0
Initial Vol:	243	0	329	0	0	0	0	310	175	210	331	0
ApproachDel:	395.1			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=62.8]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=572]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1598]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	1 0
Initial Vol:	243	0	329	0	0	0	0	310	175	210	331	0

Major Street Volume: 1026
Minor Approach Volume: 572
Minor Approach Volume Threshold: 276

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1	0	0	0	0	1	0	0	0	0
Initial Vol:	16	705	0	0	503	28	35	0	17	0	0	0
ApproachDel:	xxxxxx			xxxxxx			23.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=52]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1304]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1	0	0	0	0	1	0	0	0	0
Initial Vol:	16	705	0	0	503	28	35	0	17	0	0	0

Major Street Volume: 1252
Minor Approach Volume: 52
Minor Approach Volume Threshold: 207

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	374	0	0	366	8	16	0	3	0	0	0
ApproachDel:	xxxxxx			xxxxxx			14.1			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=19]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=767]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	374	0	0	366	8	16	0	3	0	0	0

Major Street Volume: 748
Minor Approach Volume: 19
Minor Approach Volume Threshold: 297

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	354	20	22	293	0	0	0	0	16	0	21
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.4		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=37]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=726]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	354	20	22	293	0	0	0	0	16	0	21

Major Street Volume: 689
Minor Approach Volume: 37
Minor Approach Volume Threshold: 319

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0 0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	18	800	0	0	484	89	67	0	24	0	0	0
ApproachDel:	xxxxxx			xxxxxx			37.4			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.9]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=91]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1482]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0 0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	18	800	0	0	484	89	67	0	24	0	0	0

Major Street Volume: 1391
Minor Approach Volume: 91
Minor Approach Volume Threshold: 171

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	0	1	0	1	0	0	0	1	0	0
Initial Vol:	0	579	138	56	356	0	0	0	3	45	3	114
ApproachDel:	xxxxxx			xxxxxx			10.2			27.6		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=3]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1294]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=162]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1294]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	0	1	0	1	0	0	0	1	0	0
Initial Vol:	0	579	138	56	356	0	0	0	3	45	3	114

Major Street Volume: 1129
Minor Approach Volume: 162
Minor Approach Volume Threshold: 243

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 1	0	0	0	0 0	0	0	1	0 1	1	0	2	0 0
Initial Vol:	0	0	7		0	0	0		0	829		18	0	1174		0
ApproachDel:	14.8				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=7]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2028]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 1	0	0	0	0 0	0	0	1	0 1	1	0	2	0 0
Initial Vol:	0	0	7		0	0	0		0	829		18	0	1174		0

Major Street Volume: 2021
Minor Approach Volume: 7
Minor Approach Volume Threshold: 42 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0
Initial Vol:	0	0	0	0	0	0	0	798	38	0	1174	0
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0
Initial Vol:	0	0	0	0	0	0	0	798	38	0	1174	0

Major Street Volume: 2010
Minor Approach Volume: 0
Minor Approach Volume Threshold: 44 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 3	0 0	0	0 2	0 1	0	0 0	0 1	0	0 0	0 0
Initial Vol:	0	891	0	0	753	18	0	0	15	0	0	0
ApproachDel:	xxxxxx			xxxxxx			10.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=15]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1677]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 3	0 0	0	0 2	0 1	0	0 0	0 1	0	0 0	0 0
Initial Vol:	0	891	0	0	753	18	0	0	15	0	0	0

Major Street Volume: 1662
Minor Approach Volume: 15
Minor Approach Volume Threshold: 110

SIGNAL WARRANT DISCLAIMER
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Scenario Report

Scenario:	EPAP+PP PM
Command:	Default Command
Volume:	EPAP+PP PM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / Yes	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	No / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	Yes / Yes	??? / ???
# 30 Diamond Springs Pkwy & Western DW	No / No	??? / ???
# 31 Diamond Springs Pkwy & Right-in DW	No / No	??? / ???
# 32 Right-in/Right-out DW & Diamond Rd.	No / Yes	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0	0 0	1	0	0 0	1! 0	0	0 0	0 0
Initial Vol:	11	413	0	0	619	2	17	0	14	0	0	0
ApproachDel:	xxxxxx			xxxxxx			17.4			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=31]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1076]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	11		413		0	0		619		2	17		0		14	0		0		0

Major Street Volume: 1045
Minor Approach Volume: 31
Minor Approach Volume Threshold: 208

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0		424		0	0		627		6	0		0		3	0		0		0
ApproachDel:	xxxxxx					xxxxxx					12.5					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=3]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1060]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	424		0		0	627		6		0		0		3	0		0		0

Major Street Volume: 1057
Minor Approach Volume: 3
Minor Approach Volume Threshold: 205

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0	0		0		38	0		147		116	424		0		0	584		61	
ApproachDel:	xxxxxx					25.8					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=185]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1370]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	0	0	1	0	0
Initial Vol:	0	0	0	38	0	147	116	424	0	0	584	61

Major Street Volume: 1185
Minor Approach Volume: 185
Minor Approach Volume Threshold: 174

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	33	1	76	1	3	41	74	699	65	24	469	4
ApproachDel:	39.6			14.4			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=110]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1490]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=45]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1490]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0	1	0
Initial Vol:	33		1		76	1		3		41	74		699		65	24		469		4

Major Street Volume: 1335
Minor Approach Volume: 110
Minor Approach Volume Threshold: 185

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Initial Vol:	7		0		1	0		0		0	0		869		28	2		446		0
ApproachDel:	25.6					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=8]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1353]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0 1	0	0 1	0 0
Initial Vol:	7	0	1	0	0	0	0	869	28	2	446	0

Major Street Volume: 1345
Minor Approach Volume: 8
Minor Approach Volume Threshold: 140

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0 0	0	0	1! 0	0	1	0 0	0	0 0	1 0
Initial Vol:	0	0	0	28	0	208	152	497	0	0	389	14
ApproachDel:	xxxxxx			18.3			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=236]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1288]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	1	0	0	0	1	0
Initial Vol:	0	0	0	28	0	208	152	497	0	0	389	14

Major Street Volume: 1052
Minor Approach Volume: 236
Minor Approach Volume Threshold: 206

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Initial Vol:	91	0	151	0	0	0	0	657	116	167	630	0
ApproachDel:	253.9			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=17.1]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=242]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1812]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0
Initial Vol:	91	0	151	0	0	0	0	657	116	167	630	0

Major Street Volume: 1570
Minor Approach Volume: 242
Minor Approach Volume Threshold: 99 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	0	1 0	1	0	1	0	0
Initial Vol:	203	0	213	0	0	0	0	431	238	234	428	0
ApproachDel:	557.4			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=64.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=416]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1747]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	1 0 0
Initial Vol:	203	0	213	0	0	0	0	431	238	234	428	0

Major Street Volume: 1331
Minor Approach Volume: 416
Minor Approach Volume Threshold: 186

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1 0 0	0	0	0	1	0	0 0 1! 0	0	0	0 0 0
Initial Vol:	22	666	0	0	936		34	60	0	32	0	0 0
ApproachDel:	xxxxxx			xxxxxx			72.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.9]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=92]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1750]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	22	666		0		0	936		34		60		0		32	0		0		0

Major Street Volume: 1658
Minor Approach Volume: 92
Minor Approach Volume Threshold: 111

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	611		0		0	464		18		13		0		8	0		0		0
ApproachDel:	xxxxxx					xxxxxx					17.7					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=21]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1124]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0	0 0	1 0	0 0	1! 0	0	0 0	0 0	0
Initial Vol:	10	611	0	0	464	18	13	0	8	0	0	0

Major Street Volume: 1103
Minor Approach Volume: 21
Minor Approach Volume Threshold: 193

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0	0	1	0	0 1	0	0 0	0	0	0 0	1! 0	0
Initial Vol:	0	499	20	1	411	0	0	0	0	30	0	13
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			16.6		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=43]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=974]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0 0	0 0	0	0 1!	0 0
Initial Vol:	0	499	20	1	411	0	0	0	0	30	0	13

Major Street Volume: 931
Minor Approach Volume: 43
Minor Approach Volume Threshold: 238

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0 0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	16	854	0	0	987	88	109	0	40	0	0	0
ApproachDel:	xxxxxx			xxxxxx			402.1			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=16.6]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=149]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2094]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	16		854		0	0		987		88	109		0		40	0		0		0

Major Street Volume: 1945
Minor Approach Volume: 149
Minor Approach Volume Threshold: 56 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	1!	0	0
Initial Vol:	0		577		115	102		697		0	0		0		9	52		3		198
ApproachDel:	xxxxxx					xxxxxx					13.3					115.7				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=9]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1753]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=8.1]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=253]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1753]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	1!	0	0
Initial Vol:	0	577		115		102	697		0		0		0		9	52		3		198

Major Street Volume: 1491
Minor Approach Volume: 253
Minor Approach Volume Threshold: 147

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0
Initial Vol:	0	0		59		0	0		0		0	1121		53		0	1219		0	
ApproachDel:	23.5					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=59]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2452]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0
Initial Vol:	0		0		59	0		0		0	0		1121		53	0		1219		0

Major Street Volume: 2393
Minor Approach Volume: 59
Minor Approach Volume Threshold: -16 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0
Initial Vol:	0		0		0	0		0		0	0		1070		110	0		1219		0
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					xxxxxx				

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0
Initial Vol:	0		0		0	0		0		0	0		1070		110	0		1219		0

Major Street Volume: 2399
Minor Approach Volume: 0
Minor Approach Volume Threshold: -17 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	3	0	0	0	0	2	0	1	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	781		0		0	871		67		0		0		112	0		0		0
ApproachDel:	xxxxxx					xxxxxx					12.8					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=112]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1831]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 3	0	0	0 0 2	0	1	0 0 0	0	1	0 0 0	0	0
Initial Vol:	0	781	0	0	871	67	0	0	112	0	0	0

Major Street Volume: 1719
Minor Approach Volume: 112
Minor Approach Volume Threshold: 98 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

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Scenario Report

Scenario:	CUM AM
Command:	Default Command
Volume:	CUM AM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / No	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	Yes / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	No / Yes	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	1	0 0	1!	0	0 0	0	0
Initial Vol:	10	379	0	0	666	3	6	0	6	0	0	0
ApproachDel:	xxxxxx			xxxxxx			16.6			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=12]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1070]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	1	0 0	1!	0	0 0	0	0
Initial Vol:	10	379	0	0	666	3	6	0	6	0	0	0

Major Street Volume: 1058
Minor Approach Volume: 12
Minor Approach Volume Threshold: 204

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 1	0	0	0 1	0	0	0 1	0
Initial Vol:	0	389	0	0	666	6	0	0	1	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.8			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=1]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1062]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 1	0	0	0 1	0	0	0 1	0
Initial Vol:	0	389	0	0	666	6	0	0	1	0	0	0

Major Street Volume: 1061
Minor Approach Volume: 1
Minor Approach Volume Threshold: 204

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 0	0	0	1!	0 0	0	1	0	0 0	0	0	0	1 0
Initial Vol:	0	0	0		21	0	125		78	297	0		0	735	97	
ApproachDel:	xxxxxx				23.4				xxxxxx				xxxxxx			

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=146]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1353]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	0	0 0	0	0	1!	0 0	0	1	0	0 0	0	0	0	1 0
Initial Vol:	0	0	0		21	0	125		78	297	0		0	735	97	

Major Street Volume: 1207
Minor Approach Volume: 146
Minor Approach Volume Threshold: 169

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	9	0	20	1	4	74	23	202	20	40	581	6
ApproachDel:	14.4			13.9			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=29]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=980]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=79]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=980]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	9	0	20	1	4	74	23	202	20	40	581	6

Major Street Volume: 872
Minor Approach Volume: 79
Minor Approach Volume Threshold: 332

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	13	0	5		0	0	0		0	517	17		3	1165	0	
ApproachDel:	36.3				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=18]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1720]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	0	1	0	0 0
Initial Vol:	13	0	5		0	0	0		0	517	17		3	1165	0	

Major Street Volume: 1702
Minor Approach Volume: 18
Minor Approach Volume Threshold: 78 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	489	0	671	288	532	0	0	362	28
ApproachDel:	xxxxxx			2083.9			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=671.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=1160]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2370]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	489	0	671	288	532	0	0	362	28

Major Street Volume: 1210
Minor Approach Volume: 1160
Minor Approach Volume Threshold: 169

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0 0
Initial Vol:	146	0	192	0	0	0	0	660	93	68	528	0
ApproachDel:	239.4			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=22.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=338]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1687]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	1	0 0 0
Initial Vol:	146	0	192	0	0	0	0	660	93	68	528	0

Major Street Volume: 1349
Minor Approach Volume: 338
Minor Approach Volume Threshold: 140

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	1	0	1	0 0
Initial Vol:	290	0	380		0	0	0		0	410	240		226	359	0	
ApproachDel:	844.7				xxxxxx				xxxxxx				xxxxxx			

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=157.2]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=670]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1905]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	1	0	1	0 0
Initial Vol:	290	0	380		0	0	0		0	410	240		226	359	0	

Major Street Volume: 1235
Minor Approach Volume: 670
Minor Approach Volume Threshold: 212

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	22	890	0	0	595	32	42	0	23	0	0	0
ApproachDel:	xxxxxx			xxxxxx			38.6			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.7]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=65]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1604]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	22	890	0	0	595	32	42	0	23	0	0	0

Major Street Volume: 1539
Minor Approach Volume: 65
Minor Approach Volume Threshold: 136

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	415	0	0	562	12	17	0	3	0	0	0
ApproachDel:	xxxxxx			xxxxxx			17.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1009]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	0	415	0	0	562	12	17	0	3	0	0	0

Major Street Volume: 989
Minor Approach Volume: 20
Minor Approach Volume Threshold: 222

SIGNAL WARRANT DISCLAIMER

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Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	374	21	28	370	0	0	0	0	19	0	24
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			13.4		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=43]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=836]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	0 1	0	0 1	0	0	0	0 0	0	0 1!	0 0
Initial Vol:	0	374	21	28	370	0	0	0	0	19	0	24

Major Street Volume: 793
Minor Approach Volume: 43
Minor Approach Volume Threshold: 281

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	24	1018	0	0	631	119	91	0	32	0	0	0
ApproachDel:	xxxxxx			xxxxxx			170.1			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=5.8]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=123]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1915]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	24	1018	0	0	631	119	91	0	32	0	0	0

Major Street Volume: 1792
Minor Approach Volume: 123
Minor Approach Volume Threshold: 84 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	1	0	0	1 0	1	0	0	1 0	0	0	0	0 1	0	0	1!	0 0
Initial Vol:	0	708		185	74	402		0	0		0	0	2		56	4 138
ApproachDel:	xxxxxx				xxxxxx				10.5				72.2			

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=2]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1569]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=4.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=198]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1569]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	1	0	0	1 0	1	0	0	1 0	0	0	0	0 1	0	0	1!	0 0
Initial Vol:	0	708		185	74	402		0	0		0	0	2		56	4 138

Major Street Volume: 1369
Minor Approach Volume: 198
Minor Approach Volume Threshold: 177

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Scenario Report

Scenario:	CUM PM
Command:	Default Command
Volume:	CUM PM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / Yes	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	No / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	Yes / Yes	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0	0 0	1	0	0 0	1! 0	0	0 0	0 0	0
Initial Vol:	10	473	0	0	669	4	23	0	22	0	0	0
ApproachDel:	xxxxxx			xxxxxx			19.6			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=45]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1201]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	473		0		0	669		4		23		0		22	0		0		0

Major Street Volume: 1156
Minor Approach Volume: 45
Minor Approach Volume Threshold: 181

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	483		0		0	683		8		0		0		4	0		0		0
ApproachDel:	xxxxxx					xxxxxx					13.1					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=4]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1178]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	483		0		0	683		8		0		0		4	0		0		0

Major Street Volume: 1174
Minor Approach Volume: 4
Minor Approach Volume Threshold: 177

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0	0		0		46	0		159		142	540		0		0	648		81	
ApproachDel:	xxxxxx					49.4					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.8]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=205]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1616]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	1! 0	0	0	1	0	0
Initial Vol:	0	0	0	46	0	159	142	540	0	0	648	81

Major Street Volume: 1411
Minor Approach Volume: 205
Minor Approach Volume Threshold: 128

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	1! 0	0	1	0	0	1	0	0	1	0
Initial Vol:	37	1	86	1	3	62	82	714	71	32	465	5
ApproachDel:	53.9			14.1			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.9]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=124]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1559]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=66]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1559]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	37	1	86	1	3	62	82	714	71	32	465	5

Major Street Volume: 1369
Minor Approach Volume: 124
Minor Approach Volume Threshold: 177

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1	0	1	0
Initial Vol:	8	0	1	0	0	0	0	1025	35	2	413	0
ApproachDel:	30.2			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=9]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1484]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Initial Vol:	8	0	1	0	0	0	0	1025	35	2	413	0

Major Street Volume: 1475
Minor Approach Volume: 9
Minor Approach Volume Threshold: 116

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1! 0	0	0	1	0	0	0	0	1	0
Initial Vol:	0	0	0	32	0	347	179	528	0	0	392	4
ApproachDel:	xxxxxx			28.0			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.9]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=379]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1482]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	1	0	0	0	1	0
Initial Vol:	0	0	0	32	0	347	179	528	0	0	392	4

Major Street Volume: 1103
Minor Approach Volume: 379
Minor Approach Volume Threshold: 193

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Initial Vol:	105	0	165	0	0	0	0	680	133	183	646	0
ApproachDel:	424.6			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=31.8]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=270]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1912]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0
Initial Vol:	105	0	165	0	0	0	0	680	133	183	646	0

Major Street Volume: 1642
Minor Approach Volume: 270
Minor Approach Volume Threshold: 87 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	0	0 1 0	1	0	1	0	0
Initial Vol:	259	0	245	0	0	0	0	478	280	258	494	0
ApproachDel:	1174.9			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=164.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=504]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2014]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Lanes:	0	0	1!	0 0	0	0	0	0 0	0	0	0	1 0	1	0	1	0 0
Initial Vol:	259		0	245	0		0	0	0	478		280	258	494		0

Major Street Volume: 1510
Minor Approach Volume: 504
Minor Approach Volume Threshold: 143

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	1	0	1	0 0	0	0	0	1 0	0	0	1!	0 0	0	0	0	0 0
Initial Vol:	29	808		0	0	1046		28	69		0	44	0		0	0
ApproachDel:	xxxxxx				xxxxxx				205.8				xxxxxx			

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=6.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=113]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2024]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	29	808	0	0	1046	28	69	0	44	0	0	0

Major Street Volume: 1911
Minor Approach Volume: 113
Minor Approach Volume Threshold: 62 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	15	873	0	0	537	21	14	0	9	0	0	0
ApproachDel:	xxxxxx			xxxxxx			25.1			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=23]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1469]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	1	0 0	1!	0	0 0	0	0
Initial Vol:	15	873	0	0	537	21	14	0	9	0	0	0

Major Street Volume: 1446
Minor Approach Volume: 23
Minor Approach Volume Threshold: 121

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0	0	1	0 0	1	0	0 0	0	0	0 0	1!	0
Initial Vol:	0	589	25	1	438	0	0	0	0	36	0	15
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			19.4		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=51]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1104]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	589		25		1	438		0		0		0		0	36		0		15

Major Street Volume: 1053
Minor Approach Volume: 51
Minor Approach Volume Threshold: 206

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	21	1060		0		0	1108		107		146		0		54	0		0		0
ApproachDel:	xxxxxx					xxxxxx					1286.8					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=71.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=200]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2496]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	21		1060		0	0		1108		107	146		0		54	0		0		0

Major Street Volume: 2296
Minor Approach Volume: 200
Minor Approach Volume Threshold: -2 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	1!	0	0
Initial Vol:	0		628		155	134		723		0	0		0		5	64		5		236
ApproachDel:	xxxxxx					xxxxxx					13.5					337.8				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1950]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=28.6]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=305]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1950]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	0	1 0	1 0	0	1 0	0 0	0	1	0 0	1!	0 0
Initial Vol:	0	628	155	134	723	0	0	0	5	64	5	236

Major Street Volume: 1640
Minor Approach Volume: 305
Minor Approach Volume Threshold: 114

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Scenario Report

Scenario:	CUM+PP AM
Command:	Default Command
Volume:	CUM+PP AM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / No	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	Yes / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	No / No	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	Yes / Yes	??? / ???
# 30 Diamond Springs Pkwy & Western DW	No / No	??? / ???
# 31 Diamond Springs Pkwy & Right-in DW	No / No	??? / ???
# 32 Right-in/Right-out DW & Diamond Rd.	No / No	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	1 0	0	0 1! 0	0 0	0	0
Initial Vol:	10	383	0	0	663	3	6	0	6	0	0	0
ApproachDel:	xxxxxx			xxxxxx			16.6			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=12]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1071]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0 0	0	0	1 0	0	0 1! 0	0 0	0	0
Initial Vol:	10	383	0	0	663	3	6	0	6	0	0	0

Major Street Volume: 1059
Minor Approach Volume: 12
Minor Approach Volume Threshold: 204

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 1	0	0	0 1	0	0	0 1	0
Initial Vol:	0	393	0	0	663	6	0	0	1	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.8			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=1]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1063]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 1	0	0	0 1	0	0	0 1	0
Initial Vol:	0	393	0	0	663	6	0	0	1	0	0	0

Major Street Volume: 1062
Minor Approach Volume: 1
Minor Approach Volume Threshold: 203

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	21	0	125	78	297	0	0	769	97
ApproachDel:	xxxxxx			25.0			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=146]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1387]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	21	0	125	78	297	0	0	769	97

Major Street Volume: 1241
Minor Approach Volume: 146
Minor Approach Volume Threshold: 162

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	9	0	20	1	4	74	23	211	20	40	575	6
ApproachDel:	14.5			13.8			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=29]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=983]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=79]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=983]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	9	0	20	1	4	74	23	211	20	40	575	6

Major Street Volume: 875
Minor Approach Volume: 79
Minor Approach Volume Threshold: 331

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0 0
Initial Vol:	13	0	5	0	0	0	0	526	17	3	1159	0
ApproachDel:	36.5			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=18]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1723]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0 0	0	1	0 0 0
Initial Vol:	13	0	5	0	0	0	0	526	17	3	1159	0

Major Street Volume: 1705
Minor Approach Volume: 18
Minor Approach Volume Threshold: 77 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	488	0	671	288	526	0	0	371	29
ApproachDel:	xxxxxx			2100.7			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=676.3]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=1159]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2373]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1	0	0	0	0
Initial Vol:	0	0	0	488	0	671	288	526	0	0	371	29

Major Street Volume: 1214
Minor Approach Volume: 1159
Minor Approach Volume Threshold: 168

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0 0
Initial Vol:	146	0	191	0	0	0	0	652	93	69	540	0
ApproachDel:	240.3			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=22.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=337]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1691]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	1	0 0 0
Initial Vol:	146	0	191	0	0	0	0	652	93	69	540	0

Major Street Volume: 1354
Minor Approach Volume: 337
Minor Approach Volume Threshold: 139

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	1	0	1 0
Initial Vol:	290	0	377	0	0	0	0	407	240	230	364	0
ApproachDel:	858.1			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=159.0]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=667]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1908]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	1	0	1 0
Initial Vol:	290	0	377	0	0	0	0	407	240	230	364	0

Major Street Volume: 1241
Minor Approach Volume: 667
Minor Approach Volume Threshold: 210

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	22	908	0	0	605	33	41	0	23	0	0	0
ApproachDel:	xxxxxx			xxxxxx			40.0			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.7]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=64]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1632]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	22	908	0	0	605	33	41	0	23	0	0	0

Major Street Volume: 1568
Minor Approach Volume: 64
Minor Approach Volume Threshold: 130

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1!	0	0	0 0 0	0
Initial Vol:	0	419	0	0	559	12	17	0	3	0	0	0
ApproachDel:	xxxxxx			xxxxxx			17.9			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1010]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0 1	0	0	0 0 1	0	0	0 1!	0	0	0 0 0	0
Initial Vol:	0	419	0	0	559	12	17	0	3	0	0	0

Major Street Volume: 990
Minor Approach Volume: 20
Minor Approach Volume Threshold: 222

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	378	21	28	367	0	0	0	0	19	0	24
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			13.4		

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=43]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=837]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Initial Vol:	0	378	21	28	367	0	0	0	0	19	0	24

Major Street Volume: 794
Minor Approach Volume: 43
Minor Approach Volume Threshold: 281

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	24	1036	0	0	641	119	91	0	32	0	0	0
ApproachDel:	xxxxxx			xxxxxx			186.5			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=6.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=123]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1943]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	24	1036	0	0	641	119	91	0	32	0	0	0

Major Street Volume: 1820
Minor Approach Volume: 123
Minor Approach Volume Threshold: 79 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	0	1 0	1 0	0	1 0	0 0	0	1	0 0	1! 0	0
Initial Vol:	0	725	185	74	415	0	0	0	2	56	4	138
ApproachDel:	xxxxxx			xxxxxx			10.6			80.6		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=2]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1599]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=4.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=198]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1599]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	0	1 0	1 0	0	1 0	0 0	0	1	0 0	1! 0	0
Initial Vol:	0	725	185	74	415	0	0	0	2	56	4	138

Major Street Volume: 1399
Minor Approach Volume: 198
Minor Approach Volume Threshold: 169

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0
Initial Vol:	0	0	7	0	0	0	0	947	18	0	1211	0
ApproachDel:	16.5			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=7]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2183]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0
Initial Vol:	0	0	7	0	0	0	0	947	18	0	1211	0

Major Street Volume: 2176
Minor Approach Volume: 7
Minor Approach Volume Threshold: 17 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	0	0
Initial Vol:	0	0	0	0	0	0	0	916	38	0	1211	0
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx		

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	0	0
Initial Vol:	0	0	0	0	0	0	0	916	38	0	1211	0

Major Street Volume: 2165
Minor Approach Volume: 0
Minor Approach Volume Threshold: 19 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Peak Hour Delay Signal Warrant Report

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	0	0	3	0 0	0	0	2	0 1	0	0	0	0 1	0	0	0	0 0
Initial Vol:	0	938		0	0	864		18	0		0	15	0		0	0
ApproachDel:	xxxxxx				xxxxxx				11.4				xxxxxx			

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=15]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1835]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign			
Lanes:	0	0	3	0 0	0	0	2	0 1	0	0	0	0 1	0	0	0	0 0
Initial Vol:	0	938		0	0	864		18	0		0	15	0		0	0

Major Street Volume: 1820
Minor Approach Volume: 15
Minor Approach Volume Threshold: 79 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
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Scenario Report

Scenario:	CUM+PP PM
Command:	Default Command
Volume:	CUM+PP PM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 10 Truck St. & Diamond Rd. (SR-49)	No / No	??? / ???
# 11 Bradley Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 15 Pleasant Valley Rd. (SR-49) & China	No / Yes	??? / ???
# 16 Pleasant Valley Rd. & Racquet Way	No / No	??? / ???
# 17 Pleasant Valley Rd. & Canyon Valley	No / No	??? / ???
# 19 Pleasant Valley Rd. (SR-49) & Forni	Yes / Yes	??? / ???
# 20 Pleasant Valley Rd. (SR-49) & Patte	Yes / Yes	??? / ???
# 21 Pleasant Valley Rd. & SR-49 (South)	Yes / Yes	??? / ???
# 22 Industrial Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 25 Skyline Dr. & Diamond Rd. (SR-49)	No / No	??? / ???
# 26 Fiske St. & Sacramento St (SR-49)	No / No	??? / ???
# 28 Enterprise Dr. & Missouri Flat Rd.	Yes / Yes	??? / ???
# 29 China Garden Rd. & Missouri Flat Rd	Yes / Yes	??? / ???
# 30 Diamond Springs Pkwy & Western DW	No / No	??? / ???
# 31 Diamond Springs Pkwy & Right-in DW	No / No	??? / ???
# 32 Right-in/Right-out DW & Diamond Rd.	No / Yes	??? / ???

Peak Hour Delay Signal Warrant Report

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0 0	0	0	0 1 0	0	0	1! 0 0	0	0	0 0 0
Initial Vol:	10	487	0	0	689	4	23	0	22	0	0	0
ApproachDel:	xxxxxx			xxxxxx			20.4			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=45]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1235]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 Truck St. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	10	487		0		0	689		4		23		0		22	0		0		0

Major Street Volume: 1190
Minor Approach Volume: 45
Minor Approach Volume Threshold: 173

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Delay Signal Warrant Report

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	497		0		0	703		8		0		0		4	0		0		0
ApproachDel:	xxxxxx					xxxxxx					13.3					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=4]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1212]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #11 Bradley Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	497		0		0	703		8		0		0		4	0		0		0

Major Street Volume: 1208
Minor Approach Volume: 4
Minor Approach Volume Threshold: 169

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	1	0	0	0	0	0	0	1	0
Initial Vol:	0	0		0		46	0		159		142	559		0		0	700		81	
ApproachDel:	xxxxxx					62.7					xxxxxx					xxxxxx				

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=3.6]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=205]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1687]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #15 Pleasant Valley Rd. (SR-49) & China Garden Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	0	0	1	0	0
Initial Vol:	0	0	0	46	0	159	142	559	0	0	700	81

Major Street Volume: 1482
Minor Approach Volume: 205
Minor Approach Volume Threshold: 114

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	1!	0	0	1	0	0	1	0	1	0	0
Initial Vol:	37	1	86	1	3	62	82	743	71	32	506	5
ApproachDel:	66.4			14.9			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=2.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=124]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1629]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=66]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1629]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #16 Pleasant Valley Rd. & Racquet Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	1! 0	0	1	0	0	1	0
Initial Vol:	37	1	86	1	3	62	82	743	71	32	506	5

Major Street Volume: 1439
Minor Approach Volume: 124
Minor Approach Volume Threshold: 159

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1	0	1	0
Initial Vol:	8	0	1	0	0	0	0	1054	35	2	454	0
ApproachDel:	32.9			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=9]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1554]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #17 Pleasant Valley Rd. & Canyon Valley Rd.

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Initial Vol:	8	0	1	0	0	0	0	1054		35	2	454	0				

Major Street Volume: 1545
Minor Approach Volume: 9
Minor Approach Volume Threshold: 103

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1! 0	0	0	1	0	0	0	0	1	0
Initial Vol:	0	0	0	40	0	347	179	572		0	0	423	10				
ApproachDel:	xxxxxx			40.2			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=4.3]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=387]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1571]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #19 Pleasant Valley Rd. (SR-49) & Forni Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	0	0	1!	0	0	0	0	0	1	0	0	1	0	0	0	1	0
Initial Vol:	0	0	0	40	0	347	179	572	0	0	423	10

Major Street Volume: 1184
Minor Approach Volume: 387
Minor Approach Volume Threshold: 174

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
Initial Vol:	105	0	173	0	0	0	0	740	133	189	688	0
ApproachDel:	577.9			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=44.6]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=278]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2028]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #20 Pleasant Valley Rd. (SR-49) & Patterson Dr.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	0	1	0 0
Initial Vol:	105	0	173	0	0	0	0	740	133	189	688	0

Major Street Volume: 1750
Minor Approach Volume: 278
Minor Approach Volume Threshold: 70 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	0	1 0	1	0	1	0	0
Initial Vol:	259	0	265	0	0	0	0	502	280	272	511	0
ApproachDel:	1377.1			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=200.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=524]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2089]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #21 Pleasant Valley Rd. & SR-49 (South)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	1! 0	0	0	0	0	0	1 0	1	0	1 0
Initial Vol:	259	0	265	0	0	0	0	502	280	272	511	0

Major Street Volume: 1565
Minor Approach Volume: 524
Minor Approach Volume Threshold: 131

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0	1 0	0	0	0	1	0	0 0	1!	0	0 0
Initial Vol:	29	903	0	0	1087		34	77	0	44	0	0
ApproachDel:	xxxxxx			xxxxxx			361.6			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=12.2]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=121]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2174]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #22 Industrial Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	29	903	0	0	1087	34	77	0	44	0	0	0

Major Street Volume: 2053
Minor Approach Volume: 121
Minor Approach Volume Threshold: 37 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0	0	0	0 0	1 0	0	0 1!	0 0	0	0 0	0 0
Initial Vol:	15	887	0	0	557	21	14	0	9	0	0	0
ApproachDel:	xxxxxx			xxxxxx			26.2			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=23]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1503]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #25 Skyline Dr. & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	1	0	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	15	887		0		0	557		21		14		0		9	0		0		0

Major Street Volume: 1480
Minor Approach Volume: 23
Minor Approach Volume Threshold: 115

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	603		25		1	458		0		0		0		0	36		0		15
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					20.2				

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=51]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1138]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #26 Fiske St. & Sacramento St (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	0	603		25		1	458		0		0		0		0	36		0		15

Major Street Volume: 1087
Minor Approach Volume: 51
Minor Approach Volume Threshold: 197

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	1	0	0	0	0	0	1	0	0	0	1!	0	0	0	0	0	0	0
Initial Vol:	21	1155		0		0	1149		107		146		0		54	0		0		0
ApproachDel:	xxxxxx					xxxxxx					1645.8					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=91.4]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=200]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2632]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #28 Enterprise Dr. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 1	0	0	0 0 1	0	0	0 1! 0	0	0	0 0 0	0
Initial Vol:	21	1155	0	0	1149	107	146	0	54	0	0	0

Major Street Volume: 2432
Minor Approach Volume: 200
Minor Approach Volume Threshold: -21 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1	0 0	1	0	1 0 0	1	0	0 0 0	1	0	0 1! 0	0
Initial Vol:	0	731	155	134	770	0	0	0	5	64	5	236
ApproachDel:	xxxxxx			xxxxxx			14.0			516.4		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2100]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=43.7]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=305]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2100]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #29 China Garden Rd. & Missouri Flat Rd.

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	1!	0	0
Initial Vol:	0	731		155		134	770		0		0		0		5	64		5		236

Major Street Volume: 1790
Minor Approach Volume: 305
Minor Approach Volume Threshold: 84 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0
Initial Vol:	0	0		59		0	0		0		0	1189		53		0	1293		0	
ApproachDel:	25.8					xxxxxx					xxxxxx					xxxxxx				

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=59]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2594]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #30 Diamond Springs Pkwy & Western DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0
Initial Vol:	0		0		59	0		0		0	0		1189		53	0		1293		0

Major Street Volume: 2535
Minor Approach Volume: 59
Minor Approach Volume Threshold: -36 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0
Initial Vol:	0		0		0	0		0		0	0		1138		110	0		1293		0
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					xxxxxx				

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #31 Diamond Springs Pkwy & Right-in DW

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Lanes:	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0
Initial Vol:	0		0		0	0		0		0	0		1138		110	0		1293		0

Major Street Volume: 2541
Minor Approach Volume: 0
Minor Approach Volume Threshold: -36 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	3	0	0	0	0	2	0	1	0	0	0	0	1	0	0	0	0	0
Initial Vol:	0	866		0		0	948		67		0		0		112	0		0		0
ApproachDel:	xxxxxx					xxxxxx					13.4					xxxxxx				

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=112]
SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1993]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #32 Right-in/Right-out DW & Diamond Rd. (SR-49)

Base Volume Alternative: Peak Hour Warrant Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 3	0	0	0 0 2	0	1	0 0 0	0	1	0 0 0	0	0
Initial Vol:	0	866	0	0	948	67	0	0	112	0	0	0

Major Street Volume: 1881
Minor Approach Volume: 112
Minor Approach Volume Threshold: 67 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

L.2 - December 10, 2010 Report

Kimley-Horn
and Associates, Inc.

December 10, 2010

Mr. Leonard Grado
GGV Missouri Flat, LLC
4330 Gold Center Drive, Suite D
Placerville, CA 95667

Suite 150
11060 White Rock Road
Rancho Cordova, California
95670

Re: Diamond Dorado Retail Center
Supplemental Traffic Analysis
US-50 / Missouri Flat Road Interchange

Dear Mr. Grado:

As requested, I am writing to provide supplemental traffic analysis results pertaining to your proposed Diamond Dorado Retail Center (DDRC) project. More specifically, the purpose of this supplemental analysis is to evaluate weekday Cumulative (year 2025) AM and PM peak-hour operations for the US-50 interchange with Missouri Flat Road.

It is our understanding that the previously assumed US-50/Missouri Flat Road Single Point Urban Interchange (SPUI) configuration is no longer identified as a funded improvement through the County's Capital Improvement Program (CIP). As such, this supplemental analysis explores alternative interchange geometrics aimed at achieving acceptable operations without the previously assumed SPUI configuration. Alternative geometrics have been identified using the underlying assumption that the Missouri Flat Road bridge structure cannot be widened due to the associated construction costs. Alternatives with such widening would likely have costs rivaling those of the SPUI and, therefore, would not be considered as feasible, alternate improvements.

In addition, the anticipated Headington Road connection between Missouri Flat Road and El Dorado Road is expected to affect traffic volumes through the subject interchange. The effect of this connection is considered as part of this supplemental analysis.

Please note that our previous traffic study for the project[1] serves as the starting point for this analysis. Based on direction provided by the County[2], this supplemental evaluation includes the following specific items:

[1] *Final Traffic Impact Analysis, Diamond Dorado Retail Center (WO #14)*, Kimley-Horn and Associates, July 21, 2010.
[2] Telephone conversation with Ms. Claudia Wade, El Dorado County Department of Transportation, November 23, 2010.

TEL 916 858 5800
FAX 916 858 5805

1. Cumulative (2025) no SPUI* no Headington Rd Connection
2. Cumulative (2025) no SPUI* no Headington Rd Connection + DDRC

* US-50/Missouri Flat Interchange Phase 1B per *Missouri Flat Road Phase 1A & 1B Improvements*, El Dorado County Department of Transportation, November 29, 2005.

Peak-hour level of service (LOS) was determined for Intersections #1 through #4 as defined in the previous traffic study prepared for the proposed project[1] for the analysis scenarios listed above. Consistent with the County's requirements, delay, LOS, and queuing for each scenario were determined using methods defined in the *Highway Capacity Manual, 2000,* using appropriate traffic analysis software (Synchro). As required by El Dorado County Department of Transportation's *Traffic Impact Study Protocols and Procedures*, impacts at study intersections were determined based on the change of LOS when project trips were added to the Cumulative (2025) Conditions. The following is a discussion of these scenarios.

1. Cumulative (2025) no SPUI

For this scenario, baseline Cumulative (2025) Conditions were established at the US-50 interchange with Missouri Flat Road using Phase 1B of the interchange improvements (no SPUI). Table 1 presents the intersection operations for this scenario.

Table 1 – Intersection Levels of Service with Phase 1B of the Missouri Flat Interchange – Cumulative (2025) no SPUI Conditions

#	Intersection	AM Peak-Hour		PM Peak-Hour	
		Delay (seconds)	LOS	Delay (seconds)	LOS
1	Missouri Flat Road @ Plaza Drive	54.5	D	57.9	E
2	Missouri Flat Road @ US-50 Westbound Ramps	38.5	D	37.6	D
3	Missouri Flat Road @ US-50 Eastbound Ramps	29.7	C	51.9	D
4	Missouri Flat Road @ Mother Lode Drive	27.3	C	62.1	E

As shown in Table 1, the study intersections all operate at acceptable levels of service.

2. Cumulative (2025) no SPUI plus DDRC

For this scenario, traffic associated with the DDRC project was added to the baseline Cumulative (2025) Conditions and levels of service were determined at the study intersections. Table 2 presents the intersection operations for this scenario.

As shown in Table 2, the addition of the DDRC project results in LOS F at the Missouri Flat Road intersection with Mother Lode Drive.

Table 2 – Intersection Levels of Service with Phase 1B of the Missouri Flat Interchange – Cumulative (2025) no SPUI plus DDRC Conditions

#	Intersection	Analysis Scenario[+]	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Missouri Flat Road @ Plaza Drive	Cum	54.5	D	57.9	E
		Cum + PP	54.6	D	59.4	E
2	Missouri Flat Road @ US-50 WB Ramps	Cum	38.5	D	37.6	D
		Cum + PP	38.8	D	49.5	D
3	Missouri Flat Road @ US-50 EB Ramps	Cum	29.7	C	51.9	D
		Cum + PP	29.4	C	70.4	E
4	Missouri Flat Road @ Mother Lode Drive	Cum	27.3	C	62.1	E
		Cum + PP	26.1	C	**94.7**	**F**

[+] Cum = Cumulative (2025), Cum + PP = Cumulative (2025) plus Proposed Project

Impacts and Mitigation

2. Cumulative (2025) no SPUI plus DDRC

As reflected in Table 2, the addition of the proposed project results in one (1) significant impact as defined by the County and/or Caltrans. The following is a discussion of the impact and its associated mitigation(s).

Impact:

I1. Intersection #4, Missouri Flat Road @ Mother Lode Drive

As shown in Table 2, this intersection operates at LOS E during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

Mitigation:

M1. Intersection #4, Missouri Flat Road @ Mother Lode Drive

The significant impact at this intersection during the PM peak-hour can be mitigated with the conversion of the southbound right-turn lane to a through-right turn lane, and the addition of a southbound through lane south of Mother Lode Drive. In addition, the dual eastbound right-turn lanes from the eastbound US-50 ramps to Missouri Flat Road should be converted into a single free right-turn lane. The exclusive right-turn lane exiting eastbound US-50 would channel the vehicles destined for southbound Missouri Flat Road into the proposed southbound through-right lane at Mother Lode Drive. As shown in Table 3, the added southbound capacity and ramp intersection improvements result in the intersection operating at LOS D during the PM peak-hour. Therefore, ***this impact is less than significant***.

Table 3 – Intersection Levels of Service –
Cumulative (2025) no SPUI plus DDRC Mitigated Conditions

#	Intersection	Analysis Scenario[+]	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
4	Missouri Flat Road @ Mother Lode Drive	Cum	27.3	C	62.1	E
		Cum + PP	26.1	C	**94.7**	**F**
		Cum + PP	17.2	B	43.1	D

[+] Cum = Cumulative (2025), Cum + PP = Cumulative (2025) plus Proposed Project; Mit = LOS Mitigated

Intersection Queuing Evaluation

Vehicle queuing for the study intersections was considered for the same movements as evaluated in the previous traffic study[1]. The calculated vehicle queues were compared to actual or anticipated vehicle storage/segment lengths. It is important to note that SimTraffic was utilized at this point in the study to more appropriately assess the effect of the proposed LOS mitigations on the overall interchange operations. For the purposes of this study, the general SimTraffic model tendencies were observed and used to confirm operational results as obtained through the traditional delay and LOS analysis (Synchro).

Results of the queuing evaluation are presented in Table 4. This table includes the vehicle queues resulting from implementation of the Level of Service mitigation measures identified above.

As presented in Table 4, the addition of the proposed project and the previously defined LOS mitigation results in conditions with queuing greater than the available storage pockets at the US-50 ramp intersections.

Mitigating the left-turn queues at the interchange intersections with the Phase 1B interchange configuration is problematic considering the previously stated inability to widen the Missouri Flat Road bridge section over US-50 between Intersections #2 and #3. Options to assist in lessening the queuing for the north- and southbound left-turns at the ramp intersections are as follows:

1. Option 1: Modify the lane assignments on the bridge structure to provide for a continuous northbound left-turn lane at Intersection #2. This option will remove one of the southbound left-turn lanes at Intersection #3. Removing one of the southbound left turn lanes results in occasional blocking of the inside southbound through lane on the bridge structure while accommodating nearly all of the northbound left-turn queue at Intersection #2. While acceptable delay and levels of service are maintained, left-turn spill-back in excess of that experienced with the LOS mitigations is experienced through the interchange.

Table 4 – Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#2, Missouri Flat Rd @ WB US-50 Ramps	**WBLT**				
Cumulative (2025) no SPUI		600*	620	600*	561
Cumulative (2025) no SPUI plus DDRC			608		645
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			560		593
	NBLT				
Cumulative (2025) no SPUI		125+	310	125+	241
Cumulative (2025) no SPUI plus DDRC			331		273
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			**307**		**372**
#3, Missouri Flat Rd @ EB US-50 Ramps	**EBRT**				
Cumulative (2025) no SPUI		545	374	545	615
Cumulative (2025) no SPUI plus DDRC			370		716
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			0 (Free)		0 (Free)
	SBLT				
Cumulative (2025) no SPUI		100+	132	100+	150
Cumulative (2025) no SPUI plus DDRC			134		130
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			**120**		**107**

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length

2. Option 2: Modify the lane assignments on the bridge structure to provide for continuous sides-by-side northbound and southbound left-turn lanes at Intersections #2 and #3. These improvements result in worse queuing for the northbound left-turn at Intersection #2 (compared to Option #1 above) while improving the queuing situation for the southbound left-turn at Intersection #3. Providing the southbound left-turn lane that extends the entire segment between Intersections #2 and #3 is not anticipated to result in spill back through Intersection #2. It should be noted that this option will cause Intersection #2 to operate at unacceptable LOS F. Increased spill-back associated with the northbound left-turn at Intersection #2 is experienced.

Results of the queuing mitigations are presented in Table 5. This table includes the vehicle queues resulting from implementation of the Level of Service mitigation measures, as well as the above referenced Option 1 and Option 2 queuing mitigation measures.

Table 5 – Mitigated Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#2, Missouri Flat Rd @ WB US-50 Ramps	**WBLT**				
Cumulative (2025) no SPUI		600*	620	600*	561
Cumulative (2025) no SPUI plus DDRC			608		645
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			560		593
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 1)			**560**		**582**
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 2)			**593**		**686**
	NBLT				
Cumulative (2025) no SPUI		125+	310	125+	241
Cumulative (2025) no SPUI plus DDRC			331		273
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			307		372
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 1)		125 , 350	**312**	125, 350	**281**
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 2)		350	**572**	350	**690**
#3, Missouri Flat Rd @ EB US-50 Ramps	**EBRT**				
Cumulative (2025) no SPUI		545	374	545	615
Cumulative (2025) no SPUI plus DDRC			370		716
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			0		0
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 1)			**0**		**0**
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 2)			**0**		**0**
	SBLT				
Cumulative (2025) no SPUI		100+	132	100+	150
Cumulative (2025) no SPUI plus DDRC			134		130
Cumulative (2025) no SPUI plus DDRC (LOS Mitigated)			120		107
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 1)		125	**254**	125	**246**
Cumulative (2025) no SPUI plus DDRC (Queue Mit Option 2)		350	**201**	350	**232**

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length

Headington Road Connection

The addition of the Headington Road connection between Missouri Flat Road and El Dorado Road is anticipated to affect traffic volumes for selected movements at the US-50 interchange with Missouri Flat Road. Because the Heading Road connection would improve connectivity to the El Dorado Road interchange to west, only traffic assumed to be originating from or destined to the west is assumed to perceive this route as being more attractive than passing through the study intersections. Therefore, only the eastbound left-turn from US-50 to Missouri Flat Road and the southbound right-turn to westbound US-50 would "benefit" from the Headington Road connection. Our evaluation has determined that, while a key component to the overall interchange dynamics, these two movements, and their respective routes through the interchange, are not the critical, governing movements dictating the interchange geometry and operations.

As part of the above LOS and queuing analyses, we performed a "sensitivity" analysis on the US-50 interchange with Missouri Flat Road to determine if the interchange operations are sensitive to moderate volume reductions in these

effected movements. It was determined that, even with up to a 20 percent reduction, the interchange would continue to experience similar LOS, delay, and queuing issues as previously documented.

Conclusions

The mitigation measures identified for level of service are anticipated to permit the study intersections to operate at acceptable levels with the addition of the DDRC project under Cumulative (2025) Conditions (without SPUI, with Phase 1B). Although these mitigation measures do not fully resolve the queuing issues through the interchange, the other documented mitigation options are less effective at addressing the specific queuing problems. Based on the assumptions identified in this study, the County and Caltrans will need to balance the competing levels of service and queuing measures of effectiveness when defining the ultimate geometric improvements.

Please contact me at (916) 859-3617 or via e-mail at matt.weir@kimley-horn.com if you have any questions or require additional information.

Very truly yours,

KIMLEY-HORN AND ASSOCIATES, INC.

Matthew D. Weir, P.E., T.E., PTOE
PE No. C70216 & TR2424

Attachments: LOS and Queuing Analysis Worksheets

L.3 - June 6, 2010 Report

Kimley-Horn
and Associates, Inc.

June 6, 2011

Mr. Leonard Grado
GGV Missouri Flat, LLC
4330 Gold Center Drive, Suite D
Placerville, CA 95667

Suite 200
11919 Foundation Place
Gold River, California
95670

Re: Diamond Dorado Retail Center
FINAL Supplemental Traffic Analysis
Diamond Road (SR-49)/Lime Kiln Road

Dear Mr. Grado:

As requested, I am writing to provide supplemental traffic analysis results pertaining to your proposed Diamond Dorado Retail Center (DDRC) project. More specifically, the purpose of this supplemental analysis is to evaluate weekday, near-term (2015) and cumulative (year 2025) AM and PM peak-hour operations resulting from revised traffic control for the Diamond Road (SR-49) intersection with Lime Kiln Road/Black Rice Road.

It is our understanding that the County and Caltrans have agreed conceptually to the addition of traffic signal control at the Diamond Road (SR-49) intersection with Lime Kiln Road/Black Rice Road. Because the final traffic impact analysis for this project[1] considered this intersection to have restricted access (right-in/right-out, left-in), this correspondence documents the effects of the change in access and traffic control on delay, level of service (LOS), and queuing.

Please note that our previous traffic study for the project[1] serves as the starting point for this analysis. Based on direction provided by the County and Caltrans, this supplemental evaluation includes the following specific items:

1. Existing plus Approved Projects (2015) plus Proposed Project[+]
2. Cumulative (2025) plus Proposed Project[+]

[*] The "Proposed Project" for the purposes of this supplement study is defined as the DDRC development (as previously studied) with the addition of a traffic signal and full access at the Diamond Road (SR-49) intersection with Lime Kiln Road/Black Rice Road.

Peak-hour level of service (LOS) was determined for thirteen (13) intersections and eight (8) roadway segments as defined in the previous traffic study prepared for the proposed project[1] for the analysis scenarios listed above. Consistent with the County's requirements, delay, LOS, and queuing for each scenario were determined using methods defined in the *Highway Capacity Manual, 2000,* using appropriate traffic analysis software (Synchro). As required by El Dorado County Department of Transportation's *Traffic Impact Study*

[1] *Final Traffic Impact Analysis, Diamond Dorado Retail Center (WO #14)*, Kimley-Horn and Associates, July 21, 2010.

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Protocols and Procedures, impacts at study intersections were determined based on the change of LOS when project trips were added to the Existing plus Approved Projects (EPAP) and Cumulative (2025) Conditions. The following is a discussion of these scenarios.

1. Existing plus Approved Projects (2015) plus Proposed Project

For this scenario, peak-hour traffic associated with the proposed project, as well as the revised assess condition, was added to the Existing plus Approved Projects (2015) traffic volumes and levels of service were determined at the applicable study facilities. More specifically, this scenario involved the following "plus project" volume components:

1. Re-distribution of MRF trips with removal of access restrictions
2. Re-distribution of background trips with removal of access restrictions[+]
3. Addition of DDRC project trips

[+] "Un-doing" of the volume re-routing associated with Mitigation M1 (Page 28) per the *Diamond Springs Parkway Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., May 6, 2010.

It is important to note that, due to the anticipated increase in truck volumes, a higher heavy vehicle percentage of ten percent (10%) was used for the eastbound approach, northbound left-turn, and southbound right-turn movements at the Diamond Road (SR-49) intersection with Lime Kiln Road/Black Rice Road. Attachments A-C provide the AM and PM traffic volumes for this analysis scenario. The analysis worksheets for this scenario are provided in Attachment D.

Intersections

Table 1 provides a summary of the intersection operating conditions for this analysis scenario. As indicated in Table 1, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours.

Roadway Segments

Table 2 presents the peak-hour roadway segment operating conditions for this analysis scenario. As indicated in Table 2, the study roadway segments operate from LOS D to LOS F during the PM peak-hour.

2. Cumulative (2025) plus Project

Peak-hour traffic associated with the proposed project was added to the Cumulative (2025) traffic volumes, and levels of service were determined at the applicable study facilities. As previously established in the project's original traffic study[1], the project site is designated for industrial uses by the County *General Plan*. As such, for this analysis scenario, trips from the industrial land uses were deducted from the roadway network prior to adding trips for the proposed project. As the case for the Existing plus Approved Projects (2015) analysis scenario above, this scenario involved the use of redistributed trips resulting from the addition of signalized traffic control and full access at the Diamond Road (SR-49) intersection with Lime Kiln Road/Black Rice Road.

Attachments E and F provide the AM and PM traffic volumes for this analysis scenario. The analysis worksheets for this scenario are provided in Appendix G.

Table 1 – Intersection Levels of Service -
EPAP (2015) and EPAP (2015) plus Project (Full Access) Conditions

#	Intersection	Analysis Scenario*	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
7	Diamond Springs Parkway @ Missouri Flat Road	EPAP	Signal	24.6	C	32.4	C
		EPAP+PP (Orig)		30.3	C	52.5	D
		EPAP+PP		28.9	C	37.3	D
8	Diamond Springs Parkway @ Throwita Way	EPAP	Signal	14.2	B	17.7	B
		EPAP+PP (Orig)		16.5	B	55.3	E
		EPAP+PP		15.6	B	69.2	E
9	Diamond Springs Parkway @ Diamond Road (SR-49)	EPAP	Signal	58.7	E	69.1	E
		EPAP+PP (Orig)		62.3	E	52.7	D
		EPAP+PP		60.8	E	73.1	E
12	Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	EPAP	TWSC+	18.8 (WB)	D	19.4 (EB)	C
		EPAP+PP (Orig)		19.6 (EB)	C	30.3 (EB)	E
		EPAP+PP	Signal	25.3	C	69.9	E
13	Diamond Road (SR-49) @ Pleasant Valley Road (SR-49)	EPAP	Signal	19.9	B	28.7	C
		EPAP+PP (Orig)		21.3	C	38.4	D
		EPAP+PP		21.1	C	36.1	D
14	Pleasant Valley Road (SR-49) @ Missouri Flat Road	EPAP	Signal	10.2	B	19.0	B
		EPAP+PP (Orig)		10.1	B	20.2	B
		EPAP+PP		10.3	B	21.1	C
15	Pleasant Valley Road (SR-49) @ China Garden Road	EPAP	TWSC+	19.7 (SB)	C	31.6 (SB)	D
		EPAP+PP (Orig)		21.1 (SB)	C	40.1 (SB)	E
		EPAP+PP		18.5 (SB)	C	20.3 (SB)	C
22	Missouri Flat Road @ Industrial Drive	EPAP	TWSC+	14.9 (EB)	B	22.1 (EB)	C
		EPAP+PP (Orig)		15.7 (EB)	C	26.8 (EB)	D
		EPAP+PP		15.3 (EB)	C	25.9 (EB)	D
28	Missouri Flat Road @ Enterprise Drive	EPAP	TWSC+	18.0 (EB)	C	39.8 (EB)	E
		EPAP+PP (Orig)		18.9 (EB)	C	**51.7 (EB)**	**F**
		EPAP+PP		18.3 (EB)	C	48.0 (EB)	E
29	Missouri Flat Road @ China Garden Road	EPAP	TWSC+	19.3 (WB)	C	29.6 (WB)	D
		EPAP+PP (Orig)		21.3 (WB)	C	44.2 (WB)	E
		EPAP+PP		18.5 (WB)	C	25.5 (WB)	D
30	Diamond Springs Parkway@ Right-In/Right-Out Site Access Driveway	EPAP	TWSC+	*N/A*			
		EPAP+PP (Orig)		18.6 (NB)	C	40.4 (NB)	E
		EPAP+PP		18.4 (NB)	C	31.7 (NB)	D
31	Diamond Springs Parkway @ Right-In Site Access Driveway	EPAP	TWSC+	*N/A*			
		EPAP+PP (Orig)		0.0 (EB)	A	0.0 (EB)	A
		EPAP+PP		0.0 (EB)	A	0.0 (EB)	A
32	Diamond Road (SR-49) @ Site Access Driveway	EPAP	TWSC+	*N/A*			
		EPAP+PP (Orig)		17.1 (EB)	C	33.1 (EB)	D
		EPAP+PP		16.9 (EB)	C	31.9	D

* EPAP (2015) = Existing plus Approved Projects (2015), EPAP+PP (Orig) = EPAP (2015) plus DDRC as studied in 7/21/10 Final TIA, EPAP+PP = EPAP (2015) plus DDRC with signal and full access at Diamond Road (SR-49)/Lime Kiln Road/Black Rice Road.
+ Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County and/or Caltrans**

Table 2 – Roadway Segment Levels of Service -
EPAP (2015) and EPAP (2015) plus Project (Full Access) Conditions

#	Roadway Segment	Roadway Classification	Analysis Scenario*	PM Peak-Hour	
				Volume (vph)	LOS
2	Missouri Flat Road – Diamond Springs Parkway to China Garden Road	Two-Lane Arterial	EPAP	1303	D
			EPAP+PP (Orig)	1502	D
			EPAP+PP	1322	D
3	Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)	Two-Lane Arterial	EPAP	1324	D
			EPAP+PP (Orig)	1522	D
			EPAP+PP	1444	D
5	Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road	Major Two-Lane Highway	EPAP	1550	D
			EPAP+PP (Orig)	**1701**	**E**
			EPAP+PP	**1769**	**E**
6	Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)	Major Two-Lane Highway	EPAP	1236	D
			EPAP+PP (Orig)	1465	D
			EPAP+PP	1362	D
7	Diamond Springs Parkway – Missouri Flat Road to Throwita Way	Two-Lane Arterial	EPAP	1502	D
			EPAP+PP (Orig)	**2207**	**F**
			EPAP+PP	**2338**	**F**
8	Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)	Two-Lane Arterial+	EPAP	1601	D
			EPAP+PP (Orig)	1719	D
			EPAP+PP	1853	E
9	Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road	Two-Lane Arterial	EPAP	1127	D
			EPAP+PP (Orig)	1188	D
			EPAP+PP	1110	D
10	Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)	Minor Two-Lane Highway	EPAP	1044	D
			EPAP+PP (Orig)	1126	D
			EPAP+PP	1024	D

* EPAP (2015) = Existing plus Approved Projects (2015), EPAP+PP (Orig) = EPAP (2015) plus DDRC as studied in 7/21/10 Final TIA, EPAP+PP = EPAP (2015) plus DDRC with signal and full access at Diamond Road (SR-49)/Lime Kiln Road/Black Rice Road. + Two (2) westbound lanes are assumed to be in place per the DSP project to receive dual northbound left-turns from Diamond Road (SR-49) and to accommodate westbound queuing at Throwita Way. **Bold = Substandard per County and/or Caltrans**

Intersections

Table 3 provides a summary of the intersection operating conditions for this analysis scenario. As indicated in Table 3, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours.

Roadway Segments

Table 4 presents the peak-hour roadway segment operating conditions for this analysis scenario. As indicated in Table 4, the study roadway segments operate from LOS D to LOS F during the PM peak-hour.

Table 3 – Intersection Levels of Service -
Cumulative (2025) and Cumulative (2025) plus Project (Full Access) Conditions

#	Intersection	Analysis Scenario*	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
7	Diamond Springs Parkway @ Missouri Flat Road	Cum	Signal	31.3	C	33.4	C
		Cum+PP (Orig)		33.0	C	53.8	D
		Cum+PP		30.9	C	48.2	D
8	Diamond Springs Parkway @ Throwita Way	Cum	Signal	20.3	C	22.8	C
		Cum+PP (Orig)		21.4	C	60.3	E
		Cum+PP		19.4	B	58.0	E
9	Diamond Springs Parkway @ Diamond Road (SR-49)	Cum	Signal	58.8	E	45.1	D
		Cum+PP (Orig)		55.5	E	41.0	D
		Cum+PP		60.2	E	63.3	E
12	Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	Cum	TWSC+	16.4 (EB)	C	25.0 (EB)	D
		Cum+PP (Orig)		18.8 (EB)	C	39.4 (EB)	E
		Cum+PP	Signal	28.8	C	**89.3**	**F**
13	Diamond Road (SR-49) @ Pleasant Valley Road (SR-49)	Cum	Signal	22.3	C	43.2	D
		Cum+PP (Orig)		22.5	C	51.1	D
		Cum+PP		22.0	C	46.5	D
14	Pleasant Valley Road (SR-49) @ Missouri Flat Road	Cum	Signal	13.4	B	28.4	C
		Cum+PP (Orig)		12.7	B	34.0	C
		Cum+PP		12.9	B	32.4	C
15	Pleasant Valley Road (SR-49) @ China Garden Road	Cum	TWSC+	32.3 (SB)	D	**121.6 (SB)**	**F**
		Cum+PP (Orig)		35.5 (SB)	E	**165.5 (SB)**	**F**
		Cum+PP		27.3 (SB)	D	33.9 (SB)	D
22	Missouri Flat Road @ Industrial Drive	Cum	TWSC+	19.3 (EB)	C	39.6 (EB)	E
		Cum+PP (Orig)		19.5 (EB)	C	**50.1 (EB)**	**F**
		Cum+PP		19.0 (EB)	C	47.0 (EB)	E
28	Missouri Flat Road @ Enterprise Drive	Cum	TWSC+	31.5 (EB)	D	**182.6 (EB)**	**F**
		Cum+PP (Orig)		32.6 (EB)	D	**227.7 (EB)**	**F**
		Cum+PP		30.9 (EB)	D	**204.7 (EB)**	**F**
29	Missouri Flat Road @ China Garden Road	Cum	TWSC+	38.4 (WB)	E	**115.8 (WB)**	**F**
		Cum+PP (Orig)		40.8 (WB)	E	**179.0 (WB)**	**F**
		Cum+PP		29.7 (WB)	D	**57.6 (WB)**	**F**
30	Diamond Springs Parkway@ Right-In/Right-Out Site Access Driveway	Cum	TWSC+	*N/A*			
		Cum+PP (Orig)		21.7 (NB)	C	47.9 (NB)	E
		Cum+PP		21.4 (NB)	C	35.8 (NB)	E
31	Diamond Springs Parkway @ Right-In Site Access Driveway	Cum	TWSC+	*N/A*			
		Cum+PP (Orig)		0.0 (EB)	A	0.0 (EB)	A
		Cum+PP		0.0 (EB)	A	0.0 (EB)	A
32	Diamond Road (SR-49) @ Site Access Driveway	Cum	TWSC+	*N/A*			
		Cum+PP (Orig)		20.2 (EB)	C	43.7 (EB)	E
		Cum+PP		19.8 (EB)	C	41.5 (EB)	E

* Cum = Cumulative (2025), Cum+PP (Orig) = Cumulative (2025) plus DDRC as studied in 7/21/10 Final TIA, Cum+PP = Cumulative (2025) plus DDRC with signal and full access at Diamond Road (SR-49)/Lime Kiln Road/Black Rice Road.
+ Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County and/or Caltrans**

Table 4 – Roadway Segment Levels of Service -
Cumulative (2025) and Cumulative (2025) plus Project (Full Access) Conditions

#	Roadway Segment	Roadway Classification	Analysis Scenario*	PM Peak-Hour	
				Volume (vph)	LOS
2	Missouri Flat Road – Diamond Springs Parkway to China Garden Road	Two-Lane Arterial	Cum	1622	D
			Cum+PP (Orig)	1773	E
			Cum+PP	1572	D
3	Missouri Flat Road – China Garden Road to Pleasant Valley Road (SR-49)	Two-Lane Arterial	Cum	1580	D
			Cum+PP (Orig)	1730	D
			Cum+PP	1646	D
5	Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road	Major Two-Lane Highway	Cum	**1766**	**E**
			Cum+PP (Orig)	**1861**	**E**
			Cum+PP	**1936**	**E**
6	Diamond Road (SR-49) – Lime Kiln Road to Pleasant Valley Road (SR-49)	Major Two-Lane Highway	Cum	1580	D
			Cum+PP (Orig)	**1755**	**E**
			Cum+PP	**1640**	**E**
7	Diamond Springs Parkway – Missouri Flat Road to Throwita Way	Two-Lane Arterial	Cum	1743	D
			Cum+PP (Orig)	**2232**	**F**
			Cum+PP	**2359**	**F**
8	Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)	Two-Lane Arterial	Cum	1800	E
			Cum+PP (Orig)	1849	E
			Cum+PP	**1998**	**F**
9	Pleasant Valley Road (SR-49) – Missouri Flat Road to China Garden Road	Two-Lane Arterial	Cum	1385	D
			Cum+PP (Orig)	1440	D
			Cum+PP	1356	D
10	Pleasant Valley Road (SR-49) – China Garden Road to Diamond Road (SR-49)	Minor Two-Lane Highway	Cum	1297	D
			Cum+PP (Orig)	1368	D
			Cum+PP	1253	D

* Cum = Cumulative (2025), Cum+PP (Orig) = Cumulative (2025) plus DDRC as studied in 7/21/10 Final TIA, Cum+PP = Cumulative (2025) plus DDRC with signal and full access at Diamond Road (SR-49)/Lime Kiln Road/Black Rice Road.
Bold = Substandard per County and/or Caltrans

Impacts and Mitigation

1. Existing plus Approved Projects (2015) plus Proposed Project

As reflected in Table 1 and Table 2, the addition of the proposed project results in two (2) significant impacts as defined by the County and/or Caltrans. The following is a discussion of the impacts and its associated mitigations.

Impacts:

I1. Roadway Segment #5, Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road

As shown in Table 2, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact.***

I2. Roadway Segment #7, Diamond Springs Parkway – Missouri Flat Road to Throwita Way

As shown in Table 2, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

Mitigations:

M1. Segment #5, Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four-Lane Multilane Highway. This improvement will result in LOS C. Therefore, ***this impact is less than significant****.*

It should be noted that, although this mitigation requires an upgrade of this segment to a Four-Lane Multilane Highway, the required intersection lane geometry is actually slightly different. Due to the heavy northbound left-turn movement at the Diamond Springs Parkway intersection with Diamond Road (SR-49), adding mainline capacity (an additional northbound through lane) does not appear to be realistic or required. Conversely, in the southbound direction along Diamond Road (SR-49) between Diamond Springs Parkway and Lime Kiln Road, the additional capacity (an additional southbound through lane) could be provided to further enhance operations. This additional southbound through lane would be required to drop (become a trap lane) at Lime Kiln Road, or drop shortly after Lime Kiln road. Because this segment is required to be 4-lanes in the Cumulative (2025) Conditions as a mitigation measure, the timing of this capacity improvement should be coordinated with the full build-out of Diamond Road (SR-49).

M2. Segment #7, Diamond Springs Parkway – Missouri Flat Road to Throwita Way

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four Lane Arterial, Divided. This improvement will result in LOS D. Therefore, ***this impact is less than significant****.*

2. Cumulative (2025) plus Proposed Project

As reflected in Table 3 and Table 4, the addition of the proposed project results in six (6) significant impacts as defined by the County and/or Caltrans. The following is a discussion of the impacts and its associated mitigations.

Impacts:

I3. *Intersection #12, Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road*
As shown in Table 3, this intersection operates at LOS D during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

I4. *Intersection #28, Missouri Flat Road @ Enterprise Drive*
As shown in Table 3, the addition of the proposed project increases the minor street approach delay at this intersection which operates at LOS F during the PM peak-hour without the project. It should be noted that the addition of the project does not add traffic to the minor, stop-controlled Enterprise Drive intersection approach. The minimal increase in through volume attributed to the proposed project is not expected to result in a noticeable change in intersection operations. As a result, the addition of the proposed project results in impacts which are ***less than significant.***

I5. *Intersection #29, Missouri Flat Road @ China Garden Road*
As shown in Table 3, this intersection operates at LOS F during the PM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection during a peak-hour. ***This is a significant impact.***

I6. *Roadway Segment #5, Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road*
As shown in Table 4, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact.***

I7. *Roadway Segment #6, Lime Kiln Road to Pleasant Valley Road (SR-49)*
As shown in Table 4, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS E. ***This is a significant impact.***

I8. *Roadway Segment #7, Diamond Springs Parkway – Missouri Flat Road to Throwita Way*
As shown in Table 4, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

I9. *Roadway Segment #8, Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)*
As shown in Table 4, this Roadway Segment operates at LOS D during the PM peak-hour without the project, and the project results in LOS F. ***This is a significant impact.***

Mitigations:

M3. Intersection #12, Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of a northbound through lane and a southbound through lane, both of which are required for roadway segment mitigation (see M5 and M6 below). With the added capacity at this intersection, this mitigation measure is assumed to include re-optimization of the signal timing along the signal corridor (intersection #8, #9 and #12). As shown in Table 5, the added northbound and southbound capacity results in the intersection operating at LOS C during the PM peak-hour. Therefore, ***this impact is less than significant***.

M4. Intersection #29, Missouri Flat Road @ China Garden Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the delineation of a 25-foot westbound right-turn flare. As shown in Table 5, this mitigation measure results in the intersection operating at LOS D during the PM peak-hour. Therefore, ***this impact is less than significant***.

Table 5 – Intersection Levels of Service –
Cumulative (2025) plus Proposed Project Mitigated Conditions

#	Intersection	Analysis Scenario	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
12	M3 - Diamond Road (SR-49) @ Lime Kiln Road/Black Rice Road	Cum	TWSC*	16.4 (EB)	C	25.0 (EB)	D
		Cum+PP (Orig)		18.8 (EB)	C	39.4 (EB)	E
		Cum+PP	Signal	28.8	C	**89.3**	**F**
		Cum+PP (Mit.)		17.0	B	26.5	C
29	M4 - Missouri Flat Road @ China Garden Road	Cum	TWSC*	38.4 (WB)	E	**115.8 (WB)**	**F**
		Cum+PP (Orig)		40.8 (WB)	E	**179.0 (WB)**	**F**
		Cum+PP		29.7 (WB)	D	**57.6 (WB)**	**F**
		Cum+PP (Mit.)		20.7 (WB)	C	27.9 (WB)	D

Note: Cum = Cumulative (2025), Cum+PP (Orig) = Cumulative (2025) plus DDRC as studied in 7/21/10 Final TIA, Cum+PP = Cumulative (2025) plus DDRC with signal and full access at Diamond Road (SR-49)/Lime Kiln Road/Black Rice Road, Mit. = Mitigated
* Control delay for worst minor approach (worst minor movement) for TWSC.

M5. Segment #5, Diamond Road (SR-49) – Diamond Springs Parkway to Lime Kiln Road

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four-Lane, Multilane Highway. This improvement will result in LOS C. Therefore, ***this impact is less than significant***.

M6. Segment #6, Diamond Road (SR-49) – Lime Kiln Rd to Pleasant Valley Road (SR-49)

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four-Lane, Multilane Highway. This improvement will result in LOS B. Therefore, ***this impact is less than significant***.

M7. Segment #7, Diamond Springs Parkway – Missouri Flat Road to Throwita Way

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four Lane Arterial, Divided. This improvement will result in LOS D. Therefore, ***this impact is less than significant***.

M8. Segment #8, Diamond Springs Parkway – Throwita Way to Diamond Road (SR-49)

The significant impact at this roadway segment during the PM peak-hour can be mitigated by upgrading the facility to a Four Lane Arterial, Divided. This improvement will result in LOS D. Therefore, ***this impact is less than significant***.

Analysis worksheets for the mitigated conditions are in Attachment G.

Intersection Queuing Evaluation

Vehicle queuing for the applicable study intersections was considered for the same movements as evaluated in the previous traffic study[1]. The calculated vehicle queues were compared to actual or anticipated vehicle storage/segment lengths. Results of the queuing evaluation are presented in Table 6. This table includes the vehicle queues resulting from implementation of the Level of Service mitigation measures identified above.

Table 6 – Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#7, DSP @ Missouri Flat Rd	**WBTH**				
EPAP (2015)		2,835*	452	2,835*	301
EPAP plus Proposed Project (2015)			536		589
Cumulative (2025)			645		424
Cumulative (2025) plus Proposed Project			722		730
	WBLT				
EPAP (2015)		325	373	325	315
EPAP plus Proposed Project (2015)			397		509
Cumulative (2025)			414		391
Cumulative (2025) plus Proposed Project			436		546
	NBLT				
EPAP (2015)		325+	332	325+	375
EPAP plus Proposed Project (2015)			321		337
Cumulative (2025)			357		405
Cumulative (2025) plus Proposed Project			332		278
#8, DSP @ Throwita Way	**EBLT**				
Existing (2010)					
EPAP (2015)		175	88	175	104
EPAP plus Proposed Project (2015)			111		173
Cumulative (2025)			123		147
Cumulative (2025) plus Proposed Project			150		207
Cumulative (2025) plus Proposed Project (optimized Signal timing)			150		199
	WBLT				
EPAP (2015)		100	29	100	30
EPAP plus Proposed Project (2015)			32		291
Cumulative (2025)			26		29
Cumulative (2025) plus Proposed Project			33		332
Cumulative (2025) plus Proposed Project (optimized Signal timing)			35		233
	WBTH				
EPAP (2015)		850*	706	850*	509
EPAP plus Proposed Project (2015)			755		548
Cumulative (2025)			788		546
Cumulative (2025) plus Proposed Project			808		641
Cumulative (2025) plus Proposed Project (optimized Signal timing)			809		664
#9, DSP @ Diamond Rd (SR-49)	**NBTH**				
EPAP (2015)		600*	73	600*	102
EPAP plus Proposed Project (2015)			8		135
Cumulative (2025)			89		159
Cumulative (2025) plus Proposed Project			75		199
Cumulative (2025) plus Proposed Project (optimized Signal timing)			67		47

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length

Table 6 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#9, DSP @ Diamond Rd (SR-49)	**NBLT**	(continued)			
EPAP (2015)		350+	319	350+	221
EPAP plus Proposed Project (2015)			399		358
Cumulative (2025)			346		261
Cumulative (2025) plus Proposed Project			450		371
Cumulative (2025) plus Proposed Project (optimized Signal timing)			434		407
	SBTH				
EPAP (2015)		*	179	*	248
EPAP plus Proposed Project (2015)			201		299
Cumulative (2025)			199		316
Cumulative (2025) plus Proposed Project			274		429
Cumulative (2025) plus Proposed Project (optimized Signal timing)			274		376
	SBRT				
EPAP (2015)		270	82	270	74
EPAP plus Proposed Project (2015)			85		82
Cumulative (2025)			289		198
Cumulative (2025) plus Proposed Project			336		283
Cumulative (2025) plus Proposed Project (optimized Signal timing)			336		260
	EBLT				
EPAP (2015)		850*	10	850*	11
EPAP plus Proposed Project (2015)			19		143
Cumulative (2025)			11		74
Cumulative (2025) plus Proposed Project			62		162
Cumulative (2025) plus Proposed Project (optimized Signal timing)			49		30
	EBRT				
EPAP (2015)		850*	498	850*	557
EPAP plus Proposed Project (2015)			563		310
Cumulative (2025)			573		400
Cumulative (2025) plus Proposed Project			294		574
Cumulative (2025) plus Proposed Project (optimized Signal timing)			318		395
#12, Diamond Rd (SR-49) @ Lime Kiln Rd	**EBLT**				
EPAP (2015)		>500*	5	>500*	25
EPAP plus Proposed Project (2015)			117		419
Cumulative (2025)			7		36
Cumulative (2025) plus Proposed Project			155		510
Cumulative (2025) plus Proposed Project (Mitigated)			146		367
	NBLT				
EPAP (2015)		200	4	200	6
EPAP plus Proposed Project (2015)			101		127
Cumulative (2025)			5		7
Cumulative (2025) plus Proposed Project			120		157
Cumulative (2025) plus Proposed Project (Mitigated)			80		111

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length

Table 6 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#12, Diamond Rd (SR-49) @ Lime Kiln Rd	**NBTH**	(continued)			
EPAP (2015)			0		0
EPAP plus Proposed Project (2015)			1005		829
Cumulative (2025)		1,740*	0	1,740*	0
Cumulative (2025) plus Proposed Project			1119		1045
Cumulative (2025) plus Proposed Project (Mitigated)			362		358
	SBLT				
EPAP (2015)			2		2
EPAP plus Proposed Project (2015)			22		30
Cumulative (2025)		100	2	100	2
Cumulative (2025) plus Proposed Project			21		28
Cumulative (2025) plus Proposed Project (Mitigated)			19		25
	SBTH				
EPAP (2015)			0		0
EPAP plus Proposed Project (2015)			834		1220
Cumulative (2025)		725*	0	725*	0
Cumulative (2025) plus Proposed Project			1070		1466
Cumulative (2025) plus Proposed Project (Mitigated)			430		416
#13, Diamond Rd (SR-49) @ Pleasant Valley Rd	**EBLT**				
EPAP (2015)			83		185
EPAP plus Proposed Project (2015)		180	85	180	182
Cumulative (2025)			97		244
Cumulative (2025) plus Proposed Project			90		216
	SBLT				
EPAP (2015)			192		410
EPAP plus Proposed Project (2015)		525+	198	525+	451
Cumulative (2025)			219		463
Cumulative (2025) plus Proposed Project			219		484
	WBRT				
EPAP (2015)			31		39
EPAP plus Proposed Project (2015)		180	32	180	64
Cumulative (2025)			41		122
Cumulative (2025) plus Proposed Project			35		170
#29, Missouri Flat Rd @ China Garden Rd	**SBLT**				
EPAP (2015)			6		10
EPAP plus Proposed Project (2015)			6		11
Cumulative (2025)		150	10	150	18
Cumulative (2025) plus Proposed Project			10		18
Cumulative (2025) plus Proposed Project (Mitigated)			10		18
	WB				
EPAP (2015)			51		120
EPAP plus Proposed Project (2015)			40		66
Cumulative (2025)		*	121	*	330
Cumulative (2025) plus Proposed Project			82		155
Cumulative (2025) plus Proposed Project (Mitigated)			35		87

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro© v7.
+ Dual left-turn lanes, * Intersection approach with available storage length equal to segment length

As presented in Table 6, the addition of the proposed project and the previously defined LOS mitigation results in conditions with queuing greater than the available storage pockets at several locations. The following observations and modifications should be considered based on the data presented:

- Intersection #8, DSP @ Throwita Way
  - Extend eastbound left-turn lane to provide 200-feet of storage plus appropriate deceleration distance to accommodate the projected eastbound left-turn 95th percentile queue of 199-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.
  - Extend westbound left-turn lane to provide 300-feet of storage plus appropriate deceleration distance (a single left-turn lane) to accommodate the projected westbound left-turn 95th percentile queue of 291-feet. This length accommodates both EPAP (2015) and Cumulative (2025) Conditions.

- Intersection #9, DSP @ Diamond Rd (SR-49)
  - Because the northbound left-turn lane configuration from Diamond Road (SR-49) to DSP are comprised of a single storage pocket (350-feet) as well as a left-turn lane the length of the roadway segment, the documented vehicle queuing can be reasonably expected to be contained within the capacity provided by these lanes.

- Intersection #13, Diamond Road (SR-49) @ Pleasant Valley Road
  - The eastbound left-turn queue is anticipated to exceed the available storage by only thirty-six (36) feet under Cumulative (2025) plus Proposed Project Conditions. Because storage is measured to the back of striping delineation, it is presumed that the additional 36-feet required can be accommodated within the existing turn pocket bay taper without adversely affecting adjacent traffic flow.

Peak-Hour Traffic Signal Warrant Evaluation

A planning level assessment of the need for traffic signalization was performed for the un-signalized study intersections. This evaluation was performed consistently with the peak-hour warrant methodologies noted in Section 4C of the *California Manual on Uniform Traffic Control Devices (CMUTCD)*, dated September 26, 2006. A summary of the peak-hour warrant results are presented in Table 7.

Table 7 – Traffic Signal Warrant Analysis Results

#	Intersection	Analysis Scenario				
		Existing (2010)	**EPAP (2015)**	**EPAP (2015) plus PP**	**Cumulative (2025)**	**Cum (2025) plus PP**
15	Pleasant Valley Road (SR-49) @ China Garden Road	Yes / Yes	No / No	No / No	No / Yes	No / Yes
22	Missouri Flat Road @ Industrial Drive	No / No	No / No	No / No	No / Yes	No / Yes
28	Missouri Flat Road @ Enterprise Drive	No / Yes	No / Yes	No / Yes	Yes / Yes	Yes / Yes
29	Missouri Flat Road @ China Garden Road	No / Yes	No / Yes	No / No	No / Yes	No / Yes
30	DSP @ Right-In/Right-Out Site Access Driveway	No / No	No / No	No / No	No / No	No / No
31	DSP @ Right-In Site Access Driveway	No / No	No / No	No / No	No / No	No / No
32	Diamond Road (SR-49) @ Site Access Driveway	No / No	No / No	No / **Yes**[+]	No / No	No / **Yes**[+]

Note: Traffic signal is warranted if peak-hour warrant (Conditions A and/or B) is satisfied, Results are presented in AM / PM format.
[+] A signal is not desirable at this location due to the close proximity to two adjacent signals. A raised median should be considered along Diamond Road (SR-49) restrict left-turns out of the proposed project site.

The addition of the proposed project results in the peak-hour signal warrant being satisfied at Intersection #32 (Diamond Road (SR-49) @ Site Access Driveway). Detailed results of this analysis are presented in Attachment H.

Conclusions

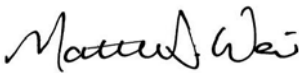
As documented, the addition of signalized traffic control and full access at the Diamond Road (SR-49) intersection with Lime Kiln Road/Black Rice Road improves the operating conditions at the majority of the affected intersections. More specifically, the "revised" proposed project results in the following:

- Improved access for the MRF via a signalized, full access intersection at Diamond Road (SR-49)/Lime Kiln Road.
- Two (2) fewer near-term (year 2015) significant impacts, both of which can be mitigated to a less than significant level.
- Ten (10) fewer long-term (year 2025) significant impacts, all of which can be mitigated to a less than significant level.
- The need for coordinated signal timings at the three (3) intersection system (Intersections #8, #9, and #12) to minimize queuing, delay, and to maximize the efficiency of traffic operations.
- The need for consideration of additional eastbound lanes at the signalized Diamond Road (SR-49) intersection with Lime Kiln Road. This analysis assumed one multi-use lane. Per the documented queuing, additional lane(s) will be required minimize approach queuing.

Please contact me at (916) 859-3617 or via e-mail at matt.weir@kimley-horn.com if you have any questions or require additional information.

Very truly yours,

KIMLEY-HORN AND ASSOCIATES, INC.



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Attachments:
A – MRF Site Trip Reassignment
B – Near-Term (2015) Proposed Project Trip Assignment (Delta)
C – Existing plus Approved Projects (2015) plus Proposed Project Peak-Hour Traffic Volumes
D – Existing plus Approved Projects (2015) plus Proposed Project Analysis Worksheets
E – Long-Term (2025) Proposed Project Trip Assignment (Delta)
F – Cumulative (2025) plus Proposed Project Peak-Hour Traffic Volumes
G – Long-Term (2025) plus Proposed Project Analysis Worksheets
H – Signal Warrant Analysis Worksheets