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MEMORANDUM

Date: September 8, 2015

Project #: 17666.0

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From: Kittelson and Associates

Project: CIP & TIM Fee Update: Western Slope

Subject: Draft Technical Memorandum 2-3: Existing and Future Deficiency Assessment

This memorandum summarizes the existing and future deficiency analysis including the Mitigation Fee Act (MFA) nexus justification for the improvement concepts to be advanced as part of the Major Capital Improvement Program (CIP) & Traffic Impact Mitigation (TIM) Fee Update. The analysis includes results for both existing conditions and the existing General Plan (GP).

The subsequent sections in this memorandum describe the following:

- Introduction
- Traffic Analysis Methodology
- Traffic Analysis Assumptions
- Level of Service Standards
- Roadway Segment Analysis
- Interchange Analysis
- Parallel Facility Analysis
- Existing Operations Results
- General Plan Operations Results
- Summary of Roadway Deficiencies
- Interchange Deficiency Analysis Results
- Parallel Roadway Deficiency Analysis Results

INTRODUCTION

The existing and future deficiency analysis was performed based on the tools, methodologies and assumptions described in this memorandum. These are also described as part of Draft Technical Memorandum 2-1: Analysis Methodology.

TRAFFIC ANALYSIS METHODOLOGY

This section describes the approaches, tools, and methods used in the analysis.

Level of Service (LOS)

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways. LOS is a grading system that indicates the quality of service motorists experience on roadway facilities such as intersections or along roadway segments. LOS is a qualitative measure of the effect of a number of factors, including delay, vehicle speeds and travel time, traffic interruptions, freedom to maneuver, driving comfort and convenience. Levels of Service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. Level of Service (LOS) "A" through "E" generally represents traffic volumes at less or at roadway capacity, while LOS "F" represents over capacity and/or forced flow conditions.

County Roadways

Roadway segment LOS was determined by comparing traffic volumes on the study roadway segments with peak hour LOS capacity thresholds. The planning level capacity thresholds for different roadway classifications are shown in Table 1. These capacity thresholds are calculated based on the methodology contained in the Highway Capacity Manual (Transportation Research Board, 2010) (HCM 2010).

Table 1. Local Roadways Level of Service LOS Criteria

Functional Classification	Number of Lanes	Planning Level Volume Threshold (vehicles per hour)				
		LOS A	LOS B	LOS C	LOS D	LOS E
Arterial, Divided	4	-	-	1,850	3,220	3,290
	6	-	-	2,760	4,680	4,710
Arterial, Undivided	2	-	-	850	1,540	1,650
	4	-	-	1,760	3,070	3,130
Multi-Lane Highway	4	-	2,240	3,230	4,250	4,970

Notes:
Two-lane highway (and arterial 2-lane) thresholds are based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor, and D-factor of 0.6
Arterial volume thresholds are based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed 45 mi/h
Volumes are for both directions

Volume thresholds for 3-lane and 5-lane arterials were derived by linear interpolation between the 2- and 4-lane and between 4- and 6-lane thresholds respectively. Similarly, the volume thresholds for the seven lanes or more arterial will be calculated by linear extrapolation between 4-lane and 6-lane volumes.

State Highways

State highway LOS was determined using the methodologies for freeway and multilane highways and two-lane highways outlined in the HCM 2010, Chapters 11, 14, and 15. For freeway and multilane highways the calculation of the density of the traffic stream determines LOS. Density measures the average proximity of vehicles to each other in the traffic stream in passenger cars per mile per lane (pcpmpl) of roadway. Freeway and multilane highways were evaluated using the HCM 2010 compatible spreadsheet models developed in-house.

For two-lane highways, the LOS calculation is dependent on the class of the roadway. Class I two-lane highways are highways where motorists expect to travel at high speeds. Class II two-lane highways are lower speed highways and serve scenic routes or areas of rugged terrain. Class III two-lane highways serve moderately developed areas with higher densities of local traffic and roadside access. For Class II highways, LOS is determined based on the percent time spent following (PTSF). This measure is calculated as the percentage of vehicles traveling at headways of less than three seconds. For Class III highways, the percent of vehicles traveling at free-flow speed conditions is used to determine LOS. This measure represents the ability of vehicles to travel at the posted speed limit. The two-lane highway analysis will be performed using the Highway Capacity Software (HCS).

Table 2 and Table 3 show the segment LOS criteria for multilane and two-lane highways respectively.

Table 2. Multi-Lane State Highways LOS Criteria

LOS	Free Flow Speed (mph)	Density (pcpmpl)
A	All	>0 -11
B	All	>11-18
C	All	>18-26
D	All	>26-35
E	60	>35-40
	55	>35-41
	50	>35-43
	45	>35-45
F	Demand Exceeds Capacity	
	60	>40
	55	>41
	50	>43
	45	>45
Based on *Highway Capacity Manual,* Transportation Research Board, Washington D.C, 2010, Exhibit 14-4		

Table 3. Two-Lane State Highways LOS Criteria

LOS	Class II Highways: Percent Time Spent Following (%)	Class III Highways: Percent Free-Flow Speed (%)
A	0-40	>91.7
B	>40-55	>83.3-91.7
C	>55-70	>75.0-83.3
D	>70-85	>66.7-75.0
E	>85	≤66.7
Based on *Highway Capacity Manual,* Transportation Research Board, Washington D.C., 2010, Exhibit 15-3		

US 50

US 50 mainline segments were evaluated using the methodologies contained in the HCM 2010. The LOS will be reported for each study segment type based on density measures.

Given a limitation of the latest Highway Capacity Software (HCS 2010) for evaluating special purpose lanes (e.g., HOV lanes, auxiliary lanes, truck climbing lanes) freeway mainline segments were evaluated using the HCS 2010 software compatible spreadsheet models developed in-house. The freeway LOS criteria are provided in Table 4.

Table 4. Freeway Mainline Level of Service (LOS) Criteria

LOS	Density (pcpmpl)
A	≤11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	>45 or Demand > Capacity
Based on *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2010, Exhibit 11-5	

TRAFFIC ANALYSIS ASSUMPTIONS

Generalized operational parameters that will be used for the traffic analysis are provided below:

Ideal Saturation Flow Rate:	Freeway General Purpose Lanes: HCM 2010 Exhibit 10-5; Freeway HOV Lanes: 1,650[1] vehicles per hour per lane (vphpl); Freeway Auxiliary Lanes > 1 mile: 900[2] vphpl Freeway Auxiliary Lanes < 1 mile: 400 vphpl
Base Free Flow Speeds:	All: Posted speed limit plus 5 mph
Peak Hour Factor (PHF):	Freeway mainline: Existing: where counts exist: Caltrans Performance Measurement System (PeMS) and Caltrans Published Volumes; where counts do not exist: 0.92; Future: 0.92 State Highways: Existing: where counts exist: PeMS and Caltrans Published Volumes; where counts do not exist: 0.92; Future: 0.92
Peak Hour Directional (D) Factor:	Existing: Caltrans PeMS or Caltrans/County published reports (average weekday) Future: Same as Existing average weekday if available – other: model D Factor
Peak Hour (K) Factor:	Existing: PeMS or Caltrans/County published reports (average weekday) Future: Same as Existing average weekday if available – other: model K Factor
Analysis Conditions:	Annual Average Weekday Conditions
Traffic Volumes:	Existing: Freeways/State Highways: Caltrans Annual Average Daily Traffic (AADT) published volumes adjusted to average weekday peak hour condition via K and D factors. US 50 between County line and Ponderosa Road: higher volumes

[1] Caltrans High-Occupancy Vehicle Guidelines, Caltrans 2003.

[2] 900 vphpl is a typical default assumption for auxiliary lanes greater than 1 mile and has been accepted by Caltrans in previous reports. See SC101 HOV Report June 2010.

	between Caltrans AADT published volumes adjusted to average weekday and Caltrans PeMS average weekday (April) Existing: Local Roadways: County published data Future: Counts adjusted based on El Dorado County travel demand model growth between 2015 baseline to 2035 forecast horizon per National Cooperative Highway Research Program 255 method (NCHRP 255)
Lane Width:	All: 12 feet, or consult Caltrans or County Staff
Driver Population Factor:	All: 1.00 – local drivers
Ramp Density (ramps/mi):	Freeway mainline: Aerial measured
Access Density (points/mi):	State Highways/Local Roadways: Aerial measured
Heavy Vehicles:	Freeway/State Highways– Caltrans published Truck AADT data, or 5 percent default (4% on US 50); State Highways/Local Roadways – 5 percent default, or consult Caltrans or County staff

LEVEL OF SERVICE STANDARDS

The following criteria are established to determine whether the vehicular traffic on a roadway facility exceeds the standard operating conditions.

County Roadways

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways as follows:

> *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 or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table.*

Roadways in the community regions are evaluated against LOS E standard, while those in the rural regions and rural centers are analyzed against LOS D. Figure 1 shows level of service threshold on the local roadways, with exceptions listed in the Table TC-2 of the County's Circulation Element.

State Facilities

County's Policy TC-Xd is applicable not only to the County roadways, but also to the state facilities. As such, traffic conditions for state facilities within the unincorporated areas of the County shall not be worse than LOS E in the community regions and LOS D in the rural center and rural regions, with except to the locations specified in Table TC-2.

U.S. Highway 50

Table 5 presents LOS thresholds used for US 50. These standards are consistent with the concept LOS established by Caltrans, the County, and the Table TC-2 of the 2004 El Dorado County General Plan.

Table 5. US 50: Level of Service Thresholds

Location Description	Begin Post Mile	End Post Mile	Level of Service Threshold
Sacramento/El Dorado County Line to Latrobe Road	0	0.857	LOS E
Latrobe Road to Cambridge Road	0.857	4.962	LOS D
Cambridge Road to Shingle Springs Drive	4.962	8.564	LOS E
Shingle Springs Drive to El Dorado Road	8.564	14.011	LOS D
El Dorado Road to Canal Street	14.011	17.52	LOS E
Canal Street to Mosquito Road	17.52	18.517	LOS F
Mosquito Road to Point View Drive	18.517	20.296	LOS E
Point View Drive to Old Highway, Camino	20.296	23.957	LOS D
Old Highway, Camino to Old Carson Road	23.957	34.219	LOS E
Old Carson Road to Ice House Road	34.219	39.772	LOS D
Ice House Road to Echo Lake Road	39.772	65.619	LOS F

Source: US 50 Transportation Concept Report and Corridor System Management Plan, Caltrans District 3, June 2014, 2004 El Dorado County General Plan, July 2004.

State Route 49

In the Transportation Concept Report (Caltrans, 2000), the concept LOS is F south of the community of El Dorado and through the City of Placerville. All other segments have a concept LOS E. Since the County adopted exceptions for this roadway, County's LOS standard for rural community (LOS D) was used as the operational criteria for segments from Amador/El Dorado County Line to Union Mine Road and from SR 193 (south) to SR 193 (north).

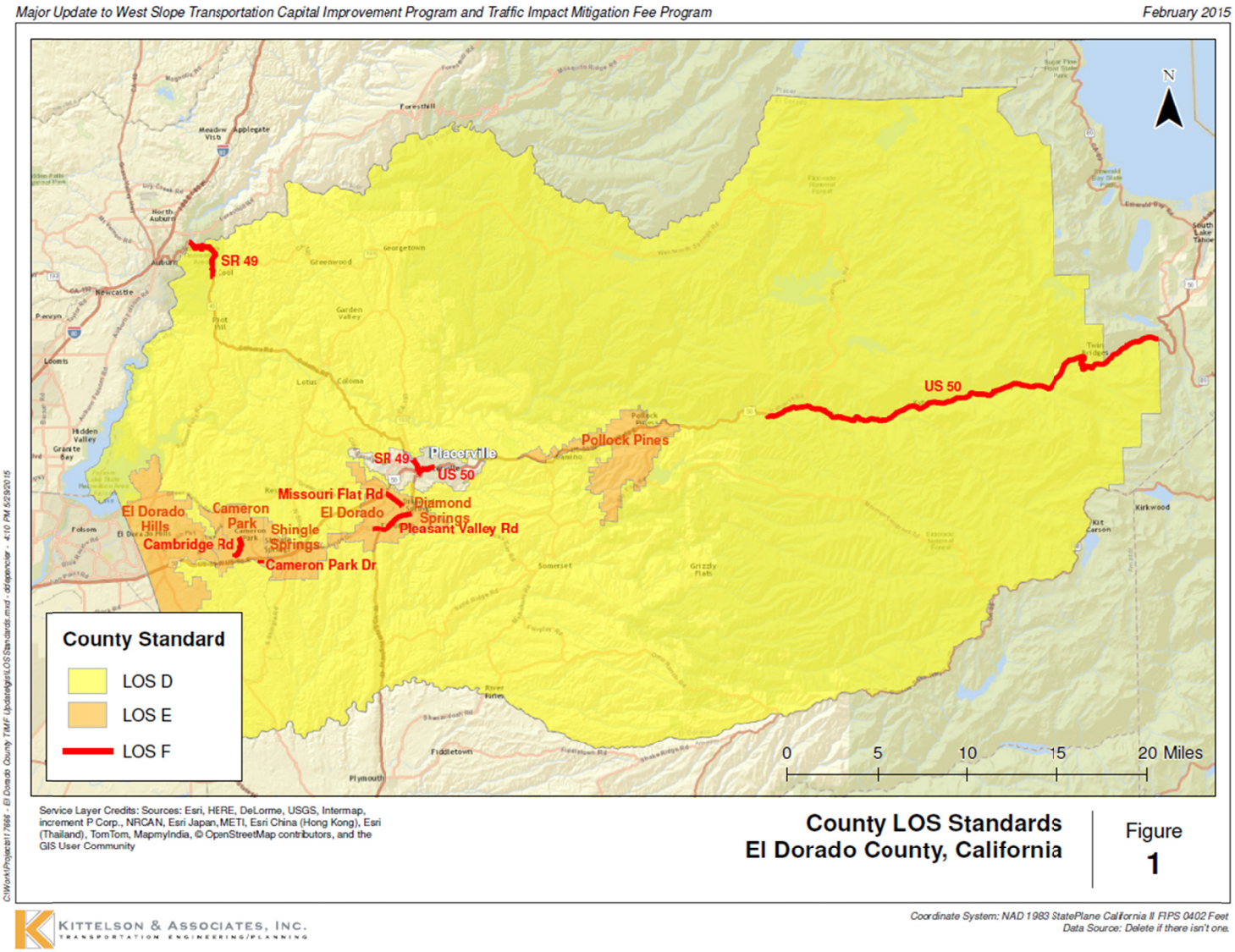
State Route 193

In the Transportation Concept Report (Caltrans, 2011), the concept LOS through El Dorado County is LOS D. The concept LOS is consistent with the County standard.

State Route 153

The Transportation Concept Report (Caltrans, 2011) established a concept LOS of E for SR 153 within El Dorado County. Since the roadway runs through a defined rural community, the County's LOS D standard was used as the operational standard for this analysis.

Figure 1. Level of Service Thresholds for Roadways



ROADWAY SEGMENT ANALYSIS

This section provides the operations results by facility type. The facility types include County arterial roadways and state highways including freeways, multilane highways, and two-lane highways. A total of 57 County roadways were analyzed spanning nearly 150 segments. The entire state highway system was analyzed (i.e., US 50, SR 49, SR 193, SR 153) spanning 60 segments. Selection of roadways and roadway segmentation was based on a number of criteria including:

- roadway/segment was analyzed in previous TIM fee analysis;
- roadway/segment is currently listed in the County's current Capital Improvement Program;
- roadway/segment was included as part of the County's Travel Demand Model baseline validation analysis;
- roadway/segment is a critical high volume location with known congestion issues; and,
- roadway/segment is considered to have future importance for accommodating planned development growth.

Given the need for all future traffic projections to be adjusted based on the NCHRP 255[3] principles, the choice of County roadway segments to analyze was constingent upon the availability of weekday (Tuesday-Thursday) daily and peak hour traffic counts (less than 3 years old). To ensure that "raw" model volumes would not form the basis for determining roadway operations, new traffic counts were performed by the County for all roadways that met the above criteria but did not have a recent traffic count. For US 50, average weekday bi-directional peak hour volumes were based on the most recent Caltrans published Annual Average Daily Traffic volumes using average weekday AM/PM peak hour (K Factor) and AM/PM peak directional splits (D Factor) derived from Caltrans PeMS counts taken during April/May 2014.

All state facilities were analyzed based on the HCM 2010 operational analysis methodology and LOS criteria described in the previous section. All local County roadways were analyzed based the HCM2010 planning method and LOS criteria, also described in the previous section.

The analysis scenarios include:

- 2015 Baseline (Existing) Scenario

To ensure that the future traffic growth resulting from new development growth is not double counted, all built and occupied permits between 2010 (model validation baseline year) and January 1st 2015 were reflected in the baseline travel demand model land use to establish an updated model analysis baseline. The 2010 baseline model network was also modified to include only infrastructure improvements open and operational by January 1st 2015.

[3] For a description of the NCHRP-255 adjustments process – see subsequent Roadway Segment Volume discussion.

- 2035 General Plan Land Use Scenario

This scenario reflects the approved allocation of growth in the County's General Plan – and assumes growth occurring at approximately 1 percent annual average growth rate over the 20-year planning horizon (2015-2035). To establish a 2035 baseline network, the 2015 baseline model network was modified to only include infrastructure improvements either completed or under construction by January 1st 2015.

ROADWAY SEGMENT VOLUMES

To address for systematic modeling error, post-processing adjustments must be performed. The recommended procedure is based on the NCHRP Report 255, 1982. NCHRP-255 adjustments entail using model generated link-based growth factors (computed variation between base year and forecast year model volumes) to adjust baseline traffic counts to reflect future conditions. For each count location, traffic growth estimates were generated using both the Ratio and the Difference method and taking the average between the two methods.

The baseline traffic counts, the 2035 future year "raw" volumes and the NCHRP 255 adjusted segment volumes used to determine future year operations are provided in Attachment A. For reporting purposes, forecasted volumes are rounded to the nearest ten.

All analysis scenarios reflect AM/PM peak hours during average weekday (Tues-Thurs) traffic conditions. Peak hours are confined to the weekday peak commute hour periods of 7:00 AM to 9:00 AM in the morning and between 4:00 PM – 6:00 PM in the afternoon. These forecasts do not reflect peak season or peak weekend traffic conditions which are primarily dominated by interregional traffic which is not appropriate for analysis of a local fee program.

INTERCHANGE ANALYSIS

There are a total of 21 interchanges operating along US 50 in El Dorado County including:

1. El Dorado Hills Boulevard Interchange
2. Silva Valley Parkway Interchange (under construction)
3. Bass Lake Road Interchange
4. Cambridge Road Interchange
5. Cameron Park Drive Interchange
6. Ponderosa Road Interchange
7. Shingle Springs Drive Interchange
8. Red Hawk Parkway Interchange
9. Greenstone Road Interchange
10. El Dorado Road Interchange
11. Missouri Flat Road Interchange
12. Placerville Drive (West) Interchange
13. Ray Lawyer Drive Interchange
14. Placerville Drive (East) Interchange
15. Mosquito Road Interchange
16. Schnell School Road Interchange
17. View Point Drive Interchange
18. Smith Flat Road Interchange
19. Cedar Grove/Camino Interchange
20. Pollock Pines/Cedar Grove Interchange
21. Sly Park Road Interchange

Currently, there are eight interchanges included in the TIM Fee CIP projects. These interchanges include:

- El Dorado Hills Boulevard Interchange
- Silva Valley Parkway Interchange
- Bass Lake Road Interchange
- Cambridge Road Interchange
- Cameron Park Drive Interchange
- Ponderosa Road Interchange
- El Dorado Road Interchange
- Missouri Flat Road Interchange

A screening assessment of these interchanges was used to reconfirm the deficiency analysis finding documented in completed operationally-based CIP traffic studies. Given that the detailed operational studies of these interchanges were based on the previous version of the El Dorado County travel demand model, the screening assessment focused on the comparative differences between the future year forecasts generated by the previous model version and the current model version at each interchange. For each interchange (both TIM Fee CIP and non-TIM Fee CIP interchange), ramp and interchange over-crossing link volumes were compared. If the current model yielded equal or higher volumes (in absolute terms) or an equal or higher traffic growth rate at one or more ramps and/or overcrossing, the previously identified deficiency was considered reaffirmed and the previously identified CIP improvements carried forward.

PARALLEL FACILITY ANALYSIS

A determination for the need to include parallel facilities into the TIM Fee CIP list was based on the deficiency assessment for US 50 and County roadways on a case by case basis. Given that parallel facilities provide corridor capacity and provide congestion relief to the primary deficient facility, parallel facility improvements are considered candidates for TIM Fee CIP improvements.

EXISTING OPERATIONS RESULTS

Existing Operations Results for State Facilities

The LOS analysis results for freeways, multilane highways, and two-lane highways are provided in Attachment B (Tables B-1, B-2, B-3). Based on the results, all state highway facilities are shown to operate within established LOS standards during average weekday AM and PM peak hour conditions.

Existing Operations Results for Local Roadways

The LOS analysis results for local roadways are presented in Attachment B (Table B-4). Given its geometric and operating characteristics, Green Valley Road segments# 51 and 53-62 were analyzed using the HCM 2010 operational method. No deficiencies were identified for study segments under existing conditions except for the following location:

- Green Valley Road west of Sophia Parkway: AM and PM peaks

GENERAL PLAN OPERATIONS RESULTS

General Plan Operations Results for State Facilities

Under the existing General Plan assumptions, the LOS analysis results for freeways, multilane highways, and two-lane highways are provided in Attachment C (Tables C-1, C-2, C-3).

All state facilities except for the US 50 segments listed below were projected to meet the LOS threshold:

- El Dorado/Sacramento County Line to Latrobe Road: eastbound direction in the PM peak and westbound direction in the AM peak
- Latrobe Road to Bass Lake Road: westbound direction in the AM peak
- Bass Lake Road to Cambridge Road: eastbound direction in the PM peak

General Plan Operations Results for Local Roadways

The LOS analysis results for local roadways under the existing General Plan assumptions are shown in Attachment C (Table C-4).

The following local roadways are projected to exceed the County's LOS standards assuming no other improvements by 2035:

- Cameron Park Drive south of Hacienda Drive: PM peak
- Green Valley Road west of Sophia Parkway: AM and PM peaks
- Green Valley Road west of Lotus Road: PM peak
- Latrobe Road north of Golden Foothill Parkway: AM and PM peaks
- White Rock Road west of Windfield Way: PM peak
- White Rock Road at Sacramento/El Dorado County Line: PM peak

All the above roadway segments are located in designated community regions except for Green Valley Road west of Lotus Road.

PARALLEL FACILITY DEFICIENCY ANALYSIS RESULTS

Based on identified US 50 mainline and several County roadway deficiencies, the following roadway extensions were analyzed.

- Saratoga Way Extension (based on providing parallel capacity to the US 50 segment - County Line to El Dorado Hills Boulevard deficiency)
- Country Club Drive (based on providing parallel capacity to the US 50 segment – El Dorado Hills Boulevard/Silva Valley Parkway to Cambridge Road Interchange deficiency)
- Diamond Springs Parkway (based on providing parallel capacity to Missouri Flat Road and Missouri Flat Road Interchange)
- Latrobe Connector (based on parallel capacity to the White Rock Road and Latrobe Road deficiencies)
- Headington Road Connector (based on parallel capacity to Missouri Flat Road)

Assuming these roadways improvements are in place, several deficient segments were shown to operate acceptably due to redistribution of traffic. These facilities were therefore removed from the TIM Fee CIP list.

SUMMARY FOR ROADWAYS DEFICIENCIES

A summary of all deficient roadways is shown in Table 6. Under existing conditions, all local roadway segments analyzed were shown to operate within County standards except the Green Valley Road segment west of Sophia Parkway. All state facilities were also determined to operate within the established General Plan LOS standards. Under 2035 conditions (assumes 2035 General Plan land use and 2015 roadway network), three segments of US 50 and six local roadway segments were projected

to exceed LOS standards. Assuming additional parallel facility improvements, the number of local roadway deficiencides was reduced to four segments.

Table 6. Summary for Deficiency Roadways by Scenario

Facility Type	Baseline Roadway	2035 General Plan Roadway	2035 General Plan Roadway with Parallel Capacity Improvements
State Highways	None	1. US 50 (El Dorado/ Sacramento County Line to Latrobe Road) 2. US 50 (Latrobe Road to Bass Lake Road) 3. US 50 (Bass Lake Road to Cambridge Road)	1. US 50 (El Dorado/ Sacramento County Line to Latrobe Road) 2. US 50 (Latrobe Road to Bass Lake Road) 3. US 50 (Bass Lake Road to Cambridge Road)
	Total: 0 segment	**Total: 3 segments**	**Total: 3 segments**
Local Roads	1. Green Valley Road (west of Sophia Parkway)	1. Cameron Park Drive (south of Hacienda Drive) 2. Green Valley Road (west of Sophia Parkway) 3. Green Valley Road (west of Lotus Road) 4. Latrobe Road (north of Golden Foothill Parkway) 5. White Rock Road (west of Windfield Way) 6. White Rock Road (at El Dorado/Sacramento County Line)	1. Cameron Park Drive (south of Hacienda Drive) 2. Green Valley Road (west of Sophia Parkway) 3. Green Valley Road (west of Lotus Road) 4. White Rock Road (west of Windfield Way)
	Total: 1 segment	**Total: 6 segments**	**Total: 4 segments**

INTERCHANGE DEFICIENCY ANALYSIS RESULTS

Based on the comparative analysis of the "old" vs. "new" travel model forecasts at each interchange's ramps and over-crossing segments, the results re-confirm that the following interchange deficiency assessments (based on previous operational studies) would continue to hold with the new model (based on a combination of comparing 2035 PM peak hour volumes and average annual growth rates).

- El Dorado Hills Boulevard Interchange
- Silva Valley Parkway Interchange (under construction)
- Cambridge Road Interchange
- Cameron Park Drive Interchange
- Ponderosa Road Interchange
- El Dorado Road Interchange

Volume comparisons for the Bass Lake Road interchange showed lower forecasted traffic volumes for all ramps and overcrossing using the new update travel model relative to past forecasts. Based on these lower traffic projections, a more detailed operational analysis was warranted to determine the future operational integrity of the Bass Lake Interachange. The new operational analysis findings

based on the new model forecasts are provided in Attachment E. The 2035 future year operational results reconfirm the prior Bass Lake Road Interchange deficiencies. As such, the US 50 Bass Lake Road Interchange should remain in the TIM Fee CIP.

Comparison results for the Missouri Flat Road Interchange also show lower forecasted traffic volumes for all ramps and overcrossing (approximately 75% of the previous model volumes). As such, a more detailed operational analysis was performed to confirm if the Missouri Flat Road Interchange can accommodate future year traffic volumes resulting from the current General Plan. The operational analysis findings, provided in Attachment E, confirm that the Missouri Flat Road Interchange has sufficient capacity to accommodate 2035 future year conditions. Therefore the Missouri Flat Road Interchange will not be included in the TIM Fee program at this time. The County has recently commissioned a study of the area called the Missouri Flat Area Master Circulation & Financing Plan Phase II (MC&FP Phase II). The study will identify future land use options and infrastructure needs beyond what is currently assumed in the General Plan. Given that the MC&FP Phase II study will not be completed prior to the completion of this analysis, the "growth potential" assessment in the vicinity of this interchange will not be fully reflected in this analysis. Based on MC&FP Phase II study, further analysis will be performed to determine if and when additional improvements will be required at the Missouri Flat Road Interchange.

All other interchanges with the exception of the Red Hawk Parkway do not have volumes or growth to confirm that they are deficient. Red Hawk Parkway serves only Red Hawk Casino and is constructed only to access the Casino.

A summary of interchange volumes and annual growth rate comparisons between the previous and the current travel models are shown in Attachment D (Table D-1 and Table D-2). Table D-1 represents a volume comparison and Table D-2 presents a growth comparion for the General Plan scenarios. Operational analyses for the Bass Lake Road and Missouri Flat Road interchanges are provided in Attachment E.

RECOMMENDED TIM FEE CIP IMPROVEMENTS

Based on the identified deficiencies, TIM Fee CIP improvements are proposed for the following facility types:

- Mainline Freeway Improvement
- Interchange Improvement
- Parallel Facilities Improvment
- Local Roadways Improvement

FREEWAY MAINLINE IMPROVEMENTS

US 50 between Sacramento/El Dorado County Line and Cambridge Road is projected to operate at Level of Service (LOS) exceeding the standards under 2035 General Plan Conditions. In addition, interchange deficiencies described in the following section also entail adding auxiliary lanes as part of the interchange improvements. The following auxiliary lane TIM Fee CIP improvements are recomended in order for the specified US 50 segments to maintain acceptable LOS operations:

- Eastbound County Line (future) to EI Dorado Hills Blvd IC
- Eastbound Bass Lake Rd IC to Cambridge Rd IC
- Eastbound Cambridge Rd IC to Cameron Park Dr IC
- Eastbound Cameron Park Dr IC to Ponderosa Rd IC
- Westbound Ponderosa Rd IC to Cameron Park Dr IC
- Westbound Cambridge Rd IC to Bass Lake Rd IC
- Westbound Bass Lake Rd IC to Silva Valley Pkwy IC
- Westbound EI Dorado Hills Blvd IC to County Line (future)

INTERCHANGE IMPROVEMENTS

Based on the comparative analysis of the “old” vs. “new” travel model forecasts at each interchange’s ramps and over-crossing segments, the results re-confirm the previously identified deficiency and the improvements are recommended at the following interchanges:

- EI Dorado Hills Blvd Interchange reconfiguration; existing structure to remain
- Silva Valley Parkway Interchange (Phase I under construction, Phase II only)
- Bass Lake Rd Interchange Existing undercrossing structure to remain
- Cambridge Rd Interchange modification; existing structure to remain
- Cameron Park Dr Interchange reconfiguration; new overcrossing structure
- Ponderosa Rd Interchange reconfiguration; new overcrossing structure
- EI Dorado Road Interchange reconfiguration; widen existing overcrossing

LOCAL ROADWAYS IMPROVEMENTS

Based on the identified County roadway deficiencies, improvements are recommended for the followings:

- Cameron Park Dr north of Palmer Dr to Hacienda Rd; 2-Lane to 4-Lane; sidewalk on east side only
- Green Valley Rd from Sacamento/El Dorado County line to Sophia Pkwy; 2-Lane to 4-Lane; sidewalk on both sides
- Green Valley Rd from Deer Valley Rd to southwest of Lotus Rd; 2-Lane to 3-Lane
- Green Valley Rd east of Francisco Dr to east of Silva Valley Pkwy; 2-Lane to 4-Lane; sidewalk on north side only
- White Rock Rd from Post St to south of Silva Valley Pkwy 2-Lane to 4-Lane; sidewalk on both sides

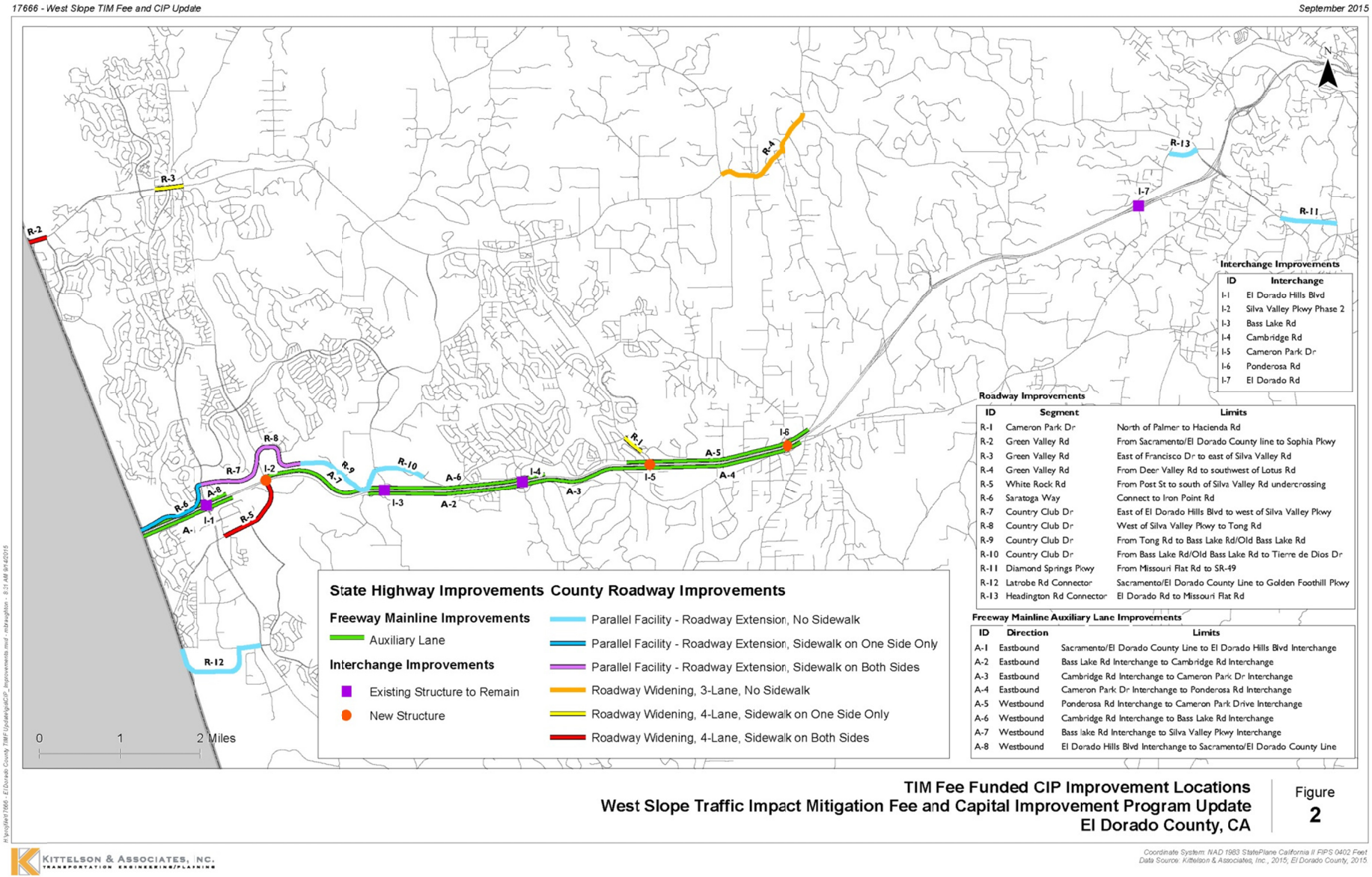
PARALLEL FACILITIES IMPROVEMENTS

Based on the identified US 50 mainline and local roadway deficiencies, the following parallel roadway capacity improvements are recommended to the TIM Fee CIP list:

- Saratoga Way (future) connect to Iron Point Rd; 4-Lane; sidewalk on north side only; widen existing Saratoga Way 2-Lane to 4-Lane from west terminus to El Dorado Hills Blvd; sidewalk on north side only
- Country Club Drive (future) connect El Dorado Hills Blvd east to Silva Valley Parkway/Tong Rd; sidewalk on both sides
- Country Club Dr (future) 2-Lane; Silva Valley Parkway/Tong Rd to Bass Lake Rd/Old Bass Lake Rd; sidewalk on both sides.
- Country Club Dr (future) 2-Lane from Bass Lake Rd/Old Bass Lake Rd to Tierre de Dios Dr.
- Diamond Springs Pkwy (future) from Missouri Flat Rd to Route 49
- Latrobe Road connector 2-Lane between White Rock Road and Golden Foothill Parkway/Latrobe Road
- Headington Road connector 2-Lane between El Dorado Road and Missouri Flat Road

The improvement locations are shown in Figure 2.

Figure 2. TIM Fee CIP Map



ATTACHMENT A

ROADWAY SEGMENT VOLUME FORECASTS

(state highway segments presented by post-mile)
(local roadway segments presented in alphabetical order)

Volume Forecasts for State Facilities

Route	Postmile	Segment Length	Description	2013 Caltrans Volumes Published AADT x K x D				Type	Model Volumes - AM (Interim Step – Not Used for LOS Operations)				Model Volume - PM (Interim Step – Not Used for LOS Operations)				Final Adjusted Forecast Volume (Final Volumes Used for LOS Operations)			
				AM EB/NB PHV	AM WB/SB PHV	PM EB/NB PHV	PM WB/SB PHV		EB/NB 2015	EB/NB 2035 GP	WB/SB 2015	WB/SB 2035 GP	EB/NB 2015	EB/NB 2035 GP	WB/SB 2015	WB/SB 2035 GP	EB/NB 2035 GP AM	WB/SB 2035 GP AM	EB/NB 2035 GP PM	WB/SB 2035 GP PM
50	0		SACRAMENTO/EL DORADO COUNTY LINE																	
		0.857		2470	3790	4749	1879	Freeway	3003	4776	5525	7081	5805	7441	3800	5280	4,090	5,110	6,240	2,990
50	0.857		LATROBE ROAD																	
		2.375		1234	3696	3400	2350	Freeway	1757	3028	3864	5738	3686	5400	2109	3565	2,320	5,530	5,050	3,890
50	3.232		BASS LAKE ROAD																	
		1.73		1379	3102	3331	2095	Freeway	1934	2962	4098	4884	3736	4875	2391	3686	2,260	3,800	4,410	3,310
50	4.962		CAMBRIDGE ROAD																	
		1.608		1700	2610	3010	2080	Freeway	1981	2961	3499	4024	3346	4201	2244	3403	2,610	3,070	3,830	3,200
50	6.57		CAMERON PARK DRIVE																	
		1.994		1730	2650	3060	2110	Freeway	1710	2273	3077	3477	2815	3349	1893	2577	2,300	3,030	3,620	2,840
50	8.564		PONDEROSA ROAD																	
		1.731		1340	2060	2305	1891	Freeway	1531	2015	2468	2978	2347	2914	1694	2320	1,800	2,530	2,870	2,560
50	10.295		SHINGLE SPRINGS																	
		1.895		1330	2040	2360	1630	Freeway	1531	2015	2468	2978	2347	2914	1694	2320	1,790	2,510	2,930	2,250
50	12.19		GREENSTONE ROAD																	
		1.821		1100	1770	1910	1680	Freeway	1643	2094	2513	2864	2438	2882	1817	2307	1,480	2,070	2,310	2,160
50	14.011		EL DORADO ROAD																	
		1.044		1070	1740	1870	1640	Freeway	1648	2079	2404	2729	2337	2709	1749	2188	1,430	2,030	2,210	2,070
50	15.055		MISSOURI FLAT ROAD																	
		0.774		1220	1980	2130	1870	Freeway	1323	1670	1968	2277	1885	2218	1466	1855	1,560	2,290	2,490	2,320
50	15.829		PLACERVILLE, FAIRGROUNDS																	
		1.161		920	1490	1610	1410	Freeway	1266	1559	2155	2255	2035	2316	1470	1779	1,180	1,580	1,870	1,720
50	16.99		WEST PLACERVILLE																	
		0.43		1140	1850	1990	1750	Freeway	1266	1559	2155	2255	2035	2316	1470	1779	1,420	1,950	2,270	2,090
50	17.42		EB OFF TO MAIN STREET																	
		0.1		1200	1940	2090	1840	Multi-lane	1356	1749	2249	2614	2149	2695	1639	2138	1,580	2,290	2,630	2,370
50	17.52		PLACERVILLE, CANAL STREET																	
		0.147		1010	2050	2130	1570	Multi-lane	1356	1749	2192	2396	2149	2695	1799	2044	1,360	2,250	2,680	1,800
50	17.667		PLACERVILLE, JCT. RTE. 49																	
		0.121		900	1820	1890	1390	Multi-lane	1395	1710	2011	2253	2060	2325	1529	1849	1,160	2,060	2,150	1,700
50	17.788		PLACERVILLE, COLOMA STREET																	
		0.244		910	1850	1920	1410	Multi-lane	1395	1710	2011	2253	2060	2325	1529	1849	1,180	2,090	2,180	1,720
50	18.032		PLACERVILLE, BEDFORD AVENUE																	
		0.485		760	1530	1590	1170	Multi-lane	1395	1710	2065	2315	2060	2325	1593	1925	1,010	1,750	1,830	1,460
50	18.517		PLACERVILLE, MOSQUITO ROAD OH (BROADWAY)																	
		0.473		680	1370	1420	1040	Freeway	838	1006	1865	2085	1597	1886	1204	1417	840	1,570	1,700	1,240
50	18.99		PLACERVILLE, SCHNELL SCHOOL ROAD																	
		1.306		540	1090	1140	840	Freeway	838	1006	1855	2086	1556	1769	1037	1230	680	1,280	1,330	1,020
50	20.296		PLACERVILLE, POINT VIEW DRIVE																	
		0.445		460	930	970	710	Freeway	816	944	1583	1741	1441	1603	923	1060	570	1,060	1,110	840
50	20.741		NEW TOWN ROAD																	
		3.216		460	940	980	720	Multi-lane	838	973	1622	1792	1472	1649	960	1109	570	1,080	1,130	860
50	23.957		JUNCTION OLD HIGHWAY, CAMINO, WEST																	
		1.992		260	840	940	620	Multi-lane	838	973	1622	1792	1472	1649	960	1109	350	970	1,090	750
50	25.949		EAST CAMINO ROAD																	
		2.893		270	870	980	640	Freeway	838	973	1622	1792	1472	1649	960	1109	360	1,010	1,130	770
50	28.842		SAWMILL (POLLOCK PINES)																	
		2.457		380	670	790	460	Freeway	838	973	1622	1792	1472	1649	960	1109	480	790	930	570
50	31.299		SLY PARK ROAD																	
		2.92		230	410	480	280	Two-lane	838	973	1622	1792	1472	1649	960	1109	320	520	600	380
50	34.219		OLD CARSON ROAD																	
		5.553		310	540	650	380	Multi-lane	633	734	1168	1322	1038	1182	688	797	390	660	770	470
50	39.772		ICEHOUSE ROAD																	
		6.82		320	560	670	390	Two-lane	438	516	466	536	430	498	411	484	390	640	760	470
50	46.592		W O ALDER RIDGE ROAD																	
		2.36		320	560	650	380	Two-lane	430	502	454	526	417	485	401	470	390	650	740	450

Route	Postmile	Segment Length	Description	2013 Caltrans Volumes Published AADT x K x D				Type	Model Volumes - AM (Interim Step – Not Used for LOS Operations)				Model Volume - PM (Interim Step – Not Used for LOS Operations)				Final Adjusted Forecast Volume (Final Volumes Used for LOS Operations)			
				AM EB/NB PHV	AM WB/SB PHV	PM EB/NB PHV	PM WB/SB PHV		EB/NB 2015	EB/NB 2035 GP	WB/SB 2015	WB/SB 2035 GP	EB/NB 2015	EB/NB 2035 GP	WB/SB 2015	WB/SB 2035 GP	EB/NB 2035 GP AM	WB/SB 2035 GP AM	EB/NB 2035 GP PM	WB/SB 2035 GP PM
50	48.952		SILVER FORK ROAD																	
		4.78		320	560	650	380	Two-lane	429	502	455	531	418	489	399	469	390	650	750	450
50	53.732		WRIGHTS LAKE ROAD																	
		4.16		320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
50	57.892		STRAWBERRY LN																	
		2.3		320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
50	60.192		SLIPPERY FORD ROAD																	
		3.33		320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
50	63.522		SIERRA-AT-TAHOE ROAD																	
		1.83		320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
50	65.619		ECHO LAKE ROAD																	
									425	495	451	529	412	483	394	460				
49	0		AMADOR/EL DORADO COUNTY LINE																	
		1.65		144	40	53	156	Two-lane	172	185	81	75	120	137	191	233	160	40	70	200
49	1.65		NASHVILLE, SOUTH																	
		6.702		249	68	92	270	Two-lane	172	185	81	75	120	137	191	233	270	70	110	330
49	8.352		CHINA HILL ROAD																	
		1.142		471	129	175	511	Two-lane	172	185	81	75	120	137	191	233	500	130	200	590
49	9.494		EL DORADO, UNION MINE ROAD																	
		0.147		628	172	233	681	Two-lane	219	268	94	95	138	164	230	297	730	180	270	820
49	9.641		EL DORADO, PLEASANT VALLEY ROAD																	
		1.598		883	243	327	958	Two-lane	439	517	191	239	271	352	445	552	1,010	300	420	1,130
49	11.239		MISSOURI FLAT ROAD																	
		0.62		982	269	364	1064	Two-lane	701	827	847	901	818	911	793	846	1,140	310	440	1,130
49	11.859		DIAMOND SPRINGS, PLEASANT VALLEY ROAD																	
		2.604		406	111	150	440	Two-lane	692	823	1073	1145	1076	1192	786	958	510	160	220	580
49	14.463		PLACERVILLE, FISKE ROAD																	
		0.134		916	252	339	993	Two-lane	530	591	467	583	550	689	580	659	1,000	350	460	1,110
49	14.597		PLACERVILLE, PACIFIC/ MAIN STREETS																	
		0.294		353	97	131	383	Two-lane	670	777	677	818	811	937	775	885	440	180	210	470
49	14.891		PLACERVILLE, JCT. RTE. 50																	
		0.794		445	122	165	483	Two-lane	477	435	589	575	756	796	369	485	450	130	190	620
49	15.685		JCT. RTE. 193 NORTH																	
		0.755		308	84	114	334	Two-lane	258	329	488	526	501	554	326	378	390	110	150	390
49	16.44		DIANA STREET																	
		2.98		229	63	85	248	Two-lane	188	212	321	344	332	367	229	269	260	80	110	290
49	19.42		GOLD HILL ROAD																	
		3.445		147	40	55	160	Two-lane	145	167	277	298	287	323	181	216	170	60	80	200
49	22.865		COLOMA, JCT. RTE. 153 WEST																	
		1.615		353	97	131	383	Two-lane	181	210	354	401	366	427	238	281	400	130	180	440
49	24.48		MARSHALL GRADE ROAD (TO GEORGETOWN)																	
		3.71		229	63	85	248	Two-lane	187	260	252	331	290	395	233	330	320	120	160	350
49	28.19		HASTINGS CREEK BRIDGE																	
		6.276		229	63	85	248	Two-lane	111	142	209	269	227	308	145	199	280	110	150	330
49	34.466		COOL, JCT. RTE. 193 EAST																	
		3.767		563	154	208	610	Two-lane	417	512	351	433	379	472	401	499	680	220	280	740
49	38.233		EL DORADO/PLACER COUNTY LINE																	
									333	432	324	408	359	455	356	458	0	0	0	0
153	0	0	JCT. RTE. 49																	
				140	52	91	149	Two-lane	219	268	94	95	138	164	230	297	190	60	120	210
153	0.12	0.12	COLD SPRINGS ROAD																	
				5	4	5	6	Two-lane									10	10	10	10
153	0.55	0.55	MARSHALL'S MONUMENT																	
193	0		COOL, JCT. RTE. 49																	
		0.856		120	329	324	161	Two-lane	155	185	420	496	357	429	192	235	150	400	400	210
193	0.856		AMERICAN RIVER ROAD																	
		1.313		144	397	391	194	Two-lane	148	172	385	442	333	390	184	219	170	460	460	230

Route	Postmile	Segment Length	Description	2013 Caltrans Volumes Published AADT x K x D				Type	Model Volumes - AM (Interim Step – Not Used for LOS Operations)				Model Volume - PM (Interim Step – Not Used for LOS Operations)				Final Adjusted Forecast Volume (Final Volumes Used for LOS Operations)			
				AM EB/NB PHV	AM WB/SB PHV	PM EB/NB PHV	PM WB/SB PHV		EB/NB 2015	EB/NB 2035 GP	WB/SB 2015	WB/SB 2035 GP	EB/NB 2015	EB/NB 2035 GP	WB/SB 2015	WB/SB 2035 GP	EB/NB 2035 GP AM	WB/SB 2035 GP AM	EB/NB 2035 GP PM	WB/SB 2035 GP PM
193	2.169		AUBURN LAKE TRAIL ROAD																	
		10.021		111	306	302	150	Two-lane	148	172	385	442	333	390	184	219	140	360	360	190
193	12.19		EVERGREEN COURT ROAD																	
		0.509		109	300	296	147	Two-lane	101	110	80	90	94	104	108	117	120	330	320	160
193	12.699		GEORGETOWN, LOWER MAIN STREET																	
		3.406		215	59	76	221	Two-lane	65	66	74	78	76	81	66	69	220	70	90	230
193	16.105		BLACK OAK MINE ROAD																	
		3.295		133	37	47	137	Two-lane	43	45	55	56	51	53	45	48	140	40	50	150
193	19.4		GARDEN VALLEY ROAD																	
		7.55		182	50	64	187	Two-lane	146	159	58	63	75	83	140	155	200	60	80	210
193	26.95		JCT. RTE. 49																	

Volume Forecasts for County Roadways

NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 GP AM	2035 GP PM	2035 GP AM	2035 GP PM
Bass Lake Rd	North of Country Club Dr	1028	966	923	1012	1296	1398	1,430	1,350
Bass Lake Rd	South of Green Valley Rd	539	448	719	732	1053	1053	840	710
Bassi Rd	West of Lotus Rd	83	107	41	51	49	59	100	120
Bedford Ave	At City Limit	35	46	47	52	51	56	40	50
Broadway	At City Limit	256	309	536	562	668	703	360	420
Bucks Bar Rd	South Pleasant Valley Rd	411	412	453	463	525	549	490	500
Bucks Bar Rd	North of Mt Aukum Rd	294	307	400	419	470	496	360	380
Cambridge Rd	North of Country Club Dr	571	632	791	828	1047	1217	800	980
Cambridge Rd	South of Country Club Dr	584	709	990	1031	1227	1288	780	930
Cambridge Rd	At US 50 Overcrossing	641	810	321	669	633	950	1,110	1,130
Cambridge Rd	South of Green Valley Rd	379	394	524	562	824	880	640	670
Cambridge Rd	North of Oxford Rd	339	366	543	610	673	767	450	500
Cameron Park Dr	North of Coach Ln	1155	2022	1561	2130	2297	3186	1,800	3,060
Cameron Park Dr	South of Hacienda Dr	1236	1619	1356	1555	1598	1776	1,470	1,850
Cameron Park Dr	South of Green Valley Rd	685	781	836	907	1030	1094	870	960
Cameron Park Dr	North of Mira Loma Dr	929	1180	884	984	1116	1252	1,170	1,480
Cameron Park Dr	South of Robin Ln	533	901	607	822	982	1265	890	1,370
Cameron Park Dr	North of Robin Ln	456	773	950	1343	1539	2149	900	1,410
Carson Rd	East of Barkley Rd	189	269	364	411	412	466	230	320
Carson Rd	At Carson Ct	82	149	25	43	31	65	100	200
Carson Rd	West of Gatlin Rd	57	137	43	53	78	87	100	200
Carson Rd	East of Ponderosa Way	139	208	166	181	175	189	150	220
China Garden Rd	East of Missouri Flat Rd	220	320	36	47	116	110	300	570
China Garden Rd	North of SR 49	82	71	400	486	576	804	120	120
Cold Springs Rd	South of Gold Hill Rd	188	289	184	221	232	260	240	340
Cold Springs Rd	South of SR 153	120	187	182	193	227	237	160	230
Country Club Dr	East of Bass Lake Rd	456	320	555	521	948	807	820	560
Country Club Dr	West of Knollwood Dr	515	277	258	297	477	487	850	470
Country Club Dr	East of Cambridge Rd	222	266	335	403	868	879	580	580
Country Club Dr	East of Merrychase Dr	381	197	494	430	653	575	530	310
Country Club Dr	West of Cameron Park Dr	254	375	287	374	622	761	560	770
Durock Rd	West of S. Shingle Rd	365	568	637	772	979	1100	640	860
El Dorado Hills Blvd	South of Wilson Blvd	1951	1895	1651	1999	1697	1952	2,010	1,900
El Dorado Hills Blvd	North of Wilson Blvd	2018	1858	1516	1766	1443	1539	2,020	1,860

NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 GP AM	2035 GP PM	2035 GP AM	2035 GP PM
El Dorado Hills Blvd	North of Saratoga Way	2353	2458	3284	4070	3718	4247	2,730	2,600
El Dorado Hills Blvd	South of Green Valley Rd	448	367	446	510	454	453	460	370
El Dorado Hills Blvd	North of Harvard Way	1627	1497	1453	1583	1571	1668	1,760	1,580
El Dorado Rd	South of US 50	381	388	398	490	607	785	590	660
El Dorado Rd	North of Pleasant Valley Rd	197	185	109	144	304	386	400	430
El Dorado Rd	South of Missouri Flat Rd	160	185	181	297	330	539	310	390
Enterprise Dr	East of Forni Rd	227	309	43	50	60	96	280	480
Fairplay Rd	South of Mt Aukum Rd	144	162	208	212	228	239	170	190
Forni Rd	North of SR 49	322	280	37	56	64	116	450	470
Forni Rd	West of Arroyo Vista Way	85	141	93	125	106	141	100	160
Francisco Dr	South of Green Valley Rd	1050	1162	84	80	92	90	1,110	1,240
Gold Hill Rd	East of Lotus Road	231	142	143	166	186	204	290	180
Gold Hill Rd	East of Cold Springs Rd	64	45	65	63	80	78	80	60
Gold Hill Rd	West of Cold Springs Rd	243	144	142	165	173	189	290	170
Green Valley Rd	West of Sophia Pkwy	1881	2066	1725	1724	2717	2918	2,920	3,380
Green Valley Rd	West of Weber Creek	277	376	120	143	178	223	380	520
Green Valley Rd	West of Silva Valley Rd	951	1119	1414	1421	1671	1726	1,170	1,400
Green Valley Rd	East of Mormon Island Dr	1998	2480	2104	1840	2693	2734	2,580	3,540
Green Valley Rd	West of Mormon Island Dr	2005	2481	2104	1840	2693	2734	2,580	3,540
Green Valley Rd	East of Sophia Pkwy	2020	2475	2129	1875	2744	2816	2,620	3,570
Green Valley Rd	East of Francisco Dr	1208	1071	1280	1193	1677	1646	1,600	1,510
Green Valley Rd	West of Bass Lake Rd	1289	945	969	947	1158	1148	1,510	1,150
Green Valley Rd	East of Bass Lake Rd	1138	996	1382	1400	1741	1784	1,470	1,330
Green Valley Rd	East of La Crescenta Dr	673	596	319	325	626	662	1,160	1,080
Green Valley Rd	East of Deer Valley Rd	407	403	241	254	398	432	620	640
Green Valley Rd	West of Lotus Rd	607	709	740	729	1077	1128	920	1,110
Green Valley Rd	West of Greenstone Rd	368	379	277	300	417	482	540	590
Green Valley Rd	West of Missouri Flat Rd	868	740	341	356	409	449	990	890
Green Valley Rd	West of Campus Dr	392	424	341	356	409	449	470	530
Greenstone Rd	North of US 50	257	246	298	319	411	461	370	380
Greenstone Rd	North of Mother Lode Dr	93	112	61	65	99	112	150	180
Grizzly Flat Rd	East of Mt Aukum Rd	151	199	179	188	229	238	200	260
Harvard Way	East of El Dorado Hills Blvd	970	483	807	709	1021	950	1,210	690
Harvard Way	West of Silva Valley Pkwy	871	561	565	413	814	747	1,190	960
Ice House Rd	North of US 50	37	71	9	9	9	9	40	80
Latrobe Rd	North of County Line	241	329	228	294	457	506	480	560
Latrobe Rd	South of Investment Blvd	373	449	385	437	656	690	650	710
Latrobe Rd	North of Golden Foothill Pkwy	2123	2287	1988	2290	3600	3829	3,790	3,830
Latrobe Rd	North of Investment Blvd	802	971	329	372	550	579	1,190	1,350
Latrobe Rd	North of White Rock Rd	2557	2695	2553	2687	3396	3489	3,410	3,500
Lotus Rd	South of Thompson Hill Rd	346	441	462	449	601	616	470	610
Lotus Rd	North Green Valley Rd	565	703	760	756	1225	1304	980	1,240
Lotus Rd	South of SR 49	260	354	446	454	586	621	380	510
Luneman Rd	West of Lotus Rd	333	196	227	248	261	281	380	230
Marshall Rd	East of SR 49	315	315	271	264	332	325	390	390
Marshall Rd	East of Garden Valley Rd	432	408	349	352	419	422	520	490
Marshall Rd	South of Lower Main St	37	50	228	226	257	254	60	70
Meder Rd	East of Cameron Park Dr	528	568	442	423	725	818	840	1,040
Meder Rd	West of Ponderosa Rd	420	436	379	349	506	538	560	650
Missouri Flat Rd	West of El Dorado Rd	844	714	247	310	328	411	1,030	890
Missouri Flat Rd	East of El Dorado Rd	801	835	431	477	512	595	920	1,000
Missouri Flat Rd	South of China Garden Rd	1174	1640	1201	1347	1226	1265	1,200	1,640
Missouri Flat Rd	North of SR 49	1047	1307	1060	1175	1075	1074	1,070	1,310

NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 GP AM	2035 GP PM	2035 GP AM	2035 GP PM
Missouri Flat Rd	North of Forni Rd	1876	2686	1871	2196	2103	2509	2,110	3,040
Missouri Flat Rd	South of Forni Rd	1600	1986	1366	1603	1525	1780	1,780	2,190
Mormon Emigrant Trl	East of Sly Park Rd	38	63	161	165	214	221	80	110
Mosquito Rd	At City Limit	335	346	501	528	702	742	510	530
Mosquito Rd	South of American River Bridge	90	110	130	126	178	173	130	160
Mother Lode Dr	West of Sunset Ln	950	1068	1263	1345	1512	1573	1,170	1,280
Mother Lode Dr	West of Pleasant Valley Rd	642	757	762	808	1092	1181	950	1,120
Mother Lode Dr	East of Pleasant Vally Rd	229	347	170	226	233	292	310	440
Mt Aukum Rd	North of County Line	114	137	50	58	51	63	120	150
Mt Aukum Rd	South of Bucks Bar Rd	252	297	381	403	437	468	300	360
Mt Aukum Rd	South of Pleasant Valley Rd	190	318	290	325	339	378	230	380
Mt Murphy Rd	North of SR 49	26	25	306	334	344	382	50	60
Mt Murphy Rd	South of Marshall Rd	54	97	182	195	208	229	80	130
Newtown Rd	North of Pioneer Hill Rd	231	240	347	361	428	426	300	300
Newtown Rd	East of Broadway Rd	299	323	420	436	500	502	370	390
Newtown Rd	North of Pleasant Valley Rd	215	223	270	262	349	335	290	290
Old French Town Rd	South of Mother Lode Dr	83	104	150	159	224	242	150	180
Omo Ranch Rd	East of Mt Aukum Rd	63	56	54	60	59	66	70	70
Oxford Rd	East of Salida Way	262	335	527	602	874	1035	530	680
Palmer Dr	East of Cameron Park Dr	449	873	560	764	777	1045	650	1,180
Patterson Dr	South of Pleasant Valley Rd	293	407	377	412	523	579	430	580
Pleasant Valley Rd	East of Mother Lode Dr	561	603	592	582	860	890	830	920
Pleasant Valley Rd	East of Bucks Bar Rd	473	443	394	402	485	514	580	570
Pleasant Valley Rd	West of Oak Hill Rd	901	970	864	892	911	952	950	1,040
Pleasant Valley Rd	East of SR 49	1075	1203	1355	1455	1532	1697	1,240	1,430
Pleasant Valley Rd	East of Cedar Ravine Rd	861	860	824	844	987	1041	1,030	1,060
Pleasant Valley Rd	East of Newtown Rd	429	442	406	409	487	498	520	540
Pony Express Trl	East of Carson Rd	203	262	244	256	256	275	220	290
Pony Express Trl	East of Gilmore Rd	237	414	453	494	497	541	280	460
Pony Express Trl	West of Forebay Rd	251	492	264	340	276	352	270	510
Salmon Falls Rd	At New York Creek Bridge	191	244	504	461	651	569	300	330
Salmon Falls Rd	South of Malcolm Dixon Rd	612	590	1030	1047	1232	1244	780	750
Salmon Falls Rd	South of Pedro Hill Rd	92	100	342	307	458	393	170	160
Salmon Falls Rd	South of Rattlesnake Bar Rd	31	38	342	307	458	393	50	50
Serrano Pkwy	West of Bass Lake Rd	491	466	727	633	1210	1077	900	860
Shingle Springs Dr	South of US 50	475	221	152	183	423	625	1,040	670
Silva Valley Pky	North of US 50	776	1052	715	648	2088	2135	2,150	2,540
Silva Valley Pky	South of Green Valley Rd	603	554	482	552	632	691	780	700
Silva Valley Pky	North of Havard Way	886	848	348	383	539	556	1,230	1,130
Silva Valley Pky	South of Serrano Pkwy	1185	975	627	547	1086	1101	1,850	1,750
Snows Rd	North of Newtown Rd	80	83	106	124	121	140	100	100
Snows Rd	South of Carson Rd	337	212	227	203	242	221	360	230
South Shingle Rd	East of Latrobe Rd	98	75	184	200	240	283	150	140
South Shingle Rd	North of Barnett Ranch	192	217	267	295	320	371	240	290
South Shingle Rd	South of Sunset Ln	434	555	382	423	523	635	590	800
Starbuck Rd	North of Green Valley Rd	113	149	110	128	157	176	170	210
Union Ridge Rd	West of Hassler Rd	32	42	26	31	63	69	70	90
Wentworth Springs Rd	West of Quintette Rd	29	50	38	36	41	40	40	60
White Rock Rd	At County Line	834	1026	1066	597	1825	1807	1,520	2,240
White Rock Rd	East of Latrobe Rd	1036	1444	1225	1220	1364	1371	1,170	1,610
White Rock Rd	West of Latrobe Rd	999	1121	1111	747	1577	1504	1,450	2,070
Latrobe Rd	North of Golden Foothill Pkwy South	1601	1819	1254	1392	2007	2060	2,460	2,590
Serrano Pkwy	East of Silva Valley Pkwy	1424	947	1314	1161	1912	1623	2,050	1,370

NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 GP AM	2035 GP PM	2035 GP AM	2035 GP PM
Bass Lake Rd	North of Serrano Pkwy	824	816	937	939	1220	1210	1,090	1,070
French Creek Rd	North of Old French Town Rd	178	214	269	271	340	306	240	250
Ponderosa Rd	North of Jackpine Rd	147	128	40	34	41	36	160	140
N Shingle Rd	South of Green Valley Rd	414	440	587	559	764	763	570	630
Mother Lode Dr	East of French Creek Rd	904	809	904	897	1074	1087	1,080	1,000
Rock Creek Rd	East of SR 193	19	18	1	1	1	1	40	40
White Rock Rd	West of Windfield Way	824	816	1246	830	1909	1930	1,380	1,900
El Dorado Hills Blvd	South of Francisco Dr	1324	1299	1160	1307	1240	1348	1,410	1,350
Sly Park Rd	East of Mt Aukum Rd	242	272	232	246	272	290	290	320
Sly Park Rd	East of Mormon Emigrant Trail	234	324	401	416	475	492	300	400
Sly Park Rd	South of Pony Express Trail	581	734	419	506	450	539	620	780

ATTACHMENT B

EXISTING OPERATIONS RESULTS

(state highway segments presented by post-mile)
(local roadway segments presented in alphabetical order)

Table B-1. Existing LOS Results for US 50 Freeway Sections

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]
50	1	0	0.857	0.857	SACRAMENTO/EL DORADO COUNTY LINE	LATROBE ROAD	E	65.00	13.95	B	64.51	24.59	C	63.91	26.24	D	65.00	12.38	B
50	2	0.857	3.232	2.375	LATROBE ROAD	BASS LAKE ROAD	D	65.00	6.97	A	65.00	17.46	B	64.22	25.46	C	65.00	15.49	B
50	3	3.232	4.962	1.73	BASS LAKE ROAD	CAMBRIDGE ROAD	D	65.00	11.03	B	64.01	26.00	C	65.00	21.12	C	65.00	13.82	B
50	4	4.962	6.57	1.608	CAMBRIDGE ROAD	CAMERON PARK DRIVE	E	65.00	13.60	B	64.85	23.18	C	65.00	17.77	B	65.00	13.71	B
50	5	6.57	8.564	1.994	CAMERON PARK DRIVE	PONDEROSA ROAD	E	65.00	15.16	B	63.93	26.19	D	64.90	22.84	C	65.00	17.58	B
50	6	8.564	10.295	1.731	PONDEROSA ROAD	SHINGLE SPRINGS	D	65.00	11.74	B	65.00	19.40	C	65.00	17.73	B	65.00	15.76	B
50	7	10.295	12.19	1.895	SHINGLE SPRINGS	GREENSTONE ROAD	D	65.00	11.65	B	65.00	19.86	C	65.00	17.56	B	65.00	13.58	B
50	8	12.19	14.011	1.821	GREENSTONE ROAD	EL DORADO ROAD	D	65.00	9.64	A	65.00	16.08	B	65.00	15.23	B	65.00	14.00	B
50	9	14.011	15.055	1.044	EL DORADO ROAD	MISSOURI FLAT ROAD	E	65.00	9.03	A	65.00	15.72	B	65.00	15.59	B	65.00	14.27	B
50	10	15.055	15.829	0.774	MISSOURI FLAT ROAD	PLACERVILLE, FAIRGROUNDS	E	65.00	7.12	A	65.00	11.94	B	65.00	12.28	B	65.00	10.85	A
50	11	15.829	16.99	1.161	PLACERVILLE, FAIRGROUNDS	WEST PLACERVILLE	E	65.00	7.77	A	65.00	13.54	B	65.00	13.35	B	65.00	12.27	B
50	12	16.99	17.42	0.43	WEST PLACERVILLE	EB OFF TO MAIN STREET	E	65.00	9.62	A	65.00	16.73	B	65.00	16.58	B	65.00	15.23	B
50	18	18.517	18.99	0.473	PLACERVILLE, MOSQUITO ROAD	PLACERVILLE, SCHNELL SCHOOL ROAD	E	55.00	7.16	A	55.00	14.96	B	55.00	14.43	B	55.00	10.95	A
50	19	18.99	20.296	1.306	PLACERVILLE, SCHNELL SCHOOL ROAD	PLACERVILLE, POINT VIEW DRIVE	E	55.00	5.69	A	55.00	12.01	B	55.00	11.48	B	55.00	8.85	A
50	20	20.296	20.741	0.445	PLACERVILLE, POINT VIEW DRIVE	NEW TOWN ROAD	D	65.00	4.10	A	65.00	8.64	A	65.00	8.29	A	65.00	6.33	A
50	23	25.949	28.842	2.893	EAST CAMINO ROAD	SAWMILL (POLLOCK PINES)	E	65.00	2.42	A	65.00	8.80	A	65.00	7.81	A	65.00	5.75	A
50	24	28.842	31.299	2.457	SAWMILL (POLLOCK PINES)	SLY PARK ROAD	E	65.00	3.40	A	65.00	7.07	A	65.00	6.00	A	65.00	4.12	A

[1] Density expressed in pc/mi/ln, passenger cars per mile per lane
[2] Level of service is based on density as described in Basic Freeway Segment, Chapter 11, HCM 2010

Table B-2. Existing LOS Results for US 50 Multilane Highway Sections

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]
50	13	17.42	17.52	0.1	EB OFF TO MAIN STREET	PLACERVILLE, CANAL STREET	E	45.00	15.36	B	45.00	26.76	D	45.00	24.84	C	45.00	23.56	C
50	14	17.52	17.667	0.147	PLACERVILLE, CANAL STREET	PLACERVILLE, JCT. RTE. 49	F	45.00	8.62	A	45.00	18.18	C	45.00	26.24	D	45.00	20.09	C
50	15	17.667	17.788	0.121	PLACERVILLE, JCT. RTE. 49	PLACERVILLE, COLOMA STREET	F	45.00	7.69	A	45.00	16.18	B	45.00	23.38	C	45.00	17.84	B
50	16	17.788	18.032	0.244	PLACERVILLE, COLOMA STREET	PLACERVILLE, BEDFORD AVENUE	F	45.00	7.78	A	45.00	16.42	B	45.00	23.76	C	45.00	18.11	C
50	17	18.032	18.517	0.485	PLACERVILLE, BEDFORD AVENUE	PLACERVILLE, MOSQUITO ROAD OH	F	45.00	6.51	A	45.00	13.64	B	45.00	19.69	C	45.00	15.04	B
50	21	20.741	23.957	3.216	NEW TOWN ROAD	JUNCTION OLD HIGHWAY, CAMINO, WEST	D	60.00	4.47	A	60.00	9.53	A	60.00	9.13	A	60.00	7.00	A
50	22	23.957	25.949	1.992	JUNCTION OLD HIGHWAY, CAMINO, WEST	EAST CAMINO ROAD	E	60.00	2.52	A	60.00	9.13	A	60.00	8.17	A	60.00	6.02	A
50	26	34.219	39.772	5.553	OLD CARSON ROAD	ICEHOUSE ROAD	D	50.00	3.60	A	50.00	7.54	A	50.00	6.26	A	50.00	4.40	A

[1] Density expressed in pc/mi/ln, passenger cars per mile per lane
[2] Level of service for multi-lane highways is based on density as described in Chapter 14, HCM 2010

Table B-3. Existing LOS Results for Two-Lane State Highways (SR 49, US 50, SR 153, SR 193)

Route	Seg	NB/EB Postmile	SB/WB Postmile	Segment Length	North/East of Segment	South/West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								PTSF[1] (%)	PFFS[2] (%)	LOS[3]	PTSF[1] (%)	PFFS[2] (%)	LOS[3]	PTSF[1] (%)	PFFS[2] (%)	LOS[3]	PTSF[1] (%)	PFFS[2] (%)	LOS[3]
49	1	0	1.65	1.65	AMADOR/EL DORADO COUNTY LINE	NASHVILLE, SOUTH	D	59.4%	89.8%	C	23.0%	87.0%	A	18.7%	87.6%	A	59.2%	89.4%	C
49	2	1.65	8.352	6.702	NASHVILLE, SOUTH	CHINA HILL ROAD	D	66.8%	87.3%	C	32.7%	86.7%	A	25.5%	87.4%	A	67.4%	85.2%	C
49	3	8.352	9.494	1.142	CHINA HILL ROAD	EL DORADO, UNION MINE ROAD	D	75.4%	83.5%	D	36.6%	84.5%	A	29.0%	85.6%	A	74.7%	80.7%	D
49	4	9.494	9.641	0.147	EL DORADO, UNION MINE ROAD	EL DORADO, PLEASANT VALLEY ROAD	E	79.1%	70.7%	D	43.6%	75.2%	C	35.2%	76.1%	C	82.5%	67.6%	D
49	5	9.641	11.239	1.598	EL DORADO, PLEASANT VALLEY ROAD	MISSOURI FLAT ROAD	F	94.1%	66.6%	E	54.8%	69.4%	D	45.8%	73.4%	D	92.8%	65.6%	E
49	6	11.239	11.859	0.62	MISSOURI FLAT ROAD	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	F	98.1%	64.9%	E	58.5%	66.9%	D	49.8%	70.9%	D	94.4%	63.2%	E
49	7	11.859	14.463	2.604	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	PLACERVILLE, FISKE ROAD	E	72.1%	79.5%	D	41.3%	82.3%	B	33.9%	83.0%	A	71.8%	78.4%	D
49	8	14.463	14.597	0.134	PLACERVILLE, FISKE ROAD	PLACERVILLE, PACIFIC/ MAIN STREETS	E	95.0%	65.4%	E	56.0%	68.1%	D	47.1%	68.7%	D	94.1%	59.9%	E
49	9	14.597	14.891	0.294	PLACERVILLE, PACIFIC/ MAIN STREETS	PLACERVILLE, JCT. RTE. 50	F	70.8%	82.0%	C	31.3%	80.7%	C	23.9%	82.1%	C	72.0%	79.4%	C
49	10	14.891	15.685	0.794	PLACERVILLE, JCT. RTE. 50	JCT. RTE. 193 NORTH	F	28.6%	79.5%	C	74.6%	73.4%	D	75.1%	76.8%	C	35.2%	77.5%	C
49	11	15.685	16.44	0.755	JCT. RTE. 193 NORTH	DIANA STREET	D	21.9%	81.7%	C	69.1%	81.1%	C	67.8%	84.4%	B	28.6%	81.8%	C
49	12	16.44	19.42	2.98	DIANA STREET	GOLD HILL ROAD	D	23.2%	82.4%	A	65.4%	81.4%	C	65.1%	84.6%	C	29.9%	82.1%	A
49	13	19.42	22.865	3.445	GOLD HILL ROAD	COLOMA, JCT. RTE. 153 WEST	D	15.8%	87.1%	A	54.9%	89.1%	B	55.3%	89.8%	C	19.6%	86.1%	A
49	14	22.865	24.48	1.615	COLOMA, JCT. RTE. 153 WEST	MARSHALL GRADE ROAD (TO GEORGETOWN)	D	23.9%	83.0%	A	72.0%	80.6%	D	70.7%	84.0%	D	31.2%	82.6%	A
49	15	24.48	28.19	3.71	MARSHALL GRADE ROAD (TO GEORGETOWN)	HASTINGS CREEK BRIDGE	D	18.8%	85.5%	A	62.5%	87.6%	C	61.9%	88.3%	C	24.0%	84.9%	A
49	16	28.19	34.466	6.276	HASTINGS CREEK BRIDGE	COOL, JCT. RTE. 193 EAST	D	18.8%	88.3%	A	62.7%	89.6%	C	62.2%	90.2%	C	24.1%	87.8%	A
49	17	34.466	38.233	3.767	COOL, JCT. RTE. 193 EAST	EL DORADO/PLACER COUNTY LINE	F	39.7%	82.5%	A	80.3%	77.9%	D	75.8%	78.7%	D	48.2%	81.1%	B
50	25	31.299	34.219	2.92	SLY PARK ROAD	OLD CARSON ROAD	E	52.3%	84.0%	B	73.8%	81.4%	D	54.3%	85.6%	B	47.7%	84.7%	B
50	27	39.772	46.592	6.82	ICEHOUSE ROAD	W O ALDER RIDGE ROAD	F	59.9%	81.1%	C	81.9%	77.2%	D	76.9%	79.3%	D	64.0%	79.0%	C
50	28	46.592	48.952	2.36	W O ALDER RIDGE ROAD	SILVER FORK ROAD	F	59.3%	81.2%	C	80.1%	77.7%	C	76.2%	79.5%	C	63.0%	79.5%	C
50	29	48.952	53.732	4.78	SILVER FORK ROAD	WRIGHTS LAKE ROAD	F	59.8%	81.1%	C	80.7%	77.6%	D	77.3%	79.1%	D	63.7%	79.2%	C
50	30	53.732	57.892	4.16	WRIGHTS LAKE ROAD	STRAWBERRY LN	F	59.5%	81.3%	C	80.3%	77.8%	D	76.4%	79.5%	D	63.2%	79.6%	C
50	31	57.892	60.192	2.3	STRAWBERRY LN	SLIPPERY FORD ROAD	F	59.4%	81.2%	C	80.2%	77.8%	D	76.3%	79.5%	D	63.1%	79.6%	C
50	32	60.192	63.522	3.33	SLIPPERY FORD ROAD	SIERRA-AT-TAHOE ROAD	F	59.7%	81.0%	C	80.6%	77.5%	D	77.3%	79.0%	D	63.7%	79.1%	C
50	33	63.522	65.619	1.83	SIERRA-AT-TAHOE ROAD	ECHO LAKE ROAD	F	59.2%	81.6%	C	79.9%	78.2%	D	75.9%	79.9%	D	62.9%	79.9%	C
153	1	0	0.12	0.12	JCT. RTE. 49	COLD SPRINGS ROAD	D	20.2%	90.0%	A	50.9%	90.8%	B	52.3%	91.6%	B	31.7%	88.8%	A
153	2	0.12	0.55	0.43	COLD SPRINGS ROAD	MARSHALL'S MONUMENT	D	24.1%	94.8%	A	31.8%	94.8%	A	30.2%	94.7%	A	22.8%	94.7%	A
193	1	0	0.856	0.856	COOL, JCT. RTE. 49	AMERICAN RIVER ROAD	D	29.5%	86.5%	A	67.9%	84.4%	C	68.7%	86.0%	C	38.7%	85.5%	A
193	2	0.856	2.169	1.313	AMERICAN RIVER ROAD	AUBURN LAKE TRAIL ROAD	D	33.6%	85.4%	A	70.6%	82.0%	D	73.1%	83.8%	D	42.4%	84.8%	B
193	3	2.169	12.19	10.021	AUBURN LAKE TRAIL ROAD	EVERGREEN COURT ROAD	D	36.1%	85.6%	A	69.5%	82.7%	C	69.1%	83.1%	C	45.1%	84.8%	B
193	4	12.19	12.699	0.509	EVERGREEN COURT ROAD	GEORGETOWN, LOWER MAIN STREET	D	28.1%	81.9%	C	65.9%	80.2%	C	66.7%	82.1%	C	37.1%	80.2%	C
193	5	12.699	16.105	3.406	GEORGETOWN, LOWER MAIN STREET	BLACK OAK MINE ROAD	D	60.6%	90.8%	C	22.6%	88.1%	A	17.7%	88.3%	A	59.9%	90.3%	C
193	6	16.105	19.4	3.295	BLACK OAK MINE ROAD	GARDEN VALLEY ROAD	D	53.8%	92.2%	B	18.4%	90.4%	A	11.4%	88.5%	A	52.6%	92.0%	B
193	7	19.4	26.95	7.55	GARDEN VALLEY ROAD	JCT. RTE. 49	D	61.8%	89.5%	C	25.9%	87.3%	A	20.6%	87.6%	A	61.3%	88.5%	C

[1] Percent of Time Spent Following - average percent of time that one must follow slower vehicles
[2] Percent of Free-Flow Speed - ability of ones to travel at or near the posted speed limit

Table B-4. Existing LOS Results for Local Roadways

ID	Name	Location	Area	Type	LOS Threshold	2014 AM Volume	2014 AM LOS	2014 PM Volume	2014 PM LOS
1	Bass Lake Rd	North of Country Club Dr	Rural	2AU	D	1028	D	966	D
2	Bass Lake Rd	South of Green Valley Rd	Community Region	2AU	E	539	A-C	448	A-C
3	Bass Lake Rd	North of Serrano Pkwy	Community Region	2AU	E	824	A-C	816	A-C
4	Bassi Rd	West of Lotus Rd	Rural	2AU	D	83	A-C	107	A-C
5	Bedford Ave	At City Limit	Rural	2AU	D	35	A-C	46	A-C
6	Broadway	At City Limit	Community Region	2AU	E	256	A-C	309	A-C
7	Bucks Bar Rd	South Pleasant Valley Rd	Rural	2AU	D	411	A-C	412	A-C
8	Bucks Bar Rd	North of Mt Aukum Rd	Rural	2AU	D	294	A-C	307	A-C
9	Cambridge Rd	North of Country Club Dr	Exception F	2AU	F	571	A-C	632	A-C
10	Cambridge Rd	South of Country Club Dr	Community Region	2AU	E	584	A-C	709	A-C
11	Cambridge Rd	At US 50 Overcrossing	Community Region	2AU	E	641	A-C	810	A-C
12	Cambridge Rd	South of Green Valley Rd	Community Region	2AU	E	379	A-C	394	A-C
13	Cambridge Rd	North of Oxford Rd	Community Region	2AU	E	339	A-C	366	A-C
14	Cameron Park Dr	North of Coach Ln	Community Region	4AD	E	1155	A-C	2022	D
15	Cameron Park Dr	South of Hacienda Dr	Community Region	2AU	E	1236	D	1619	E
16	Cameron Park Dr	South of Green Valley Rd	Community Region	2AU	E	685	A-C	781	A-C
17	Cameron Park Dr	North of Mira Loma Dr	Community Region	2AU	E	929	D	1180	D
18	Cameron Park Dr	South of Robin Ln	Community Region	2AU	E	533	A-C	901	D
19	Cameron Park Dr	North of Robin Ln	Exception F	2AU	F	456	A-C	773	A-C
20	Carson Rd	East of Barkley Rd	Community Region	2AU	E	189	A-C	269	A-C
21	Carson Rd	At Carson Ct	Rural	2AU	D	82	A-C	149	A-C
22	Carson Rd	West of Gatlin Rd	Rural	2AU	D	57	A-C	137	A-C
23	Carson Rd	East of Ponderosa Way	Community Region	2AU	E	139	A-C	208	A-C
24	China Garden Rd	East of Missouri Flat Rd	Community Region	2AU	E	220	A-C	320	A-C
25	China Garden Rd	North of SR 49	Community Region	2AU	E	82	A-C	71	A-C
26	Cold Springs Rd	South of Gold Hill Rd	Rural	2AU	D	188	A-C	289	A-C
27	Cold Springs Rd	South of SR 153	Rural	2AU	D	120	A-C	187	A-C
28	Country Club Dr	East of Bass Lake Rd	Rural	2AU	D	456	A-C	320	A-C
29	Country Club Dr	West of Knollwood Dr	Community Region	2AU	E	515	A-C	277	A-C
30	Country Club Dr	East of Cambridge Rd	Community Region	2AU	E	222	A-C	266	A-C
31	Country Club Dr	East of Merrychase Dr	Community Region	2AU	E	381	A-C	197	A-C
32	Country Club Dr	West of Cameron Park Dr	Community Region	2AU	E	254	A-C	375	A-C
33	Durock Rd	West of S. Shingle Rd	Community Region	2AU	E	365	A-C	568	A-C
34	El Dorado Hills Blvd	South of Wilson Blvd	Community Region	4AD	E	1951	D	1895	D
35	El Dorado Hills Blvd	North of Wilson Blvd	Community Region	4AD	E	2018	D	1858	D
36	El Dorado Hills Blvd	North of Saratoga Way	Community Region	4AD	E	2353	D	2458	D
37	El Dorado Hills Blvd	South of Francisco Dr	Community Region	2AU	E	1324	D	1299	D
38	El Dorado Hills Blvd	South of Green Valley Rd	Community Region	2AU	E	448	A-C	367	A-C
39	El Dorado Hills Blvd	North of Harvard Way	Community Region	4AD	E	1627	A-C	1497	A-C
40	El Dorado Rd	South of US 50	Community Region	2AU	E	381	A-C	388	A-C
41	El Dorado Rd	North of Pleasant Valley Rd	Community Region	2AU	E	197	A-C	185	A-C
42	El Dorado Rd	South of Missouri Flat Rd	Community Region	2AU	E	160	A-C	185	A-C
43	Enterprise Dr	East of Forni Rd	Community Region	2AU	E	227	A-C	309	A-C
44	Fairplay Rd	South of Mt Aukum Rd	Rural	2AU	D	144	A-C	162	A-C
45	Forni Rd	North of SR 49	Community Region	2AU	E	322	A-C	280	A-C
46	Forni Rd	West of Arroyo Vista Way	Community Region	2AU	E	85	A-C	141	A-C
47	Francisco Dr	South of Green Valley Rd	Community Region	2AU	E	1050	D	1162	D
48	French Creek Rd	North of Old French Town Rd	Rural	2AU	D	178	A-C	214	A-C
49	Gold Hill Rd	East of Lotus Road	Rural	2AU	D	231	A-C	142	A-C
50	Gold Hill Rd	East of Cold Springs Rd	Rural	2AU	D	64	A-C	45	A-C
51	Gold Hill Rd	West of Cold Springs Rd	Rural	2AU	D	243	A-C	144	A-C
52	Green Valley Rd	West of Sophia Pkwy	Community Region	2AU	E	1881	**F**	2066	**F**
53	Green Valley Rd	West of Weber Creek	Rural	2AU	D	277	A-C	376	A-C
54	Green Valley Rd	West of Silva Valley Rd	Community Region	2AU	E	951	D	1119	D
55	Green Valley Rd	East of Mormon Island Dr	Community Region	4AD	E	1998	D	2480	D
56	Green Valley Rd	West of Mormon Island Dr	Community Region	4AD	E	2005	D	2481	D
57	Green Valley Rd	East of Sophia Pkwy	Community Region	4AD	E	2020	D	2475	D
58	Green Valley Rd	East of Francisco Dr	Community Region	4AD	E	1208	E	1071	E
59	Green Valley Rd	West of Bass Lake Rd	Community Region	2AU	E	1289	E	945	E
60	Green Valley Rd	East of Bass Lake Rd	Community Region	2AU	E	1138	D	996	D
61	Green Valley Rd	East of La Crescenta Dr	Community Region	2AU	E	673	D	596	D
62	Green Valley Rd	East of Deer Valley Rd	Rural	2AU	D	407	C	403	C
63	Green Valley Rd	West of Lotus Rd	Rural	2AU	D	607	D	709	D
64	Green Valley Rd	West of Greenstone Rd	Rural	2AU	D	368	A-C	379	A-C
65	Green Valley Rd	West of Missouri Flat Rd	Community Region	2AU	E	868	D	740	A-C
66	Green Valley Rd	West of Campus Dr	Rural	2AU	D	392	A-C	424	A-C
67	Greenstone Rd	North of US 50	Rural	2AU	D	257	A-C	246	A-C
68	Greenstone Rd	North of Mother Lode Dr	Community Region	2AU	E	93	A-C	112	A-C

ID	Name	Location	Area	Type	LOS Threshold	2014 AM Volume	2014 LOS	2014 PM Volume	2014 LOS
69	Grizzly Flat Rd	East of Mt Aukum Rd	Rural	2AU	D	151	A-C	199	A-C
70	Harvard Way	East of El Dorado Hills Blvd	Community Region	4AU	E	970	A-C	483	A-C
71	Harvard Way	West of Silva Valley Pkwy	Community Region	4AU	E	871	A-C	561	A-C
72	Ice House Rd	North of US 50	Rural	2AU	D	37	A-C	71	A-C
73	Latrobe Rd	North of County Line	Rural	2AU	D	241	A-C	329	A-C
74	Latrobe Rd	South of Investment Blvd	Community Region	2AU	E	373	A-C	449	A-C
75	Latrobe Rd	North of Golden Foothill Pkwy South	Community Region	4AD	E	1601	A-C	1819	A-C
76	Latrobe Rd	North of Investment Blvd	Community Region	2AU	E	802	A-C	971	D
77	Latrobe Rd	North of Golden Foothill Pkwy	Community Region	4AD	E	2123	D	2287	D
78	Latrobe Rd	North of White Rock Rd	Community Region	6AD	E	2557	A-C	2695	A-C
79	Lotus Rd	South of Thompson Hill Rd	Rural	2AU	D	346	A-C	441	A-C
80	Lotus Rd	North Green Valley Rd	Rural	2AU	D	565	A-C	703	A-C
81	Lotus Rd	South of SR 49	Rural	2AU	D	260	A-C	354	A-C
82	Luneman Rd	West of Lotus Rd	Rural	2AU	D	333	A-C	196	A-C
83	Marshall Rd	East of SR 49	Rural	2AU	D	315	A-C	315	A-C
84	Marshall Rd	East of Garden Valley Rd	Rural	2AU	D	432	A-C	408	A-C
85	Marshall Rd	South of Lower Main St	Rural	2AU	D	37	A-C	50	A-C
86	Meder Rd	East of Cameron Park Dr	Community Region	2AU	E	528	A-C	568	A-C
87	Meder Rd	West of Ponderosa Rd	Community Region	2AU	E	420	A-C	436	A-C
88	Missouri Flat Rd	West of El Dorado Rd	Community Region	2AU	E	844	A-C	714	A-C
89	Missouri Flat Rd	East of El Dorado Rd	Community Region	2AU	E	801	A-C	835	A-C
90	Missouri Flat Rd	South of China Garden Rd	Community Region	2AU	E	1174	D	1640	E
91	Missouri Flat Rd	North of SR 49	Community Region	2AU	E	1047	D	1307	D
92	Missouri Flat Rd	North of Forni Rd	Exception F	4AD	F	1876	D	2686	D
93	Missouri Flat Rd	South of Forni Rd	Exception F	4AD	F	1600	A-C	1986	D
94	Mormon Emigrant Trl	East of Sly Park Rd	Rural	2AU	D	38	A-C	63	A-C
95	Mosquito Rd	At City Limit	Community Region	2AU	E	335	A-C	346	A-C
96	Mosquito Rd	South of American River Bridge	Rural	2AU	D	90	A-C	110	A-C
97	Mother Lode Dr	East of French Creek Rd	Community Region	2AU	E	904	D	809	A-C
98	Mother Lode Dr	West of Sunset Ln	Community Region	2AU	E	950	D	1068	D
99	Mother Lode Dr	West of Pleasant Valley Rd	Community Region	2AU	E	642	A-C	757	A-C
100	Mother Lode Dr	East of Pleasant Vally Rd	Community Region	2AU	E	229	A-C	347	A-C
101	Mt Aukum Rd	North of County Line	Rural	2AU	D	114	A-C	137	A-C
102	Mt Aukum Rd	South of Bucks Bar Rd	Rural	2AU	D	252	A-C	297	A-C
103	Mt Aukum Rd	South of Pleasant Valley Rd	Rural	2AU	D	190	A-C	318	A-C
104	Mt Murphy Rd	North of SR 49	Rural	2AU	D	26	A-C	25	A-C
105	Mt Murphy Rd	South of Marshall Rd	Rural	2AU	D	54	A-C	97	A-C
106	N Shingle Rd	South of Green Valley Rd	Rural	2AU	D	414	A-C	440	A-C
107	Newtown Rd	North of Pioneer Hill Rd	Rural	2AU	D	231	A-C	240	A-C
108	Newtown Rd	East of Broadway Rd	Community Region	2AU	E	299	A-C	323	A-C
109	Newtown Rd	North of Pleasant Valley Rd	Rural	2AU	D	215	A-C	223	A-C
110	Old French Town Rd	South of Mother Lode Dr	Community Region	2AU	E	83	A-C	104	A-C
111	Omo Ranch Rd	East of Mt Aukum Rd	Rural	2AU	D	63	A-C	56	A-C
112	Oxford Rd	East of Salida Way	Community Region	2AU	E	262	A-C	335	A-C
113	Palmer Dr	East of Cameron Park Dr	Community Region	2AU	E	449	A-C	873	D
114	Patterson Dr	South of Pleasant Valley Rd	Community Region	2AU	E	293	A-C	407	A-C
115	Pleasant Valley Rd	East of Mother Lode Dr	Community Region	2AU	E	561	A-C	603	A-C
116	Pleasant Valley Rd	East of Bucks Bar Rd	Community Region	2AU	E	473	A-C	443	A-C
117	Pleasant Valley Rd	West of Oak Hill Rd	Community Region	2AU	E	901	D	970	D
118	Pleasant Valley Rd	East of SR 49	Community Region	2AU	E	1075	D	1203	D
119	Pleasant Valley Rd	East of Cedar Ravine Rd	Community Region	2AU	E	861	D	860	D
120	Pleasant Valley Rd	East of Newtown Rd	Community Region	2AU	E	429	A-C	442	A-C
121	Ponderosa Rd	North of Jackpine Rd	Rural	2AU	D	147	A-C	128	A-C
122	Pony Express Trl	East of Carson Rd	Community Region	2AU	E	203	A-C	262	A-C
123	Pony Express Trl	East of Gilmore Rd	Community Region	2AU	E	237	A-C	414	A-C
124	Pony Express Trl	West of Forebay Rd	Community Region	2AU	E	251	A-C	492	A-C
125	Rock Creek Rd	East of SR 193	Rural	2AU	D	19	A-C	18	A-C
126	Salmon Falls Rd	At New York Creek Bridge	Rural	2AU	D	191	A-C	244	A-C
127	Salmon Falls Rd	South of Malcolm Dixon Rd	Community Region	2AU	E	612	A-C	590	A-C
128	Salmon Falls Rd	South of Pedro Hill Rd	Rural	2AU	D	92	A-C	100	A-C
129	Salmon Falls Rd	South of Rattlesnake Bar Rd	Rural	2AU	D	31	A-C	38	A-C
130	Serrano Pkwy	East of Silva Valley Pkwy	Community Region	4AD	E	1424	A-C	947	A-C
131	Serrano Pkwy	West of Bass Lake Rd	Community Region	2AU	E	491	A-C	466	A-C
132	Shingle Springs Dr	South of US 50	Rural	2AU	D	475	A-C	221	A-C
133	Silva Valley Pky	North of US 50	Community Region	2AU	E	776	A-C	1052	D
134	Silva Valley Pky	South of Green Valley Rd	Community Region	2AU	E	603	A-C	554	A-C
135	Silva Valley Pky	North of Havard Way	Community Region	2AU	E	886	D	848	A-C
136	Silva Valley Pky	South of Serrano Pkwy	Community Region	4AD	E	1185	A-C	975	A-C
137	Sly Park Rd	East of Mt Aukum Rd	Rural	2AU	D	242	A-C	272	A-C
138	Sly Park Rd	East of Mormon Emigrant Trail	Rural	2AU	D	234	A-C	324	A-C

ID	Name	Location	Area	Type	LOS Threshold	2014			
						AM Volume	LOS	PM Volume	LOS
139	Sly Park Rd	South of Pony Express Trail	Community Region	2AU	E	581	A-C	734	A-C
140	Snows Rd	North of Newtown Rd	Rural	2AU	D	80	A-C	83	A-C
141	Snows Rd	South of Carson Rd	Community Region	2AU	E	337	A-C	212	A-C
142	South Shingle Rd	East of Latrobe Rd	Rural	2AU	D	98	A-C	75	A-C
143	South Shingle Rd	North of Barnett Ranch	Rural	2AU	D	192	A-C	217	A-C
144	South Shingle Rd	South of Sunset Ln	Community Region	2AU	E	434	A-C	555	A-C
145	Starbuck Rd	North of Green Valley Rd	Community Region	2AU	E	113	A-C	149	A-C
146	Union Ridge Rd	West of Hassler Rd	Rural	2AU	D	32	A-C	42	A-C
147	Wentworth Springs Rd	West of Quintette Rd	Rural	2AU	D	29	A-C	50	A-C
148	White Rock Rd	West of Windfield Way	Community Region	2AU	E	824	A-C	816	A-C
149	White Rock Rd	At County Line	Community Region	2AU	E	834	A-C	1026	D
150	White Rock Rd	East of Latrobe Rd	Community Region	2AU	E	1036	D	1444	D
151	White Rock Rd	West of Latrobe Rd	Community Region	4AD	E	999	A-C	1121	A-C

A-C defined as operating between LOS A-C per HCM 2010
Indicates deficiency

ATTACHMENT C

2035 FORECAST

GENERAL PLAN OPERATIONS RESULTS

(state highway segments presented by post-mile)
(local roadway segments presented in alphabetical order)

Table C-1. General Plan LOS Results for US 50

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]
50	1	0	0.857	0.857	SACRAMENTO/EL DORADO COUNTY LINE	LATROBE ROAD	E	64.80	23.46	C	Unstable	>45	F	Unstable	>45	F	65.00	20.97	C
50	2	0.857	3.232	2.375	LATROBE ROAD	BASS LAKE ROAD	D	65.00	13.26	B	63.00	28.19	D	Unstable	>45	F	63.03	28.13	D
50	3	3.232	4.962	1.73	BASS LAKE ROAD	CAMBRIDGE ROAD	D	65.00	18.29	C	Unstable	>45	F	63.44	27.30	D	64.83	23.28	C
50	4	4.962	6.57	1.608	CAMBRIDGE ROAD	CAMERON PARK DRIVE	E	65.00	21.12	C	59.64	33.79	D	65.00	21.54	C	64.95	22.46	C
50	5	6.57	8.564	1.994	CAMERON PARK DRIVE	PONDEROSA ROAD	E	65.00	20.39	C	58.32	35.78	E	63.30	27.59	D	64.20	25.49	C
50	6	8.564	10.295	1.731	PONDEROSA ROAD	SHINGLE SPRINGS	D	65.00	15.96	B	64.08	25.81	C	64.95	22.45	C	64.92	22.73	C
50	7	10.295	12.19	1.895	SHINGLE SPRINGS	GREENSTONE ROAD	D	65.00	15.87	B	63.82	26.46	D	64.97	22.27	C	65.00	19.95	C
50	8	12.19	14.011	1.821	GREENSTONE ROAD	EL DORADO ROAD	D	65.00	13.12	B	65.00	20.48	C	65.00	18.35	C	65.00	19.15	C
50	9	14.011	15.055	1.044	EL DORADO ROAD	MISSOURI FLAT ROAD	E	65.00	12.68	B	65.00	19.60	C	65.00	18.00	B	65.00	18.35	C
50	10	15.055	15.829	0.774	MISSOURI FLAT ROAD	PLACERVILLE, FAIRGROUNDS	E	65.00	9.57	A	65.00	14.72	B	65.00	14.06	B	65.00	13.72	B
50	11	15.829	16.99	1.161	PLACERVILLE, FAIRGROUNDS	WEST PLACERVILLE	E	65.00	10.46	A	65.00	16.58	B	65.00	14.01	B	65.00	15.25	B
50	12	16.99	17.42	0.43	WEST PLACERVILLE	EB OFF TO MAIN STREET	E	65.00	12.59	B	65.00	20.13	C	65.00	17.29	B	65.00	18.53	C
50	18	18.517	18.99	0.473	PLACERVILLE, MOSQUITO ROAD	PLACERVILLE, SCHNELL SCHOOL ROAD	E	55.00	8.85	A	55.00	17.91	B	55.00	16.54	B	55.00	13.06	B
50	19	18.99	20.296	1.306	PLACERVILLE, SCHNELL SCHOOL ROAD	PLACERVILLE, POINT VIEW DRIVE	E	55.00	7.16	A	55.00	14.01	B	55.00	13.48	B	55.00	10.74	A
50	20	20.296	20.741	0.445	PLACERVILLE, POINT VIEW DRIVE	NEW TOWN ROAD	D	65.00	5.08	A	65.00	9.89	A	65.00	9.45	A	65.00	7.49	A
50	23	25.949	28.842	2.893	EAST CAMINO ROAD	SAWMILL (POLLOCK PINES)	E	65.00	3.23	A	65.00	10.15	A	65.00	9.07	A	65.00	6.91	A
50	24	28.842	31.299	2.457	SAWMILL (POLLOCK PINES)	SLY PARK ROAD	E	65.00	4.30	A	65.00	8.32	A	65.00	7.07	A	65.00	5.10	A

[1] Density expressed in pc/mi/ln, passenger cars per mile per lane
[2] Level of service is based on density as described in Basic Freeway Segment, Chapter 11, HCM 2010
Indicates deficiency

Table C-2. General Plan LOS Results for Multilane State Highways

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]	Avg. Speed (mph)	Density[1] (pcpmpl)	LOS[2]
50	13	17.42	17.52	0.1	EB OFF TO MAIN STREET	PLACERVILLE, CANAL STREET	E	45.00	20.22	C	44.44	34.09	D	45.00	29.31	D	45.00	30.33	D
50	14	17.52	17.667	0.147	PLACERVILLE, CANAL STREET	PLACERVILLE, JCT. RTE. 49	F	45.00	11.60	B	45.00	22.87	C	45.00	28.80	D	45.00	23.04	C
50	15	17.667	17.788	0.121	PLACERVILLE, JCT. RTE. 49	PLACERVILLE, COLOMA STREET	F	45.00	9.93	A	45.00	18.40	C	45.00	26.44	D	45.00	21.82	C
50	16	17.788	18.032	0.244	PLACERVILLE, COLOMA STREET	PLACERVILLE, BEDFORD AVENUE	F	45.00	10.09	A	45.00	18.67	C	45.00	26.84	D	45.00	22.09	C
50	17	18.032	18.517	0.485	PLACERVILLE, BEDFORD AVENUE	PLACERVILLE, MOSQUITO ROAD OH	F	45.00	8.67	A	45.00	15.69	B	45.00	22.51	C	45.00	18.78	C
50	21	20.741	23.957	3.216	NEW TOWN ROAD	JUNCTION OLD HIGHWAY, CAMINO, WEST	D	60.00	5.53	A	60.00	10.98	A	60.00	10.50	A	60.00	8.37	A
50	22	23.957	25.949	1.992	JUNCTION OLD HIGHWAY, CAMINO, WEST	EAST CAMINO ROAD	E	60.00	3.40	A	60.00	10.60	A	60.00	9.43	A	60.00	7.28	A
50	26	34.219	39.772	5.553	OLD CARSON ROAD	ICEHOUSE ROAD	D	50.00	4.52	A	50.00	8.94	A	50.00	7.66	A	50.00	5.46	A

[1] Density expressed in pc/mi/ln, passenger cars per mile per lane
[2] Level of service for multi-lane highways is based on density as described in Chapter 14, HCM 2010

Table C-3. General Plan LOS Results for Two-Lane State Highways

Route	Seg	NB/EB Postmile	SB/WB Postmile	Segment Length	North/East of Segment	South/West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								PTSF[1] (%)	PFFS[2] (%)	LOS[3]	PTSF[1] (%)	PFFS[2] (%)	LOS[3]	PTSF[1] (%)	PFFS[2] (%)	LOS[3]	PTSF[1] (%)	PFFS[2] (%)	LOS[3]
49	1	0	1.65	1.65	AMADOR/EL DORADO COUNTY LINE	NASHVILLE, SOUTH	D	61.3%	89.5%	C	27.5%	86.3%	A	18.1%	87.5%	A	62.6%	87.0%	C
49	2	1.65	8.352	6.702	NASHVILLE, SOUTH	CHINA HILL ROAD	D	68.2%	86.8%	C	35.7%	86.0%	A	25.7%	87.3%	A	70.4%	83.4%	D
49	3	8.352	9.494	1.142	CHINA HILL ROAD	EL DORADO, UNION MINE ROAD	D	75.8%	83.0%	D	38.7%	83.4%	A	29.0%	85.3%	A	78.2%	79.3%	D
49	4	9.494	9.641	0.147	EL DORADO, UNION MINE ROAD	EL DORADO, PLEASANT VALLEY ROAD	E	83.8%	68.6%	D	48.6%	72.0%	D	36.4%	74.8%	D	89.3%	64.5%	E
49	5	9.641	11.239	1.598	EL DORADO, PLEASANT VALLEY ROAD	MISSOURI FLAT ROAD	F	96.5%	63.9%	E	63.1%	64.0%	E	52.7%	69.9%	D	94.0%	61.5%	E
49	6	11.239	11.859	0.62	MISSOURI FLAT ROAD	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	F	100.0%	61.4%	E	64.5%	64.1%	E	52.4%	67.5%	D	93.2%	61.3%	E
49	7	11.859	14.463	2.604	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	PLACERVILLE, FISKE ROAD	E	75.2%	77.5%	D	49.4%	79.6%	B	41.5%	81.0%	B	76.7%	75.9%	D
49	8	14.463	14.597	0.134	PLACERVILLE, FISKE ROAD	PLACERVILLE, PACIFIC/ MAIN STREETS	E	94.3%	63.4%	E	64.7%	63.7%	E	56.0%	64.8%	E	92.5%	56.6%	E
49	9	14.597	14.891	0.294	PLACERVILLE, PACIFIC/ MAIN STREETS	PLACERVILLE, JCT. RTE. 50	F	72.7%	74.7%	D	42.4%	78.1%	C	39.5%	79.5%	C	73.0%	74.4%	D
49	10	14.891	15.685	0.794	PLACERVILLE, JCT. RTE. 50	JCT. RTE. 193 NORTH	F	75.1%	76.8%	C	38.8%	75.6%	C	29.7%	78.7%	C	79.9%	68.2%	D
49	11	15.685	16.44	0.755	JCT. RTE. 193 NORTH	DIANA STREET	D	73.0%	79.8%	C	34.6%	79.6%	C	72.5%	78.2%	C	26.5%	81.4%	C
49	12	16.44	19.42	2.98	DIANA STREET	GOLD HILL ROAD	D	66.7%	81.7%	C	35.6%	80.7%	A	28.2%	82.2%	A	67.8%	78.8%	C
49	13	19.42	22.865	3.445	GOLD HILL ROAD	COLOMA, JCT. RTE. 153 WEST	D	55.8%	88.8%	C	24.5%	84.0%	A	20.3%	85.3%	A	56.6%	88.0%	C
49	14	22.865	24.48	1.615	COLOMA, JCT. RTE. 153 WEST	MARSHALL GRADE ROAD (TO GEORGETOWN)	D	73.2%	80.2%	D	38.6%	80.5%	A	30.7%	82.5%	A	73.1%	77.0%	D
49	15	24.48	28.19	3.71	MARSHALL GRADE ROAD (TO GEORGETOWN)	HASTINGS CREEK BRIDGE	D	66.8%	84.1%	C	37.2%	83.1%	A	30.5%	83.9%	A	69.2%	80.7%	C
49	16	28.19	34.466	6.276	HASTINGS CREEK BRIDGE	COOL, JCT. RTE. 193 EAST	D	64.8%	88.0%	C	35.9%	86.6%	A	28.8%	87.3%	A	68.2%	85.3%	C
49	17	34.466	38.233	3.767	COOL, JCT. RTE. 193 EAST	EL DORADO/PLACER COUNTY LINE	F	82.8%	76.7%	D	55.4%	78.6%	C	49.5%	80.2%	B	84.6%	75.7%	D
50	25	31.299	34.219	2.92	SLY PARK ROAD	OLD CARSON ROAD	E	59.8%	82.1%	C	78.5%	79.2%	D	61.8%	83.0%	C	56.2%	82.2%	C
50	27	39.772	46.592	6.82	ICEHOUSE ROAD	W O ALDER RIDGE ROAD	F	64.3%	79.4%	C	83.7%	75.4%	D	80.7%	77.7%	D	68.1%	77.0%	C
50	28	46.592	48.952	2.36	W O ALDER RIDGE ROAD	SILVER FORK ROAD	F	64.0%	79.3%	C	83.5%	75.9%	C	80.5%	77.6%	C	66.5%	77.5%	C
50	29	48.952	53.732	4.78	SILVER FORK ROAD	WRIGHTS LAKE ROAD	F	64.4%	79.2%	C	84.4%	75.6%	D	81.5%	77.3%	D	66.8%	77.2%	C
50	30	53.732	57.892	4.16	WRIGHTS LAKE ROAD	STRAWBERRY LN	F	64.2%	79.4%	C	84.1%	75.9%	D	80.7%	77.7%	D	66.4%	77.6%	C
50	31	57.892	60.192	2.3	STRAWBERRY LN	SLIPPERY FORD ROAD	F	64.1%	79.4%	C	83.9%	75.8%	D	80.5%	77.7%	D	66.3%	77.5%	C
50	32	60.192	63.522	3.33	SLIPPERY FORD ROAD	SIERRA-AT-TAHOE ROAD	F	64.3%	79.2%	C	84.3%	75.6%	D	81.5%	77.2%	D	66.8%	77.1%	C
50	33	63.522	65.619	1.83	SIERRA-AT-TAHOE ROAD	ECHO LAKE ROAD	F	63.9%	79.7%	C	83.7%	76.2%	D	80.2%	78.1%	D	66.1%	77.8%	C
153	1	0	0.12	0.12	JCT. RTE. 49	COLD SPRINGS ROAD	D	19.7%	87.8%	A	58.0%	88.3%	C	57.1%	90.8%	C	34.5%	86.5%	A
153	2	0.12	0.55	0.43	COLD SPRINGS ROAD	MARSHALL'S MONUMENT	D	27.7%	94.6%	A	27.7%	94.6%	A	27.7%	94.5%	A	27.7%	94.5%	A
193	1	0	0.856	0.856	COOL, JCT. RTE. 49	AMERICAN RIVER ROAD	D	34.7%	85.6%	A	71.4%	82.1%	D	73.2%	83.2%	D	45.2%	84.2%	B
193	2	0.856	2.169	1.313	AMERICAN RIVER ROAD	AUBURN LAKE TRAIL ROAD	D	36.2%	84.5%	A	73.3%	80.7%	D	73.9%	81.5%	D	45.2%	83.6%	B
193	3	2.169	12.19	10.021	AUBURN LAKE TRAIL ROAD	EVERGREEN COURT ROAD	D	40.8%	84.6%	B	71.3%	81.8%	D	70.0%	81.9%	C	49.5%	83.7%	B
193	4	12.19	12.699	0.509	EVERGREEN COURT ROAD	GEORGETOWN, LOWER MAIN STREET	D	29.5%	81.5%	C	67.7%	78.8%	C	68.8%	80.5%	C	38.8%	79.8%	C
193	5	12.699	16.105	3.406	GEORGETOWN, LOWER MAIN STREET	BLACK OAK MINE ROAD	D	60.3%	90.5%	C	25.4%	87.8%	A	20.9%	88.1%	A	60.0%	89.8%	C
193	6	16.105	19.4	3.295	BLACK OAK MINE ROAD	GARDEN VALLEY ROAD	D	54.2%	92.0%	B	18.7%	89.7%	A	16.0%	90.4%	A	53.8%	91.8%	B
193	7	19.4	26.95	7.55	GARDEN VALLEY ROAD	JCT. RTE. 49	D	62.8%	88.7%	C	30.3%	86.8%	A	23.5%	87.2%	A	62.9%	86.9%	C

[1] Percent of Time Spent Following - average percent of time that one must follow slower vehicles
[2] Percent of Free-Flow Speed - ability of ones to travel at or near the posted speed limit
[3] Level of service for two-lane highways is based on criteria in Chapter 15, HCM 2010

Table C-4. General Plan LOS Results for Local Roadways

ID	Name	Location	Area	Type	LOS Threshold	2035 General Plan			
						AM Volume	LOS	PM Volume	LOS
1	Bass Lake Rd	North of Country Club Dr	Rural	2AU	D	1430	D	1350	D
2	Bass Lake Rd	South of Green Valley Rd	Community Region	2AU	E	840	A-C	710	A-C
3	Bass Lake Rd	North of Serrano Pkwy	Community Region	2AU	E	1090	D	1070	D
4	Bassi Rd	West of Lotus Rd	Rural	2AU	D	100	A-C	120	A-C
5	Bedford Ave	At City Limit	Rural	2AU	D	40	A-C	50	A-C
6	Broadway	At City Limit	Community Region	2AU	E	360	A-C	420	A-C
7	Bucks Bar Rd	South Pleasant Valley Rd	Rural	2AU	D	490	A-C	500	A-C
8	Bucks Bar Rd	North of Mt Aukum Rd	Rural	2AU	D	360	A-C	380	A-C
9	Cambridge Rd	North of Country Club Dr	Exception F	2AU	F	800	A-C	980	D
10	Cambridge Rd	South of Country Club Dr	Community Region	2AU	E	780	A-C	930	D
11	Cambridge Rd	At US 50 Overcrossing	Community Region	2AU	E	1110	D	1130	D
12	Cambridge Rd	South of Green Valley Rd	Community Region	2AU	E	640	A-C	670	A-C
13	Cambridge Rd	North of Oxford Rd	Community Region	2AU	E	450	A-C	500	A-C
14	Cameron Park Dr	North of Coach Ln	Community Region	4AD	E	1800	A-C	3060	D
15	Cameron Park Dr	South of Hacienda Dr	Community Region	2AU	E	1470	D	1850	**F**
16	Cameron Park Dr	South of Green Valley Rd	Community Region	2AU	E	870	D	960	D
17	Cameron Park Dr	North of Mira Loma Dr	Community Region	2AU	E	1170	D	1480	D
18	Cameron Park Dr	South of Robin Ln	Community Region	2AU	E	890	D	1370	D
19	Cameron Park Dr	North of Robin Ln	Exception F	2AU	F	900	D	1410	D
20	Carson Rd	East of Barkley Rd	Community Region	2AU	E	230	A-C	320	A-C
21	Carson Rd	At Carson Ct	Rural	2AU	D	100	A-C	200	A-C
22	Carson Rd	West of Gatlin Rd	Rural	2AU	D	100	A-C	200	A-C
23	Carson Rd	East of Ponderosa Way	Community Region	2AU	E	150	A-C	220	A-C
24	China Garden Rd	East of Missouri Flat Rd	Community Region	2AU	E	300	A-C	570	A-C
25	China Garden Rd	North of SR 49	Community Region	2AU	E	120	A-C	120	A-C
26	Cold Springs Rd	South of Gold Hill Rd	Rural	2AU	D	240	A-C	340	A-C
27	Cold Springs Rd	South of SR 153	Rural	2AU	D	160	A-C	230	A-C
28	Country Club Dr	East of Bass Lake Rd	Rural	2AU	D	820	A-C	560	A-C
29	Country Club Dr	West of Knollwood Dr	Community Region	2AU	E	850	D	470	A-C
30	Country Club Dr	East of Cambridge Rd	Community Region	2AU	E	580	A-C	580	A-C
31	Country Club Dr	East of Merrychase Dr	Community Region	2AU	E	530	A-C	310	A-C
32	Country Club Dr	West of Cameron Park Dr	Community Region	2AU	E	560	A-C	770	A-C
33	Durock Rd	West of S. Shingle Rd	Community Region	2AU	E	640	A-C	860	D
34	El Dorado Hills Blvd	South of Wilson Blvd	Community Region	4AD	E	2010	D	1900	D
35	El Dorado Hills Blvd	North of Wilson Blvd	Community Region	4AD	E	2020	D	1860	D
36	El Dorado Hills Blvd	North of Saratoga Way	Community Region	4AD	E	2730	D	2600	D
37	El Dorado Hills Blvd	South of Francisco Dr	Community Region	2AU	E	1410	D	1350	D
38	El Dorado Hills Blvd	South of Green Valley Rd	Community Region	2AU	E	460	A-C	370	A-C
39	El Dorado Hills Blvd	North of Harvard Way	Community Region	4AD	E	1760	A-C	1580	A-C
40	El Dorado Rd	South of US 50	Community Region	2AU	E	590	A-C	660	A-C
41	El Dorado Rd	North of Pleasant Valley Rd	Community Region	2AU	E	400	A-C	430	A-C
42	El Dorado Rd	South of Missouri Flat Rd	Community Region	2AU	E	310	A-C	390	A-C
43	Enterprise Dr	East of Forni Rd	Community Region	2AU	E	280	A-C	480	A-C
44	Fairplay Rd	South of Mt Aukum Rd	Rural	2AU	D	170	A-C	190	A-C
45	Forni Rd	North of SR 49	Community Region	2AU	E	450	A-C	470	A-C
46	Forni Rd	West of Arroyo Vista Way	Community Region	2AU	E	100	A-C	160	A-C
47	Francisco Dr	South of Green Valley Rd	Community Region	2AU	E	1110	D	1240	D
48	French Creek Rd	North of Old French Town Rd	Rural	2AU	D	240	A-C	250	A-C
49	Gold Hill Rd	East of Lotus Road	Rural	2AU	D	290	A-C	180	A-C
50	Gold Hill Rd	East of Cold Springs Rd	Rural	2AU	D	80	A-C	60	A-C
51	Gold Hill Rd	West of Cold Springs Rd	Rural	2AU	D	290	A-C	170	A-C
52	Green Valley Rd	West of Sophia Pkwy	Community Region	2AU	E	2920	**F**	3380	**F**
53	Green Valley Rd	West of Weber Creek	Rural	2AU	D	380	A-C	520	A-C
54	Green Valley Rd	West of Silva Valley Rd	Community Region	2AU	E	1170	E	1400	E
55	Green Valley Rd	East of Mormon Island Dr	Community Region	4AD	E	2580	C	3540	C
56	Green Valley Rd	West of Mormon Island Dr	Community Region	4AD	E	2580	C	3540	C
57	Green Valley Rd	East of Sophia Pkwy	Community Region	4AD	E	2620	C	3570	C
58	Green Valley Rd	East of Francisco Dr	Community Region	4AD	E	1600	E	1510	E
59	Green Valley Rd	West of Bass Lake Rd	Community Region	2AU	E	1510	E	1150	E
60	Green Valley Rd	East of Bass Lake Rd	Community Region	2AU	E	1470	E	1330	E
61	Green Valley Rd	East of La Crescenta Dr	Community Region	2AU	E	1160	D	1080	E
62	Green Valley Rd	East of Deer Valley Rd	Rural	2AU	D	620	C	640	D
63	Green Valley Rd	West of Lotus Rd	Rural	2AU	D	920	D	1110	**E**
64	Green Valley Rd	West of Greenstone Rd	Rural	2AU	D	540	A-C	590	A-C
65	Green Valley Rd	West of Missouri Flat Rd	Community Region	2AU	E	990	D	890	D
66	Green Valley Rd	West of Campus Dr	Rural	2AU	D	470	A-C	530	A-C
67	Greenstone Rd	North of US 50	Rural	2AU	D	370	A-C	380	A-C
68	Greenstone Rd	North of Mother Lode Dr	Community Region	2AU	E	150	A-C	180	A-C

ID	Name	Location	Area	Type	LOS Threshold	2035 General Plan			
						AM Volume	LOS	PM Volume	LOS
69	Grizzly Flat Rd	East of Mt Aukum Rd	Rural	2AU	D	200	A-C	260	A-C
70	Harvard Way	East of El Dorado Hills Blvd	Community Region	4AU	E	1210	A-C	690	A-C
71	Harvard Way	West of Silva Valley Pkwy	Community Region	4AU	E	1190	A-C	960	A-C
72	Ice House Rd	North of US 50	Rural	2AU	D	40	A-C	80	A-C
73	Latrobe Rd	North of County Line	Rural	2AU	D	480	A-C	560	A-C
74	Latrobe Rd	South of Investment Blvd	Community Region	2AU	E	650	A-C	710	A-C
75	Latrobe Rd	North of Golden Foothill Pkwy South	Community Region	4AD	E	2460	D	2590	D
76	Latrobe Rd	North of Investment Blvd	Community Region	2AU	E	1190	D	1350	D
77	Latrobe Rd	North of Golden Foothill Pkwy	Community Region	4AD	E	3790	F	3830	F
78	Latrobe Rd	North of White Rock Rd	Community Region	6AD	E	3410	D	3500	D
79	Lotus Rd	South of Thompson Hill Rd	Rural	2AU	D	470	A-C	610	A-C
80	Lotus Rd	North Green Valley Rd	Rural	2AU	D	980	D	1240	D
81	Lotus Rd	South of SR 49	Rural	2AU	D	380	A-C	510	A-C
82	Luneman Rd	West of Lotus Rd	Rural	2AU	D	380	A-C	230	A-C
83	Marshall Rd	East of SR 49	Rural	2AU	D	390	A-C	390	A-C
84	Marshall Rd	East of Garden Valley Rd	Rural	2AU	D	520	A-C	490	A-C
85	Marshall Rd	South of Lower Main St	Rural	2AU	D	60	A-C	70	A-C
86	Meder Rd	East of Cameron Park Dr	Community Region	2AU	E	840	A-C	1040	D
87	Meder Rd	West of Ponderosa Rd	Community Region	2AU	E	560	A-C	650	A-C
88	Missouri Flat Rd	West of El Dorado Rd	Community Region	2AU	E	1030	D	890	D
89	Missouri Flat Rd	East of El Dorado Rd	Community Region	2AU	E	920	D	1000	D
90	Missouri Flat Rd	South of China Garden Rd	Community Region	2AU	E	1200	D	1640	E
91	Missouri Flat Rd	North of SR 49	Community Region	2AU	E	1070	D	1310	D
92	Missouri Flat Rd	North of Forni Rd	Exception F	4AD	F	2110	D	3040	D
93	Missouri Flat Rd	South of Forni Rd	Exception F	4AD	F	1780	A-C	2190	D
94	Mormon Emigrant Trl	East of Sly Park Rd	Rural	2AU	D	80	A-C	110	A-C
95	Mosquito Rd	At City Limit	Community Region	2AU	E	510	A-C	530	A-C
96	Mosquito Rd	South of American River Bridge	Rural	2AU	D	130	A-C	160	A-C
97	Mother Lode Dr	East of French Creek Rd	Community Region	2AU	E	1080	D	1000	D
98	Mother Lode Dr	West of Sunset Ln	Community Region	2AU	E	1170	D	1280	D
99	Mother Lode Dr	West of Pleasant Valley Rd	Community Region	2AU	E	950	D	1120	D
100	Mother Lode Dr	East of Pleasant Vally Rd	Community Region	2AU	E	310	A-C	440	A-C
101	Mt Aukum Rd	North of County Line	Rural	2AU	D	120	A-C	150	A-C
102	Mt Aukum Rd	South of Bucks Bar Rd	Rural	2AU	D	300	A-C	360	A-C
103	Mt Aukum Rd	South of Pleasant Valley Rd	Rural	2AU	D	230	A-C	380	A-C
104	Mt Murphy Rd	North of SR 49	Rural	2AU	D	50	A-C	60	A-C
105	Mt Murphy Rd	South of Marshall Rd	Rural	2AU	D	80	A-C	130	A-C
106	N Shingle Rd	South of Green Valley Rd	Rural	2AU	D	570	A-C	630	A-C
107	Newtown Rd	North of Pioneer Hill Rd	Rural	2AU	D	300	A-C	300	A-C
108	Newtown Rd	East of Broadway Rd	Community Region	2AU	E	370	A-C	390	A-C
109	Newtown Rd	North of Pleasant Valley Rd	Rural	2AU	D	290	A-C	290	A-C
110	Old French Town Rd	South of Mother Lode Dr	Community Region	2AU	E	150	A-C	180	A-C
111	Omo Ranch Rd	East of Mt Aukum Rd	Rural	2AU	D	70	A-C	70	A-C
112	Oxford Rd	East of Salida Way	Community Region	2AU	E	530	A-C	680	A-C
113	Palmer Dr	East of Cameron Park Dr	Community Region	2AU	E	650	A-C	1180	D
114	Patterson Dr	South of Pleasant Valley Rd	Community Region	2AU	E	430	A-C	580	A-C
115	Pleasant Valley Rd	East of Mother Lode Dr	Community Region	2AU	E	830	A-C	920	D
116	Pleasant Valley Rd	East of Bucks Bar Rd	Community Region	2AU	E	580	A-C	570	A-C
117	Pleasant Valley Rd	West of Oak Hill Rd	Community Region	2AU	E	950	D	1040	D
118	Pleasant Valley Rd	East of SR 49	Community Region	2AU	E	1240	D	1430	D
119	Pleasant Valley Rd	East of Cedar Ravine Rd	Community Region	2AU	E	1030	D	1060	D
120	Pleasant Valley Rd	East of Newtown Rd	Community Region	2AU	E	520	A-C	540	A-C
121	Ponderosa Rd	North of Jackpine Rd	Rural	2AU	D	160	A-C	140	A-C
122	Pony Express Trl	East of Carson Rd	Community Region	2AU	E	220	A-C	290	A-C
123	Pony Express Trl	East of Gilmore Rd	Community Region	2AU	E	280	A-C	460	A-C
124	Pony Express Trl	West of Forebay Rd	Community Region	2AU	E	270	A-C	510	A-C
125	Rock Creek Rd	East of SR 193	Rural	2AU	D	40	A-C	40	A-C
126	Salmon Falls Rd	At New York Creek Bridge	Rural	2AU	D	300	A-C	330	A-C
127	Salmon Falls Rd	South of Malcolm Dixon Rd	Community Region	2AU	E	780	A-C	750	A-C
128	Salmon Falls Rd	South of Pedro Hill Rd	Rural	2AU	D	170	A-C	160	A-C
129	Salmon Falls Rd	South of Rattlesnake Bar Rd	Rural	2AU	D	50	A-C	50	A-C
130	Serrano Pkwy	East of Silva Valley Pkwy	Community Region	4AD	E	2050	D	1370	A-C
131	Serrano Pkwy	West of Bass Lake Rd	Community Region	2AU	E	900	D	860	D
132	Shingle Springs Dr	South of US 50	Rural	2AU	D	1040	D	670	A-C
133	Silva Valley Pky	North of US 50	Community Region	4AD	E	2150	D	2540	D
134	Silva Valley Pky	South of Green Valley Rd	Community Region	2AU	E	780	A-C	700	A-C
135	Silva Valley Pky	North of Havard Way	Community Region	2AU	E	1230	D	1130	D
136	Silva Valley Pky	South of Serrano Pkwy	Community Region	4AD	E	1850	D	1750	A-C
137	Sly Park Rd	East of Mt Aukum Rd	Rural	2AU	D	290	A-C	320	A-C
138	Sly Park Rd	East of Mormon Emigrant Trail	Rural	2AU	D	300	A-C	400	A-C

ID	Name	Location	Area	Type	LOS Threshold	2035 General Plan			
						AM Volume	LOS	PM Volume	LOS
139	Sly Park Rd	South of Pony Express Trail	Community Region	2AU	E	620	A-C	780	A-C
140	Snows Rd	North of Newtown Rd	Rural	2AU	D	100	A-C	100	A-C
141	Snows Rd	South of Carson Rd	Community Region	2AU	E	360	A-C	230	A-C
142	South Shingle Rd	East of Latrobe Rd	Rural	2AU	D	150	A-C	140	A-C
143	South Shingle Rd	North of Barnett Ranch	Rural	2AU	D	240	A-C	290	A-C
144	South Shingle Rd	South of Sunset Ln	Community Region	2AU	E	590	A-C	800	A-C
145	Starbuck Rd	North of Green Valley Rd	Community Region	2AU	E	170	A-C	210	A-C
146	Union Ridge Rd	West of Hassler Rd	Rural	2AU	D	70	A-C	90	A-C
147	Wentworth Springs Rd	West of Quintette Rd	Rural	2AU	D	40	A-C	60	A-C
148	White Rock Rd	West of Windfield Way	Community Region	2AU	E	1380	D	1900	**F**
149	White Rock Rd	At County Line	Community Region	2AU	E	1520	D	2240	**F**
150	White Rock Rd	East of Latrobe Rd	Community Region	2AU	E	1170	D	1610	E
151	White Rock Rd	West of Latrobe Rd	Community Region	4AD	E	1450	A-C	2070	D

A-C defined as operating between LOS A-C per HCM 2010
Indicates deficiency

ATTACHMENT D

INTERCHANGE VOLUME COMPARISON

(all segments presented from west to east)

Table D-1. Interchange Volume Comparison between the Previous and the Current Models – 2035 GP

Interchange	Previous Model - GP PM Peak								Current Model - GP PM Peak							
	Ramps					Overpass			Ramps					Overpass		
	EB OFF	EB ON	WB OFF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas	EB OFF	EB ON	WB OFF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas
El Dorado Hills Blvd	1368	1073	1086	941	4468	2678	2262	4940	1614	782	490	1714	4600	3117	1216	4333
Silva Valley Pkwy	1252	1531	1469	694	4946	1613	1856	3469	989	689	533	428	2639	1276	688	1964
Bass Lake Rd	897	376	506	670	2449	878	427	1305	859	244	405	475	1983	834	366	1200
Cambridge Rd	892	154	152	586	1784	873	190	1063	812	84	174	650	1720	767	169	936
Cameron Park Dr	1523	454	797	1228	4002	1961	849	2810	949	747	629	1010	3335	1906	1242	3148
Ponderosa Rd	1075	640	735	874	3324	1266	826	2092	1219	348	304	887	2758	1447	700	2147
Shingle Springs Dr	222	123	111	211	667	211	111	322	228	119	143	149	639	205	143	348
Red Hawk Pkwy	326	139	52	410	927	326	139	465	140	144	99	153	536	239	297	536
Greenstone Rd	219	81	126	237	663	299	144	443	179	61	87	258	585	373	149	522
El Dorado Rd	205	342	305	187	1039	265	425	690	229	194	224	208	855	301	352	653
Missouri Flat Rd	932	931	817	996	3676	1498	1318	2816	728	731	686	564	2709	958	1160	2118
Placerville Dr (West)	875	332	222	887	2316	1061	534	1595	631	107	0	740	1478	727	79	806
Schnell School Rd	2	257	193	1	453	1061	534	1595	121	156	38	263	578	252	75	327
View Point Dr	431	88	61	282	862	306	102	408	339	18	3	211	571	232	11	243
Smith Flat Rd		9	61		70	12	30	42		46	48		94	0	48	48
Ridgeway Dr	2	0	273	214	489	0	10	10	288	16	16	157	477	293	22	315
Sly Park Rd	273	214	165	98	750	174	200	374	454	46	54	209	763	398	272	670
				Approaches to the Interchanges								Approaches to the Interchanges				
				North_NB	North_SB	South_NB	South_SB	Total Approaches				North_NB	North_SB	South_NB	South_SB	Total Approaches
Ray Lawer Dr	Not an interchange in the previous model			N/A	N/A	N/A	N/A	N/A				311	317	295	25	948
Placerville Dr (East)				496	547			1043				167	319			486
Mosquito Rd				378	272	693	676	2019				409	333	380	434	1556
Carson Rd				152	121			273				39	48			87

shows locations where TIM fee CIP project was identified
indicates where the current model is greater than the previous model

Table D-2. Interchange Volume Growth Comparison between the Previous and the Current Models – 2035 GP

Interchange	Previous Model - GP PM Peak								Current Model - GP PM Peak							
	Ramps					Overpass			Ramps					Overpass		
	EB OFF	EB ON	WB OFF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas	EB CFF	EB ON	WB 0FF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas
El Dorado Hills Blvd	3%	0%	0%	4%	2%	4%	3%	3%	-1%	-1%	-1%	0%	0%	0%	0%	0%
Silva Valley Pkwy																
Bass Lake Rd	2%	8%	7%	4%	4%	2%	8%	3%	1%	4%	3%	3%	2%	1%	5%	2%
Cambridge Rd	3%	3%	1%	2%	2%	3%	3%	3%	3%	-1%	0%	3%	2%	2%	1%	2%
Cameron Park Dr	3%	-1%	1%	3%	2%	3%	0%	2%	2%	1%	1%	3%	2%	2%	1%	2%
Ponderosa Rd	1%	1%	2%	1%	1%	2%	2%	2%	1%	2%	1%	1%	1%	1%	2%	1%
Shingle Springs Dr	5%	3%	3%	5%	4%	5%	3%	4%	6%	3%	2%	7%	4%	5%	3%	4%
Red Hawk Pkwy									0%	0%	0%	1%	0%	0%	0%	0%
Greenstone Rd	3%	0%	2%	3%	2%	3%	1%	2%	0%	3%	1%	4%	2%	3%	3%	3%
El Dorado Rd	2%	4%	1%	4%	2%	3%	2%	2%	3%	1%	3%	2%	2%	3%	3%	3%
Missouri Flat Rd	2%	0%	0%	2%	1%	3%	2%	2%	1%	0%	0%	1%	1%	1%	0%	1%
Placerville Dr (West)	1%	-1%	-1%	0%	0%	1%	0%	1%	1%	0%	-100%	1%	0%	1%	-3%	0%
Schnell School Rd	-10%	-2%	1%		-1%		3%	7%	6%	0%	0%	1%	1%	1%	0%	1%
View Point Dr	1%	2%	3%	2%	2%	1%	4%	2%	1%	0%	2%	2%	1%	2%	1%	2%
Smith Flat Rd		-1%	7%		5%	3%	2%	3%		2%	1%		2%		1%	1%
Ridgeway Dr			1%	1%	1%		1%	1%	1%	1%	0%	1%	1%	0%	0%	0%
Sly Park Rd	3%	-1%	0%	0%	1%	0%	1%	0%	1%	1%	1%	1%	1%	1%	0%	1%
				Approaches to the Interchanges								Approaches to the Interchanges				
				North_NB	North_SB	South_NB	South_SB	Total Approaches				North_NB	North_SB	South_NB	South_SB	Total Approaches
Ray Lawer Dr	Not an interchange in the previous model			N/A	N/A	N/A	N/A	N/A								
Placerville Dr (East)																
Mosquito Rd				1%	1%	1%	1%	1%				1%	2%	1%	1%	1%
Carson Rd				0%	0%			0%				2%	4%			3%

shows locations where TIM fee CIP project was identified
indicates where the current model is greater than the previous model

ATTACHMENT E

INTERCHANGE OPERATIONAL ANALYSIS

US 50 Bass Lake Road Interchange
US 50 Missouri Flat Road Interchange

KITTELSON & ASSOCIATES, INC.
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MEMORANDUM

Date: September 8, 2015

Project #: 17666.0

To: Claudia Wade
County of El Dorado
2850 Fairlane Court, Building C
Placerville, CA 95667

From: Chirag Safi and Jim Damkowitch

Project: CIP & TIM Fee Update: Western Slope

Subject: Attachment Material for Draft Technical Memorandum 2-3: Bass Lake Road Interchange

This memorandum summarizes the existing and future deficiency analysis at the Bass Lake Road interchange with US 50, including the Mitigation Fee Act (MFA) nexus justification for the improvement concepts to be advanced as part of the Major Capital Improvement Program (CIP) & Traffic Impact Mitigation (TIM) Fee Update. The analysis includes results for both existing conditions and the County adopted General Plan (GP).

ANALYSIS METHODOLOGY

The existing and future deficiency analysis at two ramp intersections was performed based on the tools, methodologies and assumptions described in the Draft Technical Memorandum 2-1: Analysis Methodology.

LEVEL OF SERVICE STANDARDS

The following criteria are established to determine whether the vehicular traffic on a roadway facility exceeds the standard operating conditions.

County Roadways

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways as follows:

> *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 or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume*

to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table.

Roadways in the community regions are evaluated against LOS E standard, while those in the rural regions and rural centers were analyzed against LOS D.

State Facilities

County's Policy TC-Xd is applicable not only to the County roadways, but also to the state facilities. As such, traffic conditions for state facilities within the unincorporated areas of the County shall not be worse than LOS E in the community regions and LOS D in the rural center and rural regions, with except to the locations specified in Table TC-2.

Bass Lake Road eastbound and westbound US 50 ramp intersections are located in the rural regions, and therefore, the analysis was performed using LOS D threshold.

EXISTING DEFICIENCY ANALYSIS

Existing AM and PM peak period turning movement counts collected in January 2014 were used to conduct existing deficiency analysis. All counts were collected on a Tuesday, Wednesday or Thursday during the week of January 26th when schools were in session. In order to better reflect existing demand, the turning movement counts at ramp intersections were balanced upwardly. Table 1 shows level of service and delays results for the existing conditions. The eastbound ramp intersection is registered to exceed the County's LOS threshold (LOS D). Appendix A provides the analysis worksheets.

Table 1. Existing (2014) Conditions Level of Service

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Bass Lake Road/Westbound Ramp	SSSC	B	11.2	D	28.2
Bass Lake Road/Eastbound Ramp	SSSC	D	28.2	**E**	37.3

Note:
SSSC = Side Street Stop Control
Highlighted cells indicate that level of service exceeds County threshold
Source: Kittelson & Associates, 2015

FUTURE DEFICIENCY ANALYSIS

Cumulative conditions deficiency analysis utilizes the existing lane configuration and traffic volumes derived from County's travel demand model. As documented in Draft Technical Memorandum 2-3: Existing and Future Deficiency Analysis, the future forecasts represent the approved allocation of growth in the County's General Plan. Prior to analysis, post processing adjustments (Furness Method) were performed on the travel forecasts based on the NCHRP Report 255 to yield the future year turn movement volumes.

Table 2 shows level of service and delays results for the 2035 cumulative conditions with existing lane configuration and traffic controls. Both ramp intersections were projected to exceed County's level of service threshold during AM and/or PM peak hours. The 95th percentile vehicular queues were estimated to exceed the available storage on the off-ramps. Appendix B provides the analysis worksheets.

Table 2. Cumulative (2035) Conditions Level of Service with Existing Configuration

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Bass Lake Road/Westbound Ramp	SSSC	C	15.1	**F**	92.2
Bass Lake Road/Eastbound Ramp	SSSC	**F**	1392.6	**F**	955.8

Note:
SSSC = Side Street Stop Control
Highlighted cells indicate that level of service exceeds County threshold
Source: Kittelson & Associates, 2015

The following improvements would be needed to meet the County's operational threshold:

Bass Lake Road and Westbound Ramps

- Add a traffic signal
- Install a southbound right-turn lane for the westbound on-ramp movement
- Install second northbound through lane

Bass Lake Road and Eastbound Ramps

- Add a traffic signal
- Install an eastbound left-turn lane on the off-ramp approach with 400 feet storage and provide its receiving lane

With above improvements, both ramp intersections are anticipated to operate within acceptable level of service and queues. Replacement of the US 50 bridge structure will not be required to implement these improvements.

CONCLUSION

Completion of the existing and future deficiency analysis will inform the identification of CIP projects to be funded through the updated TIM Fee program.

The westbound US 50 ramp intersection with Bass Lake Road currently operates within level of service standards. It is projected to function at LOS F in the cumulative conditions, exceeding County's threshold. Therefore, this location is eligible for the CIP project which can be funded through TIM fees.

The eastbound US 50 ramp intersection with Bass Lake Road currently operates at LOS E during the PM peak hour, exceeding County's threshold. Level of service and queues will exacerbate at this location under the cumulative conditions. Therefore, this location is eligible for the CIP project which can be funded through TIM fees.

APPENDIX A

EXISTING CONDITIONS ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	3	1	114	25	232	0	0	166	749
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	86	86	86	67	67	67	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	1	133	37	346	0	0	180	814

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	601	601	346	180	0	0	346	0	0
Stage 1	421	421	-	-	-	-	-	-	-
Stage 2	180	180	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	463	414	697	1396	-	-	1213	-	-
Stage 1	662	589	-	-	-	-	-	-	-
Stage 2	851	750	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	448	0	697	1396	-	-	1213	-	-
Mov Cap-2 Maneuver	448	0	-	-	-	-	-	-	-
Stage 1	640	0	-	-	-	-	-	-	-
Stage 2	851	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1396	-	-	721	1213	-	-
HCM Lane V/C Ratio	0.027	-	-	0.19	-	-	-
HCM Control Delay (s)	7.7	0	-	11.2	0	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0	-	-

Intersection	
Int Delay, s/veh	20.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	235	0	5	0	0	0	0	22	4	162	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	92	92	92	72	72	72	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	385	0	8	0	0	0	0	31	6	184	8	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	409	412	8	8	0	0	36	0	0
Stage 1	376	376	-	-	-	-	-	-	-
Stage 2	33	36	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	599	530	1074	1612	-	-	1575	-	-
Stage 1	694	616	-	-	-	-	-	-	-
Stage 2	989	865	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	529	0	1074	1612	-	-	1575	-	-
Mov Cap-2 Maneuver	529	0	-	-	-	-	-	-	-
Stage 1	613	0	-	-	-	-	-	-	-
Stage 2	989	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.2	0	7.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1612	-	-	535	1575	-	-
HCM Lane V/C Ratio	-	-	-	0.735	0.117	-	-
HCM Control Delay (s)	0	-	-	28.2	7.6	0	-
HCM Lane LOS	A	-	-	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	6.2	0.4	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	8	0	128	11	609	0	0	87	297
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	87	87	94	94	94	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	9	0	147	12	648	0	0	101	345

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	772	772	648	101	0	0	648	0	0
Stage 1	671	671	-	-	-	-	-	-	-
Stage 2	101	101	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	368	330	470	1491	-	-	938	-	-
Stage 1	508	455	-	-	-	-	-	-	-
Stage 2	923	811	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	363	0	470	1491	-	-	938	-	-
Mov Cap-2 Maneuver	363	0	-	-	-	-	-	-	-
Stage 1	501	0	-	-	-	-	-	-	-
Stage 2	923	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1491	-	-	499	938	-	-
HCM Lane V/C Ratio	0.008	-	-	0.313	-	-	-
HCM Control Delay (s)	7.4	0	-	15.5	0	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0	-	-

Intersection	
Int Delay, s/veh	32.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	611	2	16	0	0	0	0	9	7	88	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	92	92	92	67	67	67	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	636	2	17	0	0	0	0	13	10	96	8	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	218	223	8	8	0	0	24	0	0
Stage 1	199	199	-	-	-	-	-	-	-
Stage 2	19	24	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	770	676	1074	1612	-	-	1591	-	-
Stage 1	835	736	-	-	-	-	-	-	-
Stage 2	1004	875	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	723	0	1074	1612	-	-	1591	-	-
Mov Cap-2 Maneuver	723	0	-	-	-	-	-	-	-
Stage 1	784	0	-	-	-	-	-	-	-
Stage 2	1004	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.3	0	6.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1612	-	-	729	1591	-	-
HCM Lane V/C Ratio	-	-	-	0.899	0.06	-	-
HCM Control Delay (s)	0	-	-	37.3	7.4	0	-
HCM Lane LOS	A	-	-	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	11.7	0.2	-	-

APPENDIX B

CUMULATIVE CONDITIONS ANALYSIS WORKSHEETS

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	32	6	142	246	463	0	0	287	750
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	86	86	86	67	67	67	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	37	7	165	367	691	0	0	312	815

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1737	1737	691	312	0	0	691	0	0
Stage 1	1425	1425	-	-	-	-	-	-	-
Stage 2	312	312	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	96	87	445	1248	-	-	904	-	-
Stage 1	222	201	-	-	-	-	-	-	-
Stage 2	742	658	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	50	0	445	1248	-	-	904	-	-
Mov Cap-2 Maneuver	50	0	-	-	-	-	-	-	-
Stage 1	116	0	-	-	-	-	-	-	-
Stage 2	742	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1248	-	-	564	904	-	-
HCM Lane V/C Ratio	0.294	-	-	0.371	-	-	-
HCM Control Delay (s)	9.1	0	-	15.1	0	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	1.2	-	-	1.7	0	-	-

Intersection	
Int Delay, s/veh	627.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	376	0	86	0	0	0	0	334	72	231	89	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	92	92	92	72	72	72	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	616	0	141	0	0	0	0	464	100	262	101	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1140	1190	101	101	0	0	564	0	0
Stage 1	626	626	-	-	-	-	-	-	-
Stage 2	514	564	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 222	188	954	1491	-	-	1008	-	-
Stage 1	~ 533	477	-	-	-	-	-	-	-
Stage 2	~ 600	508	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 161	0	954	1491	-	-	1008	-	-
Mov Cap-2 Maneuver	~ 161	0	-	-	-	-	-	-	-
Stage 1	~ 386	0	-	-	-	-	-	-	-
Stage 2	~ 600	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 1392.6	0	7.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1491	-	-	190	1008	-	-
HCM Lane V/C Ratio	-	-	-	3.986	0.26	-	-
HCM Control Delay (s)	0	-	-	$ 1392.6	9.8	0	-
HCM Lane LOS	A	-	-	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	74.7	1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	17.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	136	0	247	83	830	0	0	234	506
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	148	0	268	90	902	0	0	254	550

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1337	1337	902	254	0	0	902	0	0
Stage 1	1083	1083	-	-	-	-	-	-	-
Stage 2	254	254	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	169	153	336	1311	-	-	754	-	-
Stage 1	325	293	-	-	-	-	-	-	-
Stage 2	788	697	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 146	0	336	1311	-	-	754	-	-
Mov Cap-2 Maneuver	~ 146	0	-	-	-	-	-	-	-
Stage 1	280	0	-	-	-	-	-	-	-
Stage 2	788	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	92.2	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1311	-	-	396	754	-	-
HCM Lane V/C Ratio	0.069	-	-	1.051	-	-	-
HCM Control Delay (s)	7.9	0	-	92.2	0	-	-
HCM Lane LOS	A	A	-	F	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	13.8	0	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	586

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	763	2	182	0	0	0	0	152	77	176	195	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	829	2	198	0	0	0	0	165	84	191	212	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	802	844	212	212	0	0	249	0	0
Stage 1	595	595	-	-	-	-	-	-	-
Stage 2	207	249	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 353	300	828	1358	-	-	1317	-	-
Stage 1	~ 551	492	-	-	-	-	-	-	-
Stage 2	~ 828	701	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	~ 295	0	828	1358	-	-	1317	-	-
Mov Cap-2 Maneuver	~ 295	0	-	-	-	-	-	-	-
Stage 1	~ 461	0	-	-	-	-	-	-	-
Stage 2	~ 828	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 955.8	0	3.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1358	-	-	337	1317	-	-
HCM Lane V/C Ratio	-	-	-	3.054	0.145	-	-
HCM Control Delay (s)	0	-	-	$ 955.8	8.2	0	-
HCM Lane LOS	A	-	-	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	90.8	0.5	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	196	770	312	815
v/c Ratio	0.59	0.52	0.59	0.89
Control Delay	16.1	17.7	25.7	19.3
Queue Delay	0.1	0.1	6.5	5.0
Total Delay	16.2	17.7	32.2	24.3
Queue Length 50th (ft)	17	99	107	54
Queue Length 95th (ft)	67	m125	178	#306
Internal Link Dist (ft)	1213	242	163	
Turn Bay Length (ft)				
Base Capacity (vph)	495	1482	612	953
Starvation Cap Reductn	0	87	244	91
Spillback Cap Reductn	21	0	57	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.55	0.85	0.95

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	32	6	142	246	463	0	0	287	750
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1863	1863
Adj Flow Rate, veh/h				35	7	0	267	503	0	0	312	0
Adj No. of Lanes				0	1	0	0	2	0	0	1	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				48	10	0	699	1413	0	0	383	326
Arrive On Green				0.03	0.03	0.00	0.20	0.20	0.00	0.00	0.21	0.00
Sat Flow, veh/h				1490	298	0	1183	2483	0	0	1863	1583
Grp Volume(v), veh/h				42	0	0	407	363	0	0	312	0
Grp Sat Flow(s),veh/h/ln				1788	0	0	1804	1770	0	0	1863	1583
Q Serve(g_s), s				1.6	0.0	0.0	13.7	12.4	0.0	0.0	11.2	0.0
Cycle Q Clear(g_c), s				1.6	0.0	0.0	13.7	12.4	0.0	0.0	11.2	0.0
Prop In Lane				0.83		0.00	0.66		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				57	0	0	1066	1046	0	0	383	326
V/C Ratio(X)				0.74	0.00	0.00	0.38	0.35	0.00	0.00	0.81	0.00
Avail Cap(c_a), veh/h				409	0	0	1066	1046	0	0	612	520
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.62	0.62	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				33.6	0.0	0.0	17.1	16.5	0.0	0.0	26.5	0.0
Incr Delay (d2), s/veh				16.7	0.0	0.0	0.6	0.6	0.0	0.0	4.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				1.1	0.0	0.0	7.1	6.3	0.0	0.0	6.2	0.0
LnGrp Delay(d),s/veh				50.3	0.0	0.0	17.7	17.1	0.0	0.0	31.0	0.0
LnGrp LOS				D			B	B			C	
Approach Vol, veh/h					42			770			312	
Approach Delay, s/veh					50.3			17.4			31.0	
Approach LOS					D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		45.4				18.4		6.2
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		19.0				23.0		16.0
Max Q Clear Time (g_c+I1), s		15.7				13.2		3.6
Green Ext Time (p_c), s		1.5				1.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Lane Group	EBL	EBT	NBT	SBT
Lane Group Flow (vph)	258	244	441	348
v/c Ratio	0.50	0.44	0.85	0.79
Control Delay	25.6	17.5	40.5	24.7
Queue Delay	0.1	0.1	0.0	0.5
Total Delay	25.7	17.5	40.5	25.2
Queue Length 50th (ft)	102	62	167	150
Queue Length 95th (ft)	177	131	#310	#253
Internal Link Dist (ft)		850	239	242
Turn Bay Length (ft)	400			
Base Capacity (vph)	516	551	556	488
Starvation Cap Reductn	0	0	0	17
Spillback Cap Reductn	14	13	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.45	0.79	0.74

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 (veh/h)	376	0	86	0	0	0	0	334	72	231	89	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				0	1863	1900	1900	1863	0
Adj Flow Rate, veh/h	496	0	0				0	363	78	251	97	0
Adj No. of Lanes	2	1	0				0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1171	615	0				0	406	87	292	113	0
Arrive On Green	0.33	0.00	0.00				0.00	0.27	0.27	0.23	0.23	0.00
Sat Flow, veh/h	3548	1863	0				0	1487	319	1297	501	0
Grp Volume(v), veh/h	496	0	0				0	0	441	348	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	0				0	0	1806	1798	0	0
Q Serve(g_s), s	7.6	0.0	0.0				0.0	0.0	16.4	13.0	0.0	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0				0.0	0.0	16.4	13.0	0.0	0.0
Prop In Lane	1.00		0.00				0.00		0.18	0.72		0.00
Lane Grp Cap(c), veh/h	1171	615	0				0	0	494	405	0	0
V/C Ratio(X)	0.42	0.00	0.00				0.00	0.00	0.89	0.86	0.00	0.00
Avail Cap(c_a), veh/h	1171	615	0				0	0	542	488	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.00	1.00	0.78	0.00	0.00
Uniform Delay (d), s/veh	18.3	0.0	0.0				0.0	0.0	24.5	26.1	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0				0.0	0.0	16.2	10.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.9	0.0	0.0				0.0	0.0	10.4	7.6	0.0	0.0
LnGrp Delay(d),s/veh	19.4	0.0	0.0				0.0	0.0	40.6	36.2	0.0	0.0
LnGrp LOS	B								D	D		
Approach Vol, veh/h		496						441			348	
Approach Delay, s/veh		19.4						40.6			36.2	
Approach LOS		B						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		23.1		27.1		19.8		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		21.0		18.0		19.0		
Max Q Clear Time (g_c+I1), s		18.4		9.6		15.0		
Green Ext Time (p_c), s		0.7		1.3		0.8		

Intersection Summary	
HCM 2010 Ctrl Delay	31.2
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	416	992	254	550
v/c Ratio	0.88	0.71	0.67	0.72
Control Delay	40.4	9.1	34.5	8.7
Queue Delay	4.6	0.3	3.6	0.3
Total Delay	45.0	9.4	38.1	9.0
Queue Length 50th (ft)	120	45	98	0
Queue Length 95th (ft)	#270	57	169	79
Internal Link Dist (ft)	1213	242	163	
Turn Bay Length (ft)				
Base Capacity (vph)	499	1405	425	786
Starvation Cap Reductn	0	86	98	32
Spillback Cap Reductn	42	0	40	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.91	0.75	0.78	0.73

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 (veh/h)	0	0	0	136	0	247	83	830	0	0	234	506
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1863	1863
Adj Flow Rate, veh/h				148	0	0	90	902	0	0	254	0
Adj No. of Lanes				0	1	0	0	2	0	0	1	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				195	0	0	173	1823	0	0	311	264
Arrive On Green				0.11	0.00	0.00	0.18	0.18	0.00	0.00	0.17	0.00
Sat Flow, veh/h				1774	0	0	314	3396	0	0	1863	1583
Grp Volume(v), veh/h				148	0	0	530	462	0	0	254	0
Grp Sat Flow(s),veh/h/ln				1774	0	0	1847	1770	0	0	1863	1583
Q Serve(g_s), s				5.7	0.0	0.0	18.1	16.4	0.0	0.0	9.2	0.0
Cycle Q Clear(g_c), s				5.7	0.0	0.0	18.1	16.4	0.0	0.0	9.2	0.0
Prop In Lane				1.00		0.00	0.17		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				195	0	0	1019	977	0	0	311	264
V/C Ratio(X)				0.76	0.00	0.00	0.52	0.47	0.00	0.00	0.82	0.00
Avail Cap(c_a), veh/h				431	0	0	1019	977	0	0	426	362
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.55	0.55	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				30.3	0.0	0.0	20.2	19.5	0.0	0.0	28.1	0.0
Incr Delay (d2), s/veh				6.0	0.0	0.0	1.0	0.9	0.0	0.0	8.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				3.1	0.0	0.0	9.6	8.3	0.0	0.0	5.5	0.0
LnGrp Delay(d),s/veh				36.3	0.0	0.0	21.3	20.4	0.0	0.0	36.7	0.0
LnGrp LOS				D			C	C			D	
Approach Vol, veh/h					148			992			254	
Approach Delay, s/veh					36.3			20.9			36.7	
Approach LOS					D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		42.6				15.7		11.7
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		25.0				16.0		17.0
Max Q Clear Time (g_c+I1), s		20.1				11.2		7.7
Green Ext Time (p_c), s		2.6				0.6		0.5

Intersection Summary		
HCM 2010 Ctrl Delay		25.4
HCM 2010 LOS		C

Lane Group	EBL	EBT	NBT	SBT
Lane Group Flow (vph)	522	507	249	403
v/c Ratio	0.81	0.78	0.69	0.86
Control Delay	32.5	28.2	32.9	35.3
Queue Delay	0.5	0.3	0.0	1.9
Total Delay	33.0	28.5	32.9	37.2
Queue Length 50th (ft)	215	186	86	174
Queue Length 95th (ft)	#398	#363	151	m#298
Internal Link Dist (ft)		850	239	242
Turn Bay Length (ft)	400			
Base Capacity (vph)	647	654	432	469
Starvation Cap Reductn	0	0	0	16
Spillback Cap Reductn	14	13	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.79	0.58	0.89

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	763	2	182	0	0	0	0	152	77	176	195	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				0	1863	1900	1900	1863	0
Adj Flow Rate, veh/h	514	442	198				0	165	84	191	212	0
Adj No. of Lanes	1	1	0				0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	733	504	226				0	201	102	209	232	0
Arrive On Green	0.41	0.41	0.41				0.00	0.17	0.17	0.24	0.24	0.00
Sat Flow, veh/h	1774	1220	546				0	1165	593	862	957	0
Grp Volume(v), veh/h	514	0	640				0	0	249	403	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1766				0	0	1758	1820	0	0
Q Serve(g_s), s	16.8	0.0	23.4				0.0	0.0	9.6	15.1	0.0	0.0
Cycle Q Clear(g_c), s	16.8	0.0	23.4				0.0	0.0	9.6	15.1	0.0	0.0
Prop In Lane	1.00		0.31				0.00		0.34	0.47		0.00
Lane Grp Cap(c), veh/h	733	0	729				0	0	304	442	0	0
V/C Ratio(X)	0.70	0.00	0.88				0.00	0.00	0.82	0.91	0.00	0.00
Avail Cap(c_a), veh/h	733	0	729				0	0	402	442	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.00	1.00	0.69	0.00	0.00
Uniform Delay (d), s/veh	17.0	0.0	18.9				0.0	0.0	27.9	25.8	0.0	0.0
Incr Delay (d2), s/veh	5.5	0.0	14.1				0.0	0.0	9.7	17.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	9.3	0.0	14.1				0.0	0.0	5.5	9.6	0.0	0.0
LnGrp Delay(d),s/veh	22.5	0.0	33.0				0.0	0.0	37.6	43.2	0.0	0.0
LnGrp LOS	C		C						D	D		
Approach Vol, veh/h		1154						249			403	
Approach Delay, s/veh		28.3						37.6			43.2	
Approach LOS		C						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		16.1		32.9		21.0		
Change Period (Y+Rc), s		4.0		4.0		4.0		
Max Green Setting (Gmax), s		16.0		25.0		17.0		
Max Q Clear Time (g_c+I1), s		11.6		25.4		17.1		
Green Ext Time (p_c), s		0.5		0.0		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	32.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

KITTELSON & ASSOCIATES, INC.
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MEMORANDUM

Date: September 8, 2015

Project #: 17666.0

To: Claudia Wade
County of El Dorado
2850 Fairlane Court, Building C
Placerville, CA 95667

From: Chirag Safi and Jim Damkowitch

Project: CIP & TIM Fee Update: Western Slope

Subject: Attachment Material for Draft Technical Memorandum 2-3: Missouri Flat Road Interchange

This memorandum summarizes the existing and future deficiency analysis at the Missouri Flat Road interchange with US 50, including the Mitigation Fee Act (MFA) nexus justification for the improvement concepts to be advanced as part of the Major Capital Improvement Program (CIP) & Traffic Impact Mitigation (TIM) Fee Update. The analysis includes results for both existing conditions and the County adopted General Plan (GP).

Due to close proximity with the adjacent intersections, two additional intersections were included in analysis. As such, the following intersections were analyzed:

1. Missouri Flat Road and Plaza Drive
2. Missouri Flat Road and US 50 Westbound Ramps
3. Missouri Flat Road and US 50 Eastbound Ramps
4. Missouri Flat Road and Mother Lode Drive

ANALYSIS METHODOLOGY

The existing and future deficiency analysis at the study intersections was performed based on the tools, methodologies and assumptions described in the Draft Technical Memorandum 2-1: Analysis Methodology. SimTraffic simulation models were used to report operational results. The simulation models were calibrated to field observations for another project (Diamond Springs Parkway). The models and associated results should be considered preliminary at this point and will be further refined in the ongoing Missouri Flat Circulation and Financing Plan Phase II (MC&FP-II) study.

LEVEL OF SERVICE STANDARDS

The following criteria are established to determine whether the vehicular traffic on a roadway facility exceeds the standard operating conditions.

County Roadways

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways as follows:

> *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 or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table.*

Roadways in the community regions are evaluated against LOS E standard, while those in the rural regions and rural centers were analyzed against LOS D.

State Facilities

County's Policy TC-Xd is applicable not only to the County roadways, but also to the state facilities. As such, traffic conditions for state facilities within the unincorporated areas of the County shall not be worse than LOS E in the community regions and LOS D in the rural center and rural regions, with except to the locations specified in Table TC-2.

The four study intersections listed earlier are located in the community area, and therefore, the analysis was performed using LOS E threshold.

EXISTING DEFICIENCY ANALYSIS

Existing AM and PM peak period turning movement counts collected in May 2015 were used to conduct existing deficiency analysis. All counts were collected on a Tuesday, Wednesday or Thursday during the week of May 4th when schools were in session. In order to better reflect existing demand, the turning movement counts at ramp intersections were balanced upwardly. Table 1 shows level of service and delays results for the existing conditions. The results denote an average of ten simulation runs. Appendix A provides the analysis worksheets.

Table 1. Existing (2014) Conditions Level of Service

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Missouri Flat Road/Plaza Drive	Signal	B	16.6	C	27
Missouri Flat Road/Westbound Ramps	Signal	C	23.2	C	24.3
Missouri Flat Road/Eastbound Ramps	Signal	B	19.5	C	29.3
Missouri Flat Road/Mother Lode Drive	Signal	A	8.3	B	10.8
Note: Source: Kittelson & Associates, 2015					

The study intersections operate within County's operational threshold. The 95th percentile queues on the off-ramp approaches are accommodated within the available storage.

FUTURE DEFICIENCY ANALYSIS

Cumulative conditions deficiency analysis utilizes the existing lane configuration and traffic volumes derived from County's travel demand model. As documented in Draft Technical Memorandum 2-3: Existing and Future Deficiency Analysis, the future forecasts represent the approved allocation of growth in the County's General Plan. Prior to analysis, post processing adjustments (Furness Method) were performed on the travel forecasts based on the NCHRP Report 255 to yield the future year turn movement volumes. The signal timings were optimized to better adapt to the future demand and travel patterns.

Table 2 shows level of service and delays results for the 2035 cumulative conditions with existing lane configuration and traffic controls. The results denote an average of ten simulation runs. Appendix B provides the analysis worksheets.

The study intersections were projected to operate within County's level of service threshold during AM and PM peak hours. The 95th percentile queues on the off-ramp approaches are accommodated within the available storage. However, the 95th percentile vehicular queues were estimated to exceed the available storage for a number of movements at the study intersections, including the southbound approach at Missouri Flat Road/Plaza Drive and the eastbound approach at Missouri Flat Road/Mother Lode Drive. The queues could further degrade overall operations near the interchange, potentially affecting the off-ramp approaches.

Table 2. Cumulative (2035) Conditions Level of Service with Existing Configuration

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Missouri Flat Road/Plaza Drive	Signal	B	14.3	D	54.3
Missouri Flat Road/Westbound Ramps	Signal	B	14.3	C	29.9
Missouri Flat Road/Eastbound Ramps	Signal	B	12.7	C	31.6
Missouri Flat Road/Mother Lode Drive	Signal	A	8.4	C	30.9
Note: Source: Kittelson & Associates, 2015					

CONCLUSION

Completion of the existing and future deficiency analysis will inform the identification of CIP projects to be funded through the updated TIM Fee program.

None of the study intersections reported an existing deficiency. The study intersections would operate at an acceptable level of service under the cumulative conditions, meeting the County's operational standard. However, the existing non-standard spacing between the eastbound ramp and Mother Lode Drive is considered as a design deficiency. Therefore, this location is should be considered an eligible CIP project which cannot be funded through TIM fees. The County should continue to monitor these intersections and, if necessary, work with Caltrans to adjust the signal timings along the corridor to minimize delays and queues.

This interchange will be further evaluated in the MC&FP-II study with refined land use assumptions and roadway network in travel demand model and simulation models.

APPENDIX A

EXISTING CONDITIONS ANALYSIS WORKSHEETS

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0	3.6	1.5	4.0
Total Del/Veh (s)	51.6	49.4	9.0	38.2	37.5	20.3	34.9	8.6	3.7	48.9	13.2	3.8
Vehicles Entered	7	7	81	217	22	51	98	422	288	34	293	7
Vehicles Exited	7	7	81	217	22	51	95	422	289	34	293	7
Hourly Exit Rate	7	7	81	217	22	51	95	422	289	34	293	7
Input Volume	7	7	83	228	23	50	101	419	294	34	288	7
% of Volume	97	97	98	95	96	101	94	101	98	99	102	104

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	16.6
Vehicles Entered	1527
Vehicles Exited	1525
Hourly Exit Rate	1525
Input Volume	1542
% of Volume	99

2: Missouri Flat Rd & US 50 WB Ramps Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	1.1	0.4	1.3	0.1	0.0	0.0	0.0	0.4
Total Del/Veh (s)	38.3	26.3	7.7	44.1	6.2	24.0	2.1	23.2
Vehicles Entered	500	1	287	365	525	506	113	2297
Vehicles Exited	504	1	286	365	526	506	113	2301
Hourly Exit Rate	504	1	286	365	526	506	113	2301
Input Volume	487	1	289	368	528	511	116	2299
% of Volume	103	100	99	99	100	99	98	100

3: Missouri Flat Rd & US 50 EB Ramps Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.0	1.5	0.0	0.0	0.2	0.0	0.3
Total Del/Veh (s)	37.3	22.6	10.8	2.9	61.6	16.6	19.5
Vehicles Entered	123	367	762	69	162	836	2319
Vehicles Exited	123	368	763	69	163	837	2323
Hourly Exit Rate	123	368	763	69	163	837	2323
Input Volume	119	358	775	71	161	821	2305
% of Volume	103	103	98	97	101	102	101

4: Missouri Flat Rd & Mother Lode Dr Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.9	0.4	0.1	0.0	0.0	0.0	0.2
Total Del/Veh (s)	40.3	10.1	46.1	4.3	6.4	2.1	8.3
Vehicles Entered	118	40	45	716	1125	78	2122
Vehicles Exited	118	40	45	715	1126	77	2121
Hourly Exit Rate	118	40	45	715	1126	77	2121
Input Volume	119	40	44	727	1102	75	2108
% of Volume	99	101	102	98	102	102	101

5: Missouri Flat Rd & Forni Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.7	0.7	3.7	3.8	0.8	3.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	34.7	30.2	4.3	40.6	37.1	15.5	46.3	19.5	6.5	42.2	12.5	7.4
Vehicles Entered	200	74	14	54	44	169	23	835	60	226	717	231
Vehicles Exited	200	75	14	54	44	169	22	833	61	225	715	231
Hourly Exit Rate	200	75	14	54	44	169	22	833	61	225	715	231
Input Volume	205	75	14	53	41	162	21	841	58	224	706	216
% of Volume	98	100	102	102	108	104	106	99	105	100	101	107

5: Missouri Flat Rd & Forni Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	20.3
Vehicles Entered	2647
Vehicles Exited	2643
Hourly Exit Rate	2643
Input Volume	2615
% of Volume	101

Intersection: 1: Missouri Flat Rd & Plaza Dr

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	103	48	183	191	55	85	141	135	102	95	184	141
Average Queue (ft)	35	14	92	85	12	40	43	62	46	29	65	40
95th Queue (ft)	74	37	158	161	38	75	106	117	85	72	142	105
Link Distance (ft)	348	348	469	469			444	444	444		714	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					300	300				120		400
Storage Blk Time (%)										0	2	
Queuing Penalty (veh)										0	4	

Intersection: 2: Missouri Flat Rd & US 50 WB Ramps

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	R	R	L	L	T	T	T	T
Maximum Queue (ft)	292	357	137	84	189	230	272	148	262	224
Average Queue (ft)	152	201	55	37	127	151	41	46	144	102
95th Queue (ft)	256	308	103	66	202	222	149	102	231	191
Link Distance (ft)		630	630				456	456	444	444
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	400			400	140	140				
Storage Blk Time (%)		0			4	16	0			
Queuing Penalty (veh)		0			10	42	0			

Intersection: 3: Missouri Flat Rd & US 50 EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	L	T	T
Maximum Queue (ft)	252	326	274	188	183	153	126	164	305	340
Average Queue (ft)	68	170	106	125	92	24	57	82	150	184
95th Queue (ft)	195	280	227	208	178	87	108	133	262	302
Link Distance (ft)		710		166	166				456	456
Upstream Blk Time (%)				4	1	0				
Queuing Penalty (veh)				17	5	0				
Storage Bay Dist (ft)	400		400			80	140	140		
Storage Blk Time (%)		0			9	0	0	1	7	
Queuing Penalty (veh)		0			6	0	0	3	12	

Intersection: 4: Missouri Flat Rd & Mother Lode Dr

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	104	106	66	101	176	132	190	193
Average Queue (ft)	48	48	24	42	51	35	110	100
95th Queue (ft)	94	91	55	86	138	96	200	198
Link Distance (ft)			566		286	286	166	166
Upstream Blk Time (%)							2	2
Queuing Penalty (veh)							8	7
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)				0	1			
Queuing Penalty (veh)				0	0			

Intersection: 5: Missouri Flat Rd & Forni Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	T	R	L	T	R	L	T	T	R	L
Maximum Queue (ft)	150	166	116	63	121	134	178	89	291	337	240	301
Average Queue (ft)	44	78	48	11	45	39	71	17	134	163	27	143
95th Queue (ft)	99	141	96	42	90	94	130	60	250	290	131	251
Link Distance (ft)			704			757			480	480		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200		160	200		200	240			160	300
Storage Blk Time (%)	0	0	0				0		1	8		1
Queuing Penalty (veh)	0	0	0				0		0	5		4

Intersection: 5: Missouri Flat Rd & Forni Rd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	260	264	155
Average Queue (ft)	86	91	39
95th Queue (ft)	195	196	108
Link Distance (ft)	1991	1991	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			160
Storage Blk Time (%)	0	2	
Queuing Penalty (veh)	0	4	

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.2	0.3	0.3	0.3	0.0	0.0	0.0	3.5	1.6	3.7
Total Del/Veh (s)	47.1	54.8	24.6	38.2	38.1	25.5	32.4	17.8	6.5	54.2	33.1	21.8
Vehicles Entered	27	53	337	424	44	51	345	295	431	47	336	18
Vehicles Exited	27	54	336	423	45	51	341	295	431	47	338	18
Hourly Exit Rate	27	54	336	423	45	51	341	295	431	47	338	18
Input Volume	28	51	331	432	43	50	336	297	419	47	338	19
% of Volume	96	106	102	98	105	102	101	99	103	99	100	94

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	27.0
Vehicles Entered	2408
Vehicles Exited	2406
Hourly Exit Rate	2406
Input Volume	2392
% of Volume	101

2: Missouri Flat Rd & US 50 WB Ramps Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.7	2.9	0.1	0.0	0.4	0.4	0.7
Total Del/Veh (s)	33.3	8.5	40.3	10.7	32.5	3.0	24.3
Vehicles Entered	632	402	365	672	941	184	3196
Vehicles Exited	636	402	366	672	938	184	3198
Hourly Exit Rate	636	402	366	672	938	184	3198
Input Volume	636	394	366	662	942	187	3187
% of Volume	100	102	100	102	100	99	100

3: Missouri Flat Rd & US 50 EB Ramps Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	2.5	4.1	3.5	0.0	0.0	0.2	0.0	0.8
Total Del/Veh (s)	39.1	42.8	37.9	17.2	5.3	62.3	23.8	29.3
Vehicles Entered	190	3	586	838	109	370	1194	3290
Vehicles Exited	190	4	587	838	109	373	1199	3300
Hourly Exit Rate	190	4	587	838	109	373	1199	3300
Input Volume	191	4	587	830	106	376	1194	3288
% of Volume	99	100	100	101	103	99	100	100

4: Missouri Flat Rd & Mother Lode Dr Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.8	0.6	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	43.2	19.2	42.7	7.9	8.6	1.7	10.8
Vehicles Entered	168	64	54	778	1574	211	2849
Vehicles Exited	170	64	54	780	1575	210	2853
Hourly Exit Rate	170	64	54	780	1575	210	2853
Input Volume	168	64	52	771	1564	216	2836
% of Volume	101	100	103	101	101	97	101

5: Missouri Flat Rd & Forni Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Denied Del/Veh (s)	3.5	1.3	3.4	3.7	0.7	3.7	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	54.8	35.8	5.1	44.3	41.9	18.2	47.5	45.9	23.4	5.8	51.5	52.3
Vehicles Entered	453	32	42	32	50	185	3	45	754	23	8	134
Vehicles Exited	455	32	42	33	51	186	3	45	753	23	8	135
Hourly Exit Rate	455	32	42	33	51	186	3	45	753	23	8	135
Input Volume	461	34	42	31	48	179	4	43	759	22	8	138
% of Volume	99	95	101	107	106	104	75	105	99	103	100	98

5: Missouri Flat Rd & Forni Rd Performance by movement

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.8
Total Del/Veh (s)	23.9	14.9	28.7
Vehicles Entered	1144	332	3237
Vehicles Exited	1140	331	3237
Hourly Exit Rate	1140	331	3237
Input Volume	1137	327	3232
% of Volume	100	101	100

Intersection: 1: Missouri Flat Rd & Plaza Dr

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	302	251	282	279	173	188	108	130	151	152	253	221
Average Queue (ft)	158	76	156	146	76	107	41	67	75	42	114	85
95th Queue (ft)	260	182	244	238	143	163	89	111	125	104	226	192
Link Distance (ft)	670	670	469	469			443	443	443		713	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					300	300				120		400
Storage Blk Time (%)										0	11	0
Queuing Penalty (veh)										1	26	0

Intersection: 2: Missouri Flat Rd & US 50 WB Ramps

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	LT	R	R	L	L	T	T	T	T	R	
Maximum Queue (ft)	307	288	150	95	189	236	328	215	434	430	86	
Average Queue (ft)	183	171	68	47	125	150	93	81	282	232	6	
95th Queue (ft)	270	258	123	80	192	216	216	170	422	388	90	
Link Distance (ft)	630	630					456	456	443	443		
Upstream Blk Time (%)							0	0	1	1	0	
Queuing Penalty (veh)							0	0	8	3	0	
Storage Bay Dist (ft)			400	400	140	140					380	
Storage Blk Time (%)					2	14	1			1		
Queuing Penalty (veh)					8	48	4			2		

Intersection: 3: Missouri Flat Rd & US 50 EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB		
Directions Served	L	LTR	R	T	T	R	L	L	T	T		
Maximum Queue (ft)	416	427	377	185	181	165	190	240	455	451		
Average Queue (ft)	153	239	192	162	117	45	132	164	250	268		
95th Queue (ft)	356	404	349	198	194	122	198	244	416	410		
Link Distance (ft)	710			166	166				456	456		
Upstream Blk Time (%)	0			15	3	0			0	0		
Queuing Penalty (veh)	0			70	12	0			3	3		
Storage Bay Dist (ft)		400	400			80	140	140				
Storage Blk Time (%)	0	2	0		17	0	9	23	20			
Queuing Penalty (veh)	1	2	0		18	1	56	137	78			

Intersection: 4: Missouri Flat Rd & Mother Lode Dr

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	168	117	101	153	260	164	212	201
Average Queue (ft)	73	54	38	47	99	49	151	146
95th Queue (ft)	137	102	81	102	208	124	219	217
Link Distance (ft)			566		279	279	166	166
Upstream Blk Time (%)					0		8	7
Queuing Penalty (veh)					1		46	42
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)	0			0	4			
Queuing Penalty (veh)	0			0	2			

Intersection: 5: Missouri Flat Rd & Forni Rd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	T	R	L	T	R	UL	T	T	R	UL
Maximum Queue (ft)	286	343	189	89	82	119	174	129	303	328	135	257
Average Queue (ft)	165	200	33	25	31	42	83	36	146	168	12	106
95th Queue (ft)	282	317	123	62	70	89	143	90	266	288	85	207
Link Distance (ft)			704			758			476	476		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200		160	200		200	240			160	300
Storage Blk Time (%)	4	15	0				0		1	11		0
Queuing Penalty (veh)	3	12	0				0		0	2		0

Intersection: 5: Missouri Flat Rd & Forni Rd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	417	456	240
Average Queue (ft)	200	218	120
95th Queue (ft)	374	409	282
Link Distance (ft)	1996	1996	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			160
Storage Blk Time (%)	3	14	0
Queuing Penalty (veh)	4	47	0

APPENDIX B

CUMULATIVE CONDITIONS ANALYSIS WORKSHEETS

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.3	0.2	0.0	0.0	0.0	3.3	1.6	3.4
Total Del/Veh (s)	33.8	40.6	8.3	41.2	46.3	26.2	37.2	7.4	3.3	41.5	9.1	3.4
Vehicles Entered	8	7	80	223	21	53	101	666	295	33	507	8
Vehicles Exited	8	7	80	223	21	53	101	666	295	33	508	8
Hourly Exit Rate	8	7	80	223	21	53	101	666	295	33	508	8
Input Volume	7	7	83	228	23	50	101	656	294	34	502	7
% of Volume	110	97	96	98	92	105	100	101	100	97	101	110

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	14.3
Vehicles Entered	2002
Vehicles Exited	2003
Hourly Exit Rate	2003
Input Volume	1992
% of Volume	101

2: Missouri Flat Rd & US 50 WB Ramps Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.4	0.5	2.8	0.0	0.0	0.0	0.0	0.4
Total Del/Veh (s)	29.1	20.4	9.9	19.2	5.7	15.4	2.2	14.3
Vehicles Entered	494	1	343	361	721	642	183	2745
Vehicles Exited	495	1	343	359	721	642	184	2745
Hourly Exit Rate	495	1	343	359	721	642	184	2745
Input Volume	487	1	345	368	709	646	180	2737
% of Volume	102	100	99	98	102	99	102	100

3: Missouri Flat Rd & US 50 EB Ramps Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.2	3.4	0.0	0.0	0.1	0.0	0.6
Total Del/Veh (s)	27.4	22.0	11.0	3.2	22.0	7.0	12.7
Vehicles Entered	125	472	959	108	185	951	2800
Vehicles Exited	125	474	959	108	184	951	2801
Hourly Exit Rate	125	474	959	108	184	951	2801
Input Volume	125	469	954	105	182	946	2781
% of Volume	100	101	100	103	101	101	101

4: Missouri Flat Rd & Mother Lode Dr Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.9	0.5	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	26.7	13.6	33.3	5.6	8.5	1.3	8.4
Vehicles Entered	121	65	47	1126	1346	75	2780
Vehicles Exited	122	65	48	1126	1347	75	2783
Hourly Exit Rate	122	65	48	1126	1347	75	2783
Input Volume	119	62	49	1122	1335	75	2762
% of Volume	103	105	97	100	101	100	101

Total Zone Performance

Denied Del/Veh (s)	1.7
Total Del/Veh (s)	421.7
Vehicles Entered	2618
Vehicles Exited	239
Hourly Exit Rate	239
Input Volume	10272
% of Volume	2

Intersection: 1: Missouri Flat Rd & Plaza Dr

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	86	41	171	195	69	92	141	142	110	93	200	148
Average Queue (ft)	32	14	85	90	15	43	49	68	43	27	74	47
95th Queue (ft)	62	34	150	172	46	77	109	124	82	69	151	111
Link Distance (ft)	670	670	469	469			442	442	442		713	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					300	300				120		400
Storage Blk Time (%)										0	2	
Queuing Penalty (veh)										0	6	

Intersection: 2: Missouri Flat Rd & US 50 WB Ramps

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	R	R	L	L	T	T	T	T
Maximum Queue (ft)	225	218	128	115	171	192	104	101	209	174
Average Queue (ft)	129	124	64	42	85	114	32	33	110	83
95th Queue (ft)	196	195	110	84	153	168	76	82	182	151
Link Distance (ft)	1283	1283					456	456	442	442
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			400	400	140	140				
Storage Blk Time (%)					0	2	0			
Queuing Penalty (veh)					1	6	0			

Intersection: 3: Missouri Flat Rd & US 50 EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	L	T	T
Maximum Queue (ft)	127	253	222	197	188	164	119	131	167	201
Average Queue (ft)	57	135	94	139	131	38	51	74	36	53
95th Queue (ft)	107	220	191	210	200	116	100	115	110	140
Link Distance (ft)	1027			165	165				456	456
Upstream Blk Time (%)				4	2	0				
Queuing Penalty (veh)				20	12	0				
Storage Bay Dist (ft)		400	400			80	140	140		
Storage Blk Time (%)					13	0	0	0	0	
Queuing Penalty (veh)					14	0	0	0	1	

Intersection: 4: Missouri Flat Rd & Mother Lode Dr

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	80	112	86	112	208	198	205	185
Average Queue (ft)	29	47	34	39	76	64	139	130
95th Queue (ft)	68	91	74	84	162	148	212	199
Link Distance (ft)			893		280	280	165	165
Upstream Blk Time (%)					0	0	4	3
Queuing Penalty (veh)					2	2	19	14
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)				0	1			
Queuing Penalty (veh)				0	1			

Zone Summary

Zone wide Queuing Penalty: 97

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.2	0.4	0.5	0.4	0.0	0.0	0.0	56.7	68.2	73.4
Total Del/Veh (s)	34.2	32.7	20.5	53.7	46.1	32.6	57.7	22.6	6.3	140.6	127.1	96.1
Vehicles Entered	25	50	333	424	42	55	336	614	416	44	659	18
Vehicles Exited	25	51	334	428	42	55	338	615	417	43	649	18
Hourly Exit Rate	25	51	334	428	42	55	338	615	417	43	649	18
Input Volume	28	51	331	432	43	50	336	630	419	47	689	19
% of Volume	90	100	101	99	97	109	101	98	100	91	94	96

1: Missouri Flat Rd & Plaza Dr Performance by movement

Movement	All
Denied Del/Veh (s)	16.7
Total Del/Veh (s)	54.3
Vehicles Entered	3016
Vehicles Exited	3015
Hourly Exit Rate	3015
Input Volume	3074
% of Volume	98

2: Missouri Flat Rd & US 50 WB Ramps Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.5	2.6	0.0	0.0	0.2	0.0	0.5
Total Del/Veh (s)	37.1	14.9	22.9	8.5	56.2	5.0	29.9
Vehicles Entered	647	460	452	908	1165	248	3880
Vehicles Exited	645	459	451	909	1161	249	3874
Hourly Exit Rate	645	459	451	909	1161	249	3874
Input Volume	643	457	462	927	1198	254	3942
% of Volume	100	100	98	98	97	98	98

3: Missouri Flat Rd & US 50 EB Ramps Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.8	4.1	3.3	0.0	0.0	0.0	0.1	0.7
Total Del/Veh (s)	26.7	44.3	31.2	22.1	5.8	45.1	38.2	31.6
Vehicles Entered	233	3	662	1127	115	422	1390	3952
Vehicles Exited	234	3	661	1127	115	421	1390	3951
Hourly Exit Rate	234	3	661	1127	115	421	1390	3951
Input Volume	241	4	653	1148	124	439	1408	4017
% of Volume	97	75	101	98	93	96	99	98

4: Missouri Flat Rd & Mother Lode Dr Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	25.5	19.8	0.0	0.0	0.0	0.0	1.6
Total Del/Veh (s)	371.0	72.7	49.4	12.2	11.3	1.8	30.9
Vehicles Entered	165	69	62	1111	1825	221	3453
Vehicles Exited	142	66	62	1111	1824	222	3427
Hourly Exit Rate	142	66	62	1111	1824	222	3427
Input Volume	173	66	65	1110	1832	224	3469
% of Volume	82	100	95	100	100	99	99

Total Zone Performance

Denied Del/Veh (s)	15.5
Total Del/Veh (s)	2352.2
Vehicles Entered	3905
Vehicles Exited	20
Hourly Exit Rate	20
Input Volume	14502
% of Volume	0

Intersection: 1: Missouri Flat Rd & Plaza Dr

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	263	196	374	356	222	234	224	235	153	180	733	499
Average Queue (ft)	136	60	193	174	109	129	107	123	71	96	504	362
95th Queue (ft)	221	140	339	317	198	211	187	194	120	219	887	617
Link Distance (ft)	670	670	469	469			442	442	442		713	
Upstream Blk Time (%)			1	1							30	
Queuing Penalty (veh)			0	0							0	
Storage Bay Dist (ft)					300	300				120		400
Storage Blk Time (%)					0	0	0			1	71	28
Queuing Penalty (veh)					0	0	0			5	291	106

Intersection: 2: Missouri Flat Rd & US 50 WB Ramps

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	
Directions Served	L	LT	R	R	L	L	T	T	T	T	R	
Maximum Queue (ft)	306	301	209	178	189	223	184	142	482	490	430	
Average Queue (ft)	178	182	99	64	128	152	51	56	369	333	105	
95th Queue (ft)	271	274	171	130	199	212	121	116	561	558	410	
Link Distance (ft)	1283	1283					456	456	442	442		
Upstream Blk Time (%)									9	4	0	
Queuing Penalty (veh)									63	29	0	
Storage Bay Dist (ft)			400	400	140	140					380	
Storage Blk Time (%)					1	6	0			11	0	
Queuing Penalty (veh)					3	28	0			27	0	

Intersection: 3: Missouri Flat Rd & US 50 EB Ramps

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	LTR	R	T	T	R	L	L	T	T	
Maximum Queue (ft)	206	321	291	211	213	165	190	240	485	477	
Average Queue (ft)	103	213	182	174	171	60	140	192	352	354	
95th Queue (ft)	176	296	271	202	205	161	211	268	524	519	
Link Distance (ft)	1027			165	165				456	456	
Upstream Blk Time (%)				25	19	0			1	2	
Queuing Penalty (veh)				158	122	0			14	14	
Storage Bay Dist (ft)		400	400			80	140	140			
Storage Blk Time (%)					36	0	7	17	40		
Queuing Penalty (veh)					45	1	49	119	178		

Intersection: 4: Missouri Flat Rd & Mother Lode Dr

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	288	382	665	175	276	258	198	215
Average Queue (ft)	195	240	267	56	147	139	174	177
95th Queue (ft)	345	443	799	124	244	235	187	198
Link Distance (ft)			893		280	280	165	165
Upstream Blk Time (%)			12		0	0	16	14
Queuing Penalty (veh)			0		2	1	110	98
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)	44	47	2	1	8			
Queuing Penalty (veh)	29	31	3	3	5			

Zone Summary

Zone wide Queuing Penalty: 1535