Attachment 5

Geology and Soils

Geotechnical Engineering Report

Wallace Kuhl
& ASSOCIATES INC

Geotechnical Engineering Report Update
SARATOGA RETAIL PROJECT
El Dorado Hills, California
WKA No. 7562.01
May 29, 2008

Prepared For:
Central Pacific
3220 Northrop Avenue
Sacramento, California 95864

Wallace Kuhl
& ASSOCIATES INC

CORPORATE OFFICE
3251 Beacon Boulevard, Suite 300
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

ROCKLIN OFFICE
500 Menlo Drive, Suite 100
Rocklin, CA 95765
916.435.9722 phone
916.435.9822 fax

STOCKTON OFFICE
3410 West Hammer Lane, Suite F
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

May 29, 2008

Mr. Peter Navarra
Central Pacific
3220 Northrop Avenue
Sacramento, California 95864

Geotechnical Engineering Report Update
SARATOGA RETAIL PROJECT
(formerly called EL DORADO HILLS SHOPPING CENTER)
Saratoga Way and El Dorado Hills Boulevard
El Dorado Hills, California
WKA No. 7562.01

As requested, we have reviewed the latest revised site plan for the Saratoga Retail Project (formerly called El Dorado Hills Shopping Center) to determine whether the previous geotechnical engineering reports for this project remain applicable for the project. We also have prepared additional recommendations for use in design of segmented retaining walls.

Wallace-Kuhl & Associates previously prepared the following reports and letters for the site:

- *Geotechnical Engineering Report* (WKA No. 1444.32, dated October 17, 1996) for the El Dorado Hills Shopping Center (formerly known as Westside Commercial Center);
- *Geotechnical Engineering Report Update* (WKA No. 7562.01, dated April 13, 2007);
- *Geotechnical Engineering Report Update* letter for alternative foundation design (dated July 18, 2007), and;
- *Supplemental Geotechnical Engineering Recommendations* letter for updated seismic code parameters (dated October 12, 2007).

Proposed Development

Based on the review of the revised site plan prepared by RMB Architects and Engineers, dated May 2, 2008, we understand the Saratoga Retail Project will consist of three single-story retail buildings including an approximately 6,000 square feet (SF) building, an 11, 538 SF building and a Walgreens building approximately 13,368 SF in size. Associated development will include construction of underground utilities, landscaping and asphalt concrete parking areas.

Retaining walls are now planned southwest, south and east of Building 3 and may be of stacked masonry block (segmented wall) or structural concrete design.

CONCLUSIONS AND RECOMMENDATIONS

Based on our review of previous reports and update letters, review of the updated site plan, and knowledge of the proposed development, we conclude that the recommendations contained in our original report remain generally applicable for design and construction of the planned development, with the following amended recommendations. A copy of the *Geotechnical Engineering Report,* and all updates are attached.

Retaining Walls

- *Concrete or Masonry Retaining Walls*

Assuming that the retaining walls will be allowed to rotate about their base (unrestrained at the top or sides), the walls should be capable of resisting "active" lateral earth pressures equal to an equivalent fluid pressure of 40 psf per foot of wall backfill for horizontal backfill conditions. If the walls are fixed at the top they should be capable of resisting "at-rest" lateral earth pressures equal to an equivalent fluid pressure of 60 psf per foot of wall backfill. Walls supporting sloping backfills up to a 1½:1 (horizontal to vertical) inclination should be designed adding an additional 20 psf per foot of wall to the pressures presented above. Retaining wall foundations should extend at least 12 inches below lowest adjacent soil grade and may be designed in accordance with the appropriate parameters contained in the Foundations sections contained in the original report and updates of the report.

- *Surcharge loads*

Surcharges induced by vehicles, stored materials, or building foundations should be included in the evaluation of retaining walls. Any surcharge load within the zone behind the wall extending to the distance equal to the wall height must be considered.

- *Stacked Rock or Segmented Retaining Walls*

Foundations for stacked rock or segmented retaining walls (including Keystone walls) should extend into competent soil, weathered rock or fresh bedrock. Foundation excavations must be observed by a representative of Wallace-Kuhl and Associates to verify the existence of anticipated foundation materials and to provide amended recommendations, as necessary.

For the purpose of providing soil design criteria for stacked rock or segmented retaining walls, we have assumed that the soils at the wall locations will consist of a mixture of silt, sand, gravel, and broken volcanic rock or approved imported soil. It is our opinion that an effective angle of internal friction of 30 degrees for these materials would be appropriate, and that the materials should be assumed to have no cohesion. The rocky materials should be considered to have a moist unit weight of about 135 pounds per cubic foot (pcf).

- *Drainage of Retaining Structures*

Backfill behind retaining walls should be fully drained to prevent the build-up of hydrostatic pressure behind the walls. Retaining walls should be provided with a drainage blanket (Class 2 permeable material, Caltrans Specification Section 68-1.025) at least one-foot wide extending from the base of wall to within one foot of the top of the wall. The top foot above the drainage layer should consist of compacted on-site materials. Weep holes or perforated PVC pipe should be provided near the base of the wall to collect and drain accumulated water. Drainpipes, if used, should slope to discharge at no less than a one percent fall to suitable drainage facilities. Open-graded ½-inch to ¾-inch crushed rock may be used in lieu of the Class 2 permeable material, if the rock and drain pipe are completely enveloped in an approved, nonwoven geotextile filter fabric.

- *Backfill of Retaining Structures*

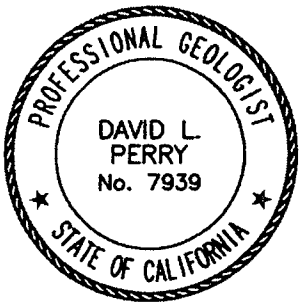
Structural backfill materials for retaining walls (other than the drainage layer) should consist of on-site or imported non-expansive soils free of significant quantities of rubbish, rubble, organics and rock over six inches in size. Structural backfill should be placed in lifts not exceeding 12 inches in compacted thickness, and should be mechanically compacted to at least 90 percent relative compaction.

We recommend that our office review the grading and foundation plans as they become available to verify that the recommendations of our update report and our original report remain applicable or to provide alternative recommendations, as necessary.

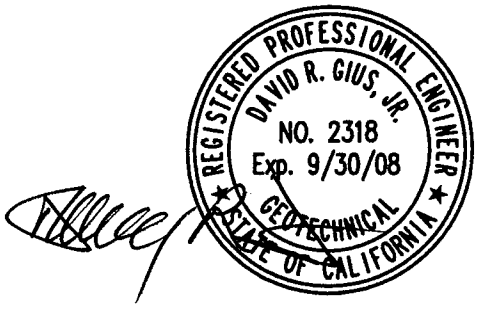
LIMITATIONS

This letter is considered to be an update to our geotechnical engineering reports for this project, and therefore the conclusions and recommendations contained herein are subject to the limitations stated in those reports.

Wallace - Kuhl & Associates, Inc.



David L. Perry
Project Geologist



David R. Gius, Jr.
Senior Engineer

Wallace Kuhl
& ASSOCIATES INC

CORPORATE OFFICE
3251 Beacon Boulevard, Suite 300
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

ROCKLIN OFFICE
500 Menlo Drive, Suite 100
Rocklin, CA 95765
916.435.9722 phone
916.435.9822 fax

STOCKTON OFFICE
3410 West Hammer Lane, Suite F
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

October 12, 2007

Mr. Peter Navarra
Central Pacific
3220 Northrop Avenue
Sacramento, California 95864

Supplemental Geotechnical Engineering Recommendations
EL DORADO HILLS SHOPPING CENTER
Saratoga Way and El Dorado Hills Boulevard
El Dorado Hills, California
WKA No. 7562.01

As requested by the design consultants on the project, we are providing supplemental seismic design parameters recommendations prepared for the El Dorado Hills Shopping Center. Wallace-Kuhl & Associates prepared a *Geotechnical Engineering Report* (WKA No. 1444.32, dated October 17, 1996) for the El Dorado Hills Shopping Center (formerly known as Westside Commercial Center), and a *Geotechnical Engineering Report Update* (WKA No. 7562.01, dated April 13, 2007).

Seismic design parameters provided in the above reference reports were based on the 2001 California Building Code. We understand the design of the project will extend into the year 2008 with the 2006IBC/ASCE 7-05 as the industry adopted building code standard. As such, we are supplementing our previous work on the project with the following seismic design parameter changes.

Seismic Code Parameters – 2006 IBC/ASCE 7-05

Section 1613 of the 2006 IBC references Chapter 11 of ASCE 7-05, *Seismic Design Criteria*. ASCE 7-05 seismic design uses the Maximum Considered Earthquake (MCE) ground motion for most design not requiring site-specific response analysis. A site specific ground response analysis study is beyond the scope of services of this investigation. Section 12.14 requires the determination of parameters S_{DS} for the simplified design procedure. Using a Site Class C, a value of $S_{DS} = 0.31$ is appropriate for design of the structures expected at this site.

Latitude: 38.6551°N Longitude: 121.0721°W	ASCE 7-05 Table/Figure	Factor/Coefficient	Value
Short-Period MCE at 0.2s	Figure 22-3	S_S	0.38*
1.0s Period MCE	Figure 22-4	S_1	0.19g*
Soil Profile Type	Table 20.3-1	Site Class	C
Site Coefficient	Table 11.4-1	F_a	1.20**
Site Coefficient	Table 11.4-2	F_v	1.61**
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	S_{MS}	0.46
	Equation 11.4-2	S_{M1}	0.31
Design Spectral Acceleration Parameters	Equation 11.4-3	S_{DS}	0.31
	Equation 11.4-4	S_{D1}	0.21
Seismic Design Category	Table 11.6-1	Occupancy I to III Occupancy IV	B C
Seismic Design Category	Table 11.6-2	Occupancy I to IV	D

* Calculated using USGS computer program (2007) and the site latitude and longitude.

** Values calculated by linear interpolation.

We appreciate this opportunity to be of service. If you have any questions regarding this letter or our geotechnical engineering report, please contact our office.

Wallace - Kuhl & Associates, Inc.

REGISTERED PROFESSIONAL ENGINEER
DAVID R. GIUS, JR.
NO. 2318
Exp. 9/30/08
GEOTECHNICAL
STATE OF CALIFORNIA

Hoang M. Le
Staff Engineer

David R. Gius
Senior Engineer

Wallace Kuhl
& ASSOCIATES INC

CORPORATE OFFICE
3251 Beacon Boulevard, Suite 300
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

ROCKLIN OFFICE
500 Menlo Drive, Suite 100
Rocklin, CA 95765
916.435.9722 phone
916.435.9822 fax

STOCKTON OFFICE
3410 West Hammer Lane, Suite F
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

July 18, 2007

Mr. Peter Navarra
Central Pacific
3220 Northrop Avenue
Sacramento, California 95864

Geotechnical Engineering Report Update
EL DORADO HILLS SHOPPING CENTER
Saratoga Way and El Dorado Hills Boulevard
El Dorado Hills, California
WKA No. 7562.01

As requested by Mr. Keith Bauer with Buehler & Buehler Structural Engineers, Inc., we are providing additional foundation recommendations for our prepared for the El Dorado Hills Shopping Center. Wallace-Kuhl & Associates prepared a *Geotechnical Engineering Report* (WKA No. 1444.32, dated October 17, 1996) for the El Dorado Hills Shopping Center (formerly known as Westside Commercial Center), and a *Geotechnical Engineering Report Update* (WKA No. 7562.01, dated April 13, 2007).

Bearing pressures provided in the above reference reports were based on undisturbed surface soils, engineered fill, or a combination of those materials being present at the foundation level. Allowable bearing pressures were not provided for foundations bearing upon the underlying rock, which is present at fairly shallow depths across the site (typically less than five feet).

RECOMMENDATIONS

Alternate Foundation Design

Foundations bearing into competent rock may be sized utilizing maximum allowable soil bearing pressures of 4000 pounds per square foot for dead load, 6000 pounds per square foot for dead plus live load, and 8000 pounds per square foot for total load, including the effects of either wind or seismic forces. A minimum embedment depth of 12 inches and minimum foundation width of 12 inches should be maintained.

It is emphasized that no single structure should be supported partially upon rock and partially upon natural soils or engineered fill materials. Some deepening of the foundation excavations may be required to expose the recommended bearing materials, as determined by our representative. We recommend bid documents to include a unit price per foot of additional footing excavation, as needed.

If these higher bearing pressures are utilized for design our representative must be present to observe the bottoms of the foundation excavations to verify the presence of the rock. This should be performed prior to placement of reinforcing steel, as some deepening could be required based on the exposed conditions.

We appreciate this opportunity to be of service. If you have any questions regarding this letter or our geotechnical engineering report, please contact our office.

Wallace - Kuhl & Associates, Inc.

PROFESSIONAL GEOLOGIST
DAVID L. PERRY
No. 7939
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
STEPHEN L. FRENCH
NO. 323
Exp. 3/31/08
GEOTECHNICAL
STATE OF CALIFORNIA

David L. Perry
Project Geologist

Stephen L. French
Senior Engineer

Wallace Kuhl
& ASSOCIATES INC

Geotechnical Engineering Report Update
EL DORADO HILLS SHOPPING CENTER
El Dorado Hills, California
WKA No. 7562.01
April 13, 2007

Prepared For:
Mr. Peter Navarra
Central Pacific
3220 Northrop Avenue
Sacramento, California 95864

Wallace Kuhl
& ASSOCIATES INC

CORPORATE OFFICE
3251 Beacon Boulevard, Suite 300
West Sacramento, CA 95691
916.372.1434 phone
916.372.2565 fax

ROCKLIN OFFICE
500 Menlo Drive, Suite 100
Rocklin, CA 95765
916.435.9722 phone
916.435.9822 fax

STOCKTON OFFICE
3410 West Hammer Lane, Suite F
Stockton, CA 95219
209.234.7722 phone
209.234.7727 fax

April 13, 2007

Mr. Peter Navarra
Central Pacific
3220 Northrop Avenue
Sacramento, California 95864

Geotechnical Engineering Report Update
EL DORADO HILLS SHOPPING CENTER
Saratoga Way and El Dorado Hills Boulevard
El Dorado Hills, California
WKA No. 7562.01

As authorized, we have completed an update of our *Geotechnical Engineering Report* (WKA No. 1444.32, dated October 17, 1996) prepared for the El Dorado Hills Shopping Center (formerly known as Westside Commercial Center). The purposes of our work have been to evaluate the applicability of our original report for the El Dorado Hills Shopping Center, as well as to update the report as necessary regarding restaurant and retail construction. Our work has been performed in general accordance with our *Geotechnical Engineering Services – Proposal*, dated March 9, 2007.

Proposed Development

We understand the El Dorado Hills Shopping Center will consist of four restaurant and retail buildings ranging in size from approximately 6,500 square feet (SF) to approximately 12,750 SF (see Figure 2). The southern half of the site will be developed in two levels; a lower level parking lot and an elevated second level with two buildings and parking. Elevators and stairs will be included between the first and second levels. An approximately 12 foot excavation will be required to accommodate the lower level structure on the southern half of the site. Associated development will include construction of underground utilities, landscaping and asphalt concrete parking areas.

FINDINGS

Site Description

The site is relatively unchanged from the time of the original exploration with one exception; the western portion of the site is now bound by Saratoga Way. At the time of our original exploration, Saratoga Way formed the southern boundary. Saratoga Way has been rerouted to run along the western boundary and intersects El Dorado Boulevard at the northeast corner of the site.

Site Geology

The property is underlain by volcanic and metavolcanic rock formation as identified by the California Department of Conservation: Mines and Geology publication, "Generalized Geologic Map of the Folsom 15-Minute Quadrangle." Based on the map, the Copper Hill Volcanics formation is exposed on the property, consisting of mostly mafic to andesitic pyroclastic and metavolcanic rocks, lava, and pillow lava, with subordinate felsic porphyritic and pyroclastic rocks.

The *Generalized Geology Map of the Folsom 15-Minute Quadrangle* indicates the west branch of the Bear Mountains Fault is located approximately 1000 feet east of the proposed El Dorado Hills Shopping Center site, and represents the westernmost fault within the "Foothills Fault Zone." The site is not identified within a *Alquist-Priolo Fault Study Zone*, meaning that the State has not identified this portion of the Foothills Fault Zone as being active within the last 11,000 years. The Bear Mountains Fault is mapped as a pre-Quaternary fault (not active within the last 1.6 million years), except for the "Rescue Lineament," which may have been active in late Quaternary time. The Rescue Lineament is located about eight miles northeast of the eastern boundary of the site.

Soil and Rock Conditions

On March 15, 2007 an engineering geologist from our office observed test pits excavated with a Caterpillar 325 D excavator. Our site reconnaissance and test pits indicate that in general the northern half of the site and the western frontage of the site have a surface layer of rocky artificial fill material. The fill material consists of silty sandy cobbles and gravels extending to a depth of approximately one to five feet and is underlain by Copper Hills Volcanics. Rock of the Copper Hills Volcanics formation are exposed at the southeastern portion of the site. The Copper Hills

Volcanics consist of moderately fractured, slightly weathered to hard fine to medium grained rock. The fractures we observed were filled with sandy clay material.

The test pits excavated on the March 15, 2007 in the southeastern portion on the site (Test Pits 5 and 6), and the northern most test pit (Test Pit 1), encountered very hard rock conditions at a depth of approximately eight to ten feet below existing grade. These test pits were terminated at that depth due to difficult excavation conditions. Rock exposed in Test Pits 5 and 6 was intensely fractured, and portions of the sidewalls caved into the excavation.

Please review the Logs of Test Pits (Figures 3 and 4) for information on soil and rock conditions at specific locations.

Ground Water

We did not encounter ground water or seepage in any of our test pits excavated on March 16, 2007. However, we anticipate that some perched water may exist near the top of the underlying bedrock during or shortly after periods of rainfall due to the impermeable nature of these materials. Published data and experience in the vicinity of the project suggests that a permanent ground water table is at least 100 feet below the existing lower ground surfaces.

CONCLUSIONS AND RECOMMENDATIONS

Based on our report review, recent site observations, and knowledge of the proposed development, we conclude that the recommendations contained in our original report remain generally applicable for design and construction of the planned residential development, with the following amended recommendations. A copy of the *Geotechnical Engineering Report* is attached.

We recommend that our office review the grading and foundation plans as they become available to verify that the recommendations of this update report and our original report remain applicable or to provide alternative recommendations, as necessary.

Seismic Considerations

No active or potentially active faults are known to underlie the proposed El Dorado Hills Shopping Center site, based on the published geologic maps or aerial photographs that we reviewed. The site is not located within an Alquist-Priolo Fault Study Zone, and we observed no

surface evidence of faulting during our site reconnaissance. Therefore, it is our opinion that ground rupture at the site resulting from seismic activity is unlikely.

According to the 2001 edition of the California Building Code (Title 24 of the California Code of Regulations, Chapter 16; California amendments to the 1997 edition of the Uniform Building Code) the site is located within Seismic Zone 3. A soil profile type S_C, as referenced in Table 16A-J of Chapter 16 of the 2001 California Building Code (CBC) is considered appropriate for this site. The project site is not located within 15 kilometers (km) of a Type A or Type B fault source, as defined by CBC Table 16A-U. Although the Bear Mountain Fault is located within 15 kilometers of the site it is not a Type A or Type B fault.

TABLE 1
SEISMIC CODE PARAMETERS

	2001 CBC Table/Figure	Factor/Coefficient	Value
Seismic Zone	Figure 16-2	Zone	3
Seismic Zone Factor	Table 16-I	Z	0.30
Soil Profile Type	Table 16-J	S_c	--
Seismic Coefficient	Table 16-Q	C_a	0.33
Seismic Coefficient	Table 16-R	C_v	0.45
Near Source Factor	Table 16-S	N_a	1.0
Near Source Factor	Table 16-T	N_v	1.0
Seismic Source Type	Table 16-U	B	--

The design parameters presented above for the 2001 CBC are the same in the 1997 *Uniform Building Code* (UBC), and are considered appropriate if the 1997 UBC is the governing building code for design of this project.

Naturally Occurring Asbestos Potential

The test pits completed during our geotechnical investigation of the proposed El Dorado Hills Shopping Center site revealed no ultramafic rocks, serpentine, or obvious evidence of naturally occurring asbestos (NOA). However, the Copper Hill Volcanics geologic unit typically does contain metavolcanic rocks that could contain ultramafic rocks such as serpentine.

According to the map entitled *Asbestos Review Areas, Western Slope, County of El Dorado, State of California*, dated July 22, 2005, prepared by the El Dorado County Surveyor/G.I.S. Division, the northeastern half of the site lies within a zone designated as "Quarter Mile Buffer for More Likely to Contain Asbestos or Fault Line" (Quarter-Mile Buffer). The map also indicates that a fault (westerly trace of the Bear Mountain fault zone) is located approximately 1000 feet east of the El Dorado Hills Shopping Center site.

Properties that are located wholly or partially within the Quarter-Mile Buffer or More Likely to Contain Asbestos areas are required to comply with *El Dorado County Rule 223-2 Fugitive Dust – Asbestos Hazard Mitigation.* Since the subject property is located within one of these areas, the El Dorado County Air Quality Management District (Air District) will require submission and prior approval of an Asbestos Dust Mitigation Plan (ADMP) before grading/earthwork is permitted to proceed. A copy of the ADMP Application is attached for reference.

Preparation of an Asbestos Dust Mitigation Plan is beyond the scope authorized for this investigation and report update. Wallace-Kuhl and Associates would be pleased to provide a proposal for these services at the appropriate time.

Excavation Conditions

Excavation conditions within the native volcanic and metavolcanic rock at the site will vary depending on the degree of differential weathering and fracturing of the rock. We were able to excavate most of our test pits to depths of 8 to 10 feet beneath existing grades with an excavator. Below 8 to 10 feet, very difficult excavation conditions were encountered and may require special excavation techniques for the proposed 12-foot deep excavations required to establish finished grade in the southern half of the site.

The on-site soils and rock in the upper five feet are anticipated to be excavatable with near-vertical trench sidewalls without significant caving, unless saturated conditions are encountered. Excavations deeper than five feet that will be entered by workers should be sloped, braced or shored in accordance with current CAL/OSHA shoring regulations. The volcanic and metavolcanic rock on site may be considered as OSHA "Type A" soils for the purposes of utility excavations. The highly fractured volcanic rock may be considered as "Type B" soils. Alluvial soils and engineered fill should be considered as "Type C" soils.

Preliminary Soil Corrosion Potential

Two composite samples of near-surface soils were submitted to Sunland Analytical for testing to determine pH, resistivity, sulfate and chloride concentrations to help evaluate the potential for corrosive attack upon buried structures. The test results for the samples revealed minimum resistivities of 2950 and 4820 ohm-centimeters (Ω-cm) and a soil pH of 6.49 and 7.29. Sulfates were recorded at 5.3 and 9.6 parts per million (ppm) and chlorides at 3.2 and 6.2 ppm. Results of the testing performed by Sunland Analytical Lab are summarized on Figures 6 and 7.

Caltrans[1] considers a site to be corrosive to structural elements if one or more of the following conditions exist for the representative soil sample(s) taken at the site:

> Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

Caltrans defines areas as either corrosive or non-corrosive based on the above information. Comparing this information to the test results indicates the native soils are non-corrosive to structural elements. Table 19-A-4 of the 1997 UBC, Requirements for Concrete Exposed to Sulfate-Containing Solutions, indicates the sulfate exposure for the samples tested are Negligible. Based on this table ordinary Type I-II Portland cement is indicated to be suitable for use on the project, assuming a minimum cover is maintained over the reinforcement.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, to further define the soil corrosion potential at the site, or to determine the need or design parameters for cathodic protection or grounding systems a corrosion engineer should be consulted.

Interior Floor Slab Support

Concrete slabs-on grade can be supported upon the soil subgrades prepared in accordance with the recommendations in the original report and maintained in that condition (at least optimum moisture). For crack control purposes only, interior concrete slab-on-grade floors should contain at least chaired No. 4 reinforcing bars placed on maximum 24-inch centers throughout the slab. This slab reinforcement is suggested as a guide "minimum" only for crack control; final slab thickness, reinforcement and joint spacing should be determined by the structural engineer.

[1] California Department of Transportation, Division of Engineering Services, Materials Engineering and Testing Services, Corrosion Technology Branch, *Corrosion Guideline*, Version 1.0, September 2003.

Detailing of dowels placed across construction joints, and the sequencing of construction of individual slab sections also should be determined by the structural engineer. *Temporary loads exerted during construction from vehicle traffic, cranes, forklifts, and storage of palletized construction materials also should be considered in the design of the slab-on-grade floors.*

Slabs that will receive moisture sensitive floor coverings may be underlain by a layer of free-draining gravel serving as a deterrent to migration of capillary moisture. The gravel layer should be at least four inches thick and should be graded such that 100 percent passes a one-inch sieve and none passes a No. 4 sieve. Additional moisture protection may be provided by placing a water vapor retarder membrane (at least 10-mils thick) directly over the gravel. The membrane should meet or exceed the minimum standards specified in ASTM E1745.

If heavier floor loads are anticipated, the crushed rock section (if used) beneath interior slab-on-grade floors may be replaced with Class 2 aggregate base compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557.

Floor slab construction practice over the past 20 years or more has included placement of a thin layer of sand over the vapor retarder membrane. The intent of the sand is to aid in the proper curing of the slab concrete. However, recent debate over excessive moisture vapor emissions from floor slabs includes concern of water trapped within the sand. As a consequence, we consider use of the sand layer as optional. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

The recommendations presented above should mitigate significant soils-related cracking of the slab-on-grade floors. Also important to the performance and appearance of a Portland cement concrete slab is the quality of the concrete, the workmanship of the concrete contractor, the curing techniques utilized and spacing of control joints.

Floor Slab Moisture Penetration Resistance

It is considered likely that floor slab subgrade soils will become wet to near saturated at some time during the life of the structures. This is a certainty when the interior slabs are constructed during the wet seasons, or when constantly wet ground or poor drainage conditions exist adjacent to the structures. For this reason, it should be assumed that all slabs intended for moisture-sensitive floor coverings or materials require protection against moisture vapor penetration. Standard practice includes the crushed rock and vapor retarder as discussed above. However, the

crushed rock and vapor retarder offer only a limited, first-line of defense against soil-related moisture. Recommendations contained in this report concerning foundation and floor slab design are presented as *minimum* requirements, only from the geotechnical engineering standpoint.

It is emphasized that the use of sub-slab crushed rock and vapor retarder membrane will not "moisture proof" the slab, nor does it assure that slab moisture transmission levels will be low enough to prevent damage to floor coverings or other building components. It is emphasized that we are not slab moisture proofing or moisture protection experts. If increased protection against moisture vapor penetration of slabs is desired, a concrete moisture protection specialist should be consulted. The design teams should consider all available measures for slab moisture protection. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs.

Exterior Flatwork

Exterior flatwork can be placed directly on properly prepared soil subgrades that are free of debris and uniformly compacted as recommended in the Site Preparation section of this report. Uniform moisture conditioning of subgrade soils is important to reduce the risk of non-uniform moisture withdrawal from the concrete and the formation of plastic shrinkage cracks. Aggregate base may be used as a leveling course provided the material is placed at a moisture content of least at the optimum moisture and compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557.

Reinforcement of exterior flatwork may be needed in areas subjected to unusually heavy loads, as determined by the structural engineer. Wherever vehicular traffic is expected over slabs, at least a four-inch layer of compacted Class 2 aggregate base (95 percent compaction) should be provided beneath the slab.

Exterior flatwork should constructed independent of the building foundations, and any isolated column foundations should be structurally isolated from adjacent flatwork by the placement of a separating layer of felt or other appropriate material between the flatwork and foundations. Practices recommended by the Portland Cement Association (PCA) for proper placement and curing of concrete should be followed during exterior concrete flatwork construction.

Pavement Design

The following Pavement Design contains additional Traffic indices, which are typically used in shopping centers. The following pavement sections have been calculated based on the assumed traffic indices, results of R-value testing for the previous investigation, and the procedures contained within *Chapter 600 of the* California Highway Design Manual, *dated September 1, 2006.* The project civil engineer should determine the appropriate traffic index based on anticipated traffic conditions.

TABLE 4
PAVEMENT DESIGN ALTERNATIVES
R-value = 35

Traffic Index (TI)	Traffic Condition	Type B Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Portland Cement Concrete (inches)
4.5	Automobile Parking Areas Only	2½*	5	---
		3*	4	---
6.5	Automobile Traffic and Driveways	3	10	---
		4*	8	---
		---	5	5
8.0	Moderate to Heavy Truck Traffic	4	11	---
		5*	10	---
		---	6	6

* = Asphalt thickness includes Caltrans Factor of Safety.

We emphasize that the performance of a pavement is critically dependent upon uniform compaction of the subgrade soils, as well as all engineered fill and utility trench backfill within the limits of the pavements. The upper six inches of pavement subgrades should be compacted to at least 95 percent of the ASTM D1557 maximum dry density at no less than the optimum moisture content, and must be relatively stable under construction traffic prior to placement of aggregate base. We recommend that pavement subgrade preparation, i.e. scarification, moisture conditioning and compaction, be performed just prior to aggregate base placement. Class 2 aggregate base should be compacted to at least 95 percent of the ASTM D1557 maximum dry density.

In the summer heat, high axle loads coupled with shear stresses induced by sharply turning tire movements can lead to failure in asphalt concrete pavements. Therefore, we recommend that consideration be given to using a Portland cement concrete (PCC) section in areas subjected to concentrated heavy wheel loading, such as entry driveways, vehicle turn-around areas, and in front of trash enclosures. We suggest that concrete slabs be constructed with thickened edges, at least two inches plus the slab thickness and 36 inches wide in accordance with American Concrete Institute (ACI) design standards. Reinforcing for crack control, if desired, should consist of at least No. 3 reinforcing bars placed on maximum 24-inch centers each way throughout the slab. Reinforcement must be located at mid-slab depth to be effective. Joint spacing and details should conform with the current PCA or ACI guidelines. Portland cement concrete should achieve a minimum compressive strength of 3500 pounds per square inch at 28 days.

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to pavement performance. We suggest considering the use of full-depth curbs where pavements abut landscaped areas to serve as a cut-off against water migrating into the pavement base and subgrade materials. Weep holes also could be provided at drop inlets, located at or slightly below the subgrade-base interface, to allow accumulated water to drain from beneath the pavements.

Materials quality and construction within the structural section of the pavement should conform to the applicable provisions of the latest editions of the *Caltrans Standard Specifications and* El *Dorado County Department Transportation Standards.*

Geotechnical Engineering Observation and Testing During Earthwork

Site preparation should be accomplished in accordance with the recommendations of our original report and this update letter, as well as the *Earthwork Specifications* provided in Appendix B contained within our original report. Representatives of Wallace-Kuhl & Associates, Inc., should be present during site preparation and all grading operations to observe and test the fill to verify compliance with our recommendations and the job specifications. These services are beyond the scope of work authorized for this investigation.

In the event that Wallace-Kuhl & Associates, Inc., is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide this service in conformance with Section 3317.1, 3317.3 and 3317.8 of the

2001 edition of the CBC, should indicate in writing that they agree with the recommendations of this report, or prepare supplemental recommendations as necessary. A final report by the "Soils Engineer" should be prepared upon completion of the project as required by the CBC Section 3318.2.1. Please be aware that the title Soils Engineer is restricted in the State of California to a Civil Engineer authorized by the State of California to use the title "Geotechnical Engineer".

LIMITATIONS

This letter is considered to be an update to our geotechnical engineering report for this project, and therefore the conclusions and recommendations contained herein are subject to the limitations stated in that report.

We emphasize that this report is applicable only to the proposed construction and the investigated site. This report should not be utilized for construction on any other site. This report is considered valid for the proposed construction for a period of two years following the date of this report. If construction has not started within two years, we must re-evaluate the recommendations of this report and update the report, if necessary.

Wallace - Kuhl & Associates, Inc.

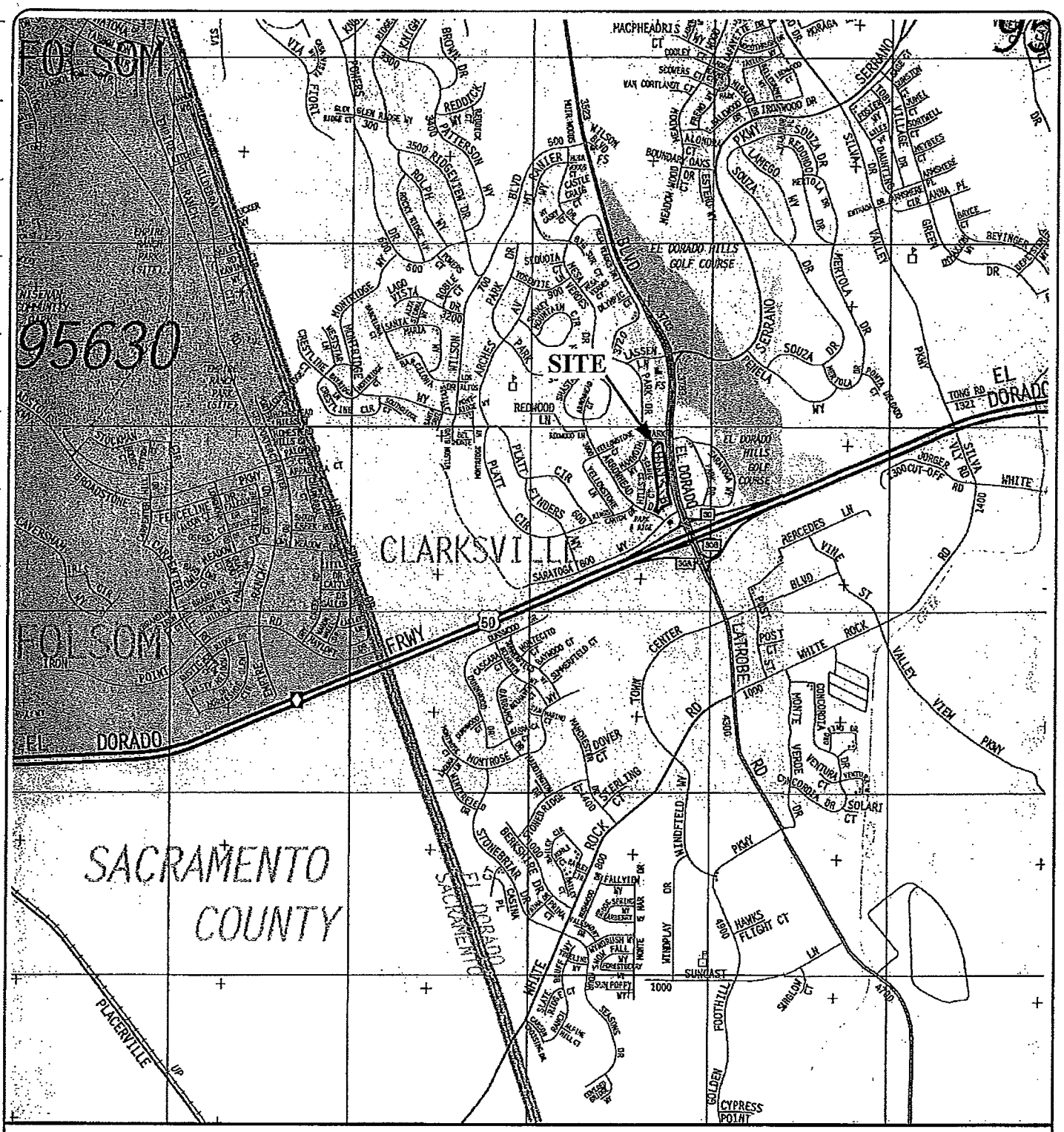
PROFESSIONAL GEOLOGIST
DAVID L. PERRY
No. 7939
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
DAVID R. GIUS, JR.
NO. 2318
Exp. 9/30/08
GEOTECHNICAL
STATE OF CALIFORNIA

David L. Perry
Project Geologist

David R. Gius, Jr.
Senior Engineer

Attachments: Figure 1 – Vicinity Map
Figure 2 – Site Plan
Figures 3 and 4 – Logs of Test Pits
Figure 5 – Unified Soil Classification System
Figures 6 and 7 – Soil Corrosivity Test Reports
Geotechnical Engineering Report (WKA No. 1444.32, dated October 17, 1996)
Asbestos Dust Mitigation Plan Application



Adapted from the Thomas Guide
Sacramento and Solano Counties
Street Guide and Directory, 2006 edition.

N

0 1000 2000

SCALE IN FEET

WallaceKuhl & ASSOCIATES INC

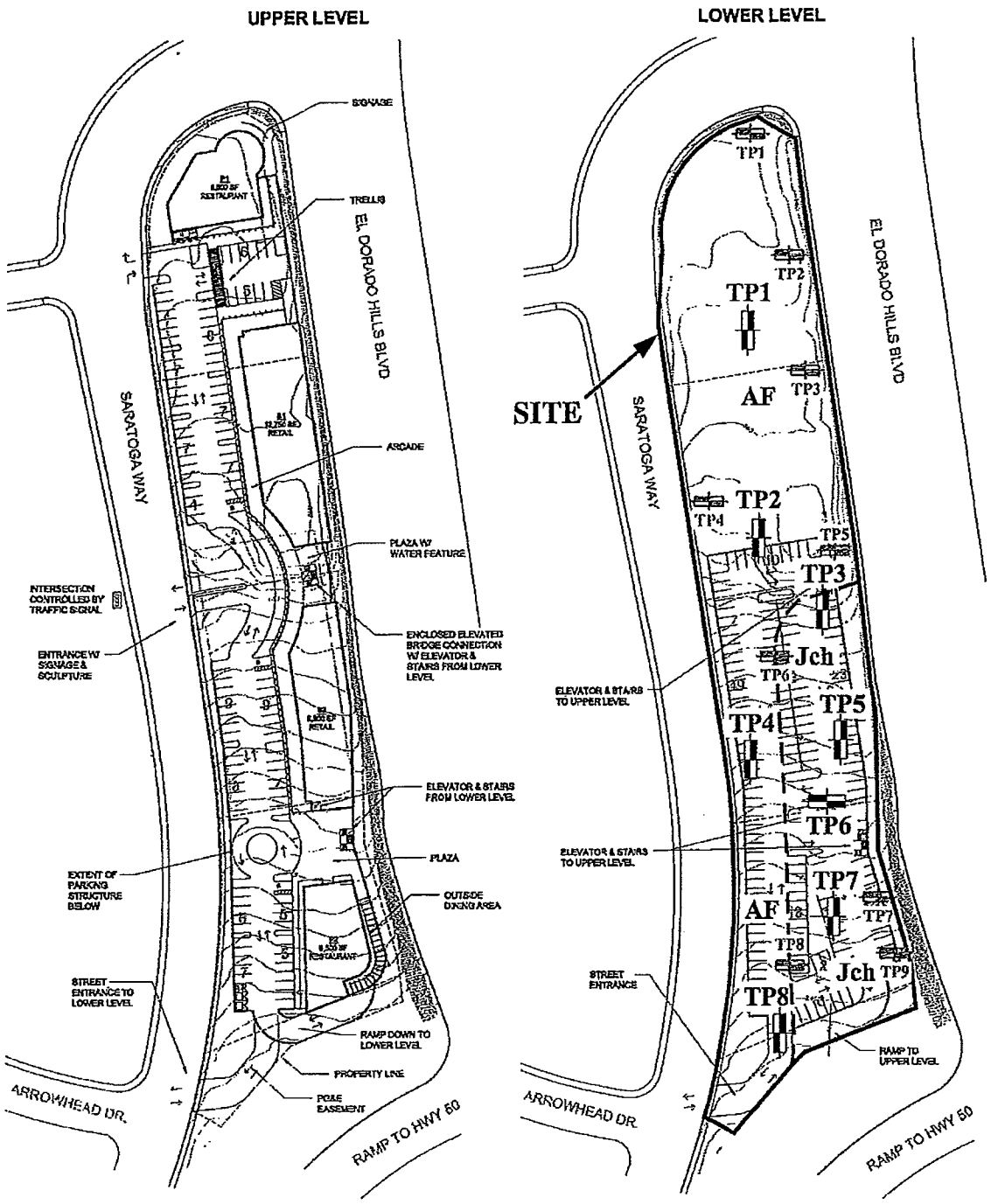
VICINITY MAP

EL DORADO HILLS SHOPPING CENTER

El Dorado Hills, California

FIGURE	1
DRAWN BY	TLH
CHECKED BY	DLP
PROJECT MGR	DLP
DATE	4/07

WKA NO. 7562.01



Legend:

- Approximate test pit location excavated November 1996
- Approximate test pit location excavated March 15, 2007
- Jch Copper Hill Volcanics
- AF Artificial Fill

Note:

Adapted from a drawing provided by RHAA Landscape Architects & Planners, dated February 21, 2007.

N

0 80 160

SCALE IN FEET

WallaceKuhl & ASSOCIATES INC

SITE PLAN

EL DORADO HILLS SHOPPING CENTER

El Dorado Hills, California

FIGURE 2	
DRAWN BY	TLH
CHECKED BY	DLP
PROJECT MGR	DLP
DATE	3/07
WKA NO. 7562.01	

LOGS OF TEST PITS

Cat 325 Excavator with an 18-inch wide bucket
March 15, 2007
Logged by: Pat Jenks

Test Pit No. 1

0' –5'	Brown to reddish brown, silty, sandy gravel with cobbles and boulders (GW) (Fill)
5' - 11'	Reddish brown, to gray brown, moderately fractured (clay lining in some fractures), slightly weathered, hard to very hard, fine to medium grained rock (RX) (Jch-Copper Hills Volcanics)
	Refusal at approximately 11 feet.

Test Pit No. 2

0' –5'	Orange brown to reddish brown, silty, sandy cobbley gravel (GW) (Fill)
5' – 16.5'	Orange brown where moderately weathered and gray to gray brown where slightly weathered, moderately fractured, intensely to moderately fractured with clay linings (RX) (Jch-Copper Hills Volcanics).

Test Pit No. 3

0' –1'	Orange brown, silty, sandy cobbley gravel (GW)
1' - 13'	Reddish brown, to gray brown, moderately fractured (clay lining in some fractures), slightly weathered, hard to very hard, fine to medium grained rock (RX) (Jch-Copper Hills Volcanics)
	Refusal at approximately 11 feet.

Test Pit No. 4

0' –4'	Gray, gray brown, and orange brown, silty, sandy gravel (GW)
4' – 11'	Orange brown where moderately weathered and gray to gray brown where slightly weathered, moderately fractured, zone of caving between five and nine feet, caving along fracture and joint intersection (RX) (Jch-Copper Hills Volcanics).

LOGS OF TEST PITS

Cat 325 Excavator with an 18-inch wide bucket
March 15, 2007
Logged by: Pat Jenks

Test Pit No. 5

0' – 7' Orange brown where moderately weathered and gray to gray brown where slightly weathered, moderately fractured (0.3 to 1 feet), remnant flow fabric (foliation) observed, fine grained, hard to extremely hard, minor seepage at bottom of trench, joint surfaces are slightly to moderately rough (R3-R4), joint surfaces are partially lined with thin clay layer (RX) (Jch-Copper Hills Volcanics).
Refusal at approximately seven feet.

Test Pit No. 6

0' – 10' Orange brown where moderately weathered and gray to gray brown where slightly weathered, moderately fractured, moderately to locally intensely fractured, slightly rough joints, surfaces partially clay coated, caving along joint intersections on south side of trench (RX) (Jch-Copper Hills Volcanics).

Test Pit No. 7

0 – 8' Contractor filled excavation prior to logging.
Refusal at approximately eight feet.

Test Pit No. 8

0' –5' Orange brown to reddish brown, silty, sandy gravel with cobbles and boulders (GW) (Fill)

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	CODE	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well graded gravels or gravel - sand mixtures, little or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, little or no fines
		GM		Silty gravels, gravel - sand - silt mixtures
		GC		Clayey gravels, gravel - sand - clay mixtures
	SANDS (50% or more of coarse fraction < no. 4 sieve size)	SW		Well graded sands or gravelly sands, little or no fines
		SP		Poorly graded sands or gravelly sands, little or no fines
		SM		Silty sands, sand - silt mixtures
		SC		Clayey sands, sand - clay mixtures
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL		Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL ≥ 50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH		Inorganic clays of high plasticity, fat clays
		OH		Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils
ROCK		RX		Rocks, weathered to fresh

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Drive Sample: no recovery

= SPT Sample

= Initial Water Level

= Final Water Level

= Estimated or gradational material change line

= Observed material change line

Laboratory Tests

PI = Plasticity Index
EI = Expansion Index
UCC = Unconfined Compression Test
TR = Triaxial Compression Test
GR = Gradational Analysis (Sieve)
K = Permeability Test

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size In Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

WallaceKuhl & ASSOCIATES INC

UNIFIED SOIL CLASSIFICATION SYSTEM

EL DORADO HILLS SHOPPING CENTER

El Dorado Hills, California

FIGURE 5	
DRAWN BY	TLH
CHECKED BY	DLP
PROJECT MGR	DLP
DATE	4/07
WKA NO. 7562.01	

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 03/27/2007
Date Submitted 03/23/2007

To: David Perry
Wallace-Kuhl & Associates
3050 Industrial Blvd.
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 7562.01/ELDORADO HIL Site ID : TP1.
Your purchase order number is 1695.
Thank you for your business.

* For future reference to this analysis please use SUN # 50142-99884.

EVALUATION FOR SOIL CORROSION

Soil pH	7.29		
Minimum Resistivity	2.95	ohm-cm (x1000)	
Chloride	3.2 ppm	00.00032	%
Sulfate	9.6 ppm	00.00096	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

WallaceKuhl & ASSOCIATES INC

CORROSION TEST RESULTS

EL DORADO HILLS SHOPPING CENTER

El Dorado Hills, California

FIGURE 6	
DRAWN BY	TLH
CHECKED BY	DLP
PROJECT MGR	DLP
DATE	4/07
WKA NO. 7562.01	

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 03/27/2007
Date Submitted 03/23/2007

To: David Perry
Wallace-Kuhl & Associates
3050 Industrial Blvd.
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 7562.01/ELDORADO HIL Site ID : TP2.
Your purchase order number is 1695.
Thank you for your business.

* For future reference to this analysis please use SUN # 50142-99885.

EVALUATION FOR SOIL CORROSION

Soil pH	6.46	
Minimum Resistivity	4.82 ohm-cm (x1000)	
Chloride	6.2 ppm	00.00062 %
Sulfate	5.3 ppm	00.00053 %

METHODS
pH and Min. Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

WallaceKuhl & ASSOCIATES INC

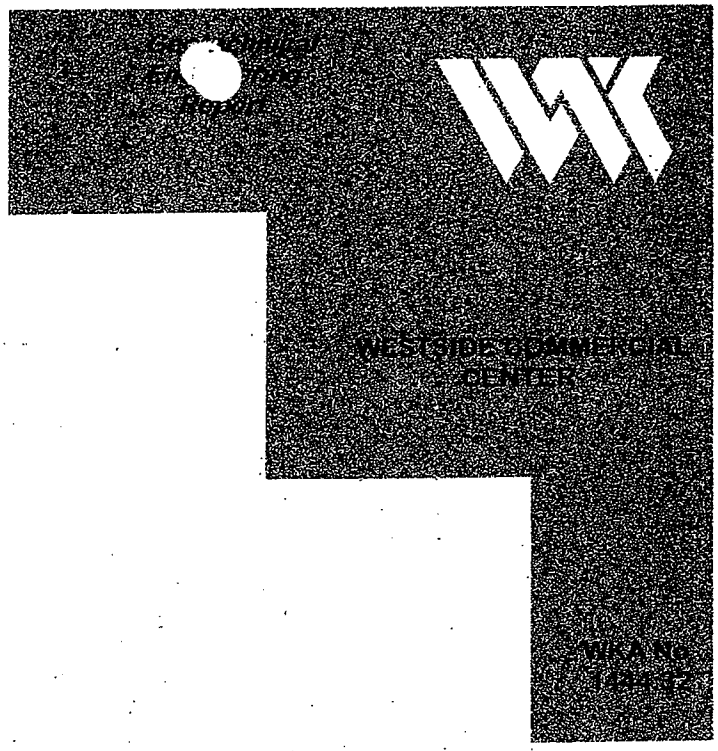
CORRESPONDENCE TEST RESULTS

EL DORADO HILLS SHOPPING CENTER

El Dorado Hills, California

FIGURE	7
DRAWN BY	TLH
CHECKED BY	DLP
PROJECT MGR	DLP
DATE	4/07

WKA NO. 7562.01



October 17, 1996

WALLACE · KUHL
& ASSOCIATES INC.

GEOTECHNICAL ENGINEERING REPORT
WESTSIDE COMMERCIAL CENTER
El Dorado Hills Boulevard
WKA No. 1444.32

October 17, 1996

INTRODUCTION

General

We have completed a geotechnical engineering investigation of the site for the planned Westside Commercial Center located on El Dorado Hills Boulevard, in El Dorado County, California. The purposes of this investigation have been to identify the site, soil, rock, and ground water conditions across the property and to provide geotechnical engineering information for site development, consisting of one and two story wood frame or masonry commercial structures with private parking lot improvements and related underground utilities. This report presents the results of our work.

Site Description

The Westside Commercial Center study area is a slender, irregularly shaped parcel, bounded to the east by El Dorado Hills Boulevard and to the north and south by Park Drive and Saratoga Way, respectively. An existing multi-family residential development forms most of the westerly boundary. The surface, at the time of our field investigation, was covered by a sparse or low cover of dry volunteer grasses and brush. Topography in general is gradually sloping from north to south.

The northerly half of the site has been previously graded for a former commercial structure. Other than apparent underground utilities, no remnants of the previous structures were observed during our work. However, significant areas of existing manmade fill remain.

Work Scope

Our scope of work has included the following:

1. site reconnaissance;
2. review of stereo aerial photographs of the property;
3. review of available geologic and seismologic literature;
4. seismic refraction surveys;
5. subsurface investigation, including the excavation of nine subsurface test pits to a maximum depth of 6 feet below existing site grade;
6. laboratory testing of selected soil samples;
7. engineering analyses; and
8. preparation of this report.

Geotechnical Engineering
Engineering Geology
Environmental Consulting
Remediation Services
Construction Inspection
Marerials Testing

3050 Industrial Blvd.
West Sacramento
CA 95691
Fax 916.372.2565
916.372.1434

Previous Geotechnical Studies

Our firm previously conducted a geotechnical engineering investigation of the entire El Dorado Hills Specific Plan project site in 1989, WKA No. 89-200. Our report, dated June 13, 1989 contains a comprehensive summary of our field work, laboratory testing, office research and geotechnical engineering conclusions regarding the soil related aspects of site development, as well as general guidelines for site earthwork, and structural foundation design and floor support. Site specific geotechnical studies have also been done for the Serrano El Dorado Country Club and the Serrano Village Green Commercial Center.

Plates and Attachments

This report contains a Study Area and Test Pit Location Plan, Plate No. 1, Logs of Test Pits, Plates No. 2 through 10 and results of a laboratory Resistance Value test, Plate No. 11. Plates No. 12 through 14 pertain to our seismic refraction survey.

FINDINGS

General

Our field and laboratory investigations indicate the Westside Commercial Center site is suitable for the proposed commercial center development concept from the standpoint of soils and geologic considerations. The site is indicated to be free of significant geologic hazards such as landslides or active faults. Earth materials on-site are considered to have no unusual or adverse engineering characteristics which would preclude any of the elements of the planned development. Soil and geologic conditions are considered typical of the region and consistent with those encountered during development of properties in the vicinity of the study area.

Soil Conditions

The natural soil profile encountered within the subsurface test pits typically consists of one to two feet of red silty sand with variable rock fragments. Below the surface soils, bedrock either, in a weathered or highly fractured condition, was found. In most cases, test pits were terminated at a depth at which medium hard to hard bedrock materials were encountered.

The existing man-made fills within the northern half of the site consist of coarse gravel and a mixture of silty sands and rock fragments typical of materials generated by excavation of the native soils and bedrock. Some rocks to 24 inches in size were found to be occasionally present in the fill. Conditions exposed by test pit excavation were uniformly dense and consistent with fill constructed using generally accepted standards for earthwork.

Bearing Capacity

Our field and laboratory investigations indicate that the undisturbed natural surface and near-surface soils, as well as the existing man-made fills, are capable of supporting the anticipated structural loads. Our work also indicates that engineered fills constructed using on-site materials in accordance with the recommendations contained in this report will also be capable of supporting the anticipated commercial foundation pressures.

Expansive Soil Conditions

The large majority of the on-site native soils are low plasticity silts considered to have low expansion potential. However, our previous investigations and experience suggest the possible presence of localized occurrences of high plasticity clay. Such materials are typically moderately expansive and should be avoided within structural support areas.

Excavation Characteristics

Based upon our field work and our experience with previous earthwork in the vicinity of the site, we anticipate excavations at the site will encounter moderate to difficult excavation conditions within bedrock materials. Our test pits using a Case 580K backhoe, typically were able to penetrate to a depth of at least 3 feet below existing site grade before encountering very difficult excavation conditions. Practical refusal was met at depths ranging from 2.5 to 6 feet within the test pits. Locally fractured areas within the bedrock should allow these materials to be generally ripped to the maximum depth of the anticipated excavation (6 to 10 feet) using typical heavy duty equipment, such as a Cat D8 or larger bulldozer and track excavators for trenches. Locally less weathered hard rock areas, especially within the areas of visible rock outcroppings; may be encountered requiring special excavation techniques.

Results of our seismic refraction traverses indicate soil/rock compressional wave propagation velocities of 2173 to 27,586 feet per second (fps). Time-distance graphs of the surveys are shown on Plates 12 to 13. Soil velocities of less than 3400 fps were generally measured within the upper 7 feet of the ground surface, and increased to as much as 27,586 fps below a depth of 13 feet along traverse A-A'. Plate 14 shows an estimated relationship between equipment performance and seismic wave velocities, as adapted from *Caterpillar Handbook, 20th Edition,* dated October 1989.

Excavation should yield a material that is generally suitable for use in engineered fill with variable amounts of boulders requiring disposal or special placement. Excavated materials to be used for utility backfill likely will require processing to remove larger rocks prior to reuse as backfill materials.

Ground Water

Free ground water was not encountered in any of the test pits accomplished on October 9, 1996. A permanent ground water table should not be a factor in design, construction or performance of the proposed development. However, during and shortly after the rainy season, infiltration surface runoff water can create a saturated surface condition due to the impervious nature of the near-surface soils. Grading operations attempted following the onset of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents. Such soils, intended for use as engineered fill, will require considerable aeration to reach a moisture content that will permit the specified degree of compaction to be achieved.

Geologic Hazards

No major landslides were recognized in either geologic reconnaissance or examination of stereographic air photo coverage. The extensive areas of uniform slopes are consistent with stability under present conditions.

There are no active faults shown in the area on the Fault Map of California. Studies for Auburn and New Melones Dams suggest that major branches of the Foothill Fault system may be capable of generating significant earthquakes and associated ground rupture. The Bear Mountains Fault, a major branch of the Foothills Fault System, is shown to the west of the property. However, the California Division of Mines and Geology (CDMG) has not designated the Bear Mountains Fault as an active or potentially active fault.

California Divisions of Mines and Geology Map Sheet 39 does not indicate major seismic events in the general area of this project (say, within 100 kilometers). The largest events have been in the range of magnitude 5.0 to 5.7. Obviously, as with any location in California, the site is subject to ground shaking from earthquakes on distant faults (the San Andreas and related to the east). Earthquakes on distant faults could result in moderate ground shaking (say, 0.2 gravity or less) in the project area. The "maximum credible earthquake" on the Bear Mountains Fault could result in severe ground shaking (say, 0.6 to 0.7 gravity). The Uniform Building Code designation of the area as Seismic Zone 3 is considered appropriate.

There is essentially no potential for highly compressible materials in the bedrock. The bedrock materials at this site are relatively resistant to erosion. Soil and fill materials would be moderately susceptible to erosion. They should be protected where concentrated flows are on slopes steeper than five percent.

Fill Materials

The on-site nonexpansive surface soils and rock fragments less than six inches in maximum particle size may be used as engineered fill for pavements or building pads without restriction. Expansive clay

soils and rock fragments larger than six inches in maximum dimension and smaller than about 12 inches may be used within engineered fill if placed at depths greater than two feet below final building pad or pavement subgrade elevations.

Rocks larger than 12 inches in maximum dimension may be placed selectively within engineered fill, at the discretion of the soil engineer. Such materials may be placed at depths greater than four feet below final building pad or pavement subgrade elevation and should be spread and thoroughly mixed with sufficient fine grained materials, uniformly moisture conditioned and compacted to the satisfaction of the soil engineer. Large rocks should be excluded from areas where later excavation is likely, such as for deeper utilities or water features.

RECOMMENDATIONS

Site Preparation

The following is considered an appropriate general guideline for earthwork within areas for support of structures and pavements.

Earthwork construction areas should be cleared of significant vegetation, including root systems, existing structures, rubbish, rubble and other unsuitable materials. Areas of loose, disturbed soils remaining from site clearing and any areas of saturated soils should be excavated to expose underlying firm soil conditions. Furthermore, areas of expansive clayey soils exposed at levels within 12 inches of final subgrade for building structures or pavement sections should be removed for replacement with available non-expansive, high quality fill materials. Sloping ground steeper than six horizontal to one vertical (6:1) should be benched prior to receiving engineered fill. Benching should be done by cutting of relatively level steps into the slopes. Benching should be done progressively as the fill reaches the level of firm natural ground on the high side. Existing ground receiving fill should be uniformly and thoroughly watered and compacted in place. Fill materials containing rocks six inches or larger in maximum dimension should be placed in accordance with the guidelines contained in the section of this report entitled "Fill Materials".

Fill materials containing more than 25 percent rock larger than six inches and smaller than 12 inches in maximum dimension are suitable for use at depths greater than two feet below structural subgrade levels, and should be placed in horizontal lifts not exceeding 12 inches in average thickness. Compaction should be undertaken with continuous watering. Fill material should be thoroughly wet to the full depth of each lift. Compaction of these materials should be achieved by a minimum of three successive passes of heavy, sheepsfoot compaction equipment, Caterpillar 825 or equal. Compactive effort should be applied uniformly across the full width of fill construction. Larger rocks which are incapable of being uniformly incorporated into the engineered fill should be either placed outside structural support areas or removed from the site. Horizontal limits of structural fills should extend at least five feet beyond exterior structure lines.

Fill construction using predominantly fine grained native or imported soils should be placed, moisture conditioned and compacted to at least 90 percent of the ASTM D1557-78 maximum dry density using standard earthwork procedures. Conventional field density testing should be done by a representative of the soil engineer to evaluate these materials. The upper six inches of final subgrade for building pads and pavement areas should be uniformly processed and compacted regardless of whether completed by filling, excavation or left at existing grade. Building pad subgrades should be compacted to a density consistent with 90 percent of ASTM D1557-78 maximum dry density, while pavement subgrades should be compacted to at least 95 percent of that standard. Permanent excavation and embankment slopes should be constructed at a configuration of two horizontal to one vertical (2:1).

Because of the soil conditions and the recommended performance specifications, it is imperative that our representative be present on a regular basis during earthwork operations to observe and test as necessary. Acceptability of building pad construction is critically dependent on this provision.

Structural Foundation Design

Our findings indicate the proposed structures may be suitably supported upon continuous and isolated spread foundations based in undisturbed natural surface soils, engineered fill, or a combination of these materials. Foundations should extend at least 12 inches below lowest surrounding grade for single-story structures and 18 inches below lowest surrounding grade for two-story structures. Such foundations should contain adequate reinforcement and may be designed utilizing maximum allowable soil bearing pressures of 2000 pounds per square foot for dead load, 3000 pounds per square foot for dead plus live load, or 4000 pounds per square foot for total load, including the effects of either wind or seismic forces. A minimum foundation width of 12 inches should be maintained.

Floor Slab Support

Improved building pads constructed in accordance with the site preparation recommendations contained in this report, and free of expansive clay soils, are considered suitable for support of concrete slab-on-grade floors without special consideration. However, it is suggested that subgrade areas consisting of hard weathered or fractured rock should be ripped, cross ripped and recompacted in place to provide uniform support consistent with natural surface soil and engineered fill subgrade conditions. Rocks larger than six inches should be removed prior to recompaction. Concrete slab-on-grade floors should be underlain by a four-inch thick, free-draining granular blanket serving as a capillary moisture deterrent. Graduation of this material should be such that 100 percent passes a one-inch sieve and none passes a No. 4 sieve. Additional moisture vapor protection should be provided by placing a sheet plastic membrane directly over the gravel. A one-inch thick clean layer of sand over the membrane will aid in proper curing of the slab concrete.

Retaining Walls

Retaining walls may be supported upon continuous foundations based in and underlain by natural ground, undisturbed rock, engineered fill, or a combination of these materials. Such foundations should have a minimum width of 12 inches and should extend to a minimum depth of 24 inches below lowest surrounding grade. Foundations so established may be proportioned for maximum allowable soil pressures of 2000 pounds per square foot for dead load, 3000 pounds per square foot for dead plus live load or 4000 pounds per square foot for total load, including the effect of either seismic or wind forces.

Walls should be designed to resist lateral pressures determined on the basis of the following criteria:

Gradient of Backslope	Equivalent Fluid Weight (p.c.f)
Flat	30
2:1	40

For walls incapable of deflection, add an additional 15 pounds per cubic foot to the above equivalent fluid weights.

Resistance to lateral foundation displacement may be computed using a friction factor of 0.30 acting between the undersurface of spread foundations and supporting soil subgrade. Lateral resistance may also be computed using an allowable passive earth pressure equivalent to that exerted by a fluid weighing 300 pounds per cubic foot. If friction and passive pressures are combined, the larger value should be reduced by 50 percent.

The above criteria is based on fully drained conditions. For drainage, we recommend that granular backfill material be placed behind all proposed walls. The granular materials should be a minimum of 12 inches wide and should extend the full height of the wall to within 12 inches of the surface. A perforated drain pipe should be installed, with perforations facing down, in the bottom of the granular backfill material. Granular material should conform to Class 1, Type B permeable material, as designated in Section 68 Caltrans Standard Specifications, current edition.

Pavement Design Considerations

Scope of our work has included assessment of on-site soil and earth materials for support of the proposed roadway and parking lot pavement. A selected soil sample retrieved from backhoe test pits was tested in our laboratory to determine Resistance Value (R-Value) for use in pavement design analysis. Results were compared with previous test results for adjacent and nearby projects. Typical surface soils and weathered rock encountered universally throughout the site produced Resistance Values of at least 35.

Assuming relatively shallow cuts and fills for pavement subgrade construction and the provision that areas identified as expansive clay will be removed and replaced with quality subgrade materials, we

have computed the following alternative pavement design sections based on a range of traffic indices and the Caltrans Flexible Pavement Design Guidelines for California Cities and Counties.

PAVEMENT DESIGN ALTERNATIVES

Design Resistance Value = 35

Traffic Index = 4.0 (Autos Only)
2-1/2" Type B Asphalt Concrete
5" Class 2 Aggregate Base
Compacted Subgrade

Traffic Index = 5.5 (Moderate Trucks)

3" Type B Asphalt Concrete
8" Class 2 Aggregate Base
Compacted Subgrade

Construction and materials quality should conform to El Dorado County Department Transportation standards.

LIMITATIONS

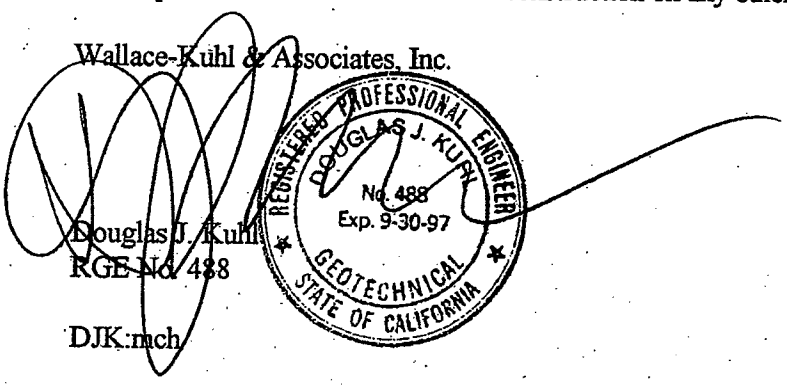
The conclusions and recommendations contained in this report are based on geotechnical information available from previous investigations and studies, combined with recent field work and office analysis. It is considered essential that our firm provide construction related geotechnical services to verify that actual ground conditions are consistent with our analysis, and that our recommendations are fully complied with.

Our recommendations are based upon the information provided regarding the proposed development concept, combined with our exploration. We have used our best engineering judgment based upon the information provided and the data generated from our investigation. If it is found during site development that subsurface conditions differ substantially from those we have encountered, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.

We would appreciate the opportunity to review the final plans and specifications for project development to determine if the intent of our recommendations has been implemented in those documents.

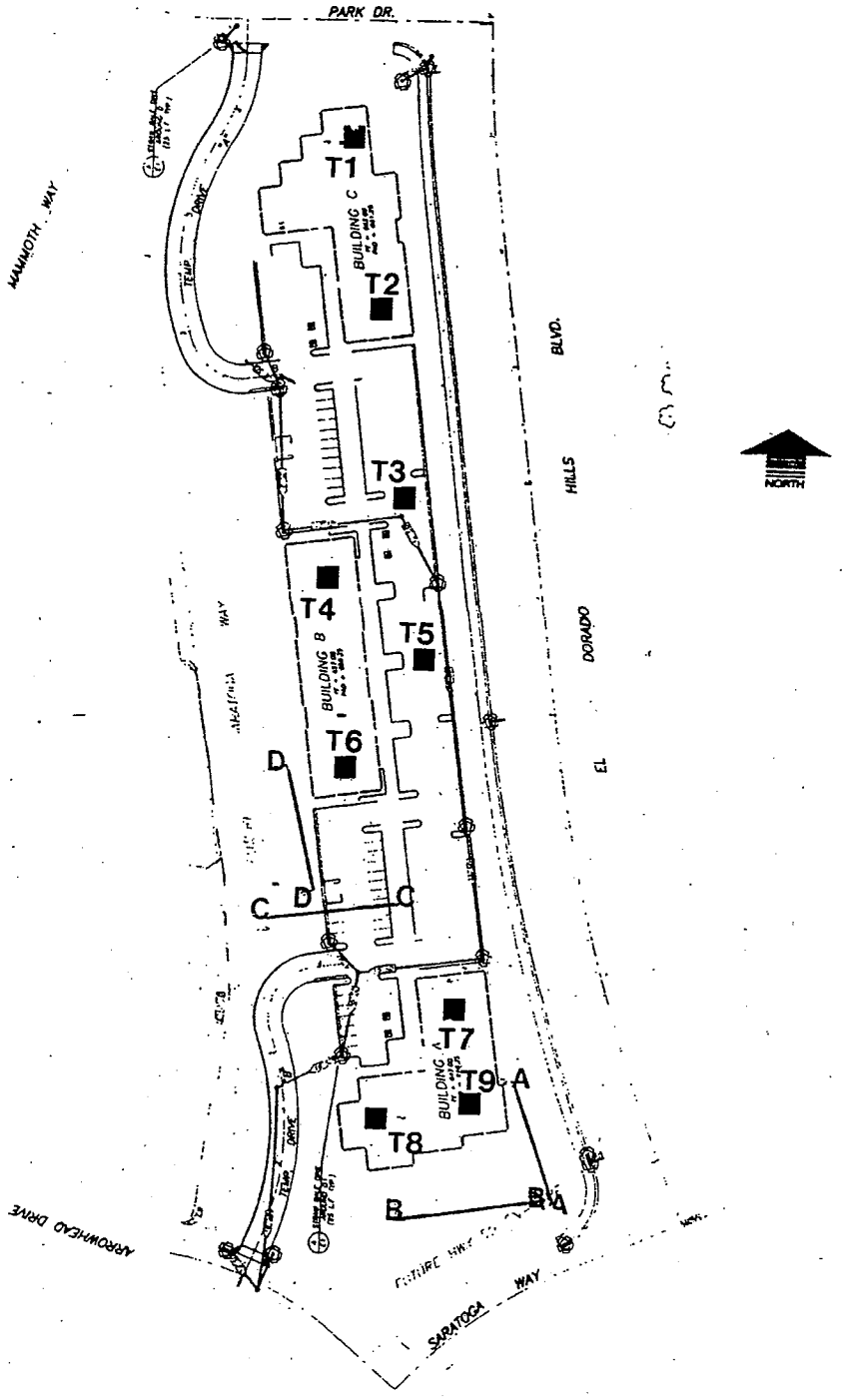
We emphasize that this report is applicable only to the proposed construction and the investigated site. This report should not be utilized for construction on any other site.

Wallace-Kuhl & Associates, Inc.



Douglas J. Kuhl
RGE No. 488

DJK:mch



NOTES:

1. Prepared from an Erosion Control Plan dated May 8 1996 by Gene E. Thorne & Associates, Inc.
2. Test Pit Locations are only approximate.
3. Seismic refraction line locations (A-----A).

SITE AND TEST PIT LOCATION PLAN

WALLACE · KUHL & ASSOCIATES INCORPORATED

WESTSIDE COMMERCIAL CENTER
El Dorado Hills Boulevard
El Dorado County, California

PROJECT NO: 1444.32
DATE: 10/11/96
PLATE NO: 1

100732

Depth - feet	Soil Description	Remarks
Surface	Red brown silty sand with rock	Native
	more rock	
1	slightly weathered, fractured rock	
	not weathered	Moderately hard
2		
3	less fractured	
4		
5	Terminated	
6		
7		

LOG OF TEST PIT NO. 1

WALLACE · KUHL & ASSOCIATES
GEOTECHNICAL ENGINEERING
DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32
DATE: 10/10/96
PLATE NO: 2

100732

Depth – feet	Soil Description	Remarks
Surface	Red brown silty sand with rock	Fill Dense, dry
1		
2		
3	Red brown silty sand with rock weathered rock	Native
4	not weathered, fractured rock	
5	less fractured Terminated	Hard exc.
6		
7		

LOG OF TEST PIT NO. 2

WALLACE · KUHL & ASSOCIATES
GEOTECHNICAL ENGINEERING
DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32
DATE: 10/10/96
PLATE NO: 3

100732

Depth – feet	Soil Description	Remarks
Surface	Red brown silty sand with rock	Fill
1	rock to 18 inches	Dense, dry
2		
3	Red brown silty sand with rock	Native
4	more rock slightly weathered, fractured rock	Hard exc.
5	Terminated	
6		
7		

LOG OF TEST PIT NO. 3

WALLACE · KUHL & ASSOCIATES

GEOTECHNICAL ENGINEERING

DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32

DATE: 10/10/96

PLATE NO: 4

100732

Depth - feet	Soil Description	Remarks
Surface	Red brown silty sand with rock	
1	more rock	mod. exc.
	very rocky	
2	slightly fractured rock	hard exc.
3	Terminated	
4		
5		
6		
7		

LOG OF TEST PIT NO. 4

WALLACE · KUHL & ASSOCIATES

GEOTECHNICAL ENGINEERING

DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32

DATE: 10/10/96

PLATE NO: 5

100732

Depth - feet	Soil Description	Remarks
Surface		
	Gravel to 2 in. in size	
	Red brown silty sand with rock	
1		Dense
	fractured rock	Mod. exc.
2		
	less fractured	hard exc.
3		
	Terminated	
4		
5		
6		
7		

LOG OF TEST PIT NO. 5

WALLACE · KUHL & ASSOCIATES

GEOTECHNICAL ENGINEERING

DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32

DATE: 10/10/96

PLATE NO: 6

Depth - feet	Soil Description	Remarks
Surface	Brown silty sand with rock	Firm, dry
1	more rock	
2	less sandy, fractured rock	Mod. exc.
3	weathered rock	
4	less weathered	
5	more weathered	
6		
7	Terminated	

LOG OF TEST PIT NO. 6

WALLACE · KUHL & ASSOCIATES

GEOTECHNICAL ENGINEERING

DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32

DATE: 10/10/96

PLATE NO: 7

Depth - feet	Soil Description	Remarks
Surface	Brown silty sand with rock	Nearby outcrops
1	fractured rock	Mod. - hard
2	less fractured	hard exc.
3	Terminated	
4		
5		
6		
7		

LOG OF TEST PIT NO. 7

WALLACE · KUHL & ASSOCIATES

GEOTECHNICAL ENGINEERING

DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32

DATE: 10/10/96

PLATE NO: 8

Depth - feet	Soil Description	Remarks
Surface	Brown silty sand with rock	
1	more rock	
2	fractured rock	
3		
4	Terminated	
5		
6		
7		

LOG OF TEST PIT NO. 8

WALLACE · KUHL & ASSOCIATES

GEOTECHNICAL ENGINEERING

DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32

DATE: 10/10/96

PLATE NO: 9

Depth – feet	Soil Description	Remarks
Surface	Red brown silty sand with rock	
1	fractured rock	mod. exc.
2	slightly fractured	hard exc.
3	Terminated	
4		
5		
6		
7		

LOG OF TEST PIT NO. 9

WALLACE · KUHL & ASSOCIATES
GEOTECHNICAL ENGINEERING
DRAWN BY: DJK CHECKED BY: DJK

PROJECT NO: 1444.32
DATE: 10/10/96
PLATE NO: 10

RESISTANCE VALUE TEST RESULTS
(CT 301)

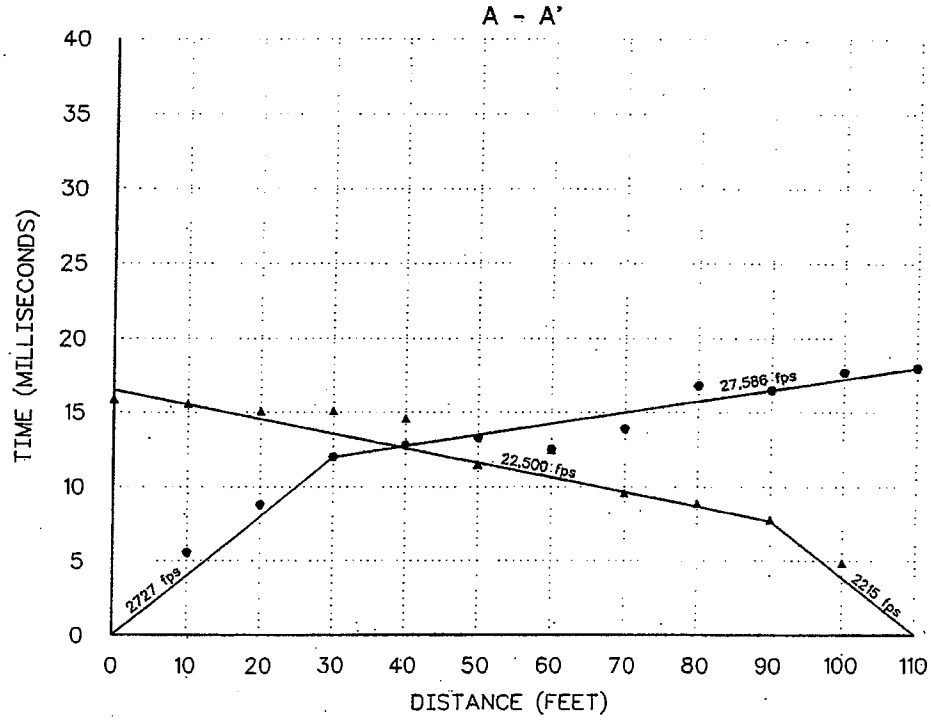
Material Description: Red brown silty sand with rock

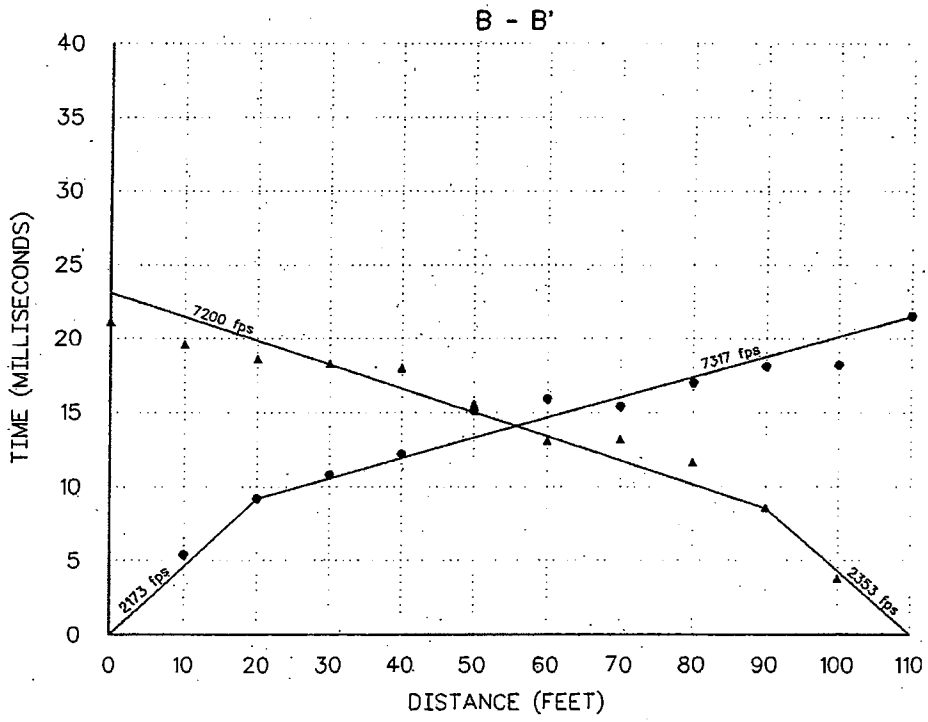
Location: Test Pit No. T3

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion Pressure (dial)	Expansion Pressure (psf)	R Value
1	125.6	13.1	207	18	78	35
2	124.9	12.1	271	23	100	47
3	129.5	11.2	462	37	160	56

R-Value at 300 psi exudation pressure = 48

WALLACE - KUHL & ASSOCIATES, INC. GEOTECHNICAL ENGINEERING GEOLOGIC & ENVIRONMENTAL SERVICES	WESTSIDE COMMERCIAL CENTER El Dorado Hills Boulevard El Dorado County, California	WKA NO: 1444.32 DATE: 10/96 PLATE NO: 11





NOTES:

1. Seismic refraction traverses were performed on October 8, 1996.
2. The approximate locations of the profiles are shown on Plate No. 2.

WALLACE • KUHL & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

EHHDC WESTSIDE COMMERCIAL CENTER

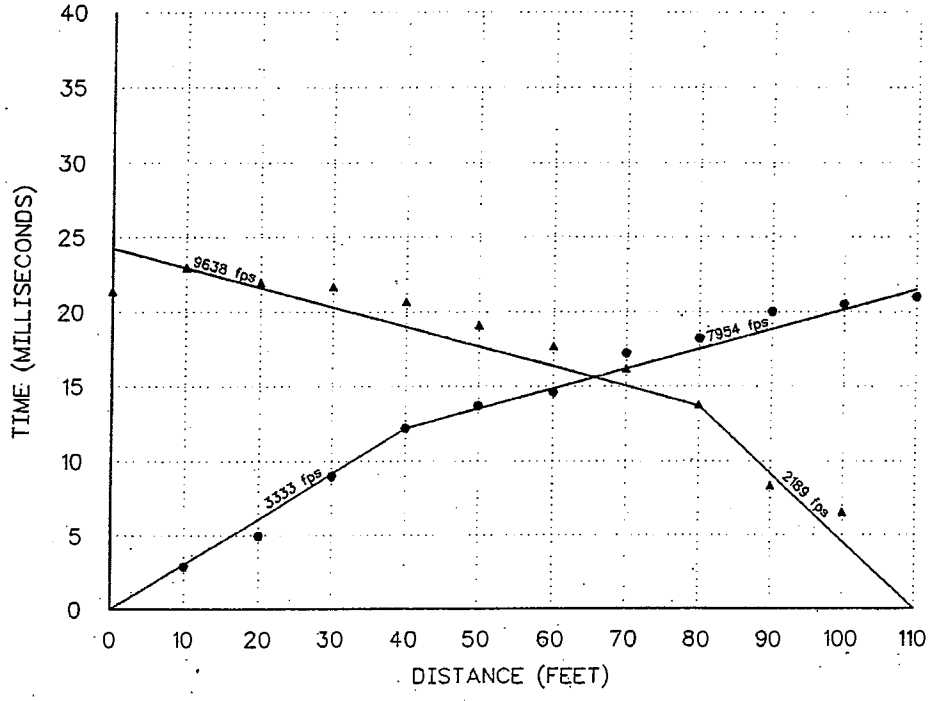
Seismic Survey

WKA NO: 1444.32

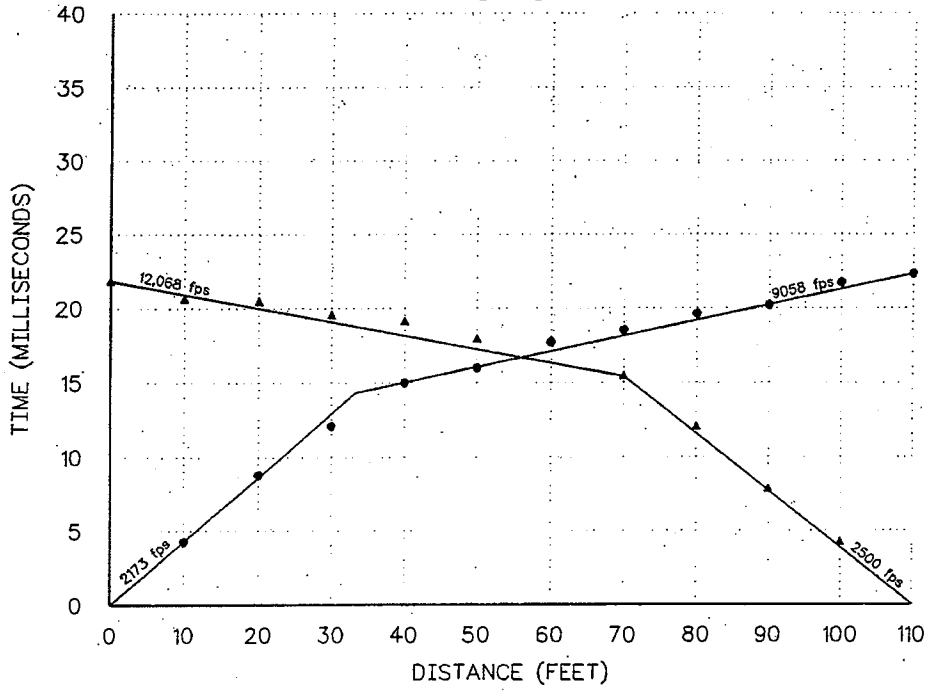
DATE: 10/96

PLATE NO: 12

C - C'



D - D'

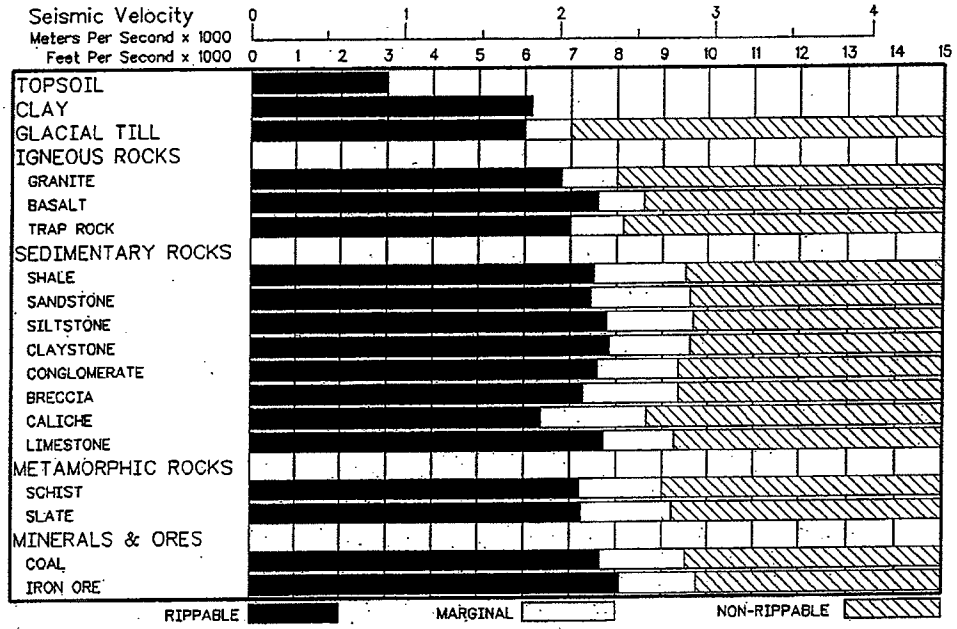


NOTES:

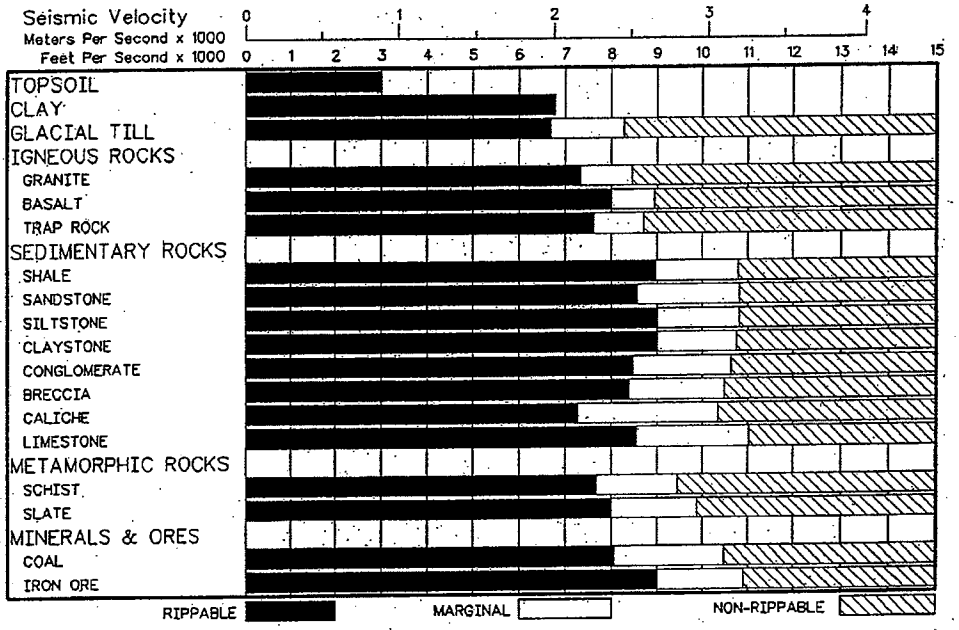
1. Seismic refraction traverses were performed on October 8, 1996.
2. The approximate locations of the profiles are shown on Plate No. 2.

WALLACE • KUHL & ASSOCIATES, INC. GEOTECHNICAL ENGINEERING GEOLOGIC & ENVIRONMENTAL SERVICES	EHHDC WESTSIDE COMMERCIAL CENTER Seismic Survey	WKA NO: 1444.32 DATE: 10/96 PLATE NO: 13

D9N Ripper Performance
* Multi or Single Shank No. 9 Ripper
* Estimated by Seismic Wave Velocities



D10N Ripper Performance
* Multi or Single Shank No. 10 Ripper
* Estimated by Seismic Wave Velocities



NOTE:

These charts are adapted from the Caterpillar Performance Handbook, Edition 20, printed October 1989. These charts are intended for estimating purposes only; they are not a warrant that the machines will perform as estimated.

WALLACE - KUHL & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING
GEOLOGIC & ENVIRONMENTAL SERVICES

EHHDC WESTSIDE COMMERCIAL CENTER

Seismic Survey

WKA NO: 1444.32
DATE: 10/96
PLATE NO: 14

Attachment 6 Greenhouse Gas Emissions

GHG Analysis

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942
619.462.1515 **tel**
619.462.0552 **fax**
www.**helixepi**.com

November 7, 2017

Mr. Peter Navarra
3220 Northrop Avenue
Sacramento, CA 95864

Subject: **Greenhouse Gas Emissions Analysis for the Saratoga Retail Phase 2 Project, El Dorado County, CA**

Dear Mr. Navarra:

HELIX Environmental Planning, Inc. (HELIX) has performed a greenhouse gas (GHG) emissions assessment for the operations of the proposed Saratoga Retail Phase 2 Project (project). This letter summarizes the results of the modeling and a determination of significance based on comparison to thresholds deemed applicable through consultation with the El Dorado County Air Quality Management District (EDCAQMD).

PROJECT DESCRIPTION

The project is located on a 0.75-acre site in the community of El Dorado Hills in unincorporated El Dorado County (County). The site is bounded by El Dorado Hills Boulevard to the east and Saratoga Way to the west. The project involves the expansion of an existing retail center to include two restaurants and a retail building totaling 10,458 square feet (SF). The northern building would support a 2,800 SF Habit Burger Grill restaurant with two outdoor patio areas and drive-through lane. The southern building would support a 4,658 SF Chick-fil-A restaurant with associated drive-through lanes. A 3,000 SF retail building would be located between the two restaurants, along the project's western edge with an exterior covered patio. The project also proposes 68 additional parking spaces to serve the project. The site is currently vacant with no above-ground structures. The site is in a designated Community region, and is zoned Commercial Limited with a General Plan land use designation of C (Commercial).

EXISTING ENTITLEMENT

Phase 2 of the Saratoga Retail Project had previously been entitled to include a total development of 17,314 SF split between two buildings. The northern building was planned to include an 8,500 SF sit-down restaurant and 3,039 SF of general retail space. The southern building was planned to include 5,775 SF of general retail space.

Emissions associated with the existing entitlement were estimated using the California Emissions Estimator Model (CalEEMod), as described below. As shown in Table 1, Existing Entitlement GHG Emissions, the existing entitlement would result in 940 metric tons of carbon dioxide equivalents (MT CO_2e) per year.

Table 1
Existing Entitlement GHG Emissions
(MT CO_2e)

Emission Sources	Annual Emissions (MT CO_2e)
Area Sources	<0.5
Energy Sources	117
Vehicular (Mobile) Sources	775
Solid Waste Sources	42
Water Sources	6
TOTAL EMISSIONS	**940**

Source: CalEEMod output data is provided in Appendix A
Note: The total presented is the sum of the unrounded values as shown in Appendix A.
MT=metric tons; CO_2e=carbon dioxide equivalent

METHODOLOGY AND ASSUMPTIONS

Operational emissions were estimated for both the existing entitlement and the proposed project using CalEEMod version 2016.3.1. Operational emission sources include energy use (electricity and natural gas); area sources (landscaping equipment); mobile sources; solid waste generation; and water conveyance and treatment. The emissions from mobile sources associated with the project were calculated based on the trip rates provided in the Saratoga Retail Phase 2 Transportation Impact Study (TIS) (Kimley Horn 2017), CalEEMod default trip lengths, and emission factors from EMFAC2014.

Several measures associated with compliance with updated regulations would be required to be implemented as part of development. These measures include GHG source categories of water, energy, and solid waste. Emissions associated with these source categories were estimated using CalEEMod defaults with the following reductions applied: a 20 percent reduction to indoor and outdoor water use through mandatory compliance with 2016 California Green Building Standards Code (CALGreen); a 25 percent reduction in solid waste generation in compliance with Assembly Bill 341; and a 5 percent reduction to Title 24 regulated energy consumption to meet the current 2016 Title 24 Energy Efficiency Standards. These regulatory reductions were applied to both the existing entitlement and the proposed project. All modeling output files are provided in Attachment A of this letter.

OPERATIONAL GHG EMISSIONS ANALYSIS

The final determination of a project's significant effects is within the purview of the lead agency pursuant to State CEQA Guidelines Section 15064(b). Neither El Dorado County nor the EDCAQMD has established a quantitative threshold of significance to determine project-specific impacts related to GHG emissions. Therefore, the significance thresholds adopted for use by the Sacramento Metropolitan Air Quality Management District (SMAQMD) located just to the west of El Dorado County have been applied to this analysis for the purpose of determining significance.

As illustrated in Table 2, *Annual Operational GHG Emissions*, the net operational emissions total 880 MT CO_2e, which is less than the SMAQMD threshold of 1,100 MT CO_2e per year. As such, emissions are considered less than significant and mitigation is unwarranted.

Table 2
Annual Operational GHG Emissions
(MT CO_2e)

Emission Sources	Annual Emissions (MT CO_2e)
Habit Burger	
Area Sources	<0.5
Energy Sources	30
Vehicular (Mobile) Sources	529
Solid Waste Sources	12
Water Sources	2
Subtotal	*573*
General Retail	
Area Sources	<0.5
Energy Sources	9
Vehicular (Mobile) Sources	420
Solid Waste Sources	1
Water Sources	<0.5
Subtotal	*430*
Chick-Fil-A	
Area Sources	<0.5
Energy Sources	50
Vehicular (Mobile) Sources	745
Solid Waste Sources	20
Water Sources	3
Subtotal	*818*
Total Proposed Project	***1,820***
Less Existing Entitlement	***(940)***
NET OPERATIONAL EMISSIONS	**880**

Source: CalEEMod output data is provided in Appendix A
Note: The total presented is the sum of the unrounded values as shown in Appendix A.
MT=metric tons; CO_2e=carbon dioxide equivalent

CONCLUSION

Net operational GHG emissions from the project would be less than the threshold being applied to this analysis and GHG emission impacts would be less than significant.

Sincerely,

Victor Ortiz
Air Quality Specialist

Attachments:
A CalEEMod Outputs

REFERENCES

Kimley Horn. 2017. Saratoga Retail Phase 2 Transportation Impact Study. March

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2009. Guide to Air Quality Assessment in Sacramento County. December.

Attachment 7

Noise

Noise Analysis

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942
619.462.1515 tel
619.462.0552 fax
www.**helixepi**.com

August 31, 2017

Peter Navarra
3220 Northrop Avenue
Sacramento, CA 95864

Subject: The Habit Burger Restaurant Project Noise Assessment

Dear Mr. Navarra:

HELIX Environmental Planning, Inc. (HELIX) has performed a noise assessment for the operational impacts of the proposed The Habit Burger Restaurant Project (project). This letter summarizes modeling to assess the noise impacts associated with traffic generation; heating, cooling, and air conditioning (HVAC); and operation of the drive-through speaker system planned for the exterior of the project's The Habit Burger Grill component.

PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

The project is located on a 0.75-acre site in the community of El Dorado Hills in unincorporated El Dorado County (County). The site is bounded by El Dorado Hills Boulevard to the east and Saratoga Way to the west. The project involves the expansion of an existing retail center to include two restaurants and a retail building totaling 10,400 square feet (SF). The northern building would support a 2,800 SF The Habit Burger Grill restaurant with two outdoor patio areas. The Habit Burger Grill restaurant would have an associated drive-through lane with an exterior speaker setup for the taking of customer orders. The southern building would support a 4,900 SF Chick-fil-A restaurant with associated drive-through lanes and exterior speaker setup. A 2,700 SF retail building would be located between the two restaurants, along the project's western edge with an exterior covered patio. The project also proposes 66 additional parking spaces to serve the project. The site is currently vacant with no above-ground structures. The site is in a designated Community region, and is zoned Commercial Limited with a General Plan land use designation of C (Commercial).

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors are individual locations that may be affected by noise. NSLUs in the project vicinity include multi-family residences to the west across Saratoga Way, with the nearest residences approximately 100 feet west of the project boundary.

TERMINOLOGY

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are

expressed by the symbol L_{EQ}, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours have an added 5 dBA weighting, and noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting.

NOISE MODELING SOFTWARE

Modeling of the exterior noise environment for this report was accomplished using Computer Aided Noise Abatement (CadnaA) version 2017 and Traffic Noise Model (TNM) version 2.5. CadnaA is a model-based computer program developed by *DataKustik* for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project-related information, such as noise source data, barriers, structures, and topography to create a detailed model for the prediction of outdoor noise impacts.

The TNM was released in February 2004 by the U.S. Department of Transportation (USDOT), and calculates the daytime average hourly L_{EQ} from three-dimensional model inputs and traffic data (Caltrans 2004).

For traffic noise, the one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic; peak-hour traffic volumes can be estimated based on the assumption that 10 percent of the average daily traffic would occur during a peak hour. The model-calculated one-hour L_{EQ} noise output is the equivalent to the CNEL (Caltrans Technical Noise Supplement, November 2009).

NOISE STANDARDS

Table 6-1 of the County General Plan regulates the maximum allowable noise exposure from transportation noise sources to existing land uses. These noise standards include a maximum of 45 dBA L_{EQ} worst-case hour for residential interior spaces and 60 dBA CNEL for residential outdoor activity areas.

Table 6-2 of the General Plan regulates standards for operational noise exposure limits for NSLUs, not including transportation noise sources. These standards are depicted in Table 1, *Noise Level Performance Protection Standards for Noise Sensitive Land Uses Affected by Non-Transportation Sources*.

Because The Habit Burger Grill's speaker system would emit noise consisting primarily of speech, each of these standards would be lowered by 5 dBA. The drive-through order window would likely be in operation during nighttime hours (past 10 p.m.). Therefore, the drive-through speaker noise must be below the County's lowest limit of 40 dBA L_{EQ} during nighttime hours.

Table 1
NOISE LEVEL PERFORMANCE PROTECTION STANDARDS FOR NOISE SENSITIVE LAND USES AFFECTED BY NON-TRANSPORTATION SOURCES[1]

Noise Level Descriptor	Daytime (7 a.m. to 7 p.m.)		Evening (7 p.m. to 10 p.m.)		Night (10 p.m. to 7 a.m.)	
	Community	Rural	Community	Rural	Community	Rural
Hourly L_{EQ}, dBA	55	50	50	45	45	40
Maximum level, dBA	70	60	60	55	55	50

Source: El Dorado County General Plan, Noise Element, Table 6-2
Each of the noise levels specified above shall be lowered by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

The County can impose noise level standards which are up to 5 dBA less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.

In Community areas, the exterior noise level standard shall be applied to the property line of the receiving property. In Rural areas the exterior noise level standard shall be applied at a point 100 feet away from the residence. The above standards shall be measured only on property containing a noise sensitive land use as defined in Objective 6.5.1 of the Noise Element. This measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement between all effected property owners and approved by the County.

[1] For the purposes of the Noise Element, transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Control of noise from facilities of regulated public facilities is preempted by California Public Utilities Commission (CPUC) regulations. All other noise sources are subject to local regulations. Non-transportation noise sources may include industrial operations, outdoor recreation facilities, HVAC units, schools, hospitals, commercial land uses, other outdoor land uses, etc.

NOISE ANALYSIS AND IMPACTS

Drive-through Speaker

Existing and proposed features at the project site were included in the CadnaA noise model. These features would affect the emission, obstruction, and reflection of noise from the speaker. Because it is assumed that an idling automobile would be present when the speaker is operating, a single vehicle was included in the model directly opposite the speaker to account for any obstruction and reflection of sound that may occur. An existing 6-foot tall masonry wall is located along the eastern property boundary of the residential development and noise attenuation from this wall was taken into account in the noise modeling. To isolate noise generation from speaker noise, the model did not include traffic noise generated from vehicles along Saratoga Way. See Table 2, *Summary of Site Features Included in the Noise Model*.

Table 2
SUMMARY OF SITE FEATURES INCLUDED IN THE NOISE MODEL

Description	Height[1]
Proposed The Habit Burger Grill Restaurant Building	20 feet
Residential Development Masonry Wall[2]	6 feet
Drive-Through Menu Sign	5 feet
Automobile	4 feet

[1] Heights are estimated from visual inspection of the project area and from typical heights of objects/buildings.
[2] The masonry wall is located at the residential property line.

Specific planning for the proposed speaker system is not available at this point in the planning process. A speaker at a similar style restaurant was measured for this analysis (HELIX 2016). A sound level meter at approximately five feet from a typical speaker measured 86.4 dBA L_{EQ} averaged over one hour. The summed measurement time period data (20-second average) are shown in octave format in Table 3, *Octave Data of Measured Drive-through Speaker*.

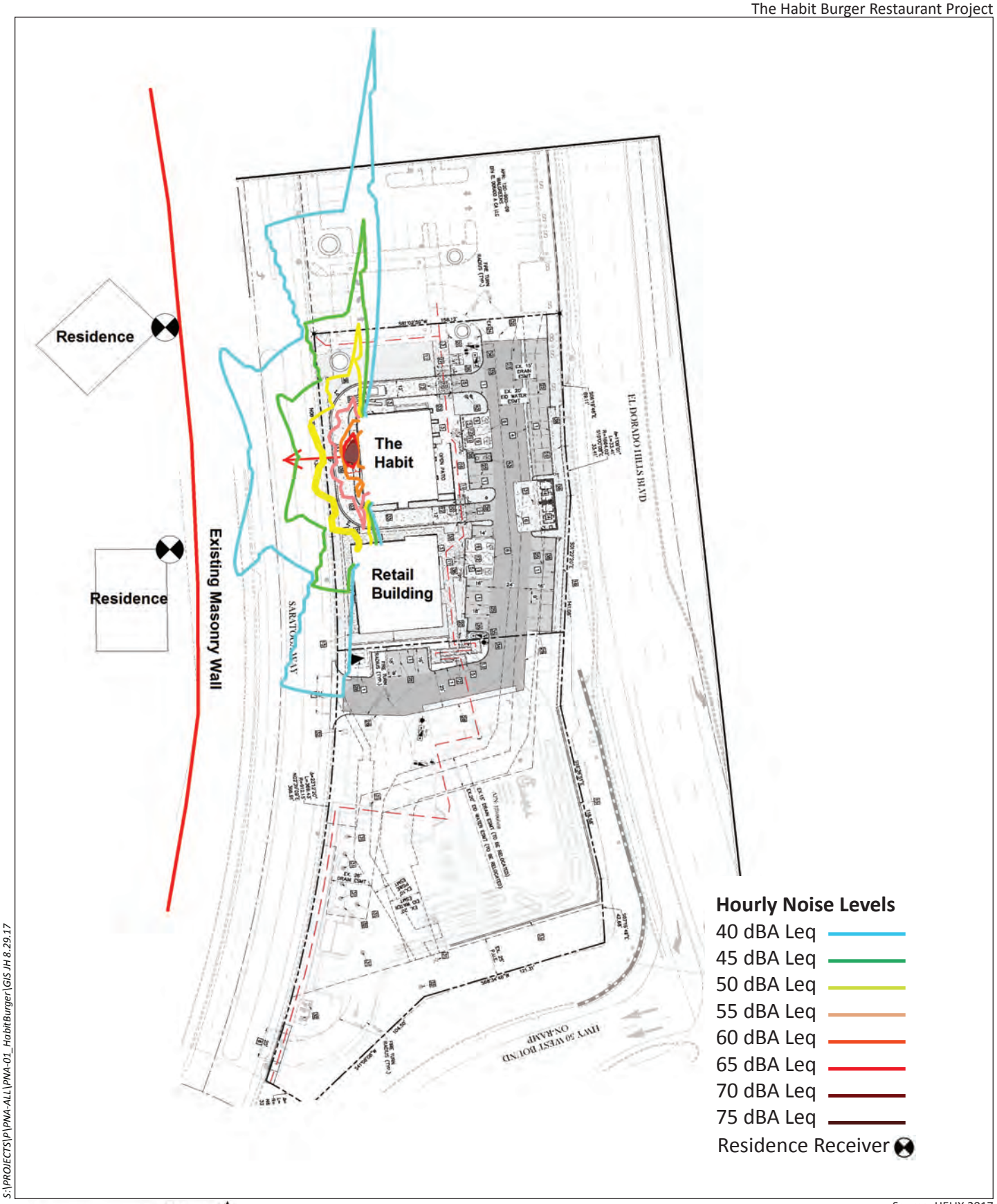
Table 3
OCTAVE DATA OF MEASURED DRIVE-THROUGH SPEAKER[1]

Octave Band Center Frequency (Hz)	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz	dBA L_{EQ}*
Measured Sound Pressure	79.9	75.8	72.8	75.4	85.4	80.6	61.7	52.5	86.4

[1] Drive-through speaker measured at a distance of five feet from the source.

The measurement data in Table 3 depicts the dBA L_{EQ} during the continuous use of a speaker for one hour. For the purposes of this analysis, it is assumed that a speaker would be in use for approximately 30 minutes in each hour. The project's Traffic Impact Study (Kimley Horn 2017) measured drive-through traffic at three nearby restaurants. The study counted a maximum of 37 drive-through customers in a lunchtime hour at a nearby McDonald's restaurant. Assuming a one-minute customer order, the analysis for the proposed The Habit Burger Grill assumes a conservative 60 customers per hour, with the speaker in use for half of a single order.

Noise levels were modeled in CadnaA using the sample measurement described in the assumptions above, with the speaker located approximately 135 feet from the southern residence depicted on Figure 1, *Drive-through Speaker Noise Contours*. With these parameters, the drive-through speaker would emit noise levels of approximately 29 dBA L_{EQ} at the nearest residence west of The Habit Burger Grill. Noise levels would not exceed the County's 40 dBA L_{EQ} nighttime limit for non-transportation noise sources consisting of human speech. This represents a conservative assumption due to the assumed operational use of the speaker (30 minutes of a given hour) during the peak hour, which is not likely to occur during nighttime hours.



S:\PROJECTS\P\PNA-ALL\PNA-01_HabitBurger\GIS JH 8.29.17

0 100 Feet

Source: HELIX 2017

HELIX Environmental Planning

Drive-through Speaker Noise Contours

Because the drive-through speakers at the project's Chick-fil-A restaurant are directed south toward the onramp to U.S. Route 50 at a greater distance from nearby NSLUs, noise levels were determined to not be significant, and specific measurements of its speaker system were not analyzed.

HVAC

Specific planning for future HVAC systems is not available at this point in project design. Analysis using a typical rooftop commercial HVAC unit was analyzed for the project buildings. The unit used in this analysis is a Carrier Centurion Model 50 PG03-12 with a sound rating of 80 dBA sound power. This unit produces noise levels of 45 dBA L_{EQ} at 50 feet, which would be reduced by at least 5 dBA by standard parapet walls installed on a building's roofline. A single 10-ton HVAC unit is commonly required for every 350 square feet of habitable space (ASHRAE Handbook 2012). Using this calculation, two units for the Chick-fil-A restaurant, one unit for The Habit Burger Grill restaurant building, and one unit for the third retail building would be required. Based on the site plan, the closest NSLU to the project is the southern residence depicted on Figure 1. This residence is approximately 120 feet from the retail building's single HVAC unit. A single unit mounted on a rooftop with a standard parapet would emit a noise level of 40 dBA L_{EQ} at 50 feet. Noise levels at the nearest NSLU would therefore be less than the County's 45 dBA L_{EQ} nighttime limit for non-transportation noise sources.

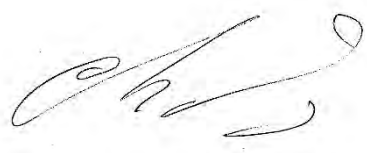
Project Traffic

Using trip generation and distribution from the Transportation Impact Study, project traffic was calculated using Transportation Noise Model (TNM) version 2.5 software. Noise levels generated by existing traffic on Saratoga Way, the nearest roadway to the affected NSLUs, are approximately 45 dBA CNEL at the nearest residence. Additional traffic to this roadway would increase noise levels to approximately 52 dBA CNEL. Although traffic noise for nearby NSLUs would increase perceptibly, noise levels would remain below the General Plan Noise Element standards of 60 dBA CNEL for residential exterior use areas. Assuming an approximately 15 dBA CNEL reduction from standard construction materials, interior spaces at the existing residences would remain below General Plan residential standards of 45 dBA CNEL.

Conclusions

Operation of the project including HVAC units, the use of a drive-through speaker at The Habit Burger Grill, and project traffic to nearby Saratoga Way would not generate noise levels above County standards.

Jason Runyan
Noise Analyst



Charles Terry
Principal Acoustician

Attachments:

Figure 1: Drive-through Speaker Noise Contours

REFERENCES

ASHRAE. 2012. ASHRAE Handbook – HVAC Systems and Equipment.

HELIX Environmental Planning, Inc. 2016 February 18. Noise Impact Analysis Tacos El Gavilan Drive-Through Restaurant.

Kimley-Horn. 2017, May 3. Saratoga Retail Phase 2 El Dorado Hills, California.

Attachment 8

Traffic and Transportation

Traffic Analysis Report

Kimley»Horn

Memorandum

To: Central Pacific Development Company

From: Matt Weir, P.E., T.E., PTOE

Re: *Saratoga Retail Supplemental Traffic Analyses*
Traffic Evaluation
El Dorado Hills, California

Date: July 12, 2018

Per your request and authorization, we have prepared this traffic evaluation for the above referenced project.

Project Understanding

This memorandum documents the results of a supplemental transportation impact analysis completed for Saratoga Retail Phase 2 (the "proposed project" or "project"). The project represents an expansion and completion of the existing retail center located in the northwest corner of the US-50 interchange with El Dorado Hills Boulevard in El Dorado Hills. Kimley-Horn previously completed a traffic impact analysis for the Saratoga Retail Phase 2 project[1]. This study was deemed complete by El Dorado County[2] and was subsequently heard at the December 14, 2017 Planning Commission Meeting. In the Planning Commission's Findings for Denial[3], they state the following as pertains to transportation/traffic:

> *"The record does not contain sufficient information or analysis to assess the near-term traffic impacts of the Project in order to account for nearby development and anticipated changes in traffic circulation (e.g., completion of the extension of Saratoga Way into the City of Folsom)."*

The purpose of this evaluation was to complete a Near-Term (2026) analysis to provide an interim-year snapshot of the worst-case conditions. Conservatively, this analysis assumes the existing geometries for the study intersections, along with traffic volume growth expected by 2026. The Near-Term (2026) volumes were approximated using straight-line growth interpolation between Existing (2017) and Cumulative (2035) volumes per the original traffic study.

The project applicant now proposes to develop the project site with a 5,500 square-foot (sf) retail building and a 4,658-sf restaurant with a drive-thru. Chick-fil-A has been identified as the tenant for the proposed drive-thru restaurant. Access to the site is provided at the existing main site driveway intersection with Saratoga Way. Two additional driveways will serve the site; one full access driveway south of the main site driveway, and one egress-only driveway at the south end of the project site. The project location is shown in **Exhibit 1**, and the proposed project site plan is shown in **Exhibit 2.**

[1] *Transportation Impact Study, Saratoga Retail Phase 2,* Kimley-Horn and Associates, Inc., May 25, 2017.
[2] Email from Natalie Porter, El Dorado County Community Development Services Planning and Building Department Long Range Planning, September 14, 2017.
[3] El Dorado County Community Development Services Planning and Building Department Staff Memo, from Efren Sanchez, Assistant Planner, to Planning Commission, December 28, 2017.

Kimley»Horn

Study Facilities and Analysis Scenarios

The following transportation facilities are included in this evaluation:

Intersections:

1. El Dorado Hills Blvd @ Saratoga Way
2. El Dorado Hills Blvd @ US-50 WB Ramps
3. Latrobe Rd @ US-50 EB Ramps
4. Latrobe Rd @ Town Center Blvd
5. Latrobe Rd @ White Rock Rd
6. White Rock Rd @Windfield Way
7. White Rock Rd @ Post St
8. Saratoga Way @ Mammouth Way
9. Saratoga Way @ Main Project Dwy
10. Saratoga Way @ Arrowhead Dr

Exhibit 3 illustrates the study intersections facilities, existing traffic control, and existing lane configurations.

Roadway Segment:

1. Saratoga Way, west of El Dorado Hills Boulevard

Freeway Facilities:

1. US-50 Mainline
    a. Eastbound, west of El Dorado Hills Boulevard/Latrobe Road
    b. Westbound, west of El Dorado Hills Boulevard/Latrobe Road
    c. Eastbound, between Latrobe Road off-ramp and Latrobe Road on-ramp
    d. Westbound, between El Dorado Hills Blvd off-ramp and El Dorado Hills Blvd on-ramp
    e. Eastbound, east of El Dorado Hills Boulevard/Latrobe Road
    f. Westbound, east of El Dorado Hills Boulevard/Latrobe Road
2. US-50 Ramps
    a. Eastbound, diverge to Latrobe Road
    b. Eastbound, diverge to El Dorado Hills Boulevard
    c. Eastbound, merge from Latrobe Road
    d. Westbound, diverge to El Dorado Hills Boulevard/Latrobe Road
    e. Westbound, merge from El Dorado Hills Boulevard/Latrobe Road

The study freeway facilities are depicted in **Exhibit 4.**

This traffic impact analysis was conducted for the above-listed study facilities for the following scenarios:

A. Near-Term (2026) Conditions
B. Near-Term (2026) plus Proposed Project Conditions

Assessment of Proposed Project

Trip Generation

Kimley-Horn completed a trip generation study in a manner consistent with the methodology contained in the *Trip Generation Manual, 9th Edition*, published by the Institute of Transportation Engineers (ITE). In addition, unique local trip generation rate (trips per thousand square feet) were developed using data collected at the following three Chick-Fil-A locations with drive through facilities:

1. 2679 East Bidwell Street, Folsom, CA
2. 4644 Madison Avenue, Sacramento, CA
3. 2354 Sunrise Boulevard, Rancho Cordova, CA

The local trip generation data was collected on April 17, 2018, between the hours of 6:00 A.M. and 9:00 A.M. and 5:00 P.M. and 7:00 P.M. The trip generation data is included in Appendix A. The calculated trip generation rates for the proposed project are presented in Table 1.

Table 1 – Trip Generation Data

Existing Chick-fil-A Location	Building Floor Area (KSF)	Generation Rate	
		AM	PM
2354 Sunrise Blvd, Rancho Cordova	4.86	11.9	26.8
4644 Madison Ave, Sacramento	4.67	13.3	34.4
2679 E Bidwell St, Folsom	4.48	18.4	54.6
Average		14.5	38.6

The anticipated trip gen characteristics for the proposed project are presented in Table 2. As only A.M. and P.M. trip generation data was collected, ITE code 934 (Fast Food Restaurant with Drive Through) was used to approximate the daily trips generated by the restaurant use.

Table 2 – Proposed Project Trip Generation Characteristics

Land Use (ITE Code)	Size (ksf)	Daily Trips	AM Peak-Hour					PM Peak-Hour				
			Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips
Chick-fil-A	4.658	2,312	68	53%	36	47%	32	180	64%	115	36%	65
Shopping Center (820)	5.5	1,032	27	62%	16	38%	11	86	48%	41	52%	45
Subtotal Trips:		***3,344***	***95***		***52***		***43***	***266***		***156***		***110***
Internal Trip Reduction	5%	-167	-5		-3		-2	-13		-8		-5
Net New Driveway Trips:		***3,177***	***90***		***49***		***40***	***253***		***148***		***104***
Pass-By/Diverted Trip Reduction	15%	-477	-13		-7		-6	-38		-22		-16
Net New External Trips:		***2,700***	***76***		***42***		***34***	***215***		***126***		***89***

Source: ITE Trip Generation Manual, 9th Edition, ITE.
AM and PM peak-hour trip generation rates for the Chick-fil-A are based on data collected at three sites in Rancho Cordova, Sacramento, and Folsom.

As shown in Table 2, the proposed project is estimated to generate approximately 2,700 new daily trips, with 76 and 215 trips occurring during the A.M. and P.M. peak-hours, respectively.

Trip Distribution

Project traffic was distributed to the roadway network based on existing traffic volumes, output from the County's travel demand model, and professional judgment. The Near-Term (2026) trip distribution does not route trips along the Saratoga Way extension. The background volumes for this Near-Term (2026) analysis were approximated using a straight-line interpolation between the Existing (2017) and the Cumulative (2035) volumes, which assumes the Saratoga Way connection is in place. In other words, the growth in background volumes includes the connection along Saratoga Way, but no project trips were routed along Saratoga Way. This approach is conservative and is expected to reveal the worst-case conditions by requiring all project trips to travel through the El Dorado Hills Boulevard intersection with Saratoga Way (Intersection #1). The project trip distribution percentages are provided in **Exhibit 5** and the assignment of project trips are depicted in **Exhibit 6**.

Traffic Assessment Methodology

This transportation impact analysis was performed in accordance with the County's transportation impact study guidelines[4].

Level of Service Definitions

Analysis of transportation facility significant environmental impacts is based on the concept of Level of Service (LOS). The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual (HCM) 2010*.

Intersection Analysis

The HCM includes procedures for analyzing side-street stop controlled (SSSC), all-way stop controlled (AWSC), and signalized intersections. The SSSC procedure defines LOS as a function of average control delay for each minor street approach movement. Conversely, the AWSC and signalized intersection procedures define LOS as a function of average control delay for the intersection as a whole. **Table 3** presents intersection LOS definitions as defined in the HCM.

Table 3 – Intersection Level of Service Criteria

Level of Service (LOS)	Un-Signalized	Signalized
	Average Control Delay* (sec/veh)	Average Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

Source: Highway Capacity Manual, 2010

* Applied to the worst lane/lane group(s) for SSSC

Due to the close spacing of the El Dorado Hills Boulevard/Latrobe Road intersections in the vicinity of US-50 and along White Rock Road, LOS for Intersections #1-#5 and Intersection #7 was determined using the SimTraffic® micro-simulation analysis software. The existing conditions SimTraffic® models were originally

[4] *Transportation Impact Study Guidelines,* El Dorado County Community Development Agency, November 2014.

provided by the County for use in this study[5]. These models were validated based on field observations of traffic volumes, driver behavior, lane utilization, and maximum vehicle queue lengths. As a result of these observations, adjustments were incorporated that improve the accuracy of the vehicles' behavior as they position for downstream turns. SimTraffic® measures of effectiveness are compared against the HCM intersection delay thresholds to equate SimTraffic® results to HCM LOS. For this simulation effort, a seed time of 10 minutes was used and 10 runs were averaged to obtain the results. LOS for the remaining study intersections was determined using the Synchro® traffic analysis software.

Roadway Segment Analysis

The HCM also includes procedures for analyzing multilane and two-lane roadway segments. For multilane roadway segments, LOS is determined based on the density of the traffic stream. For two-lane highways, the LOS calculation is dependent on the class of the roadway. Class I two-lane highways are highways that generally have high speeds, Class II two-lane highways are lower speed highways that typically serve scenic routes or areas of rugged terrain, and Class III two-lane highways typically serve moderately developed areas with higher densities of local traffic and access. Specifically, for Class III highways, the percent of free-flow speed, which is the measure representing the ability of vehicles to travel at the posted speed limit, is used to determine LOS. Saratoga Way is either a Class III two-lane or a multilane roadway, depending on the analysis scenario. The LOS criteria for multilane and two-lane roadway segments are shown in Table 4 and Table 5, respectively.

Table 4 – Multi-Lane Roadway Segment Level of Service Criteria

Level of Service (LOS)	Free Flow Speed (mph)	Density (pc/mi/ln)
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

Source: Highway Capacity Manual, 2010

Table 5 – Two-Lane Roadway Segment (Class III) Level of Service Criteria

Level of Service (LOS)	Percent Free-Flow Speed (%)
A	> 91.7
B	> 83.3 – 91.7
C	> 75.0 – 83.3
D	> 66.7 – 75.0
E	≤ 66.7

Source: Highway Capacity Manual, 2010

[5] Email from Natalie Porter, El Dorado County Community Development Agency, October 24, 2014.

Freeway Facility Analysis

Caltrans' traffic study guidelines[6] specify the use of vehicle density (passenger cars/mile/lane) as the appropriate measure of effectiveness for freeway facilities. The LOS criteria for basic freeway segments and freeway merge/diverge segments are summarized in Table 6. We understand that Caltrans District 3 prefers weaving sections to be analyzed using the Leisch Method[7]. As such, the freeway weaving sections in this study are evaluated using this methodology.

Table 6 – Freeway Facility Level of Service Criteria

Level of Service (LOS)	Basic Segments Density (pc/mi/ln)	Merge/Diverge Segments Density (pc/mi/ln)
A	≤ 11	≤ 10
B	> 11 – 18	> 10 – 20
C	> 18 – 26	> 20 – 28
D	> 26 – 35	> 28 – 35
E	> 35 – 45	> 35
F*	> 45*	*

Source: Highway Capacity Manual, 2010

* Demand exceeds capacity

Near-Term (2026) Conditions

As discussed previously, the purpose of this near-term analysis to provide an interim-year snapshot of the conditions anticipated to materialize considering anticipated roadway network changes and the addition of other pending and approved development projects. Near-Term (2026) volumes were approximated using straight-line growth interpolation between Existing (2017) and Cumulative (2035) volumes per the original traffic study. Near-Term (2026) peak-hour turning movement volumes are presented in Exhibit 7. Analysis worksheets for this scenario are provided in Appendix B.

Intersections

Table 7 presents the intersection operating conditions for this analysis scenario. As indicated in, the study intersections operate from LOS A to LOS F.

Roadway Segment

Table 8 presents the roadway segment operating conditions for this analysis scenario. As indicated in Table 8, the study roadway segment operates at LOS C.

Freeway Facilities

Table 9 presents the freeway facility operating conditions for this analysis scenario. As indicated in Table 9, the freeway facilities operate from LOS A to LOS E.

[6] *Guide for the Preparation of Traffic Impact Studies*, Caltrans, December 2002.

[7] *Procedure for Analysis and Design of Weaving Sections,* Federal Highway Administration, February 1984.

Table 7 – Near-Term (2026) Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Near Term (2026)	
				Delay (sec)	LOS
1	El Dorado Hills Blvd @ Saratoga Way/Park Dr	Signal	AM	33.2	C
			PM	70.4	E
2	El Dorado Hills Blvd @ US-50 WB Ramps/ Park Dr	Signal	AM	33.1	C
			PM	58.0	E
3	Latrobe Rd @ US-50 EB Ramps	Signal	AM	15.4	B
			PM	12.0	B
4	Latrobe Rd @ Town Center Blvd	Signal	AM	22.6	C
			PM	**84.6**	**F**
5	Latrobe Rd @ White Rock Rd	Signal	AM	57.4	E
			PM	66.0	E
6	White Rock Rd @ Windfield Wy/ Town Center Blvd	Signal	AM	19.7	B
			PM	23.6	C
7	White Rock Rd @ Post St	Signal	AM	**86.4**	**F**
			PM	51.5	D
8	Saratoga Wy @ Mammouth Wy/ Walgreens Dwy	SSSC	AM	2.1 (13.4 EB)	B
			PM	3.2 (20.6 EB)	C
9	Saratoga Wy @ Main Project Site Dwy	SSSC	AM	0.4 (9.1 WB)	A
			PM	0.9 (13.6 WB)	B
10	Saratoga Wy @ Arrowhead Dr	SSSC	AM	0.5 (10.9 EB)	B
			PM	0.4 (12.4 EB)	B

Notes:
Side Street Stop Controlled (SSSC) intersection LOS corresponds to the worst approach.
Bolded represents a significant impact.

Table 8 – Near-Term (2026) Roadway Segment Levels of Service

Scenario	Location	Peak-Hour	Analysis Direction	LOS	PFFS (%)	v/c
Near Term (2026)	Saratoga Way, west of El Dorado Hills Blvd	AM	NB	C	82.1	0.13
			SB	C	81.2	0.17
		PM	NB	C	77.3	0.32
			SB	C	81.2	0.11

Notes:
PFFS = Percent Free-Flow Speed, v/c = Volume to Capacity

Table 9 – Near-Term (2026) Freeway Facility Levels of Service

US-50				Near-Term (2026)	
Direction	Segment	Type	Peak Hour	Density[a]	LOS
Eastbound	West of Latrobe Rd Southbound Off- Ramp	Basic	AM	13.9	B
			PM	20.7	C
	Latrobe Rd Southbound Off-Ramp	Diverge	AM	23.6	C
			PM	30.0	D
	El Dorado Hills Blvd Northbound Off-Ramp	Diverge	AM	15.4	B
			PM	27.2	C
	El Dorado Hills Blvd Northbound Off-Ramp to Latrobe Rd On-Ramp	Basic	AM	7.4	A
			PM	14.6	B
	Latrobe Rd On-Ramp to Silva Valley Pkwy Off-Ramp	Weave[c]	AM	-	A
			PM	-	D
Westbound	Silva Valley On-Ramp to El Dorado Hills Blvd Off-Ramp	Weave[c]	AM	-	B
			PM	-	A
	El Dorado Hills Blvd Off-Ramp to El Dorado Hills Blvd On-Ramp	Basic	AM	24.7	C
			PM	21.7	C
	El Dorado Hills Blvd On-Ramp	Merge	AM	36.7	E
			PM	36.4	E
	West of El Dorado Hills Blvd On-Ramp	Basic	AM	22.0	C
			PM	21.9	C

Notes:

a- Density measured in passenger cars/lane/mile (pc/ln/mi)

b- **Bold** represents unacceptable operations

c- Weave segment LOS calculated using Leisch Method

Near-Term (2026) Plus Proposed Project Conditions

Peak-hour traffic associated with the proposed project was added to the interpolated Near-Term (2026) Traffic volumes. Impacts were determined by comparing traffic operating conditions associated with the project scenario to traffic operating conditions without the project. Near-Term (2026) plus Proposed Project peak-hour turning movement volumes are presented in Exhibit 8. Analysis worksheets for this scenario are provided in Appendix C.

Intersections

Table 10 presents the intersection operating conditions for this analysis scenario. As indicated in Table 10, the study intersections operate from LOS A to LOS F.

Roadway Segment

Table 11 presents the roadway segment operating conditions for this analysis scenario. As indicated in Table 11, the study roadway segment operates at LOS C.

Freeway Facilities

Table 12presents the freeway facility operating conditions for this analysis scenario. As indicated in Table 12 , the freeway facilities operate from LOS A to LOS E.

Table 10 - Near-Term (2026) Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Near-Term (2026)		Near-Term (2026) plus Proposed Project	
				Delay (sec)	LOS	Delay (sec)	LOS
1	El Dorado Hills Blvd @ Saratoga Way/Park Dr	Signal	AM	33.2	C	36.9	D
			PM	70.4	E	**92.7**	**F**
2	El Dorado Hills Blvd @ US-50 WB Ramps/ Park Dr	Signal	AM	33.1	C	33.7	C
			PM	58.0	E	61.7	E
3	Latrobe Rd @ US-50 EB Ramps	Signal	AM	15.4	B	15.1	B
			PM	12.0	B	12.2	B
4	Latrobe Rd @ Town Center Blvd	Signal	AM	22.6	C	21.4	C
			PM	**84.6**	**F**	**82.5**	**F**
5	Latrobe Rd @ White Rock Rd	Signal	AM	57.4	E	57.6	E
			PM	66.0	E	65.3	E
6	White Rock Rd @ Windfield Wy/ Town Center Blvd	Signal	AM	19.7	B	19.7	B
			PM	23.6	C	23.7	C
7	White Rock Rd @ Post St	Signal	AM	**86.4**	**F**	**92.4**	**F**
			PM	51.5	D	50.7	D
8	Saratoga Wy @ Mammouth Wy/ Walgreens Dwy	SSSC	AM	2.1 (13.4 EB)	B	2.0 (15.0 EB)	C
			PM	3.2 (20.6 EB)	C	4.0 (35.8)	E
9	Saratoga Wy @ Main Project Site Dwy	SSSC	AM	0.4 (9.1 WB)	A	1.1 (9.4 WB)	A
			PM	0.9 (13.6 WB)	B	2.2 (19.1 WB)	C
10	Saratoga Wy @ Arrowhead Dr	SSSC	AM	0.5 (10.9 EB)	B	0.5 (10.9 EB)	B
			PM	0.4 (12.4 EB)	B	0.4 (12.5)	B

Notes:
Side Street Stop Controlled (SSSC) intersection LOS corresponds to the worst approach.
Bolded represents unacceptable conditions.
Shaded reprsents a significant impact.

Table 11 – Near-Term (2026) plus Proposed Project Roadway Segment Levels of Service

Scenario	Location	Peak-Hour	Analysis Direction	LOS	PFFS (%)	v/c
Near Term (2026) plus Project	Saratoga Way, west of El Dorado Hills Blvd	AM	NB	C	81.4	0.15
			SB	C	80.2	0.20
		PM	NB	C	75.1	0.38
			SB	C	77.5	0.21

Notes:
PFFS = Percent Free-Flow Speed, v/c = Volume to Capacity

Table 12 –Near-Term (2026) plus Proposed Project Freeway Facility Levels of Service

US-50				Near-Term (2026)		Near-Term (2026) plus Project	
Direction	Segment	Type	Peak Hour	Density[a]	LOS	Density[a]	LOS
Eastbound	West of Latrobe Rd Southbound Off-Ramp	Basic	AM	13.9	B	14.0	B
			PM	20.7	C	20.9	C
	Latrobe Rd Southbound Off-Ramp	Diverge	AM	23.6	C	23.8	C
			PM	30.0	D	30.5	D
	El Dorado Hills Blvd Northbound Off-Ramp	Diverge	AM	15.4	B	15.6	B
			PM	27.2	C	27.5	C
	El Dorado Hills Blvd Northbound Off-Ramp to Latrobe Rd On-Ramp	Basic	AM	7.4	A	7.4	A
			PM	14.6	B	14.5	B
	Latrobe Rd On-Ramp to Silva Valley Pkwy Off-Ramp	Weave[c]	AM	-	A	-	B
			PM	-	D	-	D
Westbound	Silva Valley On-Ramp to El Dorado Hills Blvd Off-Ramp	Weave[c]	AM	-	B	-	D
			PM	-	A	-	A
	El Dorado Hills Blvd Off-Ramp to El Dorado Hills Blvd On-Ramp	Basic	AM	24.7	C	24.7	C
			PM	21.7	C	21.7	C
	El Dorado Hills Blvd On-Ramp	Merge	AM	36.7	E	36.8	E
			PM	36.4	E	36.6	E
	West of El Dorado Hills Blvd On-Ramp	Basic	AM	22.0	C	43.4	E
			PM	21.9	C	43.4	E

Notes:

a- Density measured in passenger cars/lane/mile (pc/ln/mi)

b- **Bold** represents unacceptable operations

c- Weave segment LOS calculated using Leisch Method

Impacts and Mitigation

Standards of Significance

Project impacts were determined by comparing conditions with the proposed project to those without the project. Impacts for intersections are created when traffic from the proposed project forces the LOS to fall below a specific threshold. The County's standards[8] specify the following:

> *"Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions…"* (El Dorado County General Plan Policy TC-Xd[9]) The study facilities are located within the El Dorado Hills Community Region.
>
> If a project causes the peak hour LOS or volume/capacity ratio on a county road or state highway that would otherwise meet the County standards (without the project) to exceed the values listed in the above text (El Dorado County General Plan Policy TC-Xd[9]), then the impact shall be considered significant.

[8] *Transportation Impact Study Guidelines,* El Dorado County Community Development Agency, November 2014.

[9] *El Dorado County General Plan, Transportation and Circulation Element*, July 2004.

If any county road or state highway fails to meet the above listed county standards (El Dorado County General Plan Policy TC-Xd[9]) for peak hour LOS or volume/capacity ratios without the proposed project, and the project will worsen conditions on the road or highway, then the impact shall be considered significant. The term, worsen is defined for the purpose of this paragraph according to General Plan Policy TC-Xe[9] as follows:

"*A. A 2 percent increase in traffic during the a.m. peak hour, p.m. peak hour, or daily, or*
B. The addition of 100 or more daily trips, or
C. The addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour"

The Caltrans District 3 standard of significance was applied to intersections at the US-50 interchange with El Dorado Hills Boulevard/Latrobe Road. Caltrans has established a LOS E threshold for the peak 15 minutes for signalized intersections outside "high speed areas." The US-50 interchange ramp intersections with El Dorado Hills Boulevard/Latrobe Road are not considered to be located in high speed areas, therefore, the LOS E threshold for the peak 15 minutes applies to these facilities.

Near-Term (2026) plus Proposed Project Impacts

As reflected in **Table 10**, **Table 11**, and **Table 12**, the addition of the proposed project results in the following significant impacts:

Intersections

I1. *Intersection #1, El Dorado Hills Boulevard @ Saratoga Way/Park Drive*
As shown in **Table 10**, this intersection operates at LOS E during the PM peak-hour without the project. The addition of the project results in LOS F. ***This is a significant impact***.

I2. *Intersection #4, Latrobe Road and Town Center Boulevard*
As shown in **Table 10,** this intersection operates at LOS F during the PM peak-hour without the project, and the project contributes more than 10 trips during the peak-hour. ***This is a significant impact***.

Roadway Segment
None.

Freeway Facilities
None.

Mitigations:

Intersections

M1. *Intersection #1, El Dorado Hills Blvd @ Saratoga Way/Park Drive*
This intersection operates at LOS E during the PM peak-hour without the project, and the project results in LOS F. Consistent with the findings of the previous Saratoga Retail Phase 2 Cumulative (2035) Conditions analysis[1], the impact at this intersection can be mitigated by off-site improvements including optimization of the Latrobe Road coordinated signal system and the restriping of the westbound Town Center Boulevard approach to include one left-through lane, and two right-turn lanes, with a permitted-overlap phase for the westbound right-turns. The El Dorado Hills Town Center Apartments project is responsible for, among other things, the lane designation and signal phasing mitigations described above. This mitigation affects an approach on a privately-owned roadway, and therefore, the improvement should be coordinated with the County and the property owner. As shown in **Table 13**, this mitigation measure results in the

intersection operating at LOS D during the PM peak-hour. Therefore, ***this impact is less than significant***.

M2. Intersection #4, Latrobe Road and Town Center Boulevard

This intersection operates at LOS F during the PM peak-hour without the project, and the project contributes more than 10 trips. Consistent with the findings of the previous Saratoga Retail Phase 2 Cumulative (2035) Conditions analysis[1], the impact at this intersection can be mitigated by optimization of the Latrobe Road coordinated signal system, along with the following improvements: the restriping of the westbound Town Center Boulevard approach to include one left-through lane, and two right-turn lanes, with a permitted-overlap phase for the westbound right-turns. The El Dorado Hills Town Center Apartments project is responsible for, among other things, the lane designation and signal phasing mitigations described above. This mitigation affects an approach on a privately-owned roadway, and therefore, the improvement should be coordinated with the County and the property owner. As shown in Table 13, this mitigation measure results in the intersection operating at LOS E during the PM peak-hour. Therefore, ***this impact is less than significant***.

Table 13 - Intersection Levels of Service Near-Term (2026) Plus Proposed Project Mitigated Conditions

ID	Intersection	Control	Peak Hour	Near-Term (2026)		Near-Term (2026) plus Proposed Project		Near-Term (2026) plus Proposed Project Mitigated	
				Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	El Dorado Hills Blvd @ Saratoga Way/Park Dr	Signal	AM	33.2	C	36.9	D	37.2	D
			PM	70.4	E	**92.7**	**F**	46.5	D
2	El Dorado Hills Blvd @ US-50 WB Ramps/ Park	Signal	AM	33.1	C	33.7	C	35.6	D
			PM	58.0	E	61.7	E	49.3	D
3	Latrobe Rd @ US-50 EB Ramps	Signal	AM	15.4	B	15.1	B	14.9	B
			PM	12.0	B	12.2	B	13.4	B
4	Latrobe Rd @ Town Center Blvd	Signal	AM	22.6	C	21.4	C	20.1	C
			PM	**84.6**	**F**	**82.5**	**F**	66.4	E
5	Latrobe Rd @ White Rock Rd	Signal	AM	57.4	E	57.6	E	56.5	E
			PM	66.0	E	65.3	E	76.6	E
7	White Rock Rd @ Post St	Signal	AM	**86.4**	**F**	**92.4**	**F**	**93.1**	**F**
			PM	51.5	D	50.7	D	60.7	E

Roadway Segment

None.

Freeway Facilities

None.

Other Considerations:

Intersection Queuing Evaluation

Vehicle queuing for critical movements at three (3) of the study intersections was evaluated. The calculated vehicle queues were compared to available vehicle storage lengths. Results of the queuing evaluation are presented in Table 14. Analysis sheets that include the anticipated vehicle queues are presented in Appendices B-C. As presented in Table 14, the addition of the project and its mitigations adds minimal queuing to the study locations.

Table 14– Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#1, El Dorado Hills Blvd @ Saratoga Way	NBL				
Near-Term (2027)		235	143	235	204
Near-Term (2027) plus Project			190		**321**
Near-Term (2027) plus Project Mitigated			197		**250**
#2, El Dorado Hills Blvd @ US-50 WB Ramps	NBL				
Near-Term (2027)		750	308	750	416
Near-Term (2027) plus Project			312		433
Near-Term (2027) plus Project Mitigated			336		422
	SBL				
Near-Term (2027)		195	136	195	192
Near-Term (2027) plus Project			133		**212**
Near-Term (2027) plus Project Mitigated			114		**176**
	EBL				
Near-Term (2027)		540	124	540	86
Near-Term (2027) plus Project			118		139
Near-Term (2027) plus Project Mitigated			156		147
#3, El Dorado Hills Blvd @ US-50 EB Ramps	EBR				
Near-Term (2027)		415	323	415	128
Near-Term (2027) plus Project			325		125
Near-Term (2027) plus Project Mitigated			315		242

Source: *Highway Capacity Manual (HCM) 2010* methodology per Synchro© v9.
Notes: For approaches with dual left-turn lanes, the longest queue length is reported.

On-Site Transportation Review
In accordance with the County's *Guidelines*, the following aspects of the proposed project were evaluated:

- ***Existence of any current traffic problems in the local area such as an intersection in need of a traffic signal***
  A planning level assessment of the need for traffic signalization was performed for the un-signalized study intersections. This evaluation was performed consistently with the peak-hour warrant methodologies noted in Section 4C of the *California Manual on Uniform Traffic Control Devices (CMUTCD), 2014 Edition (with December 2015 revisions)*. No intersections warrant a traffic signal under Near-Term (2026) Conditions with and without the addition of the proposed project. Detailed results of this analysis are presented in Appendix E.

- ***Proximity of proposed site driveway(s) to other driveways or intersections***
  As previously noted, access to the site is provided at the existing main site driveway intersection with Saratoga Way (Intersection #9). With the addition of the project, two additional driveways will serve the site; one full-access driveway south of the main site driveway, and one egress-only driveway at the south end of the project site. According to the project site plan (Exhibit 2), these two additional driveways are located approximately equidistance from each other and Intersection #9 (approximately 250-feet).

The spacing between consecutive site driveways appears to be adequate and, when combined with the presence of left-turn access from Saratoga Way, these access points will assist in dispersing trips entering and exiting the site. The proposed configuration is advantageous as it reduces the potential for a concentration of trips which should serve to minimize queuing and other operational inefficiencies.

In the previous Saratoga Retail Phase 2 Cumulative (2035) Conditions analysis[1], the left turn access out of Mammouth Way is restricted, due to the Saratoga Way Extension capital improvement project anticipated to be completed prior to the year 2035. However, in this Near-Term (2026) analysis, access is assumed to be maintained. As shown in Table 10, there is an increase in the delay, but the intersection of Saratoga Way and Mammouth Way/Walgreens Driveway (Intersection #8) still operates acceptably per County standards.

The southern egress-only driveway is positioned just north of the existing Arrowhead Drive intersection (Intersection #10). Due to the anticipated on-site circulation and predominant traffic movements (to/from El Dorado Hills Boulevard), the potential conflicts between Arrowhead Drive and site traffic at this intersection are anticipated to be minimal. It should be noted that the site plan depicts this driveway's movements as right-turns only, thereby further reducing the potential conflicts with Arrowhead Drive.

- *Adequacy of vehicle parking relative to both the anticipated demand and zoning code requirements*
  According to the County's requirements[10], the proposed project is required to provide 35 total parking spaces. As noted in Exhibit 2, 63 parking spaces are proposed to be provided.

- *Adequacy of the project site design to provide at least a 25' minimum required throat depth (MRTD) at project driveways. Include calculation of the MRTD.*
  According to the project site plan (Exhibit 2), the two new site driveways provide at least 25-feet of MRTD. This is the throat depth required based on the methodology presented in *Estimation of Maximum Queue Lengths at Unsignalized Intersections* (ITE Journal, November 2001). The southern-most driveway is one-way only, and therefore a MRTD of 25-feet is acceptable. The secondary all-access driveway requires a 25-foot throat depth based on the approach volume, conflicting volume, and percent of right-turns (see data provided in Appendix E).

- *Queuing analysis of "drive-through" facilities*
  Chick-fil-A Restaurant
  The project site plan (Exhibit 2) depicts drive-through queuing space for 15 vehicles with the proposed Chick-fil-A fast-food restaurant. Recently collected drive-through queuing data for three similarly sized Chick-Fil-A restaurants in the City of Rancho Cordova, the County of Sacramento and the City of Folsom reveal a maximum queue of 13 vehicles or 325-feet (see data provided in Appendix F). Considering the relatively consistent suburban locations and anticipated uses, the proposed project is expected to be able to accommodate the maximum drive-through queue without spillback into the adjacent drive aisle and avoid impeding on-site pedestrian movements.

- *On-Site Transportation Review*
  The site plan for the proposed project (Exhibit 2) was qualitatively reviewed for general access and on-site circulation. According to the site plan, access to the site will be provided from Saratoga Way at the existing main site driveway intersection. Two additional driveways will serve the site; one full access driveway south of the main site driveway, and one egress-only driveway at the south end of

[10] *El Dorado County Ordinance Code*, Section 130.35.030, November 17, 2004.

the project site. Detailed LOS and delay data were previously reported for the Saratoga Way intersection with the main site driveway (Intersection #9). The combination of these access points, as well as the on-site circulation system appears to provide adequate access to/from Saratoga Way and the surrounding transportation network.

Additional Considerations

- Delivery of Goods and Services
  To address concern that the previous Saratoga Retail Phase 2 analysis did not contain sufficient information or adequately address the potential impacts generated by the Project's plan for product delivery, the site plan (Exhibit 2) was modified to include a truck loading space and two RV parking spaces. The truck loading area and RV spaces are located at a centralized location near building #2.

- Pedestrian Access
  To address concerns about the Project's impacts to pedestrian travel, a sidewalk was added along the frontage of Saratoga Way. These changes are reflected in the revised site plan (Exhibit 2).

Conclusions

The following are the primary conclusions based on the analyses discussed herein:

- The addition of proposed project results in two significant impacts at the intersection of El Dorado Hills Boulevard and Saratoga Way/Park Drive (Intersection #1), and Latrobe Road and Town Center Boulevard (Intersection #4). With the mitigations described above, all impacts can be mitigated to *less than significant*. There are no impacts to roadway segments or freeway facilities.
- The proposed site plan shows sufficient throat depth, no modifications to driveways are needed.
- According to the methodologies noted in Section 4C.04 of the CMUTCD, a signal warrant is not satisfied for the intersections of Saratoga Way and Mammouth Way (Intersection #8), the Main Project Driveway (Intersection #9), and Arrowhead Drive (Intersection #10) under Near-Term or Near-Term plus Proposed Project Conditions.
- Based on the observed site queue length at three similarly sized Chick-fil-A restaurants located in the City of Rancho Cordova, the County of Sacramento and the City of Folsom, the site plan contains sufficient storage to accommodate the drive through queues.

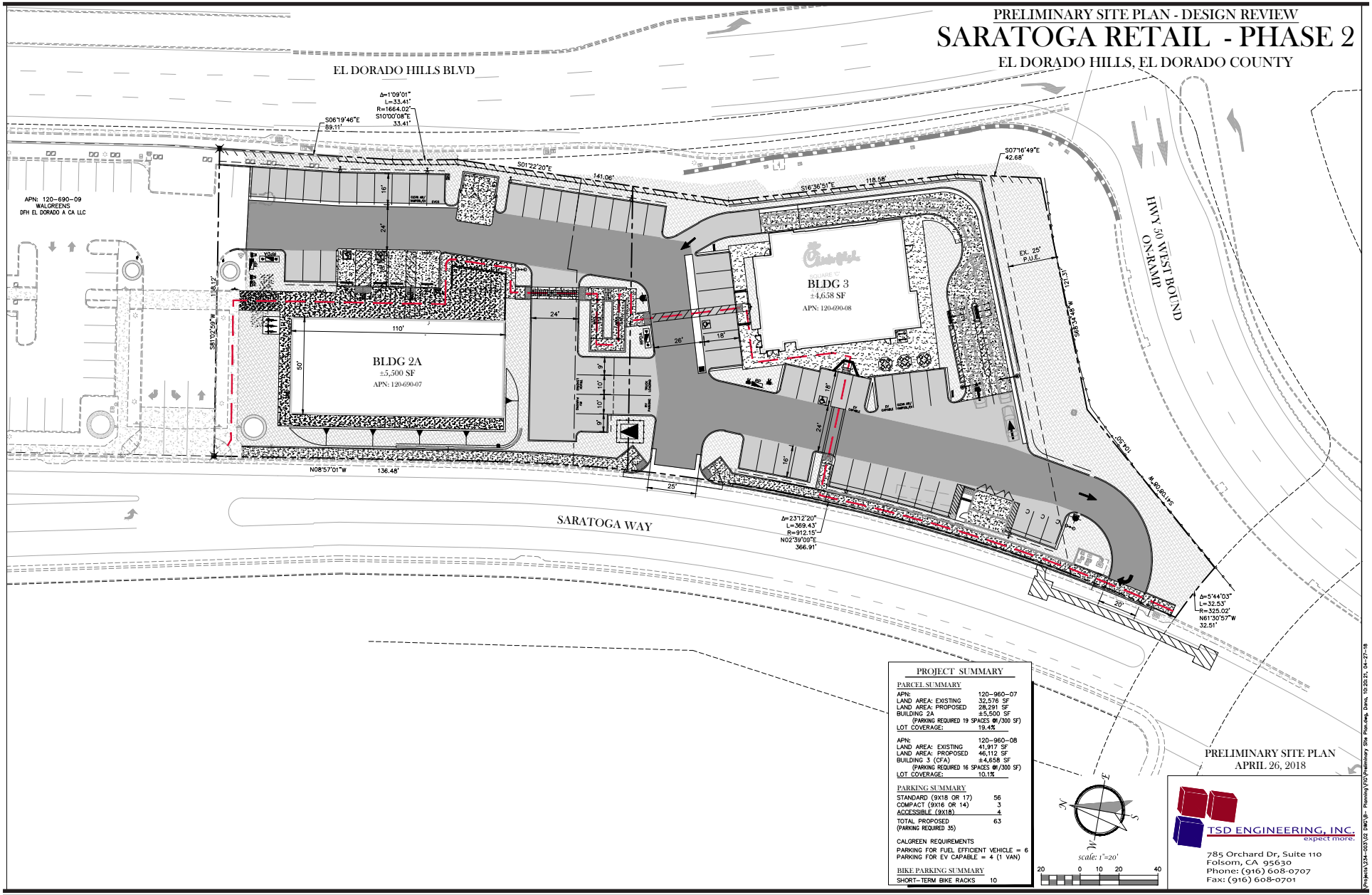
Attachments:

Exhibit 1 – Project Site Vicinity Map
Exhibit 2 – Proposed Project Site Plan
Exhibit 3 – Study Intersections, Traffic Control, and Lane Geometries
Exhibit 4 – Study Freeway Facilities
Exhibit 5 – Near-Term (2026) Proposed Project Trip Distribution
Exhibit 6 – Near-Term (2026) Proposed Project Trip Assignment
Exhibit 7 – Near-Term (2026) Peak-Hour Volumes
Exhibit 8 – Near-Term (2026) Plus Proposed Project Peak-Hour Volumes

Attachment A – Trip Generation Data Sheets
Attachment B – Analysis Worksheets for Near-Term (2026) Conditions
Attachment C – Analysis Worksheets for Near-Term (2026) Plus Project Conditions
Attachment D – Analysis Worksheets for Near-Term (2026) Plus Project Mitigated Conditions
Attachment E – Signal Warrant and MRTD Analysis
Attachment F – Observed Maximum Queue Lengths

Kimley»Horn

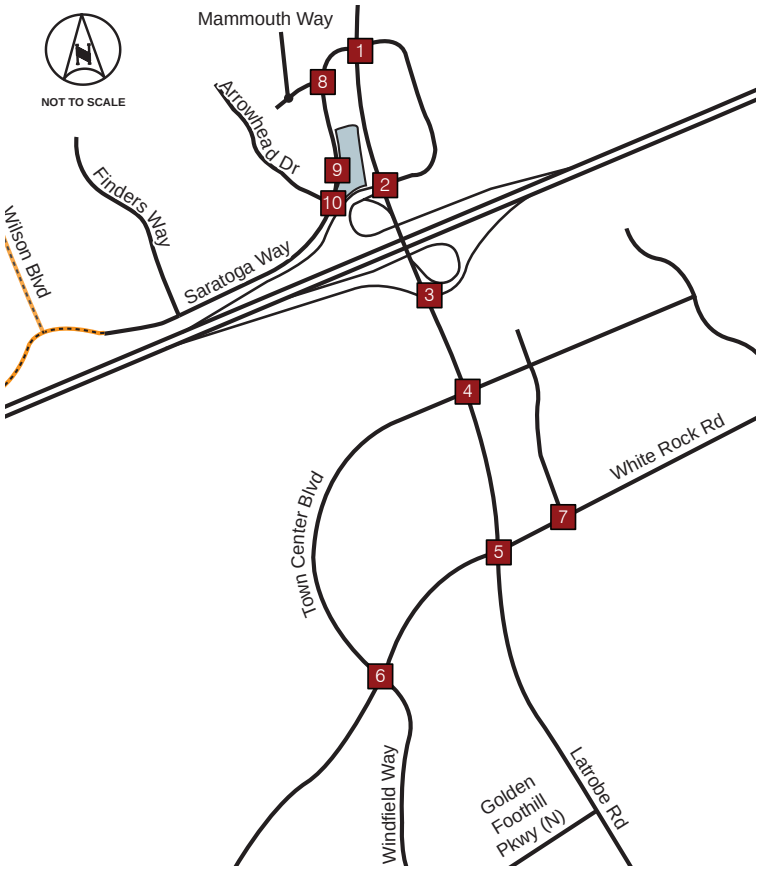
Exhibit 1
Project Site Vicinity Map

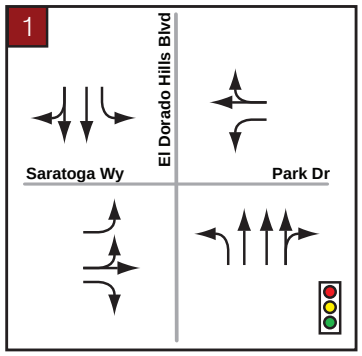


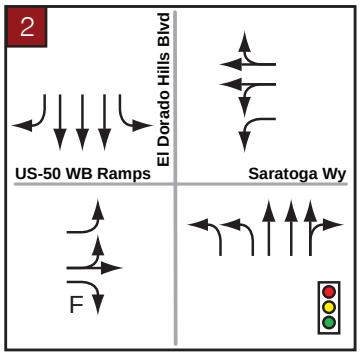
Kimley»Horn

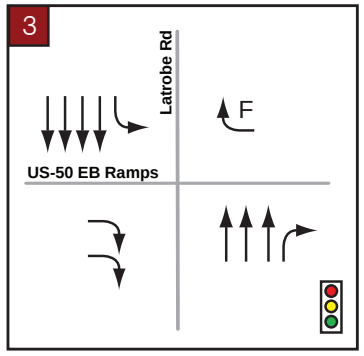
Exhibit 2
Proposed Project Site Plan

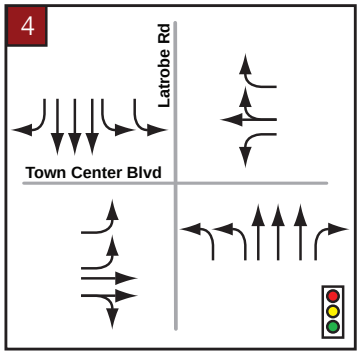
Saratoga Retail - Supplemental Traffic Analyses

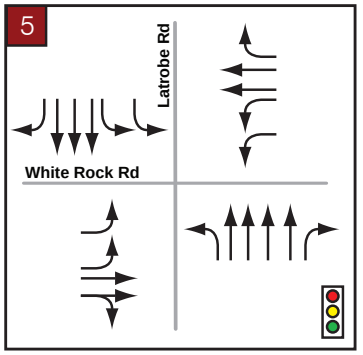


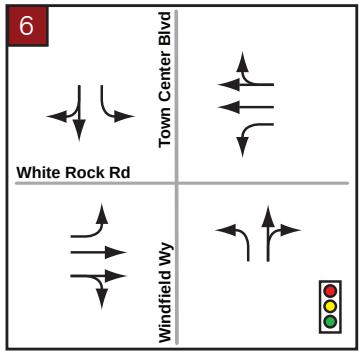


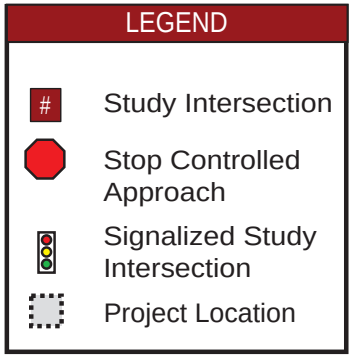


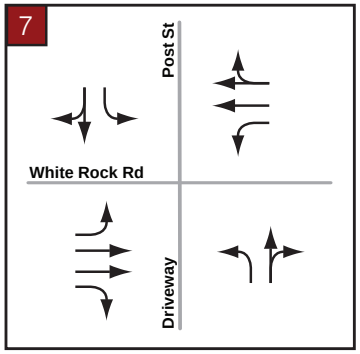


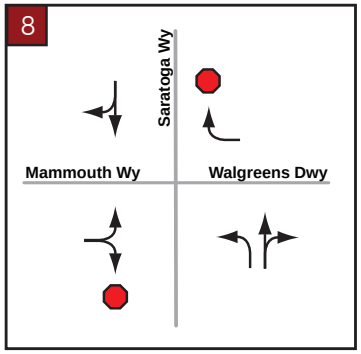


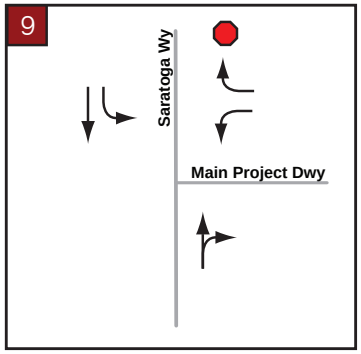


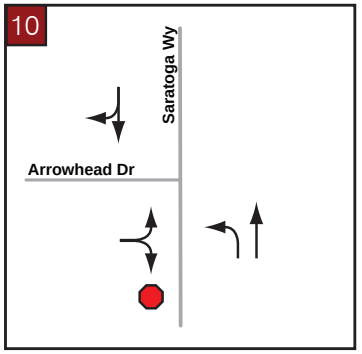






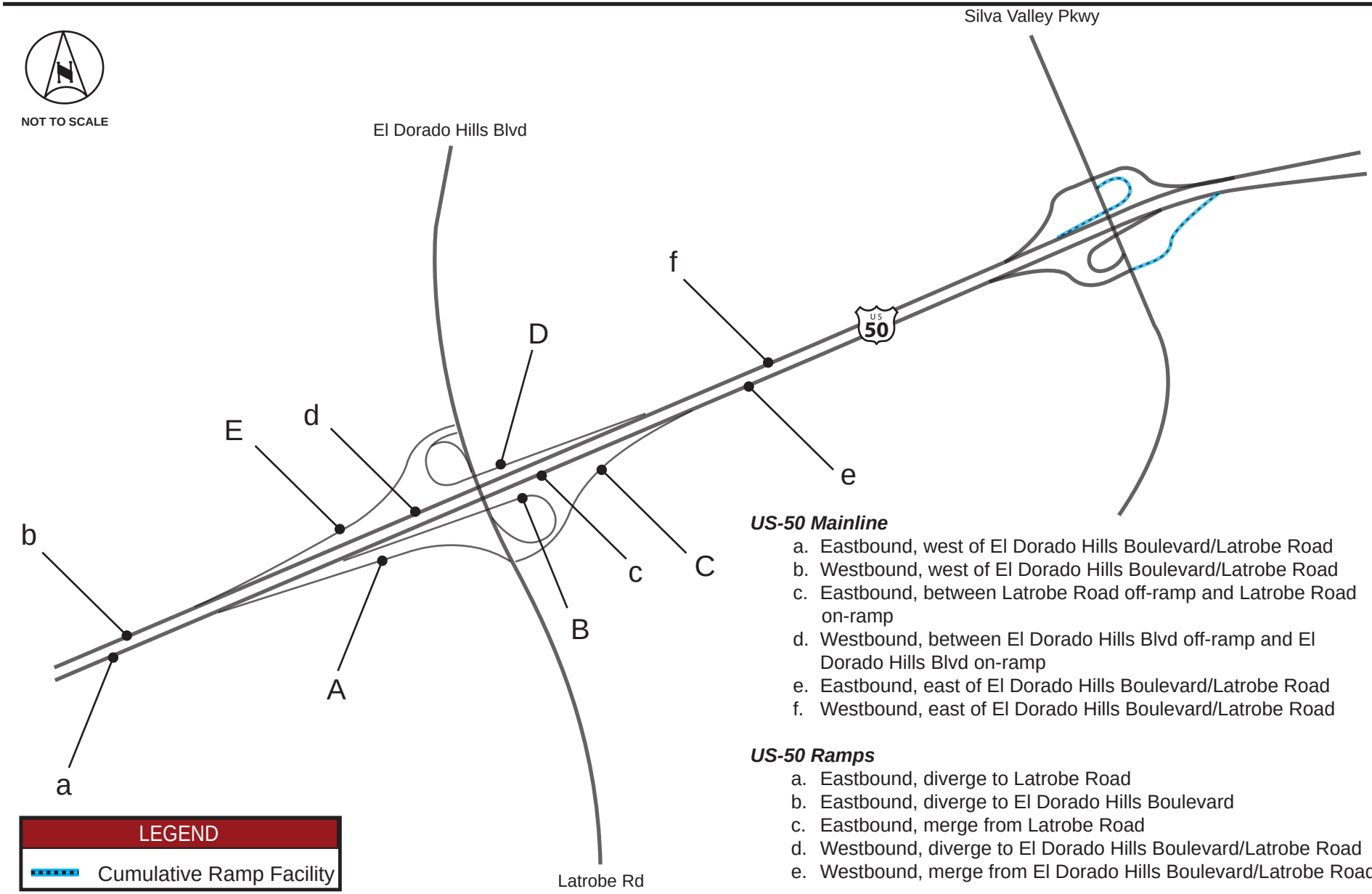






Kimley»Horn

Exhibit 3
Study Intersections, Traffic Control, and Lane Geometries



US-50 Mainline

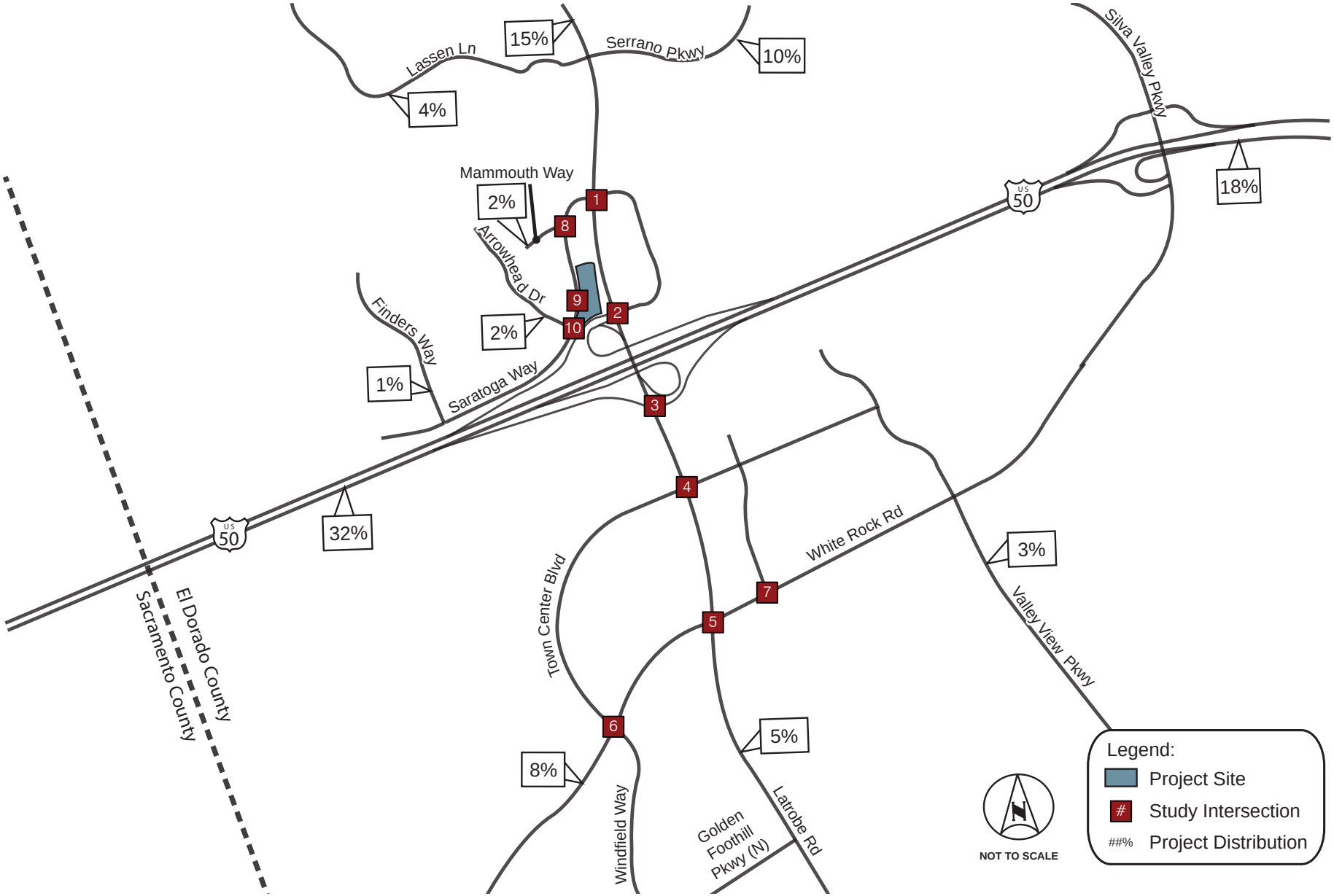
a. Eastbound, west of El Dorado Hills Boulevard/Latrobe Road
b. Westbound, west of El Dorado Hills Boulevard/Latrobe Road
c. Eastbound, between Latrobe Road off-ramp and Latrobe Road on-ramp
d. Westbound, between El Dorado Hills Blvd off-ramp and El Dorado Hills Blvd on-ramp
e. Eastbound, east of El Dorado Hills Boulevard/Latrobe Road
f. Westbound, east of El Dorado Hills Boulevard/Latrobe Road

US-50 Ramps

a. Eastbound, diverge to Latrobe Road
b. Eastbound, diverge to El Dorado Hills Boulevard
c. Eastbound, merge from Latrobe Road
d. Westbound, diverge to El Dorado Hills Boulevard/Latrobe Road
e. Westbound, merge from El Dorado Hills Boulevard/Latrobe Road

Kimley»Horn

Exhibit 4
Study Freeway Facilities



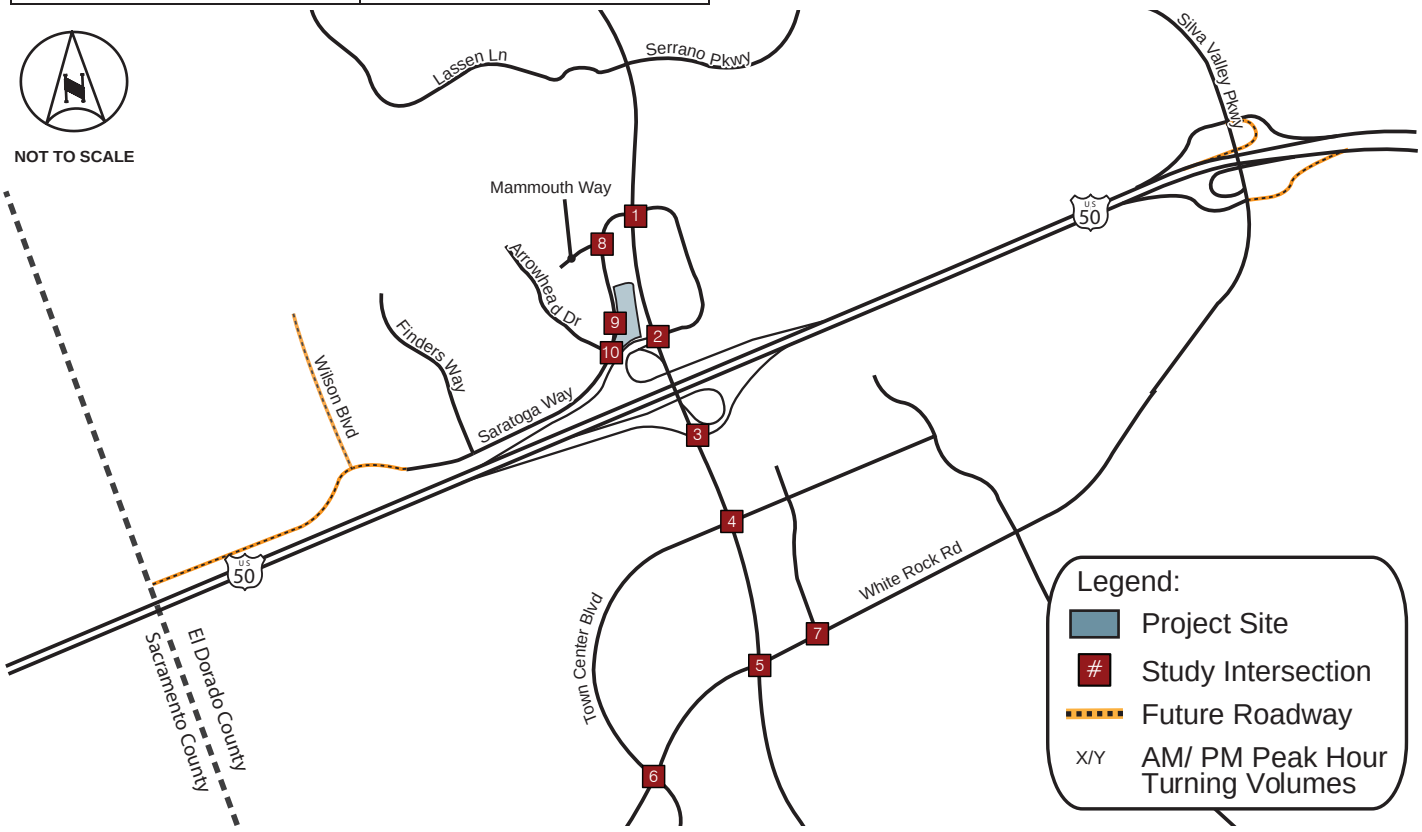
Kimley»Horn

Exhibit 5
Near-Term (2026) Proposed Project Trip Distribution

1			2			3			4		
14 / 43	-2 / -6	El Dorado Hills Blvd	13 / 34	14 / 35	El Dorado Hills Blvd	6 / 14	8 / 21	El Dorado Hills Blvd	6 / 14		Latrobe Rd
Saratoga Wy		Park Dr	US-50 WB Ramps		Park Dr			US-50 EB Ramps			Town Center Blvd
10 / 26		33 / 99	10 / 31		23 / 68			7 / 20			7 / 20
29 / 75											

5				6			7			8		
3 / 7	2 / 4	1 / 3	Latrobe Rd	Town Center Blvd			Post St			47 / 142		Saratoga Way
	1 / 4		White Rock Rd	3 / 7		White Rock Rd		1 / 4	White Rock Rd	Mammouth Wy		Walgreens Dwy
4 / 10		2 / 6		4 / 10		Windfield Way	1 / 3			1 / 2		0 / 2 / 39 / 101

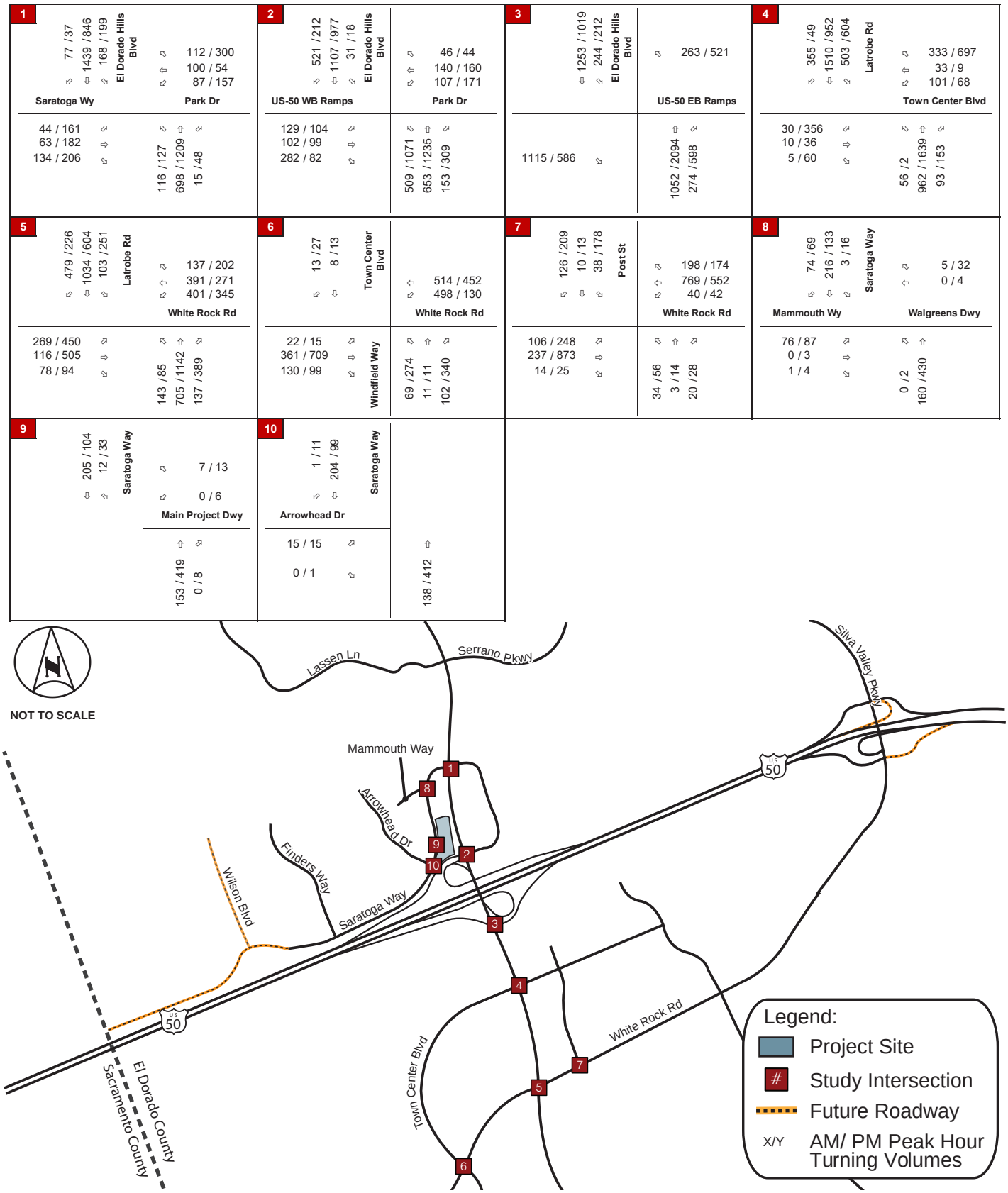
9				10			
25 / 73	23 / 71	Saratoga Way		1 / 2	0 / 1	Saratoga Way	
	20 / 51		Main Project Dwy	Arrowhead Dr			
	0 / 1			1 / 3			0 / 1
19 / 52	0 / 1						



Kimley»Horn

Exhibit 6
Near-Term (2026) Proposed Project Trip Assignment

Saratoga Retail - Supplemental Traffic Analyses



Kimley»Horn

Exhibit 7
Near-Term (2026) Peak-Hour Traffic Volumes

Saratoga Retail - Supplemental Traffic Analyses

1

	El Dorado Hills Blvd: 91 / 80 ⇦, 1437 / 840 ⇩, 168 / 199 ⇨	
Saratoga Wy: 54 / 187 ⇦, 63 / 182 ⇩, 163 / 281 ⇨		Park Dr: 112 / 300 ⇧, 100 / 54 ⇦, 87 / 157 ⇧
		149 / 226 ⇧, 698 / 1209 ⇧, 15 / 48 ⇧

2

	El Dorado Hills Blvd: 534 / 246 ⇦, 1121 / 1012 ⇩, 31 / 18 ⇨	
US-50 WB Ramps: 139 / 135 ⇦, 102 / 99 ⇩, 282 / 82 ⇨		Park Dr: 46 / 44 ⇧, 140 / 160 ⇦, 107 / 171 ⇧
		509 / 1071 ⇧, 676 / 1303 ⇧, 153 / 309 ⇧

3

	El Dorado Hills Blvd: 1259 / 1033 ⇩, 252 / 233 ⇨	
1115 / 586 ⇦		US-50 EB Ramps: 279 / 569 ⇧
		1059 / 2114 ⇧, 274 / 598 ⇧

4

	Latrobe Rd: 355 / 49 ⇦, 1516 / 966 ⇩, 503 / 604 ⇨	
30 / 356 ⇦, 10 / 36 ⇩, 5 / 60 ⇨		Town Center Blvd: 333 / 697 ⇧, 33 / 9 ⇦, 101 / 68 ⇧
		56 / 2 ⇧, 969 / 1659 ⇧, 93 / 153 ⇧

5

	Latrobe Rd: 482 / 233 ⇦, 1036 / 608 ⇩, 104 / 254 ⇨	
273 / 460 ⇦, 116 / 505 ⇩, 78 / 94 ⇨		White Rock Rd: 138 / 206 ⇧, 391 / 271 ⇦, 401 / 345 ⇧
		143 / 85 ⇧, 707 / 1148 ⇧, 137 / 389 ⇧

6

	Town Center Blvd: 13 / 27 ⇦, 8 / 13 ⇩	
22 / 15 ⇦, 365 / 719 ⇩, 130 / 99 ⇨		White Rock Rd: 517 / 459 ⇦, 498 / 130 ⇧
	Windfield Way	69 / 274 ⇧, 11 / 11 ⇧, 102 / 340 ⇧

7

	Post St: 126 / 209 ⇦, 10 / 13 ⇩, 38 / 178 ⇨	
106 / 248 ⇦, 238 / 876 ⇩, 14 / 25 ⇨		White Rock Rd: 198 / 174 ⇧, 770 / 556 ⇦, 40 / 42 ⇧
		34 / 56 ⇧, 3 / 14 ⇧, 20 / 28 ⇧

8

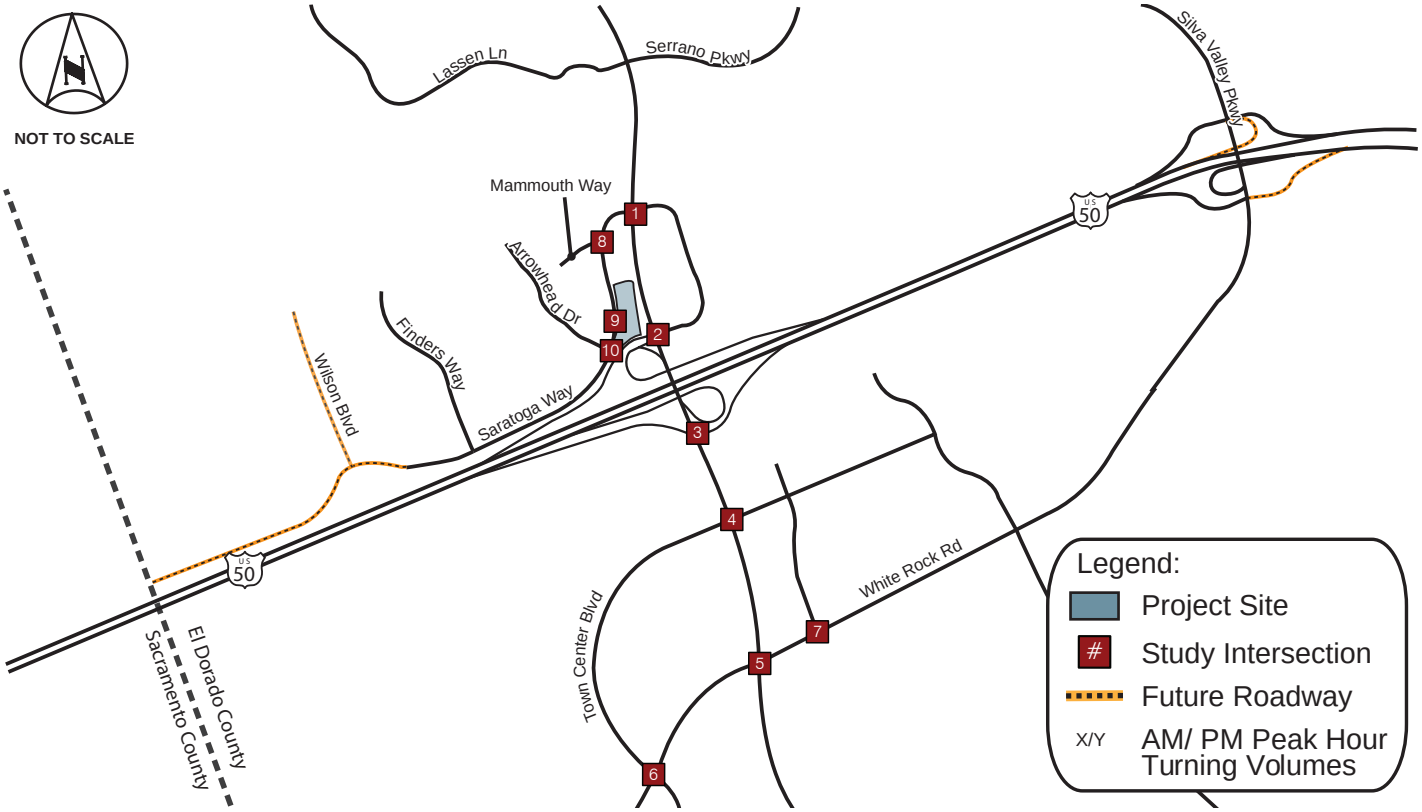
	Saratoga Way: 74 / 69 ⇦, 263 / 275 ⇩, 3 / 16 ⇨	
Mammouth Wy: 76 / 87 ⇦, 0 / 3 ⇩, 2 / 6 ⇨		Walgreens Dwy: 5 / 32 ⇧, 0 / 4 ⇦
		0 / 4 ⇧, 199 / 531 ⇧

9

	Saratoga Way: 230 / 177 ⇩, 35 / 104 ⇨	
		Main Project Dwy: 27 / 64 ⇧, 0 / 7 ⇨
		172 / 471 ⇧, 0 / 9 ⇧

10

	Saratoga Way: 2 / 13 ⇦, 204 / 100 ⇩	
Arrowhead Dr: 16 / 18 ⇦, 0 / 1 ⇨		
		138 / 413 ⇧



Kimley»Horn

Exhibit 8
Near-Term (2026) plus Proposed Project Peak-Hour Traffic Volumes

Kimley»Horn

Attachment A

Trip Generation Data Sheets

Prepared by National Data & Surveying Services

Chick-Fil-A Vehicular Trip Generation Studies

Tuesday, April 17, 2018

AM	2354 Sunrise Blvd Rancho Cordova	
	In	Out
6:00 AM	0	0
6:15 AM	0	0
6:30 AM	3	3
6:45 AM	4	4
7:00 AM	13	11
7:15 AM	5	6
7:30 AM	7	8
7:45 AM	4	3
8:00 AM	4	3
8:15 AM	7	4
8:30 AM	7	6
8:45 AM	7	7
Totals:	61	55

AM	4644 Madison Ave Sacramento	
	In	Out
6:00 AM	6	3
6:15 AM	3	4
6:30 AM	6	8
6:45 AM	4	3
7:00 AM	12	11
7:15 AM	7	9
7:30 AM	4	3
7:45 AM	10	6
8:00 AM	3	6
8:15 AM	12	3
8:30 AM	12	10
8:45 AM	4	11
Totals:	83	77

AM	2679 E Bidwell St Folsom	
	In	Out
6:00 AM	4	0
6:15 AM	1	0
6:30 AM	4	3
6:45 AM	6	6
7:00 AM	6	7
7:15 AM	9	8
7:30 AM	9	12
7:45 AM	14	6
8:00 AM	7	9
8:15 AM	12	10
8:30 AM	11	11
8:45 AM	14	12
Totals:	97	84

PM	2354 Sunrise Blvd Rancho Cordova	
	In	Out
5:00 PM	13	12
5:15 PM	16	15
5:30 PM	17	20
5:45 PM	12	12
6:00 PM	16	15
6:15 PM	17	14
6:30 PM	17	19
6:45 PM	15	17
Totals:	123	124

PM	4644 Madison Ave Sacramento	
	In	Out
5:00 PM	8	7
5:15 PM	7	8
5:30 PM	26	14
5:45 PM	16	26
6:00 PM	17	16
6:15 PM	22	22
6:30 PM	20	22
6:45 PM	17	22
Totals:	133	137

PM	2679 E Bidwell St Folsom	
	In	Out
5:00 PM	31	30
5:15 PM	32	26
5:30 PM	39	35
5:45 PM	26	30
6:00 PM	35	32
6:15 PM	24	31
6:30 PM	37	35
6:45 PM	28	26
Totals:	252	245

Kimley»Horn

Attachment B

Analysis Worksheets for Near-Term (2026) Conditions

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	7920	7967	8024	8016	8062	7919	7995
Vehs Exited	7829	7926	7917	7964	8006	7860	7896
Starting Vehs	313	329	313	313	325	315	327
Ending Vehs	404	370	420	365	381	374	426
Travel Distance (mi)	4633	4687	4685	4733	4743	4660	4688
Travel Time (hr)	394.8	458.8	415.0	391.0	405.2	428.3	423.0
Total Delay (hr)	248.8	310.9	267.2	241.9	256.3	281.7	275.3
Total Stops	14408	14767	14883	14909	15397	15148	14775
Fuel Used (gal)	243.9	260.2	249.9	245.1	248.9	252.3	252.5

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	7879	8060	8101	7997
Vehs Exited	7808	7946	8022	7917
Starting Vehs	334	270	337	312
Ending Vehs	405	384	416	389
Travel Distance (mi)	4627	4712	4713	4688
Travel Time (hr)	391.0	390.7	450.6	414.8
Total Delay (hr)	245.8	242.5	301.7	267.2
Total Stops	14291	14823	14571	14794
Fuel Used (gal)	243.2	245.4	259.3	250.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1961	1916	2021	1999	1990	2006	1989
Vehs Exited	1957	1871	1998	1950	1989	1922	1977
Starting Vehs	313	329	313	313	325	315	327
Ending Vehs	317	374	336	362	326	399	339
Travel Distance (mi)	1155	1124	1164	1174	1159	1173	1174
Travel Time (hr)	82.6	83.1	87.6	84.4	86.2	92.9	87.0
Total Delay (hr)	46.2	47.6	50.8	47.3	49.7	56.1	49.7
Total Stops	3307	3309	3299	3516	3492	3714	3442
Fuel Used (gal)	56.8	55.7	58.4	57.9	58.0	59.0	58.3

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1940	2003	2020	1986
Vehs Exited	1939	1937	2006	1953
Starting Vehs	334	270	337	312
Ending Vehs	335	336	351	341
Travel Distance (mi)	1142	1167	1163	1159
Travel Time (hr)	81.3	84.6	91.0	86.1
Total Delay (hr)	45.5	47.8	54.2	49.5
Total Stops	3294	3429	3551	3436
Fuel Used (gal)	56.3	58.1	59.6	57.8

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2034	2152	2091	2127	2130	1980	2023
Vehs Exited	1971	2064	2036	2038	2035	1975	1936
Starting Vehs	317	374	336	362	326	399	339
Ending Vehs	380	462	391	451	421	404	426
Travel Distance (mi)	1169	1221	1203	1249	1228	1161	1165
Travel Time (hr)	95.3	114.3	105.4	105.5	102.9	110.2	106.6
Total Delay (hr)	58.4	75.7	67.5	66.5	64.3	73.6	70.2
Total Stops	3640	3951	3979	4051	4090	3816	3734
Fuel Used (gal)	60.5	66.4	63.4	65.1	63.5	63.9	63.1

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2105	2144	2157	2093
Vehs Exited	2035	2079	2068	2021
Starting Vehs	335	336	351	341
Ending Vehs	405	401	440	416
Travel Distance (mi)	1216	1233	1246	1209
Travel Time (hr)	98.6	98.3	113.2	105.0
Total Delay (hr)	60.6	59.7	73.8	67.0
Total Stops	3758	4060	3880	3900
Fuel Used (gal)	62.9	63.1	66.7	63.9

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1939	1923	1960	1922	2005	1984	2004
Vehs Exited	1921	1959	1952	2001	2010	1973	2011
Starting Vehs	380	462	391	451	421	404	426
Ending Vehs	398	426	399	372	416	415	419
Travel Distance (mi)	1140	1164	1165	1138	1213	1158	1175
Travel Time (hr)	104.0	136.9	113.4	97.2	111.3	117.7	119.8
Total Delay (hr)	68.0	100.1	76.7	61.3	73.3	81.2	82.7
Total Stops	3605	3751	3869	3610	4211	3948	3648
Fuel Used (gal)	61.3	70.0	64.4	59.9	65.5	65.5	66.6

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1923	1928	1996	1959
Vehs Exited	1913	1978	2023	1971
Starting Vehs	405	401	440	416
Ending Vehs	415	351	413	400
Travel Distance (mi)	1145	1163	1174	1164
Travel Time (hr)	97.5	100.2	123.1	112.1
Total Delay (hr)	61.5	63.6	86.0	75.4
Total Stops	3672	3590	3634	3750
Fuel Used (gal)	60.1	61.7	67.2	64.2

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1986	1976	1952	1968	1937	1949	1979
Vehs Exited	1980	2032	1931	1975	1972	1990	1972
Starting Vehs	398	426	399	372	416	415	419
Ending Vehs	404	370	420	365	381	374	426
Travel Distance (mi)	1168	1178	1152	1173	1143	1168	1174
Travel Time (hr)	112.9	124.5	108.6	103.8	104.9	107.4	109.6
Total Delay (hr)	76.3	87.4	72.3	66.8	68.9	70.8	72.8
Total Stops	3856	3756	3736	3732	3604	3670	3951
Fuel Used (gal)	65.3	68.1	63.6	62.2	62.0	63.9	64.6

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1911	1985	1928	1956
Vehs Exited	1921	1952	1925	1963
Starting Vehs	415	351	413	400
Ending Vehs	405	384	416	389
Travel Distance (mi)	1124	1149	1131	1156
Travel Time (hr)	113.6	107.6	123.3	111.6
Total Delay (hr)	78.1	71.5	87.7	75.3
Total Stops	3567	3744	3506	3713
Fuel Used (gal)	63.9	62.5	65.9	64.2

1: El Dorado Hills Blvd & Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	14.7	0.8
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.3	0.3	0.0	0.0	0.0	34.5	35.5	34.0
Total Delay (hr)	0.6	0.9	1.1	1.0	1.5	1.1	1.8	3.4	0.1	3.6	13.4	0.7
Total Del/Veh (s)	46.8	50.7	27.7	42.2	51.4	32.4	55.6	17.1	13.1	76.6	32.3	28.5
Stop Delay (hr)	0.6	0.8	1.1	0.9	1.3	1.0	1.7	2.2	0.0	3.3	9.2	0.5
Stop Del/Veh (s)	44.7	47.0	27.3	39.5	45.1	29.1	50.8	11.1	9.3	70.3	22.1	23.2

1: El Dorado Hills Blvd & Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	17.1
Denied Del/Veh (s)	19.7
Total Delay (hr)	29.1
Total Del/Veh (s)	33.2
Stop Delay (hr)	22.6
Stop Del/Veh (s)	25.8

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.2	1.3	0.6	3.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.6	1.4	0.3	3.2	5.2	1.7	8.2	1.7	0.3	0.7	9.1	2.5
Total Del/Veh (s)	43.3	45.5	3.7	101.9	129.6	128.2	56.0	9.1	7.0	68.1	29.0	17.0
Stop Delay (hr)	1.5	1.2	0.0	3.0	4.9	1.7	7.1	0.8	0.2	0.6	5.8	1.0
Stop Del/Veh (s)	40.5	40.8	0.0	96.3	122.8	124.1	48.7	4.3	3.4	60.7	18.3	6.7

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	35.9
Total Del/Veh (s)	33.1
Stop Delay (hr)	27.7
Stop Del/Veh (s)	25.6

3: Latrobe Road & US 50 EB Ramps Performance by movement

Movement	EBR	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.8	0.0	0.0	0.0	0.0	0.0	0.8
Denied Del/Veh (s)	2.5	0.2	0.0	0.0	0.0	0.0	0.7
Total Delay (hr)	8.2	0.1	2.9	0.8	2.9	3.6	18.5
Total Del/Veh (s)	25.5	0.9	9.9	10.9	41.8	9.9	15.4
Stop Delay (hr)	6.3	0.0	1.0	0.3	2.3	0.8	10.7
Stop Del/Veh (s)	19.4	0.0	3.4	3.8	33.3	2.4	8.9

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.0	0.1	0.1	3.4	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.2	0.0	1.1	0.4	1.6	0.8	8.9	0.2	5.2	6.4	0.5
Total Del/Veh (s)	47.3	55.7	11.2	39.0	40.5	16.5	57.8	33.2	6.6	35.6	14.9	4.9
Stop Delay (hr)	0.4	0.1	0.0	1.0	0.4	1.5	0.7	6.0	0.1	4.3	3.6	0.2
Stop Del/Veh (s)	45.4	52.7	11.3	35.5	36.1	14.8	52.6	22.3	5.3	29.6	8.4	2.3

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.1
Total Delay (hr)	25.7
Total Del/Veh (s)	22.6
Stop Delay (hr)	18.4
Stop Del/Veh (s)	16.1

5: Latrobe Road & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.8	1.4	0.4	10.4	6.7	0.4	13.9	5.6	0.2	2.0	13.3	4.2
Total Del/Veh (s)	77.2	39.8	19.4	95.7	64.2	9.8	366.3	28.6	4.2	67.2	44.5	30.9
Stop Delay (hr)	5.5	1.2	0.4	9.5	5.7	0.3	13.9	5.0	0.2	1.7	8.9	3.1
Stop Del/Veh (s)	73.4	35.0	18.1	87.4	54.8	7.6	365.5	25.4	4.2	57.5	29.7	22.5

5: Latrobe Road & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	64.3
Total Del/Veh (s)	57.4
Stop Delay (hr)	55.3
Stop Del/Veh (s)	49.4

7: Driveway/Post St & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.6	9.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	49.4	41.5	40.2	0.1	0.1	0.1	3.8	0.4	0.3
Total Delay (hr)	1.7	1.1	0.0	2.1	29.4	2.2	0.6	0.0	0.0	0.5	0.1	0.8
Total Del/Veh (s)	53.1	16.4	4.4	198.3	138.6	40.6	65.2	37.6	5.0	44.2	27.2	22.9
Stop Delay (hr)	1.6	0.8	0.0	1.9	24.7	1.6	0.6	0.0	0.0	0.5	0.1	0.8
Stop Del/Veh (s)	49.0	12.3	2.4	178.7	116.3	30.4	63.1	34.9	5.0	41.3	23.8	21.6

7: Driveway/Post St & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	11.8
Denied Del/Veh (s)	26.2
Total Delay (hr)	38.6
Total Del/Veh (s)	86.4
Stop Delay (hr)	32.6
Stop Del/Veh (s)	72.9

Total Zone Performance

Denied Delay (hr)	30.0
Denied Del/Veh (s)	17.8
Total Delay (hr)	212.5
Total Del/Veh (s)	419.8
Stop Delay (hr)	167.4
Stop Del/Veh (s)	330.7

Intersection: 1: El Dorado Hills Blvd & Saratoga Way

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	L	TR	L	T	T	TR	L	T	TR
Maximum Queue (ft)	76	134	161	114	292	154	144	156	165	124	341	347
Average Queue (ft)	15	65	76	47	136	80	64	71	75	108	308	314
95th Queue (ft)	52	112	138	97	250	143	128	142	150	152	375	378
Link Distance (ft)		299		482	482		774	774	774		309	309
Upstream Blk Time (%)											22	28
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	150		200			250				100		
Storage Blk Time (%)		0								23	29	
Queuing Penalty (veh)		0								169	51	

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	L	LT	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	146	190	170	350	175	319	332	144	127	157	197	357
Average Queue (ft)	70	95	78	185	128	194	197	53	54	74	44	199
95th Queue (ft)	124	161	172	386	197	299	308	113	111	134	136	347
Link Distance (ft)	1228	1228		621		646	646	646	646	646		774
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)			150		150						200	
Storage Blk Time (%)			0	21	14						0	12
Queuing Penalty (veh)			0	37	25						0	4

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	340	373	225
Average Queue (ft)	155	164	136
95th Queue (ft)	298	317	251
Link Distance (ft)	774	774	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			200
Storage Blk Time (%)		3	1
Queuing Penalty (veh)		14	5

Intersection: 3: Latrobe Road & US 50 EB Ramps

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	R	R	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	312	362	154	187	275	243	279	306	187	169	105
Average Queue (ft)	198	214	38	58	94	61	167	51	21	26	20
95th Queue (ft)	287	323	117	142	217	162	252	187	106	107	78
Link Distance (ft)	1211		572	572	572			646	646	646	646
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		450				275	575				
Storage Blk Time (%)		0			0	0					
Queuing Penalty (veh)		0			0	0					

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	TR	L	TR	R	L	L	T	T	T
Maximum Queue (ft)	35	70	30	37	124	193	173	58	109	306	368	395
Average Queue (ft)	3	24	8	6	66	80	70	16	25	130	171	208
95th Queue (ft)	18	56	27	24	123	153	138	45	69	253	313	346
Link Distance (ft)			778	778		526	526			839	839	839
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	350	350			100			225	225			
Storage Blk Time (%)					2	6				1		
Queuing Penalty (veh)					5	6				0		

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	NB	SB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	T	R
Maximum Queue (ft)	84	260	265	303	309	323	248
Average Queue (ft)	23	139	155	142	151	160	59
95th Queue (ft)	58	228	237	254	253	271	151
Link Distance (ft)	839			572	572	572	572
Upstream Blk Time (%)				0	0		
Queuing Penalty (veh)				0	0		
Storage Bay Dist (ft)		325	325				
Storage Blk Time (%)		0	0	0			
Queuing Penalty (veh)		0	1	0			

Intersection: 5: Latrobe Road & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	TR	L	L	T	T	R	L	T	T
Maximum Queue (ft)	226	242	128	160	182	191	200	332	112	278	368	270
Average Queue (ft)	106	137	47	74	160	176	183	246	47	254	296	102
95th Queue (ft)	200	222	100	139	204	212	236	379	90	339	463	204
Link Distance (ft)			346	346				315	315		278	278
Upstream Blk Time (%)								7		40	64	0
Queuing Penalty (veh)								33		0	0	0
Storage Bay Dist (ft)	325	325			175	175	175			270		
Storage Blk Time (%)	0	0			3	17	14	9		66	61	
Queuing Penalty (veh)	0	0			6	34	28	58		119	90	

Intersection: 5: Latrobe Road & White Rock Road

Movement	NB	NB	NB	B80	B80	B25	B25	SB	SB	SB	SB	SB
Directions Served	T	T	R	T	T	T	T	L	L	T	T	T
Maximum Queue (ft)	198	98	54	323	257	260	238	79	250	466	468	439
Average Queue (ft)	96	18	27	153	60	78	66	25	73	265	267	126
95th Queue (ft)	160	68	55	376	231	323	310	62	228	413	408	393
Link Distance (ft)	278	278		247	247	501	501			839	839	839
Upstream Blk Time (%)	0			28	1	5	2				0	
Queuing Penalty (veh)	0			0	0	0	0				0	
Storage Bay Dist (ft)			25					225	225			
Storage Blk Time (%)		4	1						0	16		1
Queuing Penalty (veh)		6	2						0	17		3

Intersection: 5: Latrobe Road & White Rock Road

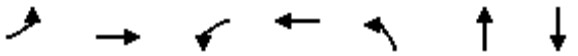
Movement	SB
Directions Served	R
Maximum Queue (ft)	275
Average Queue (ft)	184
95th Queue (ft)	312
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	5
Queuing Penalty (veh)	17

Intersection: 7: Driveway/Post St & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	104	203	156	74	145	1101	1084	81	38	73	201
Average Queue (ft)	73	56	60	8	49	821	715	29	11	33	66
95th Queue (ft)	116	148	121	39	127	1360	1419	69	31	69	145
Link Distance (ft)		315	315			1064	1064	216	216		408
Upstream Blk Time (%)						38	12				
Queuing Penalty (veh)						0	0				
Storage Bay Dist (ft)	80			110	120					50	
Storage Blk Time (%)	16	1	1	0	0	59				10	20
Queuing Penalty (veh)	19	1	0	0	0	24				14	8

Zone Summary

Zone wide Queuing Penalty: 798



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	24	533	541	559	75	123	23
v/c Ratio	0.12	0.61	0.83	0.23	0.49	0.33	0.14
Control Delay	36.4	34.2	41.1	7.2	60.2	11.0	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	34.2	41.1	7.2	60.2	11.0	29.2
Queue Length 50th (ft)	10	128	258	50	40	6	5
Queue Length 95th (ft)	45	287	#762	164	127	54	32
Internal Link Dist (ft)		327		554		213	278
Turn Bay Length (ft)	195		190		155		
Base Capacity (vph)	420	1752	1025	3201	257	782	422
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.30	0.53	0.17	0.29	0.16	0.05

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												
Traffic Volume (veh/h)	22	361	130	498	514	0	69	11	102	0	8	13
Future Volume (veh/h)	22	361	130	498	514	0	69	11	102	0	8	13
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	24	392	141	541	559	0	75	12	111	0	9	14
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	761	271	578	2473	0	96	25	229	97	27	43
Arrive On Green	0.30	0.30	0.30	0.33	0.70	0.00	0.05	0.16	0.16	0.00	0.04	0.04
Sat Flow, veh/h	847	2562	910	1774	3632	0	1774	157	1450	1263	658	1024
Grp Volume(v), veh/h	24	269	264	541	559	0	75	0	123	0	0	23
Grp Sat Flow(s),veh/h/ln	847	1770	1702	1774	1770	0	1774	0	1607	1263	0	1682
Q Serve(g_s), s	1.5	9.3	9.5	21.9	4.2	0.0	3.1	0.0	5.2	0.0	0.0	1.0
Cycle Q Clear(g_c), s	1.5	9.3	9.5	21.9	4.2	0.0	3.1	0.0	5.2	0.0	0.0	1.0
Prop In Lane	1.00		0.53	1.00		0.00	1.00		0.90	1.00		0.61
Lane Grp Cap(c), veh/h	349	526	506	578	2473	0	96	0	254	97	0	70
V/C Ratio(X)	0.07	0.51	0.52	0.94	0.23	0.00	0.78	0.00	0.48	0.00	0.00	0.33
Avail Cap(c_a), veh/h	555	957	920	1088	4352	0	273	0	378	342	0	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	21.6	21.6	24.2	4.0	0.0	34.6	0.0	28.4	0.0	0.0	34.5
Incr Delay (d2), s/veh	0.1	1.0	1.0	3.3	0.1	0.0	5.1	0.0	0.5	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.7	4.6	11.2	2.0	0.0	1.7	0.0	2.3	0.0	0.0	0.5
LnGrp Delay(d),s/veh	18.9	22.5	22.7	27.4	4.0	0.0	39.6	0.0	28.9	0.0	0.0	35.5
LnGrp LOS	B	C	C	C	A		D		C			D
Approach Vol, veh/h		557			1100			198			23	
Approach Delay, s/veh		22.4			15.6			33.0			35.5	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	29.7	28.0		16.3		57.7	8.6	7.7
Change Period (Y+Rc), s	5.6	6.0		4.6		6.0	4.6	4.6
Max Green Setting (Gmax), s	45.4	40.0		17.4		91.0	11.4	17.4
Max Q Clear Time (g_c+I1), s	23.9	11.5		7.2		6.2	5.1	3.0
Green Ext Time (p_c), s	0.2	10.5		0.2		12.8	0.0	0.3

Intersection Summary			
HCM 2010 Ctrl Delay		19.7	
HCM 2010 LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	76	0	1	0	0	5	0	160	0	3	216	74
Future Vol, veh/h	76	0	1	0	0	5	0	160	0	3	216	74
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	-	-	-	-	-	-	100	-	-	-	-	-
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	83	0	1	0	0	5	0	174	0	3	235	80

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	459	456	275	456	496	174	315	0	0	174	0	0
Stage 1	282	282	-	174	174	-	-	-	-	-	-	-
Stage 2	177	174	-	282	322	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	512	501	764	515	475	869	1245	-	-	1403	-	-
Stage 1	725	678	-	828	755	-	-	-	-	-	-	-
Stage 2	825	755	-	725	651	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	508	499	764	513	474	869	1245	-	-	1403	-	-
Mov Cap-2 Maneuver	508	499	-	513	474	-	-	-	-	-	-	-
Stage 1	725	676	-	828	755	-	-	-	-	-	-	-
Stage 2	820	755	-	722	649	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.4	9.2	0	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1245	-	-	510	869	1403	-	-
HCM Lane V/C Ratio	-	-	-	0.164	0.006	0.002	-	-
HCM Control Delay (s)	0	-	-	13.4	9.2	7.6	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	153	0	12	205
Future Vol, veh/h	0	7	153	0	12	205
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	166	0	13	223

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	415	166	0	0	166	0
Stage 1	166	-	-	-	-	-
Stage 2	249	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	594	878	-	-	1412	-
Stage 1	863	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	589	878	-	-	1412	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	785	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	878	1412	-
HCM Lane V/C Ratio	-	-	-	0.009	0.009	-
HCM Control Delay (s)	-	-	0	9.1	7.6	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	0	0	138	204	1
Future Vol, veh/h	15	0	0	138	204	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	0	0	150	222	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	372	222	223	0	-	0
Stage 1	222	-	-	-	-	-
Stage 2	150	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	629	818	1346	-	-	-
Stage 1	815	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	629	818	1346	-	-	-
Mov Cap-2 Maneuver	629	-	-	-	-	-
Stage 1	815	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1346	-	629	-	-
HCM Lane V/C Ratio	-	-	0.026	-	-
HCM Control Delay (s)	0	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	9107	9307	8954	9332	9077	9360	9155
Vehs Exited	8821	9096	8803	9165	8854	9174	9033
Starting Vehs	387	473	476	441	465	432	486
Ending Vehs	673	684	627	608	688	618	608
Travel Distance (mi)	4946	5027	4842	5042	4893	5041	5010
Travel Time (hr)	866.0	792.4	885.1	696.6	819.4	732.2	946.4
Total Delay (hr)	708.8	632.7	731.0	536.8	664.3	571.6	786.8
Total Stops	20937	20601	20585	20673	20365	19826	20837
Fuel Used (gal)	364.2	351.2	366.5	329.2	352.6	337.1	383.6

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	9040	9281	9243	9184
Vehs Exited	8900	9031	9015	8988
Starting Vehs	490	402	419	440
Ending Vehs	630	652	647	634
Travel Distance (mi)	4960	4989	5011	4976
Travel Time (hr)	828.5	705.0	823.9	809.6
Total Delay (hr)	671.0	546.2	664.6	651.4
Total Stops	20036	19577	20203	20360
Fuel Used (gal)	356.4	328.2	356.7	352.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2388	2401	2330	2403	2248	2376	2354
Vehs Exited	2228	2344	2259	2345	2240	2283	2275
Starting Vehs	387	473	476	441	465	432	486
Ending Vehs	547	530	547	499	473	525	565
Travel Distance (mi)	1282	1289	1244	1280	1246	1259	1289
Travel Time (hr)	126.6	120.6	139.1	113.7	129.9	114.8	148.7
Total Delay (hr)	85.8	79.4	99.3	73.0	90.4	74.5	107.8
Total Stops	4869	4801	4876	4495	4816	4588	5284
Fuel Used (gal)	72.0	71.2	73.7	69.3	72.1	68.9	77.0

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2324	2307	2368	2345
Vehs Exited	2328	2224	2305	2281
Starting Vehs	490	402	419	440
Ending Vehs	486	485	482	513
Travel Distance (mi)	1299	1249	1276	1271
Travel Time (hr)	126.8	113.3	133.5	126.7
Total Delay (hr)	85.7	73.6	93.0	86.2
Total Stops	4834	4599	5058	4818
Fuel Used (gal)	72.7	67.7	73.5	71.8

Interval #2 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2307	2449	2378	2537	2456	2438	2403
Vehs Exited	2191	2362	2261	2406	2306	2411	2394
Starting Vehs	547	530	547	499	473	525	565
Ending Vehs	663	617	664	630	623	552	574
Travel Distance (mi)	1245	1298	1233	1337	1257	1290	1310
Travel Time (hr)	201.6	161.1	206.8	158.8	178.2	166.5	193.6
Total Delay (hr)	162.2	119.7	167.4	116.3	138.2	125.3	151.9
Total Stops	5308	5185	5480	5514	5056	5139	5152
Fuel Used (gal)	87.7	80.5	88.9	80.7	82.7	81.7	88.4

Interval #2 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2362	2427	2414	2418
Vehs Exited	2247	2341	2312	2322
Starting Vehs	486	485	482	513
Ending Vehs	601	571	584	604
Travel Distance (mi)	1255	1279	1294	1280
Travel Time (hr)	175.1	160.7	180.0	178.2
Total Delay (hr)	135.0	119.7	138.7	137.4
Total Stops	4868	4896	4982	5161
Fuel Used (gal)	82.3	79.8	84.1	83.7

Interval #3 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2274	2240	2039	2288	2271	2256	2317
Vehs Exited	2277	2242	2067	2300	2242	2246	2194
Starting Vehs	663	617	664	630	623	552	574
Ending Vehs	660	615	636	618	652	562	697
Travel Distance (mi)	1229	1226	1155	1262	1235	1239	1217
Travel Time (hr)	246.1	224.0	249.4	192.3	227.0	206.8	262.8
Total Delay (hr)	206.8	185.1	212.8	152.3	187.8	167.4	223.8
Total Stops	5415	5331	5012	5492	5297	4987	5146
Fuel Used (gal)	97.5	92.9	96.8	86.9	94.0	88.9	100.3

Interval #3 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2203	2284	2236	2239
Vehs Exited	2175	2223	2257	2220
Starting Vehs	601	571	584	604
Ending Vehs	629	632	563	625
Travel Distance (mi)	1216	1231	1222	1223
Travel Time (hr)	237.3	200.2	222.2	226.8
Total Delay (hr)	198.7	161.3	183.3	187.9
Total Stops	5045	4936	4961	5166
Fuel Used (gal)	94.9	87.2	92.4	93.2

Interval #4 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2138	2217	2207	2104	2102	2290	2081
Vehs Exited	2125	2148	2216	2114	2066	2234	2170
Starting Vehs	660	615	636	618	652	562	697
Ending Vehs	673	684	627	608	688	618	608
Travel Distance (mi)	1189	1215	1209	1163	1155	1253	1194
Travel Time (hr)	291.7	286.8	289.8	231.9	284.3	244.1	341.4
Total Delay (hr)	254.1	248.5	251.4	195.2	247.8	204.4	303.4
Total Stops	5345	5284	5217	5172	5196	5112	5255
Fuel Used (gal)	107.0	106.6	107.1	92.2	103.8	97.6	117.9

Interval #4 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2151	2263	2225	2174
Vehs Exited	2150	2243	2141	2160
Starting Vehs	629	632	563	625
Ending Vehs	630	652	647	634
Travel Distance (mi)	1191	1231	1220	1202
Travel Time (hr)	289.4	230.8	288.2	277.8
Total Delay (hr)	251.7	191.7	249.5	239.8
Total Stops	5289	5146	5202	5223
Fuel Used (gal)	106.5	93.6	106.8	103.9

1: El Dorado Hills Blvd & Saratoga Way/Park Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	8.8	2.8	16.5	0.0	0.0	0.0	29.9	125.6	5.6
Denied Del/Veh (s)	0.0	0.0	0.1	194.1	193.1	196.7	0.0	0.0	0.0	535.1	528.4	531.3
Total Delay (hr)	2.9	3.7	2.7	13.4	1.5	6.1	2.5	10.2	0.3	6.0	12.3	0.2
Total Del/Veh (s)	64.0	70.5	45.4	338.1	117.7	84.0	71.1	30.3	22.4	153.8	74.4	22.2
Stop Delay (hr)	2.6	3.2	2.6	13.3	1.4	5.7	2.2	6.7	0.2	5.8	11.0	0.2
Stop Del/Veh (s)	58.9	62.5	42.7	334.1	110.0	79.2	63.2	20.1	15.4	148.6	66.8	19.7

1: El Dorado Hills Blvd & Saratoga Way/Park Drive Performance by movement

Movement	All
Denied Delay (hr)	189.3
Denied Del/Veh (s)	192.8
Total Delay (hr)	61.7
Total Del/Veh (s)	70.4
Stop Delay (hr)	55.0
Stop Del/Veh (s)	62.8

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.1	3.6	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.1	1.0	0.1	2.6	2.6	0.8	13.1	5.5	1.2	1.4	37.5	0.9
Total Del/Veh (s)	35.0	36.3	2.9	53.2	56.3	65.0	44.5	16.4	14.4	325.5	177.3	19.1
Stop Delay (hr)	1.0	0.9	0.0	2.4	2.3	0.8	10.3	2.8	0.7	1.4	34.7	0.6
Stop Del/Veh (s)	32.3	32.0	0.0	48.6	50.4	61.4	34.8	8.4	8.0	316.8	164.0	12.4

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	67.9
Total Del/Veh (s)	58.0
Stop Delay (hr)	57.8
Stop Del/Veh (s)	49.4

3: Latrobe Road & US 50 EB Ramps Performance by movement

Movement	EBR	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.2	0.1	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	1.1	0.4	0.0	0.0	0.0	0.0	0.2
Total Delay (hr)	1.8	0.2	6.5	2.0	2.5	2.9	15.8
Total Del/Veh (s)	10.8	1.5	11.4	12.3	56.0	12.4	12.0
Stop Delay (hr)	1.2	0.0	1.3	0.4	2.1	0.6	5.6
Stop Del/Veh (s)	7.3	0.0	2.3	2.6	47.8	2.4	4.2

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.4	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	0.2	0.3	4.3	0.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	8.2	0.7	0.4	1.5	0.2	13.0	0.1	65.9	0.5	10.3	4.6	0.0
Total Del/Veh (s)	78.4	59.5	20.8	72.8	81.8	63.8	178.8	149.3	13.1	68.0	19.2	3.1
Stop Delay (hr)	7.6	0.6	0.4	1.4	0.2	12.4	0.1	54.2	0.4	9.0	3.2	0.0
Stop Del/Veh (s)	73.0	56.1	19.6	67.2	75.6	60.8	156.3	122.8	10.7	59.2	13.1	1.8

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	All
Denied Delay (hr)	0.9
Denied Del/Veh (s)	0.7
Total Delay (hr)	105.4
Total Del/Veh (s)	84.6
Stop Delay (hr)	89.5
Stop Del/Veh (s)	71.7

5: Latrobe Road & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	19.6	6.4	0.9	6.1	4.1	1.7	2.1	25.2	3.9	4.6	6.5	0.9
Total Del/Veh (s)	170.0	47.6	35.8	62.1	53.7	30.4	78.8	79.2	35.4	72.1	40.7	15.1
Stop Delay (hr)	19.0	5.3	0.8	5.5	3.5	1.6	1.9	23.0	3.6	4.2	4.8	0.7
Stop Del/Veh (s)	164.6	39.9	32.0	55.8	46.3	27.9	74.6	72.3	33.4	64.8	30.3	12.6

5: Latrobe Road & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	81.9
Total Del/Veh (s)	66.0
Stop Delay (hr)	74.0
Stop Del/Veh (s)	59.7

7: Driveway/Post St & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	8.1	0.6	9.1
Denied Del/Veh (s)	0.0	0.0	0.0	2.9	0.5	0.4	0.1	0.1	0.1	155.8	146.6	155.4
Total Delay (hr)	5.2	5.3	0.1	0.7	6.0	1.0	0.7	0.2	0.1	8.4	0.4	6.1
Total Del/Veh (s)	76.4	22.8	10.0	66.1	37.6	19.3	48.0	32.9	12.7	169.3	119.2	108.7
Stop Delay (hr)	4.7	3.5	0.0	0.7	4.4	0.7	0.7	0.1	0.1	8.1	0.4	5.7
Stop Del/Veh (s)	69.8	15.3	5.9	59.2	27.5	15.0	45.6	30.2	12.6	161.9	109.8	102.1

7: Driveway/Post St & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	17.9
Denied Del/Veh (s)	27.1
Total Delay (hr)	34.1
Total Del/Veh (s)	51.5
Stop Delay (hr)	29.1
Stop Del/Veh (s)	44.0

Total Zone Performance

Denied Delay (hr)	208.5
Denied Del/Veh (s)	125.6
Total Delay (hr)	366.9
Total Del/Veh (s)	890.1
Stop Delay (hr)	310.9
Stop Del/Veh (s)	754.3

Intersection: 1: El Dorado Hills Blvd & Saratoga Way/Park Drive

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	L	TR	L	T	T	TR	L	T	TR
Maximum Queue (ft)	175	333	225	504	504	248	315	326	312	125	355	334
Average Queue (ft)	117	234	149	357	337	111	173	186	190	111	322	251
95th Queue (ft)	208	374	270	626	608	204	278	292	297	165	362	408
Link Distance (ft)		324		482	482		778	778	778		309	309
Upstream Blk Time (%)		10		38	29						75	14
Queuing Penalty (veh)		54		0	0						0	0
Storage Bay Dist (ft)	150		200			250				100		
Storage Blk Time (%)	1	28	8			0	1			34	63	
Queuing Penalty (veh)	6	81	27			0	2			147	128	

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	L	LT	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	93	159	153	174	244	438	454	249	258	312	224	819
Average Queue (ft)	51	80	78	96	117	289	295	136	143	164	50	775
95th Queue (ft)	86	133	139	166	198	409	416	217	225	262	192	912
Link Distance (ft)	1293	1293			621	641	641	641	641	641		778
Upstream Blk Time (%)												45
Queuing Penalty (veh)												187
Storage Bay Dist (ft)			150	150							200	
Storage Blk Time (%)			0	2	4						0	85
Queuing Penalty (veh)			0	2	9						0	16

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	810	803	204
Average Queue (ft)	687	344	58
95th Queue (ft)	972	738	148
Link Distance (ft)	778	778	
Upstream Blk Time (%)	7	1	
Queuing Penalty (veh)	28	4	
Storage Bay Dist (ft)			200
Storage Blk Time (%)		2	0
Queuing Penalty (veh)		3	0

Intersection: 3: Latrobe Road & US 50 EB Ramps

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	R	R	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	168	85	407	488	489	278	168	248	106	93	68
Average Queue (ft)	76	41	80	107	144	85	76	78	34	28	12
95th Queue (ft)	128	70	243	300	332	200	134	179	84	72	44
Link Distance (ft)	1211		572	572	572			641	641	641	641
Upstream Blk Time (%)			0	0	0						
Queuing Penalty (veh)			0	0	1						
Storage Bay Dist (ft)		450				275	575				
Storage Blk Time (%)					0	0					
Queuing Penalty (veh)					2	0					

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	TR	L	TR	R	L	L	T	T	T
Maximum Queue (ft)	327	344	300	120	125	488	490	3	71	878	887	881
Average Queue (ft)	157	217	41	49	90	294	297	0	4	748	775	786
95th Queue (ft)	284	327	186	101	169	466	468	3	40	1007	998	994
Link Distance (ft)			778	778		526	526			839	839	839
Upstream Blk Time (%)						3	3			7	8	17
Queuing Penalty (veh)						0	0			32	37	76
Storage Bay Dist (ft)	350	350			100			225	225			
Storage Blk Time (%)	0	1	0		2	59				52		
Queuing Penalty (veh)	0	0	2		9	41				1		

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	NB	SB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	T	R
Maximum Queue (ft)	882	333	342	426	212	205	43
Average Queue (ft)	259	226	237	174	106	101	10
95th Queue (ft)	844	327	333	342	187	185	33
Link Distance (ft)	839			572	572	572	572
Upstream Blk Time (%)	4			0			
Queuing Penalty (veh)	18			1			
Storage Bay Dist (ft)		325	325				
Storage Blk Time (%)		0	1	1			
Queuing Penalty (veh)		1	3	4			

Intersection: 5: Latrobe Road & White Rock Road

Movement	EB	EB	EB	EB	B40	B40	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	TR	T	T	L	L	T	T	R	L
Maximum Queue (ft)	337	346	415	341	590	380	180	188	199	296	263	278
Average Queue (ft)	263	289	310	183	266	25	129	138	102	123	103	116
95th Queue (ft)	393	404	497	305	710	206	189	195	194	219	203	273
Link Distance (ft)			346	346	559	559				315	315	
Upstream Blk Time (%)	1	19	38	1	19	0				0	0	0
Queuing Penalty (veh)	0	0	203	4	102	3				2	1	0
Storage Bay Dist (ft)	325	325					175	175	175			270
Storage Blk Time (%)	8	33	22				0	4	2	1		0
Queuing Penalty (veh)	20	84	101				1	5	3	4		1

Intersection: 5: Latrobe Road & White Rock Road

Movement	NB	NB	NB	NB	NB	B80	B80	B25	B25	SB	SB	SB
Directions Served	T	T	T	T	R	T	T	T	T	L	L	T
Maximum Queue (ft)	373	352	350	362	66	299	325	392	400	177	239	302
Average Queue (ft)	282	263	260	222	49	139	159	146	163	79	89	130
95th Queue (ft)	417	373	359	401	60	384	411	499	533	148	178	251
Link Distance (ft)	278	278	278	278		247	247	501	501			839
Upstream Blk Time (%)	25	20	20	11		18	24	4	14			
Queuing Penalty (veh)	0	0	0	0		0	0	0	0			
Storage Bay Dist (ft)					25					225	225	
Storage Blk Time (%)	27			20	40					0	0	1
Queuing Penalty (veh)	23			80	118					0	1	4

Intersection: 5: Latrobe Road & White Rock Road

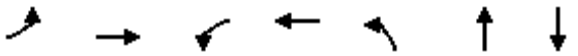
Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	292	162	179
Average Queue (ft)	135	18	39
95th Queue (ft)	248	98	120
Link Distance (ft)	839	839	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 7: Driveway/Post St & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	104	350	361	124	144	448	320	110	70	75	447
Average Queue (ft)	100	255	233	19	49	237	136	42	22	73	401
95th Queue (ft)	118	383	377	81	122	395	259	88	54	79	526
Link Distance (ft)		315	315			585	585	216	216		408
Upstream Blk Time (%)		6	3			0	0				73
Queuing Penalty (veh)		38	17			0	0				0
Storage Bay Dist (ft)	80			110	120					50	
Storage Blk Time (%)	53	9	20	0	0	33				80	8
Queuing Penalty (veh)	237	24	5	0	0	14				182	15

Zone Summary

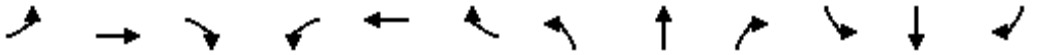
Zone wide Queuing Penalty: 2215



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	16	879	141	491	298	382	43
v/c Ratio	0.05	0.72	0.63	0.25	0.70	0.50	0.25
Control Delay	30.9	33.8	59.9	14.8	47.6	5.1	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	33.8	59.9	14.8	47.6	5.1	27.2
Queue Length 50th (ft)	6	226	80	75	161	5	8
Queue Length 95th (ft)	33	#549	211	205	389	63	47
Internal Link Dist (ft)		327		554		213	278
Turn Bay Length (ft)	195		190		155		
Base Capacity (vph)	451	1786	430	2690	746	1192	368
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.49	0.33	0.18	0.40	0.32	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	709	99	130	452	0	274	11	340	0	13	27
Future Volume (veh/h)	15	709	99	130	452	0	274	11	340	0	13	27
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	771	108	141	491	0	298	12	370	0	14	29
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	1208	169	176	1973	0	351	15	474	91	28	58
Arrive On Green	0.39	0.39	0.39	0.10	0.56	0.00	0.20	0.31	0.31	0.00	0.05	0.05
Sat Flow, veh/h	902	3119	437	1774	3632	0	1774	50	1541	997	542	1123
Grp Volume(v), veh/h	16	437	442	141	491	0	298	0	382	0	0	43
Grp Sat Flow(s),veh/h/ln	902	1770	1786	1774	1770	0	1774	0	1591	997	0	1665
Q Serve(g_s), s	0.9	15.8	15.8	6.1	5.6	0.0	12.7	0.0	17.2	0.0	0.0	2.0
Cycle Q Clear(g_c), s	0.9	15.8	15.8	6.1	5.6	0.0	12.7	0.0	17.2	0.0	0.0	2.0
Prop In Lane	1.00		0.24	1.00		0.00	1.00		0.97	1.00		0.67
Lane Grp Cap(c), veh/h	441	685	692	176	1973	0	351	0	490	91	0	86
V/C Ratio(X)	0.04	0.64	0.64	0.80	0.25	0.00	0.85	0.00	0.78	0.00	0.00	0.50
Avail Cap(c_a), veh/h	584	967	975	460	3102	0	798	0	490	235	0	326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	15.0	19.6	19.6	34.7	9.0	0.0	30.4	0.0	24.8	0.0	0.0	36.3
Incr Delay (d2), s/veh	0.0	1.2	1.2	3.2	0.1	0.0	5.7	0.0	7.2	0.0	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	7.9	8.0	3.2	2.8	0.0	6.8	0.0	8.5	0.0	0.0	0.9
LnGrp Delay(d),s/veh	15.1	20.9	20.9	37.9	9.0	0.0	36.2	0.0	32.0	0.0	0.0	38.0
LnGrp LOS	B	C	C	D	A		D		C			D
Approach Vol, veh/h		895			632			680			43	
Approach Delay, s/veh		20.8			15.5			33.8			38.0	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	13.4	36.5		28.8		49.9	20.2	8.7
Change Period (Y+Rc), s	5.6	6.0		4.6		6.0	4.6	4.6
Max Green Setting (Gmax), s	20.4	43.0		15.4		69.0	35.4	15.4
Max Q Clear Time (g_c+I1), s	8.1	17.8		19.2		7.6	14.7	4.0
Green Ext Time (p_c), s	0.0	12.6		0.0		17.5	0.9	0.1

Intersection Summary			
HCM 2010 Ctrl Delay		23.6	
HCM 2010 LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	3	4	0	4	32	2	430	0	16	133	69
Future Vol, veh/h	87	3	4	0	4	32	2	430	0	16	133	69
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	-	-	-	-	-	-	100	-	-	-	-	-
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	95	3	4	0	4	35	2	467	0	17	145	75

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	708	689	182	693	726	467	220	0	0	467	0	0
Stage 1	217	217	-	472	472	-	-	-	-	-	-	-
Stage 2	491	472	-	221	254	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	350	369	861	358	351	596	1349	-	-	1094	-	-
Stage 1	785	723	-	573	559	-	-	-	-	-	-	-
Stage 2	559	559	-	781	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	322	362	861	349	344	596	1349	-	-	1094	-	-
Mov Cap-2 Maneuver	322	362	-	349	344	-	-	-	-	-	-	-
Stage 1	784	710	-	572	558	-	-	-	-	-	-	-
Stage 2	522	558	-	760	684	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.6	12	0	0.6
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1349	-	-	332	551	1094	-	-
HCM Lane V/C Ratio	0.002	-	-	0.308	0.071	0.016	-	-
HCM Control Delay (s)	7.7	-	-	20.6	12	8.3	0	-
HCM Lane LOS	A	-	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	13	419	8	33	104
Future Vol, veh/h	6	13	419	8	33	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	14	455	9	36	113

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	645	460	0	0	464	0
Stage 1	460	-	-	-	-	-
Stage 2	185	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	437	601	-	-	1097	-
Stage 1	636	-	-	-	-	-
Stage 2	847	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	423	601	-	-	1097	-
Mov Cap-2 Maneuver	423	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	819	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	423	601	1097	-
HCM Lane V/C Ratio	-	-	0.015	0.024	0.033	-
HCM Control Delay (s)	-	-	13.6	11.1	8.4	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	1	0	412	99	11
Future Vol, veh/h	15	1	0	412	99	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	1	0	448	108	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	562	114	120	0	-	0
Stage 1	114	-	-	-	-	-
Stage 2	448	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	488	939	1468	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	488	939	1468	-	-	-
Mov Cap-2 Maneuver	488	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	644	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1468	-	503	-	-
HCM Lane V/C Ratio	-	-	0.035	-	-
HCM Control Delay (s)	0	-	12.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

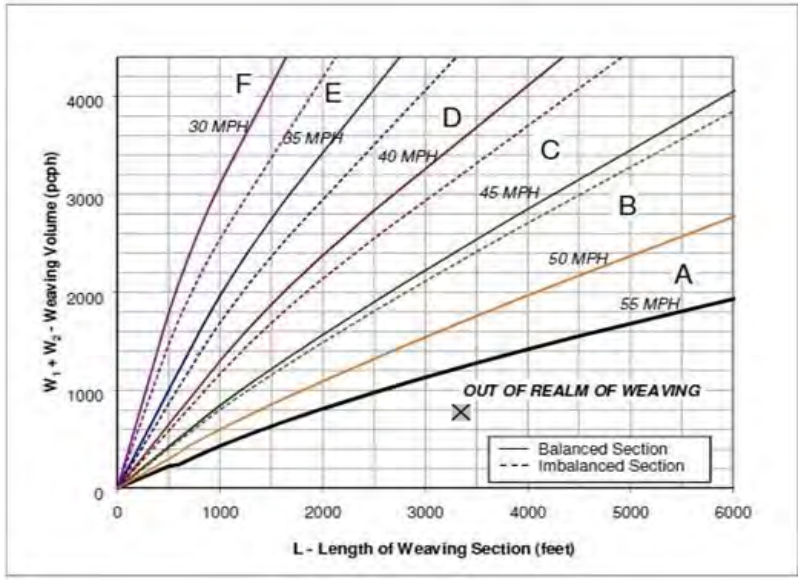
WB US-50, East of El Dorado Hills Blvd Off Ramp, Near-Term (2026) Conditons (PM)

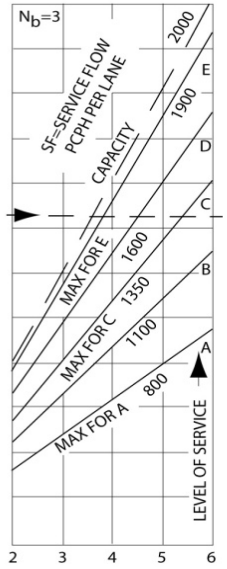
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	3425

Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	3,119	Volume (vph)	392	Volume (vph)	285
Truck Percentage	2%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	3,150	Volume (pcph)	396	Volume (pcph)	288

W1 + W2	684
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	54.8
Weaving Intensity Factor (k)	1.00
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	788
Level of Service (LOS)	A



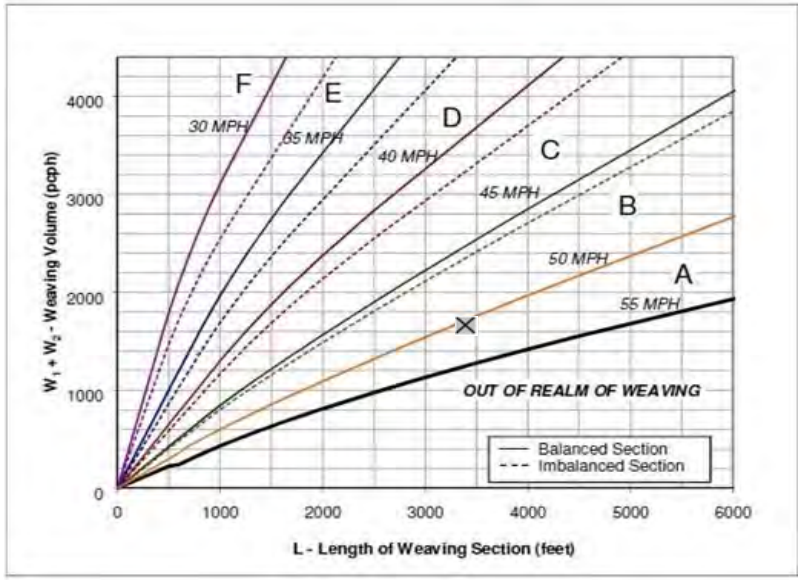


WB US-50, East of El Dorado Hills Blvd Off Ramp, Near-Term (2026) Conditons (AM)

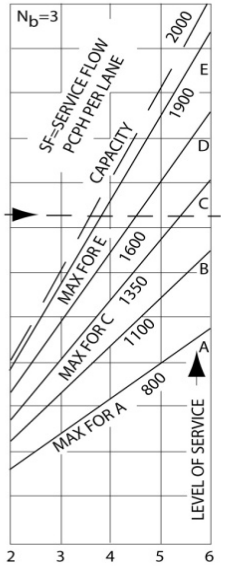
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	3425

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	3,638	Volume (vph)	1,054	Volume (vph)	513
Truck Percentage	2%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	3,674	Volume (pcph)	1,065	Volume (pcph)	518

W1 + W2	1,583
In between	
Speed 1	45
Speed 2	50
Interpolated Weaving Speed (Sw, mph)	46.8
Weaving Intensity Factor (k)	1.40
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	970
Level of Service (LOS)	B



Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS

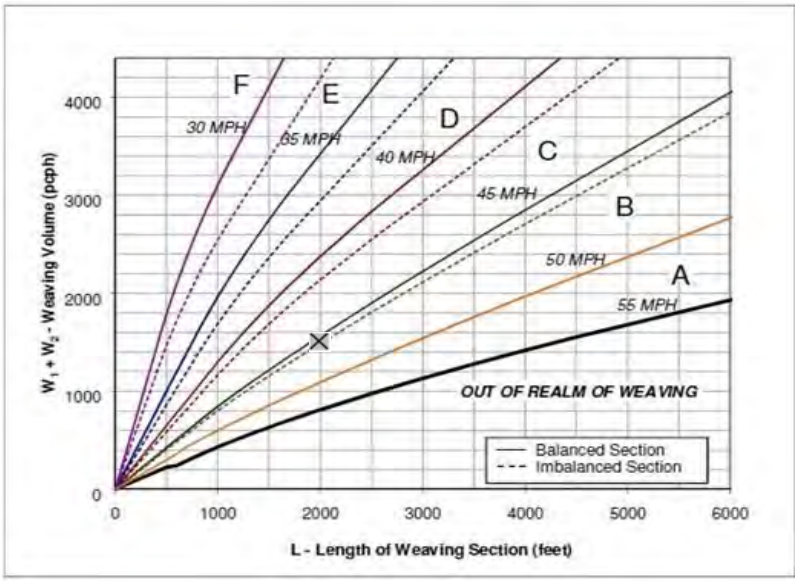


EB US-50, East of Latrobe Rd On Ramp, Near-Term (2026) Conditons (PM)

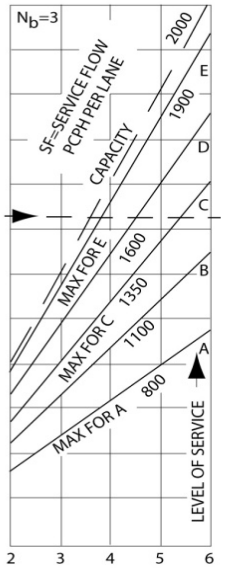
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	2000

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	3,789	Volume (vph)	810	Volume (vph)	706
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	3,865	Volume (pcph)	818	Volume (pcph)	713

W1 + W2	1,531
In between	
Speed 1	45
Speed 2	50
Interpolated Weaving Speed (Sw, mph)	45.4
Weaving Intensity Factor (k)	1.60
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	1,073
Level of Service (LOS)	D



Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS

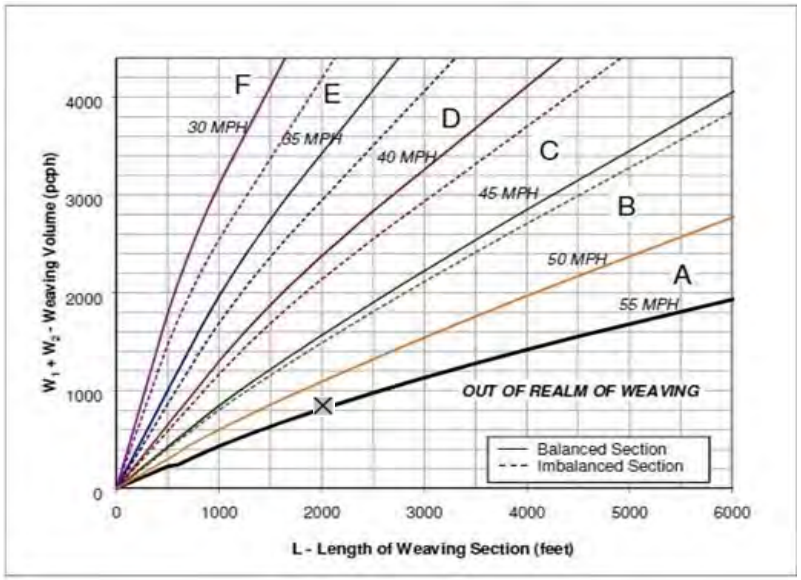


EB US-50, East of Latrobe Rd On Ramp, Near Term (2026) Conditons (AM)

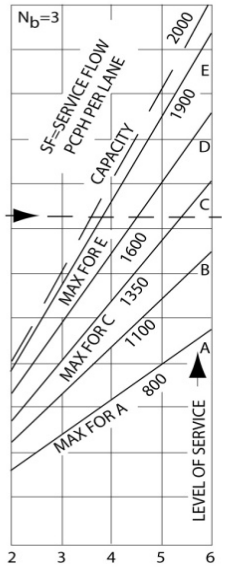
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	2000

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	1,993	Volume (vph)	518	Volume (vph)	272
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	2,033	Volume (pcph)	523	Volume (pcph)	275

W1 + W2	798
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	50.0
Weaving Intensity Factor (k)	1.00
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	508
Level of Service (LOS)	A



Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS



	Segment Inputs				Near-Term Conditions												
					Flow Inputs		AM LOS Performance Measures						PM LOS Performance Measures				
		Length	Number of Lanes	Interchange Density	AM Peak	PM Peak	V_p	FFS		S	D	LOS	V_p	FFS		S	D	LOS
		(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)		(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)		(mi/h)	(pc/mi/ln)	
Westt Eastb	West of Latrobe Rd SB Off Ramp	6690	3	0.33	2,853	4,086	1044.03	74.12	75	74.9785	13.924	B	1495.239	74.12	75	72.285	20.7	C
	Latrobe Rd NB Off Ramp to Latrobe Rd On Ramp	1990	3	0.50	1,475	2,979	539.764	73.6	75	72.6552	7.4291	A	1090.141	73.6	75	74.9101	14.553	B
	El Dorado Hills Blvd Off Ramp to El Dorado Hills Blvd On Ramp	3565	2	0.50	3,125	2,834	1715.35	73.6	75	69.3351	24.74	C	1555.62	73.6	75	71.5825	21.732	C
	West of El Dorado Hills Blvd On Ramp	5890	3	0.33	4,295	4,277	1571.72	74.12	75	71.3816	22.019	C	1565.134	74.12	75	71.4645	21.901	C

Univeral Inputs:

PHF 0.92

(P_T) 2%

f_{HV} 0.99009901

	Segment Inputs			Near Term Conditions																											
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures										
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L_A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v_D	v_F	v_R	v_F/S_{FR}	P_{FM}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v_D	v_F	v_R	v_F/S_{FR}	P_{FM}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)			(pc/h/ln)						(pc/mi/ln)		(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)			(pc/h/ln)						(pc/mi/ln)	
≥ 8 El Dorado Hills Blvd On Ramp	2	1	795	4295	3125	1170	4715	3431	1284	98	1	3430.7	4800	0	2573	3431	0.9823	36.678	E	4277	2834	1443	4695	3111	1584	89	1	3111.2	4800	0	2333	3111	0.9782	36.386	E

Univeral Inputs:

Length	1500	(ft)
S_{FF}	70	(mi/h)
S_{FR}	35	(mi/h)
PHF	0.92	
(P_T)	2%	
f_{HV}	0.99009901	

Near Term Conditions

		Segment Inputs				AM Flow Inputs													PM Flow Inputs			PM LOS Performance Measures											
		Number of Lanes	Number of Ramp Lanes	L_{EQ}	Length of Deceleration Lane (L_D)	Downstream Volume	Upstream Volume	Ramp Volume	v_D	v_F	v_R	P_{FD}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v_D	v_F	v_R	P_{FD}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS
		(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)						(pc/mi/ln)		(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)						(pc/mi/ln)	
EB	Latrobe SB Off Ramp	3	1	993	140	1738	2853	1115	294.446	3194.1	1248.3	0.5928	2401.8	7200	396	1801	2402	0.4436	23.647	C	3691	4277	586	583.293	4788.4	656.07	0.6024	3145.3	7200	822	2359	3145	0.6651	30.041	D
	Latrobe NB Off Ramp	3	1	-	140	1475	1738	263	-	1945.8	294.45	0.6978	1446.8	7200	499	1085	1447	0.2703	15.434	B	3170	3691	521	-	4132.3	583.29	0.6299	2818.7	7200	1314	2114	2819	0.5739	27.233	C

Univeral Inputs:

L_{eng}	1500	(ft)
S_{FF}	70	(mi/h)
S_{FR}	35	(mi/h)
PHF	0.92	
(P_T)	6%	
f_{HV}	0.970873786	

Kimley»Horn

Attachment C

Analysis Worksheets for Near-Term (2026) Plus Project Conditions

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	7950	8039	8086	8069	7940	7982	8030
Vehs Exited	7862	7984	7981	7973	7814	7929	7951
Starting Vehs	371	336	332	342	310	321	351
Ending Vehs	459	391	437	438	436	374	430
Travel Distance (mi)	4649	4719	4752	4732	4615	4676	4705
Travel Time (hr)	477.7	448.8	447.0	502.8	482.7	399.7	456.6
Total Delay (hr)	330.8	299.8	297.1	353.6	336.6	252.3	308.1
Total Stops	14833	15165	14755	15222	14635	14853	14563
Fuel Used (gal)	264.1	259.7	259.8	272.6	263.6	247.2	259.9

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	7961	8109	8048	8017
Vehs Exited	7849	8043	7993	7937
Starting Vehs	293	317	370	330
Ending Vehs	405	383	425	417
Travel Distance (mi)	4654	4752	4697	4695
Travel Time (hr)	463.7	501.0	522.7	470.3
Total Delay (hr)	316.7	351.0	374.3	322.0
Total Stops	14440	15256	14763	14850
Fuel Used (gal)	259.5	272.2	276.1	263.5

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2001	2025	1970	2009	1971	1906	1959
Vehs Exited	1994	1997	1937	1952	1904	1906	1968
Starting Vehs	371	336	332	342	310	321	351
Ending Vehs	378	364	365	399	377	321	342
Travel Distance (mi)	1150	1169	1175	1152	1149	1108	1159
Travel Time (hr)	92.5	93.4	91.4	98.2	88.7	78.2	88.6
Total Delay (hr)	56.1	56.4	54.2	61.8	52.4	43.3	52.1
Total Stops	3526	3783	3434	3578	3564	3320	3553
Fuel Used (gal)	59.2	60.0	59.2	60.1	57.8	54.4	58.4

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1991	2062	2042	1989
Vehs Exited	1928	1967	2060	1961
Starting Vehs	293	317	370	330
Ending Vehs	356	412	352	366
Travel Distance (mi)	1150	1172	1210	1159
Travel Time (hr)	89.8	94.7	95.4	91.1
Total Delay (hr)	53.4	57.4	57.2	54.4
Total Stops	3502	3738	3573	3557
Fuel Used (gal)	58.1	60.1	62.0	58.9

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2103	2040	2123	2132	2079	2099	2147
Vehs Exited	2007	2015	2068	2096	2055	2017	2081
Starting Vehs	378	364	365	399	377	321	342
Ending Vehs	474	389	420	435	401	403	408
Travel Distance (mi)	1210	1213	1220	1248	1218	1218	1262
Travel Time (hr)	111.0	113.2	107.9	127.6	117.5	100.6	107.0
Total Delay (hr)	72.8	75.0	69.6	88.1	79.1	62.2	67.2
Total Stops	3828	3852	3821	4092	3755	3823	3856
Fuel Used (gal)	65.5	66.3	65.1	70.4	67.5	63.7	65.6

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2097	2069	2071	2096
Vehs Exited	2063	2064	2035	2046
Starting Vehs	356	412	352	366
Ending Vehs	390	417	388	403
Travel Distance (mi)	1232	1239	1196	1225
Travel Time (hr)	114.7	124.1	123.2	114.7
Total Delay (hr)	76.0	85.1	85.4	76.1
Total Stops	3647	3996	3761	3842
Fuel Used (gal)	66.6	69.5	67.8	66.8

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1929	2038	1983	1916	2010	1987	1956
Vehs Exited	1942	1994	1996	1943	1980	2015	1974
Starting Vehs	474	389	420	435	401	403	408
Ending Vehs	461	433	407	408	431	375	390
Travel Distance (mi)	1140	1187	1172	1130	1162	1166	1141
Travel Time (hr)	129.7	119.2	116.0	138.6	132.8	109.8	124.7
Total Delay (hr)	93.6	81.8	79.1	102.9	95.9	73.0	88.4
Total Stops	3748	3909	3706	3762	3829	3790	3425
Fuel Used (gal)	67.6	67.1	65.9	69.8	69.2	64.1	66.2

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1931	1960	2024	1970
Vehs Exited	1937	1983	1969	1973
Starting Vehs	390	417	388	403
Ending Vehs	384	394	443	406
Travel Distance (mi)	1141	1152	1142	1153
Travel Time (hr)	127.1	134.7	142.3	127.5
Total Delay (hr)	91.1	98.2	105.9	91.0
Total Stops	3611	3618	3793	3720
Fuel Used (gal)	67.0	69.1	70.8	67.7

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1917	1936	2010	2012	1880	1990	1968
Vehs Exited	1919	1978	1980	1982	1875	1991	1928
Starting Vehs	461	433	407	408	431	375	390
Ending Vehs	459	391	437	438	436	374	430
Travel Distance (mi)	1148	1149	1186	1202	1087	1185	1142
Travel Time (hr)	144.5	123.0	131.7	138.3	143.7	111.1	136.3
Total Delay (hr)	108.2	86.6	94.4	100.7	109.2	73.7	100.3
Total Stops	3731	3621	3794	3790	3487	3920	3729
Fuel Used (gal)	71.7	66.3	69.6	72.3	69.1	65.0	69.7

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1942	2018	1911	1958
Vehs Exited	1921	2029	1929	1953
Starting Vehs	384	394	443	406
Ending Vehs	405	383	425	417
Travel Distance (mi)	1132	1189	1149	1157
Travel Time (hr)	132.1	147.6	161.9	137.0
Total Delay (hr)	96.3	110.3	125.7	100.5
Total Stops	3680	3904	3636	3730
Fuel Used (gal)	67.8	73.4	75.5	70.0

1: El Dorado Hills Blvd & Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	44.5	2.8
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.3	0.0	0.0	0.0	107.1	107.3	106.9
Total Delay (hr)	0.7	0.9	1.3	1.2	1.5	1.1	2.5	3.6	0.0	3.8	15.0	0.8
Total Del/Veh (s)	48.2	49.7	27.4	45.8	53.3	32.5	59.9	18.1	12.5	82.3	37.8	32.7
Stop Delay (hr)	0.7	0.9	1.2	1.1	1.4	1.0	2.3	2.4	0.0	3.5	10.8	0.7
Stop Del/Veh (s)	45.9	45.7	26.8	42.8	47.1	29.0	54.6	12.4	9.0	76.0	27.2	26.8

1: El Dorado Hills Blvd & Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	52.4
Denied Del/Veh (s)	58.5
Total Delay (hr)	32.6
Total Del/Veh (s)	36.9
Stop Delay (hr)	26.1
Stop Del/Veh (s)	29.6

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.2	2.1	1.1	4.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.8	1.3	0.3	3.6	5.9	1.8	8.5	1.7	0.3	0.7	8.2	2.5
Total Del/Veh (s)	43.5	45.7	3.8	119.9	143.3	148.1	58.4	8.7	6.7	71.3	26.5	17.2
Stop Delay (hr)	1.6	1.2	0.0	3.4	5.6	1.7	7.4	0.7	0.1	0.6	5.2	1.1
Stop Del/Veh (s)	40.5	41.0	0.0	113.8	136.2	143.7	50.8	3.9	3.1	64.5	16.8	7.5

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	36.5
Total Del/Veh (s)	33.7
Stop Delay (hr)	28.8
Stop Del/Veh (s)	26.6

3: Latrobe Road & US 50 EB Ramps Performance by movement

Movement	EBR	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.8	0.0	0.0	0.0	0.0	0.0	0.8
Denied Del/Veh (s)	2.6	0.2	0.0	0.0	0.0	0.0	0.7
Total Delay (hr)	8.1	0.1	2.9	0.8	2.9	3.3	18.0
Total Del/Veh (s)	25.3	1.0	9.7	10.3	40.8	9.3	15.1
Stop Delay (hr)	6.1	0.0	0.9	0.3	2.3	0.8	10.4
Stop Del/Veh (s)	19.2	0.0	3.1	3.4	32.6	2.1	8.7

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.0	0.1	0.1	3.2	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.1	0.0	1.1	0.4	1.5	0.7	8.6	0.2	4.8	5.9	0.5
Total Del/Veh (s)	44.4	44.8	12.7	39.3	40.3	16.0	55.0	31.5	6.4	33.7	13.8	4.6
Stop Delay (hr)	0.4	0.1	0.0	1.0	0.3	1.4	0.7	5.6	0.1	4.0	3.2	0.2
Stop Del/Veh (s)	42.5	41.8	12.7	35.8	35.8	14.3	49.9	20.8	5.2	28.0	7.5	2.3

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.1
Total Delay (hr)	24.2
Total Del/Veh (s)	21.4
Stop Delay (hr)	17.2
Stop Del/Veh (s)	15.2

5: Latrobe Road & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.9	1.4	0.4	10.4	7.5	0.3	14.0	5.7	0.2	2.1	12.4	4.5
Total Del/Veh (s)	76.0	38.8	17.7	94.2	70.8	9.3	369.4	28.7	5.1	69.8	42.5	32.2
Stop Delay (hr)	5.6	1.2	0.4	9.4	6.5	0.2	13.9	5.1	0.2	1.9	8.3	3.3
Stop Del/Veh (s)	72.3	34.2	16.3	85.8	61.5	7.2	369.0	25.5	5.0	60.7	28.5	23.8

5: Latrobe Road & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	64.7
Total Del/Veh (s)	57.6
Stop Delay (hr)	56.0
Stop Del/Veh (s)	49.9

7: Driveway/Post St & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.9	16.4	4.4	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	74.2	75.8	77.0	0.1	0.1	0.1	3.9	0.3	0.3
Total Delay (hr)	1.7	1.2	0.0	2.4	31.8	2.3	0.6	0.0	0.0	0.5	0.1	0.8
Total Del/Veh (s)	52.5	16.2	4.3	204.5	152.1	43.4	72.1	46.8	4.7	41.7	36.4	21.8
Stop Delay (hr)	1.5	0.9	0.0	2.1	26.8	1.7	0.6	0.0	0.0	0.4	0.1	0.8
Stop Del/Veh (s)	48.7	12.0	2.4	183.9	128.0	32.2	70.1	43.8	4.8	38.7	32.2	20.5

7: Driveway/Post St & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	21.7
Denied Del/Veh (s)	47.5
Total Delay (hr)	41.4
Total Del/Veh (s)	92.4
Stop Delay (hr)	35.0
Stop Del/Veh (s)	78.0

Total Zone Performance

Denied Delay (hr)	75.3
Denied Del/Veh (s)	44.4
Total Delay (hr)	217.8
Total Del/Veh (s)	428.5
Stop Delay (hr)	173.4
Stop Del/Veh (s)	341.2

Intersection: 1: El Dorado Hills Blvd & Saratoga Way

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	L	TR	L	T	T	TR	L	T	TR
Maximum Queue (ft)	65	163	183	135	267	211	147	159	162	124	346	357
Average Queue (ft)	17	70	89	57	140	108	66	70	72	105	316	321
95th Queue (ft)	47	122	161	114	231	190	127	137	144	153	363	361
Link Distance (ft)		299		482	482		774	774	774		309	309
Upstream Blk Time (%)											31	36
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	150		200			250				100		
Storage Blk Time (%)		0	1			0				25	34	
Queuing Penalty (veh)		0	1			0				186	59	

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	L	LT	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	135	183	174	392	175	335	342	133	138	158	224	343
Average Queue (ft)	72	95	82	210	135	201	203	53	54	72	41	182
95th Queue (ft)	118	159	183	435	206	307	312	106	111	130	133	325
Link Distance (ft)	1228	1228		621		646	646	646	646	646		774
Upstream Blk Time (%)				2								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)			150		150						200	
Storage Blk Time (%)			1	28	17							9
Queuing Penalty (veh)			2	49	31							3

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	298	340	225
Average Queue (ft)	136	150	140
95th Queue (ft)	274	302	254
Link Distance (ft)	774	774	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			200
Storage Blk Time (%)		2	2
Queuing Penalty (veh)		10	9

Intersection: 3: Latrobe Road & US 50 EB Ramps

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	R	R	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	367	362	166	211	284	236	304	270	72	231	110
Average Queue (ft)	198	212	34	57	87	55	173	45	19	27	18
95th Queue (ft)	302	325	114	144	216	152	261	156	50	112	76
Link Distance (ft)	1211		572	572	572			646	646	646	646
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		450				275	575				
Storage Blk Time (%)	0				0	0					
Queuing Penalty (veh)	0				1	0					

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	TR	L	TR	R	L	L	T	T	T
Maximum Queue (ft)	17	74	34	33	124	190	164	53	114	271	328	408
Average Queue (ft)	1	27	8	6	67	78	71	16	26	122	166	204
95th Queue (ft)	11	61	29	25	118	144	132	44	79	233	296	347
Link Distance (ft)			778	778		526	526			839	839	839
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	350	350			100			225	225			
Storage Blk Time (%)					3	4			0	0		
Queuing Penalty (veh)					7	4			0	0		

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	NB	SB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	T	R
Maximum Queue (ft)	83	252	257	280	278	297	224
Average Queue (ft)	24	128	145	127	141	153	54
95th Queue (ft)	58	216	229	225	235	255	134
Link Distance (ft)	839			572	572	572	572
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		325	325				
Storage Blk Time (%)				0			
Queuing Penalty (veh)				1			

Intersection: 5: Latrobe Road & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	TR	L	L	T	T	R	L	T	T
Maximum Queue (ft)	214	232	138	167	182	191	200	335	122	278	372	246
Average Queue (ft)	110	140	45	70	158	173	183	252	48	253	299	96
95th Queue (ft)	201	219	109	129	205	211	236	384	101	339	466	186
Link Distance (ft)			346	346				315	315		278	278
Upstream Blk Time (%)								8		41	66	0
Queuing Penalty (veh)								40		0	0	0
Storage Bay Dist (ft)	325	325			175	175	175			270		
Storage Blk Time (%)	0	0			3	16	14	12		67	63	
Queuing Penalty (veh)	0	0			6	32	28	73		120	92	

Intersection: 5: Latrobe Road & White Rock Road

Movement	NB	NB	NB	B80	B80	B25	B25	SB	SB	SB	SB	SB
Directions Served	T	T	R	T	T	T	T	L	L	T	T	T
Maximum Queue (ft)	179	148	58	320	232	379	358	88	250	428	432	446
Average Queue (ft)	99	24	30	186	58	127	113	27	71	244	246	134
95th Queue (ft)	160	88	59	423	228	414	401	71	221	391	392	406
Link Distance (ft)	278	278		247	247	501	501			839	839	839
Upstream Blk Time (%)				44	1	6	3					
Queuing Penalty (veh)				0	0	0	0					
Storage Bay Dist (ft)			25					225	225			
Storage Blk Time (%)		6	2						0	13		0
Queuing Penalty (veh)		8	3						0	14		2

Intersection: 5: Latrobe Road & White Rock Road

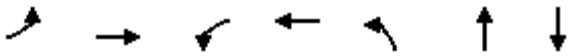
Movement	SB
Directions Served	R
Maximum Queue (ft)	275
Average Queue (ft)	183
95th Queue (ft)	316
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	6
Queuing Penalty (veh)	21

Intersection: 7: Driveway/Post St & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	104	192	150	58	145	1110	1090	87	43	74	178
Average Queue (ft)	75	58	64	8	56	894	786	29	12	30	68
95th Queue (ft)	117	155	123	36	140	1337	1420	71	32	66	137
Link Distance (ft)		315	315			1064	1064	216	216		408
Upstream Blk Time (%)						43	14				
Queuing Penalty (veh)						0	0				
Storage Bay Dist (ft)	80			110	120					50	
Storage Blk Time (%)	15	2	1		0	61				8	22
Queuing Penalty (veh)	18	2	0		2	25				11	8

Zone Summary

Zone wide Queuing Penalty: 865



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	24	538	541	562	75	123	23
v/c Ratio	0.12	0.61	0.83	0.23	0.49	0.33	0.14
Control Delay	36.4	34.2	41.2	7.2	60.5	11.0	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	34.2	41.2	7.2	60.5	11.0	29.3
Queue Length 50th (ft)	10	130	259	51	40	6	5
Queue Length 95th (ft)	45	290	#762	164	127	55	32
Internal Link Dist (ft)		327		554		213	278
Turn Bay Length (ft)	195		190		155		
Base Capacity (vph)	418	1750	1022	3199	256	780	421
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.31	0.53	0.18	0.29	0.16	0.05

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												
Traffic Volume (veh/h)	22	365	130	498	517	0	69	11	102	0	8	13
Future Volume (veh/h)	22	365	130	498	517	0	69	11	102	0	8	13
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	24	397	141	541	562	0	75	12	111	0	9	14
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	768	269	578	2477	0	96	25	229	97	27	43
Arrive On Green	0.30	0.30	0.30	0.33	0.70	0.00	0.05	0.16	0.16	0.00	0.04	0.04
Sat Flow, veh/h	845	2571	902	1774	3632	0	1774	157	1450	1263	658	1024
Grp Volume(v), veh/h	24	272	266	541	562	0	75	0	123	0	0	23
Grp Sat Flow(s),veh/h/ln	845	1770	1704	1774	1770	0	1774	0	1607	1263	0	1682
Q Serve(g_s), s	1.5	9.5	9.7	22.0	4.2	0.0	3.1	0.0	5.2	0.0	0.0	1.0
Cycle Q Clear(g_c), s	1.5	9.5	9.7	22.0	4.2	0.0	3.1	0.0	5.2	0.0	0.0	1.0
Prop In Lane	1.00		0.53	1.00		0.00	1.00		0.90	1.00		0.61
Lane Grp Cap(c), veh/h	349	528	509	578	2477	0	96	0	253	97	0	70
V/C Ratio(X)	0.07	0.51	0.52	0.94	0.23	0.00	0.78	0.00	0.49	0.00	0.00	0.33
Avail Cap(c_a), veh/h	552	953	917	1084	4334	0	272	0	376	340	0	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	21.6	21.7	24.3	4.0	0.0	34.7	0.0	28.6	0.0	0.0	34.6
Incr Delay (d2), s/veh	0.1	1.0	1.0	3.3	0.1	0.0	5.1	0.0	0.5	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.7	4.7	11.2	2.0	0.0	1.7	0.0	2.3	0.0	0.0	0.5
LnGrp Delay(d),s/veh	18.9	22.6	22.7	27.6	4.0	0.0	39.8	0.0	29.1	0.0	0.0	35.6
LnGrp LOS	B	C	C	C	A		D		C			D
Approach Vol, veh/h		562			1103			198			23	
Approach Delay, s/veh		22.5			15.6			33.1			35.6	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	29.8	28.2		16.3		58.0	8.6	7.7
Change Period (Y+Rc), s	5.6	6.0		4.6		6.0	4.6	4.6
Max Green Setting (Gmax), s	45.4	40.0		17.4		91.0	11.4	17.4
Max Q Clear Time (g_c+I1), s	24.0	11.7		7.2		6.2	5.1	3.0
Green Ext Time (p_c), s	0.2	10.5		0.2		13.0	0.0	0.3

Intersection Summary			
HCM 2010 Ctrl Delay		19.7	
HCM 2010 LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	76	0	2	0	0	5	0	199	0	3	263	74
Future Vol, veh/h	76	0	2	0	0	5	0	199	0	3	263	74
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	-	-	-	-	-	-	100	-	-	-	-	-
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	83	0	2	0	0	5	0	216	0	3	286	80

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	552	549	326	550	589	216	366	0	0	216	0	0
Stage 1	333	333	-	216	216	-	-	-	-	-	-	-
Stage 2	219	216	-	334	373	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	444	443	715	446	421	824	1193	-	-	1354	-	-
Stage 1	681	644	-	786	724	-	-	-	-	-	-	-
Stage 2	783	724	-	680	618	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	440	442	715	444	420	824	1193	-	-	1354	-	-
Mov Cap-2 Maneuver	440	442	-	444	420	-	-	-	-	-	-	-
Stage 1	681	642	-	786	724	-	-	-	-	-	-	-
Stage 2	778	724	-	676	616	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15	9.4	0	0.1
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1193	-	-	444	824	1354	-	-
HCM Lane V/C Ratio	-	-	-	0.191	0.007	0.002	-	-
HCM Control Delay (s)	0	-	-	15	9.4	7.7	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	27	172	0	35	230
Future Vol, veh/h	0	27	172	0	35	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	29	187	0	38	250

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	513	187	0	0	187	0
Stage 1	187	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	521	855	-	-	1387	-
Stage 1	845	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	507	855	-	-	1387	-
Mov Cap-2 Maneuver	507	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	711	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	855	1387	-
HCM Lane V/C Ratio	-	-	-	0.034	0.027	-
HCM Control Delay (s)	-	-	0	9.4	7.7	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	0	0	138	204	2
Future Vol, veh/h	16	0	0	138	204	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	0	0	150	222	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	373	223	224	0	-	0
Stage 1	223	-	-	-	-	-
Stage 2	150	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	628	817	1345	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	628	817	1345	-	-	-
Mov Cap-2 Maneuver	628	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1345	-	628	-	-
HCM Lane V/C Ratio	-	-	0.028	-	-
HCM Control Delay (s)	0	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	9188	9171	9126	9159	9083	9344	9212
Vehs Exited	9022	8998	8944	8999	8914	9255	9031
Starting Vehs	469	452	487	475	499	452	497
Ending Vehs	635	625	669	635	668	541	678
Travel Distance (mi)	4992	5000	4951	4967	4980	5094	5006
Travel Time (hr)	907.6	910.2	1084.9	864.0	956.5	857.6	976.9
Total Delay (hr)	747.7	750.6	926.7	705.3	797.7	694.9	817.2
Total Stops	20612	20527	21609	20148	20894	20361	21091
Fuel Used (gal)	375.1	376.2	414.1	364.3	386.3	368.3	392.6

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	9243	9429	9145	9206
Vehs Exited	9050	9187	8893	9028
Starting Vehs	447	443	460	462
Ending Vehs	640	685	712	646
Travel Distance (mi)	5026	5098	4979	5009
Travel Time (hr)	962.3	811.8	1169.8	950.2
Total Delay (hr)	802.3	648.8	1010.9	790.2
Total Stops	21943	20305	22071	20953
Fuel Used (gal)	390.2	357.5	435.8	386.0

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2390	2252	2316	2357	2310	2377	2346
Vehs Exited	2369	2193	2229	2296	2338	2304	2296
Starting Vehs	469	452	487	475	499	452	497
Ending Vehs	490	511	574	536	471	525	547
Travel Distance (mi)	1284	1234	1252	1263	1282	1301	1283
Travel Time (hr)	130.1	137.9	146.5	130.3	136.7	124.6	137.7
Total Delay (hr)	88.9	98.4	106.6	90.0	95.8	83.2	96.8
Total Stops	4920	4536	5174	4485	5060	4752	4929
Fuel Used (gal)	73.3	73.5	75.4	72.2	75.1	72.6	74.7

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2351	2305	2408	2337
Vehs Exited	2206	2236	2210	2267
Starting Vehs	447	443	460	462
Ending Vehs	592	512	658	534
Travel Distance (mi)	1255	1250	1229	1263
Travel Time (hr)	133.1	127.2	159.6	136.4
Total Delay (hr)	93.2	87.2	120.2	96.0
Total Stops	4982	4759	4998	4864
Fuel Used (gal)	73.4	71.7	78.3	74.0

Interval #2 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2438	2477	2379	2479	2395	2467	2381
Vehs Exited	2284	2398	2268	2322	2252	2328	2261
Starting Vehs	490	511	574	536	471	525	547
Ending Vehs	644	590	685	693	614	664	667
Travel Distance (mi)	1282	1304	1262	1302	1275	1293	1250
Travel Time (hr)	183.8	188.6	234.2	187.1	196.2	206.0	211.5
Total Delay (hr)	142.6	147.0	193.9	145.4	155.4	164.6	171.6
Total Stops	5193	5090	5604	5210	5020	5353	5076
Fuel Used (gal)	85.1	87.0	95.8	86.2	87.0	90.5	90.9

Interval #2 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2448	2386	2369	2422
Vehs Exited	2345	2297	2244	2295
Starting Vehs	592	512	658	534
Ending Vehs	695	601	783	656
Travel Distance (mi)	1266	1292	1274	1280
Travel Time (hr)	222.4	180.7	257.0	206.7
Total Delay (hr)	181.8	139.4	216.6	165.8
Total Stops	5499	5001	5830	5293
Fuel Used (gal)	93.4	84.5	101.9	90.2

Interval #3 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2220	2284	2192	2232	2261	2269	2301
Vehs Exited	2194	2174	2212	2287	2216	2313	2303
Starting Vehs	644	590	685	693	614	664	667
Ending Vehs	670	700	665	638	659	620	665
Travel Distance (mi)	1208	1225	1220	1244	1241	1265	1255
Travel Time (hr)	263.9	262.1	311.0	240.6	269.9	257.7	282.4
Total Delay (hr)	225.4	223.2	272.1	200.8	230.4	217.3	242.3
Total Stops	5187	5447	5494	5283	5609	5268	5603
Fuel Used (gal)	100.2	100.7	111.9	96.9	103.2	101.8	106.9

Interval #3 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2255	2282	2058	2230
Vehs Exited	2206	2291	2135	2232
Starting Vehs	695	601	783	656
Ending Vehs	744	592	706	662
Travel Distance (mi)	1252	1261	1196	1237
Travel Time (hr)	277.8	233.0	345.2	274.4
Total Delay (hr)	238.2	192.6	307.0	234.9
Total Stops	5668	5042	5394	5402
Fuel Used (gal)	105.9	95.5	119.2	104.2

Interval #4 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2140	2158	2239	2091	2117	2231	2184
Vehs Exited	2175	2233	2235	2094	2108	2310	2171
Starting Vehs	670	700	665	638	659	620	665
Ending Vehs	635	625	669	635	668	541	678
Travel Distance (mi)	1217	1237	1218	1158	1183	1234	1218
Travel Time (hr)	329.8	321.7	393.3	306.0	353.7	269.4	345.4
Total Delay (hr)	290.7	282.0	354.1	269.1	316.0	229.8	306.5
Total Stops	5312	5454	5337	5170	5205	4988	5483
Fuel Used (gal)	116.5	114.9	130.9	109.0	121.0	103.4	120.0

Interval #4 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2189	2456	2310	2210
Vehs Exited	2293	2363	2304	2227
Starting Vehs	744	592	706	662
Ending Vehs	640	685	712	646
Travel Distance (mi)	1252	1296	1280	1229
Travel Time (hr)	329.0	270.9	407.9	332.7
Total Delay (hr)	289.2	229.5	367.1	293.4
Total Stops	5794	5503	5849	5407
Fuel Used (gal)	117.5	105.8	136.4	117.5

1: El Dorado Hills Blvd & Saratoga Way/Park Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	10.9	3.9	23.1	0.0	0.0	0.0	41.3	170.1	16.7
Denied Del/Veh (s)	0.0	0.0	0.0	247.9	251.0	261.3	0.0	0.0	0.0	736.4	724.6	726.3
Total Delay (hr)	3.9	4.0	5.5	15.3	2.0	8.4	14.4	10.7	0.3	6.2	12.9	0.4
Total Del/Veh (s)	73.6	80.0	68.8	414.4	148.3	112.9	224.5	31.7	25.7	177.9	94.6	29.5
Stop Delay (hr)	3.6	3.6	5.3	15.1	1.9	8.1	13.6	6.8	0.2	6.1	11.8	0.4
Stop Del/Veh (s)	67.3	71.0	65.9	409.8	140.2	108.0	212.6	20.2	17.9	173.0	86.7	26.0

1: El Dorado Hills Blvd & Saratoga Way/Park Drive Performance by movement

Movement	All
Denied Delay (hr)	266.0
Denied Del/Veh (s)	253.8
Total Delay (hr)	84.0
Total Del/Veh (s)	92.7
Stop Delay (hr)	76.3
Stop Del/Veh (s)	84.2

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	3.6	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.5	0.9	0.1	3.0	2.9	1.0	13.8	7.1	1.3	1.5	38.8	0.9
Total Del/Veh (s)	38.8	34.5	3.1	60.2	65.4	79.7	47.0	19.8	15.9	392.1	194.2	19.6
Stop Delay (hr)	1.4	0.8	0.0	2.8	2.6	1.0	10.9	3.9	0.8	1.5	36.4	0.6
Stop Del/Veh (s)	36.0	30.2	0.0	55.4	59.2	76.1	37.0	11.0	9.0	386.2	182.0	13.1

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	72.9
Total Del/Veh (s)	61.7
Stop Delay (hr)	62.6
Stop Del/Veh (s)	53.0

3: Latrobe Road & US 50 EB Ramps Performance by movement

Movement	EBR	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.2	0.1	0.0	0.0	0.0	0.0	0.3
Denied Del/Veh (s)	1.1	0.5	0.0	0.0	0.0	0.0	0.2
Total Delay (hr)	1.8	0.3	6.6	2.1	2.6	2.8	16.2
Total Del/Veh (s)	10.6	1.6	11.7	13.0	59.1	12.6	12.2
Stop Delay (hr)	1.2	0.0	1.4	0.5	2.2	0.6	5.9
Stop Del/Veh (s)	7.1	0.0	2.4	3.2	50.8	2.5	4.4

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.4	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	0.2	0.3	3.3	0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	8.2	0.6	0.3	1.4	0.2	11.9	0.1	64.2	0.5	9.7	4.7	0.0
Total Del/Veh (s)	78.9	59.2	16.3	73.7	83.7	59.8	123.0	143.5	13.3	67.3	19.8	2.8
Stop Delay (hr)	7.6	0.6	0.3	1.3	0.2	11.3	0.1	52.6	0.4	8.5	3.2	0.0
Stop Del/Veh (s)	73.6	56.0	15.1	68.1	78.0	56.9	105.2	117.6	11.0	58.7	13.6	1.6

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.4
Total Delay (hr)	101.9
Total Del/Veh (s)	82.5
Stop Delay (hr)	86.2
Stop Del/Veh (s)	69.8

5: Latrobe Road & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	20.1	6.3	0.8	6.0	3.8	1.9	1.7	24.7	3.8	4.4	6.0	0.9
Total Del/Veh (s)	167.1	47.8	35.0	61.1	51.0	33.2	72.6	78.3	34.9	70.2	38.8	15.1
Stop Delay (hr)	19.4	5.3	0.7	5.4	3.2	1.8	1.6	22.6	3.6	4.0	4.4	0.7
Stop Del/Veh (s)	161.3	40.0	31.2	54.9	43.6	30.7	68.5	71.6	33.0	63.2	28.6	12.5

5: Latrobe Road & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	80.6
Total Del/Veh (s)	65.3
Stop Delay (hr)	72.8
Stop Del/Veh (s)	59.1

7: Driveway/Post St & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	8.4	0.6	10.0
Denied Del/Veh (s)	0.0	0.0	0.0	3.1	0.5	0.4	0.1	0.1	0.1	165.2	159.1	166.9
Total Delay (hr)	4.9	5.3	0.1	0.8	5.8	1.0	0.8	0.1	0.1	8.0	0.4	6.0
Total Del/Veh (s)	76.7	22.9	10.3	71.7	36.4	20.7	52.5	32.5	11.6	163.6	122.8	106.6
Stop Delay (hr)	4.5	3.6	0.0	0.7	4.2	0.8	0.8	0.1	0.1	7.7	0.4	5.7
Stop Del/Veh (s)	70.3	15.3	5.9	64.5	26.5	16.1	50.1	29.9	11.4	156.2	114.0	100.0

7: Driveway/Post St & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	19.2
Denied Del/Veh (s)	29.1
Total Delay (hr)	33.5
Total Del/Veh (s)	50.7
Stop Delay (hr)	28.6
Stop Del/Veh (s)	43.3

Total Zone Performance

Denied Delay (hr)	286.2
Denied Del/Veh (s)	169.5
Total Delay (hr)	389.3
Total Del/Veh (s)	943.2
Stop Delay (hr)	332.5
Stop Del/Veh (s)	805.5

Intersection: 1: El Dorado Hills Blvd & Saratoga Way/Park Drive

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	L	TR	L	T	T	TR	L	T	TR
Maximum Queue (ft)	174	340	225	512	522	275	624	575	462	125	351	336
Average Queue (ft)	130	288	196	400	392	249	392	279	208	110	323	255
95th Queue (ft)	217	401	280	635	653	321	755	592	363	168	359	421
Link Distance (ft)		324		482	482		778	778	778		309	309
Upstream Blk Time (%)		22		45	44		6	0	0		83	15
Queuing Penalty (veh)		145		0	0		28	1	0		0	0
Storage Bay Dist (ft)	150		200			250				100		
Storage Blk Time (%)	4	32	29			54	1			32	69	
Queuing Penalty (veh)	21	121	107			220	1			136	141	

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	L	LT	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	124	168	154	172	301	464	463	326	317	328	224	821
Average Queue (ft)	65	82	77	100	133	305	310	161	163	184	58	792
95th Queue (ft)	110	139	144	169	302	431	433	281	273	295	212	854
Link Distance (ft)	1293	1293			621	641	641	641	641	641		778
Upstream Blk Time (%)					0	0	0	0				54
Queuing Penalty (veh)					0	0	0	0				237
Storage Bay Dist (ft)			150	150							200	
Storage Blk Time (%)			1	4	7						0	88
Queuing Penalty (veh)			1	5	18						0	16

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	811	810	211
Average Queue (ft)	722	326	61
95th Queue (ft)	938	730	156
Link Distance (ft)	778	778	
Upstream Blk Time (%)	10	1	
Queuing Penalty (veh)	44	5	
Storage Bay Dist (ft)			200
Storage Blk Time (%)		1	0
Queuing Penalty (veh)		3	0

Intersection: 3: Latrobe Road & US 50 EB Ramps

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	R	R	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	155	93	391	546	569	299	158	251	104	91	74
Average Queue (ft)	77	43	82	123	154	101	82	77	33	26	11
95th Queue (ft)	125	76	233	332	376	228	139	183	82	72	46
Link Distance (ft)	1211		572	572	572			641	641	641	641
Upstream Blk Time (%)			0	0	0						
Queuing Penalty (veh)			0	1	1						
Storage Bay Dist (ft)		450				275	575				
Storage Blk Time (%)					1	0					
Queuing Penalty (veh)					3	2					

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	TR	L	TR	R	L	L	T	T	T
Maximum Queue (ft)	318	343	231	117	125	447	444	2	67	880	881	877
Average Queue (ft)	156	213	28	45	85	279	283	0	3	735	755	766
95th Queue (ft)	273	322	131	91	165	434	438	3	39	1016	1008	1004
Link Distance (ft)			778	778		526	526			839	839	839
Upstream Blk Time (%)						1	1			7	9	15
Queuing Penalty (veh)						0	0			32	41	69
Storage Bay Dist (ft)	350	350			100			225	225			
Storage Blk Time (%)	0	0	0		1	57				50		
Queuing Penalty (veh)	0	0	1		4	40				1		

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	NB	SB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	T	R
Maximum Queue (ft)	876	329	343	441	269	246	81
Average Queue (ft)	254	209	222	171	115	108	11
95th Queue (ft)	831	307	315	334	203	202	39
Link Distance (ft)	839			572	572	572	572
Upstream Blk Time (%)	3			0	0		
Queuing Penalty (veh)	16			1	0		
Storage Bay Dist (ft)		325	325				
Storage Blk Time (%)		0	1	1			
Queuing Penalty (veh)		1	4	7			

Intersection: 5: Latrobe Road & White Rock Road

Movement	EB	EB	EB	EB	B40	B40	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	TR	T	T	L	L	T	T	R	L
Maximum Queue (ft)	337	346	412	364	548	406	179	189	198	272	277	278
Average Queue (ft)	271	292	315	185	287	34	128	137	101	116	109	115
95th Queue (ft)	404	409	499	318	746	249	188	197	199	212	225	279
Link Distance (ft)			346	346	559	559				315	315	
Upstream Blk Time (%)	1	22	38	1	23	0				1	0	0
Queuing Penalty (veh)	0	0	208	4	124	2				2	1	0
Storage Bay Dist (ft)	325	325					175	175	175			270
Storage Blk Time (%)	12	37	22				1	3	2	1		0
Queuing Penalty (veh)	30	96	104				1	5	2	4		0

Intersection: 5: Latrobe Road & White Rock Road

Movement	NB	NB	NB	NB	NB	B80	B80	B25	B25	SB	SB	SB
Directions Served	T	T	T	T	R	T	T	T	T	L	L	T
Maximum Queue (ft)	369	347	338	354	66	306	319	415	435	165	208	282
Average Queue (ft)	273	253	256	219	49	137	151	167	180	78	85	123
95th Queue (ft)	414	360	362	399	62	387	406	542	569	150	174	236
Link Distance (ft)	278	278	278	278		247	247	501	501			839
Upstream Blk Time (%)	26	20	22	11		20	24	5	17			
Queuing Penalty (veh)	0	0	0	0		0	0	0	0			
Storage Bay Dist (ft)					25					225	225	
Storage Blk Time (%)	27			19	41					0	0	1
Queuing Penalty (veh)	23			75	119					0	0	3

Intersection: 5: Latrobe Road & White Rock Road

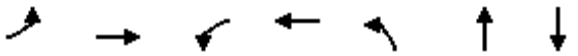
Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	279	197	196
Average Queue (ft)	128	18	35
95th Queue (ft)	242	103	123
Link Distance (ft)	839	839	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 7: Driveway/Post St & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	105	352	370	135	145	406	340	104	68	75	457
Average Queue (ft)	101	252	229	17	51	224	143	42	20	73	399
95th Queue (ft)	116	373	368	75	123	363	264	85	52	80	525
Link Distance (ft)		315	315			585	585	216	216		408
Upstream Blk Time (%)		5	3			0					69
Queuing Penalty (veh)		29	15			0					0
Storage Bay Dist (ft)	80			110	120					50	
Storage Blk Time (%)	54	11	20	0	1	31				80	11
Queuing Penalty (veh)	242	27	5	0	2	13				183	20

Zone Summary

Zone wide Queuing Penalty: 2817



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	16	890	141	499	298	382	43
v/c Ratio	0.05	0.72	0.63	0.26	0.70	0.50	0.25
Control Delay	30.9	33.7	60.2	14.8	48.0	5.1	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	33.7	60.2	14.8	48.0	5.1	27.3
Queue Length 50th (ft)	6	231	81	76	162	5	8
Queue Length 95th (ft)	33	#561	211	208	389	63	47
Internal Link Dist (ft)		327		554		213	278
Turn Bay Length (ft)	195		190		155		
Base Capacity (vph)	443	1768	425	2683	738	1190	365
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.50	0.33	0.19	0.40	0.32	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	719	99	130	459	0	274	11	340	0	13	27
Future Volume (veh/h)	15	719	99	130	459	0	274	11	340	0	13	27
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	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	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	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	782	108	141	499	0	298	12	370	0	14	29
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	440	1218	168	176	1979	0	351	15	473	91	28	58
Arrive On Green	0.39	0.39	0.39	0.10	0.56	0.00	0.20	0.31	0.31	0.00	0.05	0.05
Sat Flow, veh/h	895	3125	431	1774	3632	0	1774	50	1541	997	542	1123
Grp Volume(v), veh/h	16	443	447	141	499	0	298	0	382	0	0	43
Grp Sat Flow(s),veh/h/ln	895	1770	1787	1774	1770	0	1774	0	1591	997	0	1665
Q Serve(g_s), s	0.9	16.2	16.2	6.2	5.7	0.0	12.8	0.0	17.4	0.0	0.0	2.0
Cycle Q Clear(g_c), s	0.9	16.2	16.2	6.2	5.7	0.0	12.8	0.0	17.4	0.0	0.0	2.0
Prop In Lane	1.00		0.24	1.00		0.00	1.00		0.97	1.00		0.67
Lane Grp Cap(c), veh/h	440	690	696	176	1979	0	351	0	489	91	0	86
V/C Ratio(X)	0.04	0.64	0.64	0.80	0.25	0.00	0.85	0.00	0.78	0.00	0.00	0.50
Avail Cap(c_a), veh/h	576	959	969	456	3079	0	792	0	489	233	0	323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	15.0	19.7	19.7	35.0	9.0	0.0	30.7	0.0	25.1	0.0	0.0	36.6
Incr Delay (d2), s/veh	0.0	1.3	1.2	3.2	0.1	0.0	5.8	0.0	7.4	0.0	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	8.1	8.2	3.2	2.8	0.0	6.9	0.0	8.6	0.0	0.0	1.0
LnGrp Delay(d),s/veh	15.1	21.0	20.9	38.2	9.1	0.0	36.5	0.0	32.4	0.0	0.0	38.3
LnGrp LOS	B	C	C	D	A		D		C			D
Approach Vol, veh/h		906			640			680			43	
Approach Delay, s/veh		20.8			15.5			34.2			38.3	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	13.4	36.9		29.0		50.4	20.3	8.7
Change Period (Y+Rc), s	5.6	6.0		4.6		6.0	4.6	4.6
Max Green Setting (Gmax), s	20.4	43.0		15.4		69.0	35.4	15.4
Max Q Clear Time (g_c+I1), s	8.2	18.2		19.4		7.7	14.8	4.0
Green Ext Time (p_c), s	0.0	12.7		0.0		17.9	0.8	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	3	6	0	4	32	4	531	0	16	275	69
Future Vol, veh/h	87	3	6	0	4	32	4	531	0	16	275	69
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	-	-	-	-	-	-	100	-	-	-	-	-
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	95	3	7	0	4	35	4	577	0	17	299	75

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	976	957	336	962	995	577	374	0	0	577	0	0
Stage 1	371	371	-	586	586	-	-	-	-	-	-	-
Stage 2	605	586	-	376	409	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	230	258	706	235	245	516	1184	-	-	996	-	-
Stage 1	649	620	-	496	497	-	-	-	-	-	-	-
Stage 2	485	497	-	645	596	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	207	251	706	226	239	516	1184	-	-	996	-	-
Mov Cap-2 Maneuver	207	251	-	226	239	-	-	-	-	-	-	-
Stage 1	647	606	-	494	495	-	-	-	-	-	-	-
Stage 2	447	495	-	622	583	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.8	13.6	0.1	0.4
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1184	-	-	218	457	996	-	-
HCM Lane V/C Ratio	0.004	-	-	0.479	0.086	0.017	-	-
HCM Control Delay (s)	8.1	-	-	35.8	13.6	8.7	0	-
HCM Lane LOS	A	-	-	E	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.4	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	64	471	9	104	177
Future Vol, veh/h	7	64	471	9	104	177
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	70	512	10	113	192

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	935	517	0	0	522	0
Stage 1	517	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	295	558	-	-	1044	-
Stage 1	598	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	263	558	-	-	1044	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	592	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	263	558	1044	-
HCM Lane V/C Ratio	-	-	0.029	0.125	0.108	-
HCM Control Delay (s)	-	-	19.1	12.4	8.9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0.4	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	1	0	413	100	13
Future Vol, veh/h	18	1	0	413	100	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	1	0	449	109	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	565	116	123	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	449	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	486	936	1464	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	486	936	1464	-	-	-
Mov Cap-2 Maneuver	486	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	643	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0	0
HCM LOS	B		

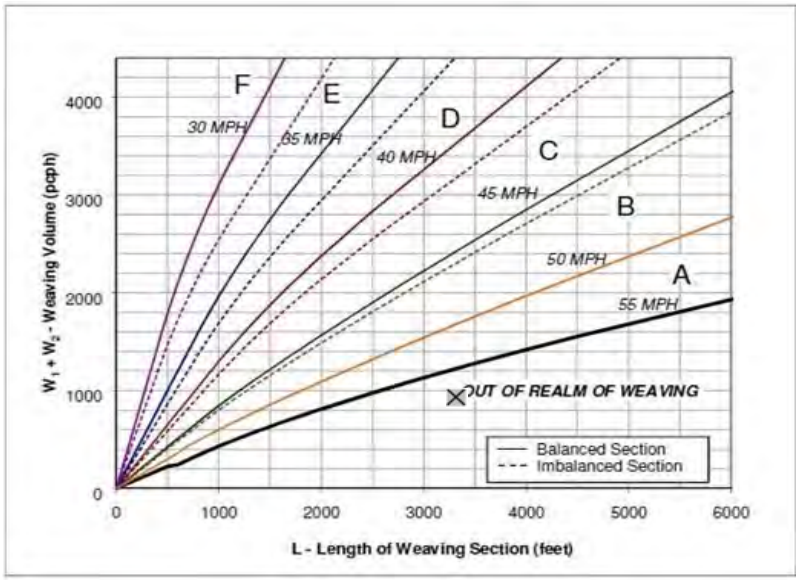
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1464	-	499	-	-
HCM Lane V/C Ratio	-	-	0.041	-	-
HCM Control Delay (s)	0	-	12.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

WB US-50, East of El Dorado Hills Blvd Off Ramp, Near-Term (2026) plus Project Conditons (PM)

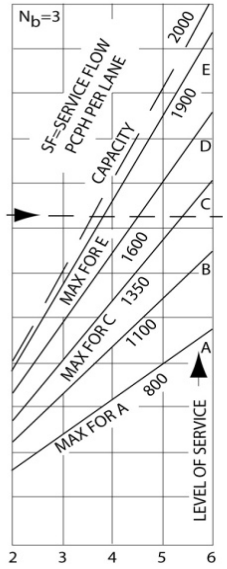
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	3425

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	3,142	Volume (vph)	392	Volume (vph)	316
Truck Percentage	2%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	3,173	Volume (pcph)	396	Volume (pcph)	319

W1 + W2	715
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	54.8
Weaving Intensity Factor (k)	1.00
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	793
Level of Service (LOS)	A



Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS

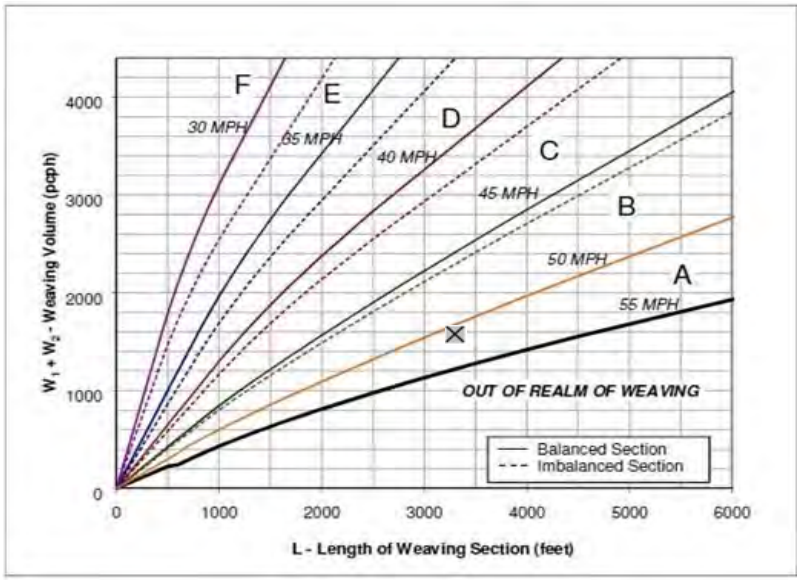


WB US-50, East of El Dorado Hills Blvd Off Ramp, Near-Term (2026) plus Project Conditons (AM)

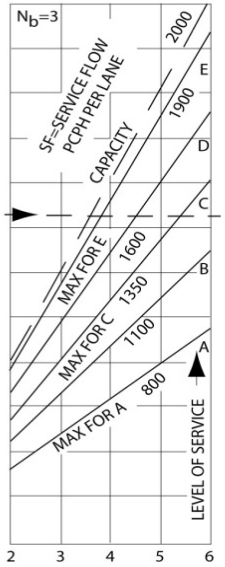
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	3425

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	3,646	Volume (vph)	1,054	Volume (vph)	523
Truck Percentage	2%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	3,682	Volume (pcph)	1,065	Volume (pcph)	528

W1 + W2	1,593
In between	
Speed 1	45
Speed 2	50
Interpolated Weaving Speed (Sw, mph)	46.8
Weaving Intensity Factor (k)	1.40
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	973
Level of Service (LOS)	D



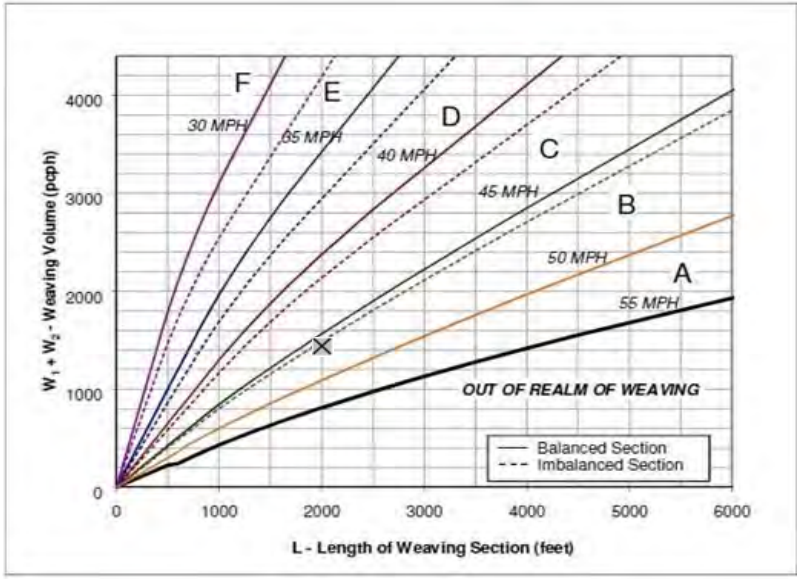
Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS



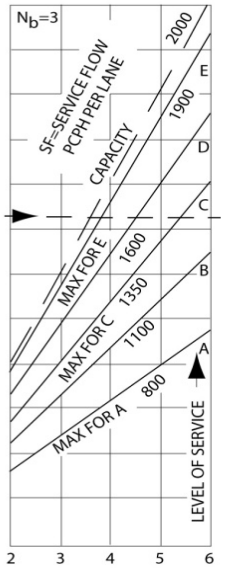
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	2000

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	3,802	Volume (vph)	831	Volume (vph)	706
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	3,878	Volume (pcph)	839	Volume (pcph)	713

W1 + W2	1,552
In between	
Speed 1	45
Speed 2	50
Interpolated Weaving Speed (Sw, mph)	45.4
Weaving Intensity Factor (k)	1.60
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	1,076
Level of Service (LOS)	D



Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS

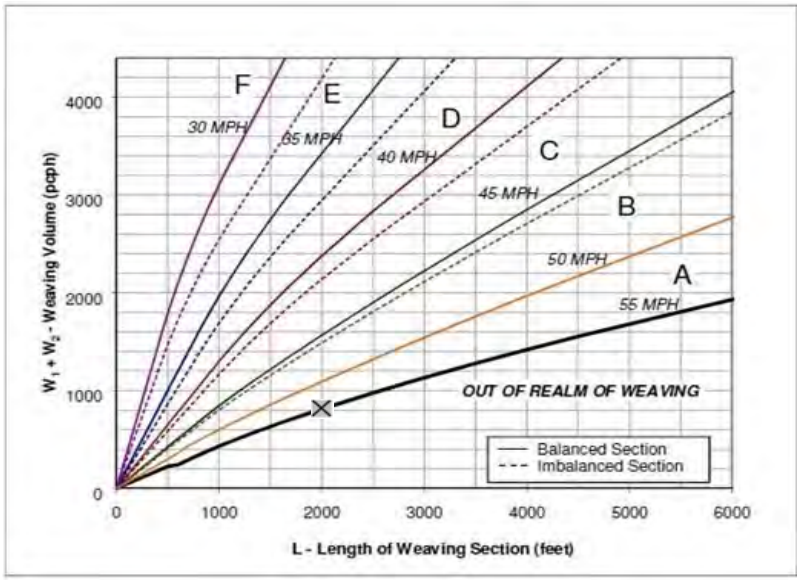


EB US-50, East of Latrobe Rd On Ramp, Near-Term (2026) plus Project Conditons (AM)

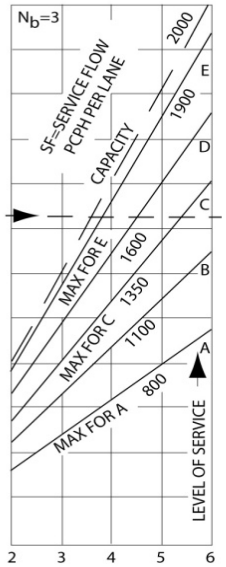
Number of Entering Mainline Lanes	Nb	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	2000

Total Weaving Section (V)		On ramp to Mainline (W1)		Mainline to Off ramp (W2)	
Volume (vph)	1,998	Volume (vph)	526	Volume (vph)	272
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	2,038	Volume (pcph)	531	Volume (pcph)	275

W1 + W2	806
In between	
Speed 1	50
Speed 2	55
Interpolated Weaving Speed (Sw, mph)	50.0
Weaving Intensity Factor (k)	1.00
Service Volume ((SV, pcph)	
SV = (1/N)*[V+(k-1)*min(W1,W2)]	509
Level of Service (LOS)	B



Nb=NUMBER OF BASIC LANES ON APPROACH
SEE CHART FOR DEFINITION OF OTHER TERMS



	Segment Inputs				Near-Term plus Project Conditions											
					Flow Inputs		AM LOS Performance Measures						PM LOS Performance Measures					
		Length	Number of Lanes	Interchange Density	AM Peak	PM Peak	V_p	FFS		S	D	LOS	V_p	FFS		S	D	LOS
		(ft)	(N)	(I/mi)	(veh/h)	(veh/h)	(pc/h/ln)	(mi/h)		(mi/h)	(pc/mi/ln)		(pc/h/ln)	(mi/h)		(mi/h)	(pc/mi/ln)	
Westt Eastb	West of Latrobe Rd SB Off Ramp	6690	3	0.33	2,866	4,126	1048.79	74.12	75	74.9736	13.989	B	1509.877	74.12	75	72.1221	20.9	C
	Latrobe Rd NB Off Ramp to Latrobe Rd On Ramp	1990	3	0.50	1,472	2,971	538.667	73.6	75	72.644	7.4152	A	1087.214	73.6	75	74.9158	14.512	B
	El Dorado Hills Blvd Off Ramp to El Dorado Hills Blvd On Ramp	3565	2	0.50	3,123	2,826	1714.26	73.6	75	69.3525	24.718	C	1551.228	73.6	75	71.6364	21.654	C
	West of El Dorado Hills Blvd On Ramp	5890	2	0.33	4,306	4,303	2363.62	74.12	75	54.4158	43.436	E	2361.973	74.12	75	54.4655	43.366	E

Univeral Inputs:

PHF 0.92

(P_T) 2%

f_{HV} 0.99009901

Segment Inputs				Near-Term plus Project Conditions																												
				AM Flow Inputs			AM LOS Performance Measures												PM Flow Inputs			PM LOS Performance Measures											
	Number of Lanes	Number of Ramp Lanes	Length of Acceleration Lane (L_A)	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v_D	v_F	v_R	v_F/S_{FR}	P_{FM}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v_D	v_F	v_R	v_F/S_{FR}	P_{FM}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS
	(N)		(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/h)	(pc/h)			(pc/h/ln)						(pc/mi/ln)		(veh/h)	(veh/h)	(veh/h)	(pc/h)	(pc/hr)	(pc/h)			(pc/h/ln)						(pc/mi/ln)	
≥ 8 El Dorado Hills Blvd On Ramp	2	1	795	4306	3123	1183	4727	3429	1299	98	1	3428.5	4800	0	2571	3429	0.9848	36.765	E	4303	2826	1477	4724	3102	1621	89	1	3102.5	4800	0	2327	3102	0.9842	36.591	E

Univeral Inputs:

Length	1500	(ft)
S_{FF}	70	(mi/h)
S_{FR}	35	(mi/h)
PHF	0.92	
(P_T)	2%	
f_{HV}	0.99009901	

		Segment Inputs				Near-Term plus Project Conditions																									
						AM Flow Inputs														PM Flow Inputs			PM LOS Performance Measures										
		Number of Lanes	Number of Ramp Lanes	L_{EQ}	Length of Deceleration Lane (L_D)	Downstream Volume	Upstream Volume	Ramp Volume	v_D	v_F	v_R	P_{FD}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS	Downstream Volume (D)	Upstream Volume (F)	Ramp Volume (R)	v_D	v_F	v_R	P_{FD}	v_{12}	Capacity	v_3		v_{12a}	v/c	D	LOS
		(N)		(ft)	(ft)	(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)						(pc/mi/ln)		(veh/h)	(veh/h)	(veh/h)	(pc/h/ln)	(pc/h/ln)	(pc/h/ln)		(pc/h/ln)						(pc/mi/ln)	
EB	Latrobe SB Off Ramp	3	1	1086	140	1751	2866	1115	312.359	3208.7	1248.3	0.5952	2415.1	7200	397	1811	2415	0.4456	23.762	C	3717	4303	586	637.033	4817.5	656.07	0.6098	3193.6	7200	812	2395	3194	0.6691	30.457	D
	Latrobe NB Off Ramp	3	1	-	140	1472	1751	279	-	1960.4	312.36	0.6966	1460.4	7200	500	1095	1460	0.2723	15.551	B	3148	3717	569	-	4161.4	637.03	0.6267	2845.6	7200	1316	2134	2846	0.578	27.464	C

Univeral Inputs:

L_{eng}	1500	(ft)
S_{FF}	70	(mi/h)
S_{FR}	35	(mi/h)
PHF	0.92	
(P_T)	6%	
f_{HV}	0.970873786	

Kimley»Horn

Attachment D

Analysis Worksheets for Near-Term (2026) Plus Project Mitigated Conditions

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	8015	8020	8067	7959	7940	7945	8197
Vehs Exited	7907	7969	8031	7827	7834	7842	8125
Starting Vehs	292	337	345	296	327	318	374
Ending Vehs	400	388	381	428	433	421	446
Travel Distance (mi)	4682	4702	4764	4670	4603	4678	4837
Travel Time (hr)	415.2	491.2	419.0	419.6	444.7	511.0	495.6
Total Delay (hr)	267.0	342.8	268.7	271.7	299.2	363.6	343.2
Total Stops	13968	14961	14615	14436	14187	14775	15189
Fuel Used (gal)	249.5	268.5	253.6	251.7	254.1	272.1	272.5

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	8002	7925	7990	8003
Vehs Exited	7918	7811	7982	7927
Starting Vehs	319	315	339	324
Ending Vehs	403	429	347	401
Travel Distance (mi)	4693	4664	4705	4700
Travel Time (hr)	481.0	471.8	463.5	461.3
Total Delay (hr)	332.6	324.8	315.0	312.9
Total Stops	14496	14698	14586	14589
Fuel Used (gal)	265.4	262.6	260.8	261.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1976	2000	1992	1977	1979	1979	2045
Vehs Exited	1919	1940	1996	1931	1959	1934	2019
Starting Vehs	292	337	345	296	327	318	374
Ending Vehs	349	397	341	342	347	363	400
Travel Distance (mi)	1128	1141	1182	1129	1156	1164	1192
Travel Time (hr)	82.6	95.6	88.3	82.2	85.3	95.1	92.7
Total Delay (hr)	46.7	59.7	51.0	46.2	48.9	58.3	55.2
Total Stops	3405	3751	3376	3247	3304	3394	3497
Fuel Used (gal)	55.7	59.7	59.5	56.0	57.3	60.1	60.2

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1980	1900	1943	1971
Vehs Exited	1935	1861	1957	1945
Starting Vehs	319	315	339	324
Ending Vehs	364	354	325	349
Travel Distance (mi)	1131	1116	1142	1148
Travel Time (hr)	89.6	88.1	93.3	89.3
Total Delay (hr)	53.7	53.1	57.1	53.0
Total Stops	3391	3334	3477	3412
Fuel Used (gal)	57.7	56.8	59.2	58.2

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2074	2043	2080	2070	2108	2136	2110
Vehs Exited	2017	2015	2037	1983	2044	2067	2085
Starting Vehs	349	397	341	342	347	363	400
Ending Vehs	406	425	384	429	411	432	425
Travel Distance (mi)	1216	1193	1188	1201	1211	1210	1234
Travel Time (hr)	104.8	123.8	102.2	113.7	105.8	123.1	121.0
Total Delay (hr)	66.3	86.0	64.5	75.6	67.5	84.9	82.2
Total Stops	3693	3766	3626	3926	3788	3906	3954
Fuel Used (gal)	64.0	67.7	62.1	66.1	64.2	68.3	68.3

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2170	2081	2173	2105
Vehs Exited	2053	2001	2122	2043
Starting Vehs	364	354	325	349
Ending Vehs	481	434	376	417
Travel Distance (mi)	1249	1203	1262	1217
Travel Time (hr)	121.2	122.9	114.7	115.3
Total Delay (hr)	81.8	84.8	75.0	76.9
Total Stops	3848	4113	3875	3849
Fuel Used (gal)	69.3	68.2	67.4	66.6

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1941	2012	2014	1941	1889	1906	2020
Vehs Exited	1973	2032	1983	2018	1923	1967	1986
Starting Vehs	406	425	384	429	411	432	425
Ending Vehs	374	405	415	352	377	371	459
Travel Distance (mi)	1156	1191	1179	1186	1114	1169	1199
Travel Time (hr)	117.1	137.7	111.3	115.0	118.9	141.5	135.9
Total Delay (hr)	80.4	100.0	74.3	77.7	83.6	104.7	98.1
Total Stops	3408	3737	3729	3730	3540	3743	3938
Fuel Used (gal)	64.7	71.2	64.5	66.3	64.4	71.1	70.4

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1954	1941	1954	1955
Vehs Exited	2002	2011	1936	1982
Starting Vehs	481	434	376	417
Ending Vehs	433	364	394	390
Travel Distance (mi)	1170	1177	1132	1168
Travel Time (hr)	133.1	129.7	123.9	126.4
Total Delay (hr)	96.0	92.5	88.0	89.5
Total Stops	3762	3696	3548	3682
Fuel Used (gal)	69.1	68.6	65.8	67.6

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2024	1965	1981	1971	1964	1924	2022
Vehs Exited	1998	1982	2015	1895	1908	1874	2035
Starting Vehs	374	405	415	352	377	371	459
Ending Vehs	400	388	381	428	433	421	446
Travel Distance (mi)	1182	1177	1214	1153	1122	1135	1212
Travel Time (hr)	110.7	134.1	117.3	108.7	134.7	151.4	146.0
Total Delay (hr)	73.6	97.1	79.0	72.3	99.3	115.6	107.8
Total Stops	3462	3707	3884	3533	3555	3732	3800
Fuel Used (gal)	65.1	69.9	67.4	63.3	68.2	72.6	73.6

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1898	2003	1920	1961
Vehs Exited	1928	1938	1967	1953
Starting Vehs	433	364	394	390
Ending Vehs	403	429	347	401
Travel Distance (mi)	1143	1168	1169	1167
Travel Time (hr)	137.1	131.2	131.5	130.3
Total Delay (hr)	101.1	94.4	94.8	93.5
Total Stops	3495	3555	3686	3644
Fuel Used (gal)	69.3	69.1	68.5	68.7

1: El Dorado Hills Blvd & Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	44.6	3.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.3	0.3	0.0	0.0	0.0	108.8	108.8	105.5
Total Delay (hr)	0.8	1.0	1.4	1.1	1.6	1.1	2.6	3.5	0.0	3.9	15.0	0.9
Total Del/Veh (s)	49.5	50.5	28.6	45.8	54.2	32.8	62.0	17.6	12.7	82.6	37.9	34.1
Stop Delay (hr)	0.7	0.9	1.3	1.0	1.4	1.0	2.4	2.4	0.0	3.6	10.8	0.8
Stop Del/Veh (s)	47.2	46.7	28.0	43.1	48.0	29.3	56.7	12.1	10.3	76.3	27.3	28.3

1: El Dorado Hills Blvd & Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	52.8
Denied Del/Veh (s)	59.2
Total Delay (hr)	32.8
Total Del/Veh (s)	37.2
Stop Delay (hr)	26.3
Stop Del/Veh (s)	29.9

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.2	1.9	1.2	4.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	1.6	1.3	0.3	4.0	6.9	2.4	9.4	1.6	0.3	0.6	7.7	2.5
Total Del/Veh (s)	43.6	45.5	3.9	133.1	167.0	181.3	62.7	8.3	6.6	73.2	24.9	17.1
Stop Delay (hr)	1.5	1.2	0.0	3.8	6.5	2.4	8.2	0.7	0.1	0.6	4.8	1.1
Stop Del/Veh (s)	40.7	40.7	0.0	126.6	159.2	176.5	54.7	3.7	3.0	67.1	15.7	7.6

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	38.7
Total Del/Veh (s)	35.6
Stop Delay (hr)	31.0
Stop Del/Veh (s)	28.5

3: Latrobe Road & US 50 EB Ramps Performance by movement

Movement	EBR	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.8	0.0	0.0	0.0	0.0	0.0	0.8
Denied Del/Veh (s)	2.5	0.2	0.0	0.0	0.0	0.0	0.7
Total Delay (hr)	7.9	0.1	2.9	0.8	2.9	3.3	17.8
Total Del/Veh (s)	24.9	0.9	9.5	10.5	41.1	9.3	14.9
Stop Delay (hr)	6.0	0.0	0.9	0.3	2.3	0.8	10.3
Stop Del/Veh (s)	18.9	0.0	3.0	4.0	33.3	2.3	8.6

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.0	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.1	0.0	1.2	0.4	1.0	0.7	8.6	0.2	4.3	5.3	0.4
Total Del/Veh (s)	44.0	46.9	12.0	42.1	42.8	10.8	51.4	31.1	6.4	30.7	12.5	4.1
Stop Delay (hr)	0.4	0.1	0.0	1.1	0.3	0.9	0.7	5.7	0.1	3.6	2.8	0.2
Stop Del/Veh (s)	42.1	43.6	12.0	38.5	37.8	9.5	46.5	20.5	5.2	25.5	6.6	2.1

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	22.7
Total Del/Veh (s)	20.1
Stop Delay (hr)	15.9
Stop Del/Veh (s)	14.1

5: Latrobe Road & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	6.2	1.4	0.4	10.2	7.5	0.4	12.8	5.5	0.2	1.9	13.0	4.2
Total Del/Veh (s)	78.9	40.3	18.0	94.8	71.4	9.9	342.8	27.5	4.0	67.3	43.8	30.5
Stop Delay (hr)	5.9	1.2	0.4	9.3	6.5	0.3	12.7	4.9	0.2	1.7	8.8	3.1
Stop Del/Veh (s)	75.1	35.6	16.6	86.5	62.0	7.6	342.3	24.3	4.1	58.2	29.6	22.6

5: Latrobe Road & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	63.6
Total Del/Veh (s)	56.5
Stop Delay (hr)	55.0
Stop Del/Veh (s)	48.8

7: Driveway/Post St & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.7	12.4	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	61.5	56.6	56.0	0.1	0.1	0.1	3.8	0.3	0.3
Total Delay (hr)	1.6	1.2	0.0	2.4	31.9	2.5	0.8	0.0	0.0	0.4	0.1	0.7
Total Del/Veh (s)	55.3	18.0	4.1	216.3	150.2	44.0	78.4	43.5	4.4	42.8	29.8	19.1
Stop Delay (hr)	1.5	0.9	0.0	2.2	26.9	1.8	0.8	0.0	0.0	0.4	0.1	0.6
Stop Del/Veh (s)	51.4	13.6	2.2	195.2	126.6	32.6	76.2	40.9	4.4	39.9	26.2	17.8

7: Driveway/Post St & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	16.4
Denied Del/Veh (s)	35.9
Total Delay (hr)	41.9
Total Del/Veh (s)	93.1
Stop Delay (hr)	35.4
Stop Del/Veh (s)	78.8

Total Zone Performance

Denied Delay (hr)	70.2
Denied Del/Veh (s)	41.5
Total Delay (hr)	217.9
Total Del/Veh (s)	427.9
Stop Delay (hr)	174.0
Stop Del/Veh (s)	341.7

Intersection: 1: El Dorado Hills Blvd & Saratoga Way

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	L	TR	L	T	T	TR	L	T	TR
Maximum Queue (ft)	88	145	183	133	258	230	147	163	156	125	352	348
Average Queue (ft)	18	71	87	50	138	111	63	66	68	107	317	321
95th Queue (ft)	56	123	153	101	235	197	122	130	133	152	368	363
Link Distance (ft)		299		482	482		774	774	774		309	309
Upstream Blk Time (%)											31	37
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	150		200			250				100		
Storage Blk Time (%)		0	0			0				25	33	
Queuing Penalty (veh)		1	0			1				185	57	

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	L	LT	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	136	191	174	474	173	334	339	131	127	155	162	339
Average Queue (ft)	66	95	83	251	141	212	216	51	50	71	36	163
95th Queue (ft)	119	156	185	518	209	328	336	110	107	128	114	307
Link Distance (ft)	1228	1228		621		646	646	646	646	646		774
Upstream Blk Time (%)				2								
Queuing Penalty (veh)				0								
Storage Bay Dist (ft)			150		150						200	
Storage Blk Time (%)			1	37	26						0	8
Queuing Penalty (veh)			2	64	48						0	3

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	294	334	225
Average Queue (ft)	115	133	133
95th Queue (ft)	246	282	245
Link Distance (ft)	774	774	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			200
Storage Blk Time (%)		2	2
Queuing Penalty (veh)		8	8

Intersection: 3: Latrobe Road & US 50 EB Ramps

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	R	R	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	331	352	163	205	301	218	287	232	68	119	67
Average Queue (ft)	193	205	35	62	90	59	170	49	20	25	17
95th Queue (ft)	290	315	116	155	227	165	255	156	54	84	50
Link Distance (ft)	1211		561	561	561			646	646	646	646
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		450				275	575				
Storage Blk Time (%)					0	0					
Queuing Penalty (veh)					1	0					

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	TR	LT	R	R	L	L	T	T	T
Maximum Queue (ft)	26	62	32	30	173	135	144	63	101	282	433	466
Average Queue (ft)	2	23	8	6	87	49	59	17	25	119	159	195
95th Queue (ft)	14	54	28	23	153	101	115	46	61	231	321	342
Link Distance (ft)			778	778	526	526	526			839	839	839
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	350	350						225	225			
Storage Blk Time (%)										1		
Queuing Penalty (veh)										0		

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	NB	SB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	T	R
Maximum Queue (ft)	71	229	241	239	252	287	149
Average Queue (ft)	24	116	131	111	120	126	40
95th Queue (ft)	55	190	203	195	213	232	105
Link Distance (ft)	839			561	561	561	561
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		325	325				
Storage Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			

Intersection: 5: Latrobe Road & White Rock Road

Movement	EB	EB	EB	EB	B40	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	TR	T	L	L	T	T	R	L	T
Maximum Queue (ft)	242	260	174	160	12	182	191	200	333	147	278	370
Average Queue (ft)	117	147	50	74	0	158	173	184	259	52	242	274
95th Queue (ft)	221	240	121	133	12	205	212	234	386	107	340	457
Link Distance (ft)			346	346	559				315	315		278
Upstream Blk Time (%)	0	0	0						8	0	35	54
Queuing Penalty (veh)	0	0	0						36	0	0	0
Storage Bay Dist (ft)	325	325				175	175	175			270	
Storage Blk Time (%)	0	0	0			3	17	13	13		56	51
Queuing Penalty (veh)	0	0	0			6	34	25	76		101	74

Intersection: 5: Latrobe Road & White Rock Road

Movement	NB	NB	NB	NB	B80	B80	B25	B25	SB	SB	SB	SB
Directions Served	T	T	T	R	T	T	T	T	L	L	T	T
Maximum Queue (ft)	241	180	104	53	314	256	227	227	82	249	426	422
Average Queue (ft)	101	96	19	28	149	62	84	73	23	78	257	260
95th Queue (ft)	198	156	69	56	389	239	326	312	61	239	398	396
Link Distance (ft)	278	278	278		247	247	501	501			839	839
Upstream Blk Time (%)	0				33	1	3	1				
Queuing Penalty (veh)	0				0	0	0	0				
Storage Bay Dist (ft)				25					225	225		
Storage Blk Time (%)			4	1						0	14	
Queuing Penalty (veh)			6	2						0	15	

Intersection: 5: Latrobe Road & White Rock Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	485	275
Average Queue (ft)	119	176
95th Queue (ft)	390	304
Link Distance (ft)	839	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)	0	4
Queuing Penalty (veh)	2	15

Intersection: 7: Driveway/Post St & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	104	190	148	54	145	1106	1089	121	41	75	167
Average Queue (ft)	75	56	64	7	51	886	791	39	10	31	61
95th Queue (ft)	119	145	120	33	130	1350	1420	98	30	69	128
Link Distance (ft)		315	315			1064	1064	216	216		408
Upstream Blk Time (%)						46	13	0			
Queuing Penalty (veh)						0	0	0			
Storage Bay Dist (ft)	80			110	120					50	
Storage Blk Time (%)	15	2	1		0	62				9	19
Queuing Penalty (veh)	18	2	0		1	25				13	7

Zone Summary

Zone wide Queuing Penalty: 839

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	9486	9774	9831	9573	9746	9830	9768
Vehs Exited	9230	9590	9700	9418	9561	9615	9550
Starting Vehs	449	384	471	474	406	395	428
Ending Vehs	705	568	602	629	591	610	646
Travel Distance (mi)	5165	5358	5355	5224	5321	5310	5343
Travel Time (hr)	828.6	675.5	631.7	694.5	622.8	597.0	811.4
Total Delay (hr)	664.2	505.0	460.8	528.7	453.7	427.7	641.8
Total Stops	21409	21193	20835	21921	20893	19362	22919
Fuel Used (gal)	362.5	335.0	325.6	334.5	320.8	316.8	366.0

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	9743	9564	9893	9720
Vehs Exited	9550	9474	9676	9535
Starting Vehs	438	443	450	426
Ending Vehs	631	533	667	613
Travel Distance (mi)	5269	5313	5374	5303
Travel Time (hr)	760.8	709.7	649.0	698.1
Total Delay (hr)	592.8	541.1	477.9	529.4
Total Stops	22116	20464	22754	21389
Fuel Used (gal)	352.8	341.7	330.1	338.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2432	2501	2422	2378	2403	2388	2525
Vehs Exited	2341	2351	2439	2334	2343	2314	2355
Starting Vehs	449	384	471	474	406	395	428
Ending Vehs	540	534	454	518	466	469	598
Travel Distance (mi)	1331	1340	1328	1312	1307	1292	1347
Travel Time (hr)	134.0	123.0	117.4	127.3	110.3	116.3	139.5
Total Delay (hr)	91.8	80.5	74.9	85.8	68.9	75.3	96.9
Total Stops	4904	4986	4624	5068	4445	4474	5172
Fuel Used (gal)	75.4	73.2	72.3	73.3	69.6	70.8	77.7

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2449	2424	2487	2437
Vehs Exited	2374	2331	2393	2357
Starting Vehs	438	443	450	426
Ending Vehs	513	536	544	515
Travel Distance (mi)	1306	1333	1363	1326
Travel Time (hr)	128.4	123.0	126.6	124.6
Total Delay (hr)	86.8	80.8	83.4	82.5
Total Stops	4753	4763	5024	4824
Fuel Used (gal)	74.0	73.5	75.0	73.5

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2493	2485	2678	2555	2612	2636	2587
Vehs Exited	2376	2485	2592	2422	2497	2551	2469
Starting Vehs	540	534	454	518	466	469	598
Ending Vehs	657	534	540	651	581	554	716
Travel Distance (mi)	1330	1353	1440	1347	1396	1418	1374
Travel Time (hr)	190.5	154.2	154.7	160.3	146.3	147.2	179.7
Total Delay (hr)	148.0	110.7	108.9	117.3	101.6	101.8	136.0
Total Stops	5424	5247	5588	5627	5361	5157	6045
Fuel Used (gal)	88.5	80.6	83.7	81.5	79.9	81.3	87.2

Interval #2 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2652	2531	2559	2579
Vehs Exited	2489	2467	2481	2481
Starting Vehs	513	536	544	515
Ending Vehs	676	600	622	605
Travel Distance (mi)	1376	1374	1356	1376
Travel Time (hr)	180.0	168.1	155.7	163.7
Total Delay (hr)	135.9	124.2	112.3	119.7
Total Stops	6033	5560	5802	5582
Fuel Used (gal)	87.3	84.6	81.1	83.6

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2331	2423	2381	2268	2401	2396	2315
Vehs Exited	2344	2348	2383	2320	2308	2433	2330
Starting Vehs	657	534	540	651	581	554	716
Ending Vehs	644	609	538	599	674	517	701
Travel Distance (mi)	1302	1334	1326	1284	1310	1321	1310
Travel Time (hr)	235.0	192.9	164.8	182.4	172.9	152.3	230.0
Total Delay (hr)	193.5	150.5	122.5	141.6	131.3	110.3	188.2
Total Stops	5560	5513	5194	5496	5458	4816	5772
Fuel Used (gal)	97.0	89.0	82.4	85.2	83.2	79.9	96.5

Interval #3 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2260	2328	2466	2354
Vehs Exited	2342	2307	2410	2352
Starting Vehs	676	600	622	605
Ending Vehs	594	621	678	614
Travel Distance (mi)	1311	1296	1363	1316
Travel Time (hr)	218.0	193.7	176.5	191.8
Total Delay (hr)	176.4	152.6	133.2	150.0
Total Stops	5722	5071	6011	5459
Fuel Used (gal)	94.8	87.7	86.7	88.2

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	2230	2365	2350	2372	2330	2410	2341
Vehs Exited	2169	2406	2286	2342	2413	2317	2396
Starting Vehs	644	609	538	599	674	517	701
Ending Vehs	705	568	602	629	591	610	646
Travel Distance (mi)	1202	1331	1261	1282	1309	1280	1312
Travel Time (hr)	269.1	205.5	194.8	224.5	193.3	181.1	262.3
Total Delay (hr)	231.0	163.3	154.5	183.9	151.8	140.3	220.7
Total Stops	5521	5447	5429	5730	5629	4915	5930
Fuel Used (gal)	101.6	92.1	87.2	94.5	88.1	84.7	104.6

Interval #4 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	2382	2281	2381	2343
Vehs Exited	2345	2369	2392	2342
Starting Vehs	594	621	678	614
Ending Vehs	631	533	667	613
Travel Distance (mi)	1276	1310	1292	1285
Travel Time (hr)	234.5	225.0	190.2	218.0
Total Delay (hr)	193.7	183.5	149.0	177.2
Total Stops	5608	5070	5917	5521
Fuel Used (gal)	96.6	95.9	87.4	93.3

1: El Dorado Hills Blvd & Saratoga Way/Park Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	47.4	4.4
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.4	0.3	0.0	0.0	0.0	191.1	196.6	200.9
Total Delay (hr)	2.7	3.3	2.3	1.8	0.5	1.4	3.6	10.6	0.4	4.8	15.2	1.0
Total Del/Veh (s)	48.2	65.4	27.7	38.9	29.8	17.1	56.0	31.4	26.7	101.0	74.1	51.4
Stop Delay (hr)	2.4	2.9	2.1	1.6	0.4	1.2	3.1	6.9	0.3	4.5	13.2	0.9
Stop Del/Veh (s)	42.8	57.4	25.0	35.6	23.9	13.9	48.0	20.5	19.4	95.4	64.0	47.1

1: El Dorado Hills Blvd & Saratoga Way/Park Drive Performance by movement

Movement	All
Denied Delay (hr)	62.4
Denied Del/Veh (s)	58.8
Total Delay (hr)	47.5
Total Del/Veh (s)	46.5
Stop Delay (hr)	39.4
Stop Del/Veh (s)	38.5

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.2	0.1	3.5	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	2.4	1.9	0.1	3.0	2.8	0.9	11.0	3.7	0.8	1.2	33.6	1.9
Total Del/Veh (s)	62.1	67.4	3.0	58.3	62.6	64.2	36.6	10.2	9.6	232.3	124.7	31.2
Stop Delay (hr)	2.2	1.8	0.0	2.7	2.6	0.8	7.9	1.5	0.3	1.1	29.3	1.4
Stop Del/Veh (s)	58.6	61.9	0.0	53.6	56.5	60.5	26.4	4.1	4.0	219.2	108.5	23.0

2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.2
Total Delay (hr)	63.3
Total Del/Veh (s)	49.3
Stop Delay (hr)	51.7
Stop Del/Veh (s)	40.3

3: Latrobe Road & US 50 EB Ramps Performance by movement

Movement	EBR	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.2	0.1	0.0	0.0	0.0	0.0	0.3
Denied Del/Veh (s)	1.1	0.4	0.0	0.0	0.0	0.0	0.2
Total Delay (hr)	3.5	0.2	6.7	2.2	3.4	2.8	19.0
Total Del/Veh (s)	21.2	1.5	11.5	13.8	58.5	10.2	13.4
Stop Delay (hr)	2.9	0.0	2.0	0.7	2.8	0.8	9.2
Stop Del/Veh (s)	17.5	0.0	3.4	4.4	48.4	2.8	6.5

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	0.2	0.3	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	5.5	0.4	0.3	1.5	0.1	8.3	0.1	50.4	0.5	15.4	3.8	0.0
Total Del/Veh (s)	53.8	41.3	15.7	74.9	67.1	40.7	87.4	109.4	13.3	94.5	14.2	1.3
Stop Delay (hr)	5.1	0.4	0.3	1.4	0.1	7.2	0.1	39.5	0.4	13.7	2.4	0.0
Stop Del/Veh (s)	49.6	38.2	14.8	71.3	62.0	35.5	73.1	85.7	10.6	84.1	9.2	0.8

4: Latrobe Road & Town Center Blvd Performance by movement

Movement	All
Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.3
Total Delay (hr)	86.4
Total Del/Veh (s)	66.4
Stop Delay (hr)	70.7
Stop Del/Veh (s)	54.3

5: Latrobe Road & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	15.7	18.8	2.5	4.4	3.9	1.2	2.3	21.9	3.9	18.3	4.7	0.5
Total Del/Veh (s)	121.9	130.2	95.1	47.4	52.9	22.8	95.2	68.4	35.8	255.3	27.1	7.8
Stop Delay (hr)	14.7	17.4	2.3	3.8	3.3	1.1	2.2	19.9	3.5	17.8	3.5	0.4
Stop Del/Veh (s)	114.5	120.2	88.7	40.9	45.2	20.4	91.5	62.1	32.8	247.9	20.5	5.9

5: Latrobe Road & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	98.0
Total Del/Veh (s)	76.6
Stop Delay (hr)	90.0
Stop Del/Veh (s)	70.3

7: Driveway/Post St & White Rock Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	23.4	1.8	25.6
Denied Del/Veh (s)	0.0	0.0	0.0	2.9	0.5	0.4	0.2	0.1	0.1	447.7	451.9	438.3
Total Delay (hr)	7.4	5.8	0.1	1.0	6.3	1.1	1.1	0.2	0.1	9.4	0.5	6.9
Total Del/Veh (s)	106.9	24.4	12.2	79.4	39.6	22.2	62.7	45.1	14.5	226.5	165.9	152.3
Stop Delay (hr)	6.9	3.7	0.0	0.9	4.7	0.9	1.0	0.1	0.1	9.2	0.4	6.6
Stop Del/Veh (s)	99.4	15.3	7.0	72.1	29.5	17.6	60.2	41.9	14.3	219.7	156.7	146.1

7: Driveway/Post St & White Rock Road Performance by movement

Movement	All
Denied Delay (hr)	50.8
Denied Del/Veh (s)	75.7
Total Delay (hr)	39.8
Total Del/Veh (s)	60.7
Stop Delay (hr)	34.5
Stop Del/Veh (s)	52.6

Total Zone Performance

Denied Delay (hr)	114.2
Denied Del/Veh (s)	67.2
Total Delay (hr)	354.2
Total Del/Veh (s)	843.4
Stop Delay (hr)	295.5
Stop Del/Veh (s)	703.6

Intersection: 1: El Dorado Hills Blvd & Saratoga Way/Park Drive

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	L	TR	L	T	T	TR	L	T	TR
Maximum Queue (ft)	174	332	225	212	293	266	301	301	312	125	353	336
Average Queue (ft)	111	197	143	86	127	148	159	169	178	115	314	281
95th Queue (ft)	206	337	257	170	224	250	262	268	279	158	379	385
Link Distance (ft)		324		482	482		778	778	778		309	309
Upstream Blk Time (%)		3									61	17
Queuing Penalty (veh)		20									0	0
Storage Bay Dist (ft)	150		200			250				100		
Storage Blk Time (%)	1	19	4			2	0			25	60	
Queuing Penalty (veh)	4	74	16			6	1			108	121	

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	L	LT	TR	L	L	T	T	TR	L	T
Maximum Queue (ft)	169	218	157	174	282	447	454	257	260	285	224	827
Average Queue (ft)	86	121	92	116	135	274	279	97	99	122	46	677
95th Queue (ft)	147	195	152	182	229	421	422	222	198	223	176	938
Link Distance (ft)	1293	1293			621	641	641	641	641	641		778
Upstream Blk Time (%)						0	0	0				15
Queuing Penalty (veh)						2	3	0				67
Storage Bay Dist (ft)			150	150							200	
Storage Blk Time (%)			0	2	5							74
Queuing Penalty (veh)			0	3	12							14

Intersection: 2: El Dorado Hills Blvd & US-50 WB Ramps/Saratoga Way

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	800	776	225
Average Queue (ft)	567	411	105
95th Queue (ft)	893	741	209
Link Distance (ft)	778	778	
Upstream Blk Time (%)	2	0	
Queuing Penalty (veh)	11	1	
Storage Bay Dist (ft)			200
Storage Blk Time (%)		3	1
Queuing Penalty (veh)		9	3

Intersection: 3: Latrobe Road & US 50 EB Ramps

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	R	R	T	T	T	R	L	T	T	T	T
Maximum Queue (ft)	274	178	280	294	348	284	322	330	181	97	26
Average Queue (ft)	137	57	93	126	187	143	166	48	8	2	2
95th Queue (ft)	242	111	194	243	305	253	260	212	91	50	12
Link Distance (ft)	1211		561	561	561			641	641	641	641
Upstream Blk Time (%)			0	0	0			0			
Queuing Penalty (veh)			0	0	0			0			
Storage Bay Dist (ft)		450				275	575				
Storage Blk Time (%)					1	0	0	0			
Queuing Penalty (veh)					5	1	0	0			

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB
Directions Served	L	L	T	TR	LT	R	R	L	L	T	T	T
Maximum Queue (ft)	232	284	148	110	216	383	392	5	67	858	864	887
Average Queue (ft)	114	172	23	43	74	220	233	0	4	618	680	702
95th Queue (ft)	198	257	94	85	164	337	349	4	40	973	1001	999
Link Distance (ft)			778	778	526	526	526			839	839	839
Upstream Blk Time (%)						0	0			1	2	5
Queuing Penalty (veh)						0	0			4	9	23
Storage Bay Dist (ft)	350	350						225	225			
Storage Blk Time (%)	0	0	0							36		
Queuing Penalty (veh)	0	0	0							1		

Intersection: 4: Latrobe Road & Town Center Blvd

Movement	NB	SB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	T	R
Maximum Queue (ft)	701	335	349	538	215	164	26
Average Queue (ft)	200	270	287	290	56	41	3
95th Queue (ft)	704	368	386	619	143	118	14
Link Distance (ft)	839			561	561	561	561
Upstream Blk Time (%)	1			6			
Queuing Penalty (veh)	6			25			
Storage Bay Dist (ft)		325	325				
Storage Blk Time (%)		3	8	9			
Queuing Penalty (veh)		9	28	55			

Intersection: 5: Latrobe Road & White Rock Road

Movement	EB	EB	EB	EB	B40	B40	WB	WB	WB	WB	WB	NB
Directions Served	L	L	T	TR	T	T	L	L	T	T	R	L
Maximum Queue (ft)	335	346	420	420	551	504	175	187	196	276	210	266
Average Queue (ft)	246	312	361	346	265	160	118	124	98	123	96	102
95th Queue (ft)	384	414	483	471	673	477	175	187	177	210	176	236
Link Distance (ft)			346	346	559	559				315	315	
Upstream Blk Time (%)	1	10	37	39	10	1				0		0
Queuing Penalty (veh)	0	0	200	211	53	6				1		0
Storage Bay Dist (ft)	325	325					175	175	175			270
Storage Blk Time (%)	3	18	37				0	1	1	1		0
Queuing Penalty (veh)	8	46	174				0	2	1	6		0

Intersection: 5: Latrobe Road & White Rock Road

Movement	NB	NB	NB	NB	NB	B80	B80	B25	B25	SB	SB	SB
Directions Served	T	T	T	T	R	T	T	T	T	L	L	T
Maximum Queue (ft)	355	325	332	365	70	229	274	313	336	237	250	566
Average Queue (ft)	248	231	250	238	49	102	125	125	143	179	187	245
95th Queue (ft)	389	333	358	397	60	337	373	464	504	283	301	654
Link Distance (ft)	278	278	278	278		247	247	501	501			839
Upstream Blk Time (%)	17	9	17	12		11	20	3	14			4
Queuing Penalty (veh)	0	0	0	0		0	0	0	0			14
Storage Bay Dist (ft)					25					225	225	
Storage Blk Time (%)	18			17	38					20	33	1
Queuing Penalty (veh)	15			66	113					42	67	2

Intersection: 5: Latrobe Road & White Rock Road

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	365	84	66
Average Queue (ft)	102	12	9
95th Queue (ft)	272	52	41
Link Distance (ft)	839	839	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Driveway/Post St & White Rock Road

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	105	354	359	124	144	499	447	132	77	75	450
Average Queue (ft)	103	331	308	18	54	264	162	51	21	73	424
95th Queue (ft)	108	373	384	83	128	434	324	105	57	79	453
Link Distance (ft)		315	315			585	585	216	216		408
Upstream Blk Time (%)		16	5			0	0				88
Queuing Penalty (veh)		92	30			0	0				0
Storage Bay Dist (ft)	80			110	120					50	
Storage Blk Time (%)	73	5	19	0	1	35				86	7
Queuing Penalty (veh)	325	12	5	0	2	15				195	14

Zone Summary

Zone wide Queuing Penalty: 2358

Kimley»Horn

Attachment E

Signal Warrant and MRTD Analysis

Saratoga Retail Phase 2

Scenario Report

Scenario:	NearTerm NP AM
Command:	Default Command
Volume:	NearTerm NP AM
Geometry:	EX
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Saratoga Retail Phase 2

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 8 INT 8	No / No	??? / ???
# 9 INT 9	No / No	??? / ???
# 10 INT 10	No / No	??? / ???

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 0	1 0		0 0	1! 0		0 0	1! 0		0 0	0 0	1
Initial Vol:	0	0	160	3	216	74	76	0	1	0	0	5
ApproachDel:	xxxxxx			xxxxxx			12.2			8.7		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=77]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=535]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=535]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 0	1 0		0 0 1!	0 0		0 0 1!	0 0		0 0 0	0 1	
Initial Vol:	0	0	160	3	216	74	76	0	1	0	0	5

Major Street Volume: 453
Minor Approach Volume: 77
Minor Approach Volume Threshold: 558

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 1	0	0	1 0 1	0	0	0 0 0	0	0	1 0 0	0	1
Initial Vol:	0	153	0	12	205	0	0	0	0	0	0	7
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.1		

Approach[westbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=7]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=377]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 1	0	0	1 0 1	0	0	0 0 0	0	0	1 0 0	0	1
Initial Vol:	0	153	0	12	205	0	0	0	0	0	0	7

Major Street Volume: 370
Minor Approach Volume: 7
Minor Approach Volume Threshold: 802

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 1	0	0	0 0	0	1 0	1 0	0	0	0 0	0	0
Initial Vol:	0	138	0	0	204	1	15	0	0	0	0	0
ApproachDel:	xxxxxx			xxxxxx			10.8			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=15]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=358]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 1	0	0	0 0 0	1	0	1 0 0	0	0	0 0 0	0	0
Initial Vol:	0	138	0	0	204	1	15	0	0	0	0	0

Major Street Volume: 343
Minor Approach Volume: 15
Minor Approach Volume Threshold: 653

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Scenario Report

Scenario:	NearTerm NP PM
Command:	Default Command
Volume:	NearTerm NP PM
Geometry:	EX
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Saratoga Retail Phase 2

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 8 INT 8	No / No	??? / ???
# 9 INT 9	No / No	??? / ???
# 10 INT 10	No / No	??? / ???

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 0	1 0		0 0 1!	0		0 0 1!	0		0 0 0	1	0
Initial Vol:	2	430	0	16	133	69	87	3	4	0	4	32
ApproachDel:	xxxxxx			xxxxxx			20.4			12.0		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.5]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=94]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=780]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=36]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=780]
   FAIL - Total volume less than 650 for intersection
          with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	0 1	0	0 0	1! 0	0	0 0	1! 0	0	0 0	0 1	0
Initial Vol:	2	430	0	16	133	69	87	3	4	0	4	32

Major Street Volume: 650
Minor Approach Volume: 94
Minor Approach Volume Threshold: 433

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			1 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Initial Vol:	0	419	8	33	104	0	0	0	0	6	0	13
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.9		

Approach[westbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=19]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=583]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			1 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Initial Vol:	0	419	8	33	104	0	0	0	0	6	0	13

Major Street Volume: 564
Minor Approach Volume: 19
Minor Approach Volume Threshold: 620

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	1 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Initial Vol:	0	412	0	0	99	11	15	0	1	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.4			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=16]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=538]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	1 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Initial Vol:	0	412	0	0	99	11	15	0	1	0	0	0

Major Street Volume: 522
Minor Approach Volume: 16
Minor Approach Volume Threshold: 509

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Scenario Report

Scenario:	NearTerm PP AM
Command:	Default Command
Volume:	NearTerm PP AM
Geometry:	EX
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Saratoga Retail Phase 2

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 8 INT 8	No / No	??? / ???
# 9 INT 9	No / No	??? / ???
# 10 INT 10	No / No	??? / ???

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 0	1 0		0 0	1! 0		0 0	1! 0		0 0	0 0	1
Initial Vol:	0	199	0	3	263	74	76	0	2	0	0	5
ApproachDel:	xxxxxx			xxxxxx			14.9			9.4		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=78]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=622]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=622]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 0	1 0		0 0	1! 0	0	0 0	1! 0	0	0 0	0 0	1
Initial Vol:	0	199	0	3	263	74	76	0	2	0	0	5

Major Street Volume: 539
Minor Approach Volume: 78
Minor Approach Volume Threshold: 498

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 1	0	0	1 0 1	0	0	0 0 0	0	0	1 0 0	0	1
Initial Vol:	0	172	0	35	230	0	0	0	0	0	0	27
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.3		

Approach[westbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=27]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=464]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 1	0	0	1 0 1	0	0	0 0 0	0	0	1 0 0	0	1
Initial Vol:	0 172		0	35 230		0	0 0		0	0 0		27

Major Street Volume: 437
Minor Approach Volume: 27
Minor Approach Volume Threshold: 730

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 1	0	0	0 0	0	1 0	0 0	1	0 0	0 0	0	0 0
Initial Vol:	0	138	0	0	204	2	0	16	0	0	0	0
ApproachDel:	xxxxxx			xxxxxx			11.6			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=16]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=360]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 1	0	0	0 0 0	1	0	0 0 1	0	0	0 0 0	0	0
Initial Vol:	0	138	0	0	204	2	0	16	0	0	0	0

Major Street Volume: 344
Minor Approach Volume: 16
Minor Approach Volume Threshold: 652

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Scenario Report

Scenario:	NearTerm PP PM
Command:	Default Command
Volume:	NearTerm PP PM
Geometry:	EX
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

Saratoga Retail Phase 2

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 8 INT 8	No / No	??? / ???
# 9 INT 9	No / No	??? / ???
# 10 INT 10	No / No	??? / ???

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	0 1	0	0 0	1! 0	0	0 0	1! 0	0	0 0	0 1	0
Initial Vol:	4	531	0	16	275	69	87	3	6	0	4	32
ApproachDel:	xxxxxx			xxxxxx			35.0			13.5		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.9]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=96]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1027]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=36]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1027]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 INT 8

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	0 1	0	0 0	1! 0	0	0 0	1! 0	0	0 0	0 1	0
Initial Vol:	4	531	0	16	275	69	87	3	6	0	4	32

Major Street Volume: 895
Minor Approach Volume: 96
Minor Approach Volume Threshold: 323

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			1 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Initial Vol:	0	471	9	104	177	0	0	0	0	7	0	64
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			12.9		

Approach[westbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.3]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=71]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=832]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #9 INT 9

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 0 0 1 0			1 0 1 0 0			0 0 0 0 0			1 0 0 0 1		
Initial Vol:	0	471	9	104	177	0	0	0	0	7	0	64

Major Street Volume: 761
Minor Approach Volume: 71
Minor Approach Volume Threshold: 492

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Delay Signal Warrant Report

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	1 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Initial Vol:	0	413	0	0	100	13	18	0	1	0	0	0
ApproachDel:	xxxxxx			xxxxxx			12.5			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=19]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=545]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Saratoga Retail Phase 2

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #10 INT 10

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	1 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Initial Vol:	0	413	0	0	100	13	18	0	1	0	0	0

Major Street Volume: 526
Minor Approach Volume: 19
Minor Approach Volume Threshold: 506

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

MRTD Calculations for Near (2026) plus Project Conditions

INT	Control	Movement	Peak Hour	Approach Volume	RT %	Major Street				Max Queue Calculations (ft)	Required Storage (ft)	Minimum Required Throat Depth (veh)
						Posted Speed (mph)	Lanes	Conflicting Volume for left-turns	Conflicting Volume for Right Turns			
All Access Secondary	SSSC	Minor-street shared Left/through/right (1)	AM	19	95%	45	2	384	154	-6.42	25	1
			PM	49	96%			617	433	-2.11	25	1

Kimley»Horn

Attachment F

Observed Maximum Queue Lengths

Prepared by National Data & Surveying Services

Queue Study

Location: 2679 E. Bidwell St Day: Tuesday
City: Folsom Date: 4/17/2018

Location 001	
Time	**Maximum Queue**
6:00 AM	0
6:15 AM	0
6:30 AM	2
6:45 AM	1
7:00 AM	2
7:15 AM	1
7:30 AM	2
7:45 AM	2
8:00 AM	1
8:15 AM	2
8:30 AM	2
8:45 AM	4
11:00 AM	6
11:15 AM	10
11:30 AM	11
11:45 AM	8
12:00 PM	10
12:15 PM	9
12:30 PM	10
12:45 PM	8
5:00 PM	7
5:15 PM	9
5:30 PM	10
5:45 PM	7
6:00 PM	13
6:15 PM	13
6:30 PM	10
6:45 PM	12

Location: 4644 Madison Ave Day: Tuesday
City: Sacramento Date: 4/17/2018

Location 002	
Time	**Maximum Queue**
6:00 AM	1
6:15 AM	2
6:30 AM	2
6:45 AM	3
7:00 AM	1
7:15 AM	2
7:30 AM	2
7:45 AM	2
8:00 AM	2
8:15 AM	2
8:30 AM	4
8:45 AM	2
11:00 AM	2
11:15 AM	3
11:30 AM	4
11:45 AM	3
12:00 PM	6
12:15 PM	5
12:30 PM	9
12:45 PM	9
5:00 PM	2
5:15 PM	3
5:30 PM	4
5:45 PM	7
6:00 PM	5
6:15 PM	5
6:30 PM	6
6:45 PM	6

Location: 2354 Sunrise Blvd Day: Tuesday
City: Rancho Cordova Date: 4/17/2018

Location 003	
Time	**Maximum Queue**
6:00 AM	0
6:15 AM	0
6:30 AM	2
6:45 AM	3
7:00 AM	3
7:15 AM	2
7:30 AM	2
7:45 AM	1
8:00 AM	2
8:15 AM	3
8:30 AM	3
8:45 AM	3
11:00 AM	3
11:15 AM	3
11:30 AM	5
11:45 AM	4
12:00 PM	5
12:15 PM	4
12:30 PM	5
12:45 PM	4
5:00 PM	3
5:15 PM	2
5:30 PM	3
5:45 PM	4
6:00 PM	3
6:15 PM	3
6:30 PM	2
6:45 PM	3

Prepared by National Data & Surveying Services

DRIVE-THRU QUEUE OBSERVATIONS

Location: 2679 E. Bidwell St
City: Folsom
Day: Friday
Date: 4/13/2018

Time	Maximum Queue
11:00 AM	8
11:15 AM	4
11:30 AM	5
11:45 AM	9
12:00 PM	7
12:15 PM	10
12:30 PM	6
12:45 PM	7
1:00 PM	6
1:15 PM	6
1:30 PM	4
1:45 PM	4

Location: 2679 E. Bidwell St
City: Folsom
Day: Saturday
Date: 4/14/2018

Time	Maximum Queue
11:00 AM	7
11:15 AM	6
11:30 AM	11
11:45 AM	10
12:00 PM	9
12:15 PM	8
12:30 PM	8
12:45 PM	12
1:00 PM	13
1:15 PM	10
1:30 PM	11
1:45 PM	11

Prepared by National Data & Surveying Services

DRIVE-THRU QUEUE OBSERVATIONS

Location: 4644 Madison Ave
City: Sacramento
Day: Friday
Date: 4/13/2018

Time	Maximum Queue
11:00 AM	5
11:15 AM	3
11:30 AM	4
11:45 AM	3
12:00 PM	4
12:15 PM	4
12:30 PM	5
12:45 PM	4
1:00 PM	6
1:15 PM	8
1:30 PM	5
1:45 PM	4

Location: 4644 Madison Ave
City: Sacramento
Day: Saturday
Date: 4/14/2018

Time	Maximum Queue
11:00 AM	5
11:15 AM	4
11:30 AM	5
11:45 AM	4
12:00 PM	3
12:15 PM	9
12:30 PM	6
12:45 PM	10
1:00 PM	7
1:15 PM	6
1:30 PM	4
1:45 PM	5

Prepared by National Data & Surveying Services

DRIVE-THRU QUEUE OBSERVATIONS

Location: 2354 Sunrise Blvd. **Day**: Friday
City: Rancho Cordova **Date**: 4/13/2018

Time	Maximum Queue
11:00 AM	3
11:15 AM	4
11:30 AM	6
11:45 AM	4
12:00 PM	4
12:15 PM	7
12:30 PM	4
12:45 PM	7
1:00 PM	4
1:15 PM	4
1:30 PM	5
1:45 PM	5

Location: 2354 Sunrise Blvd**.** **Day**: Saturday
City: Rancho Cordova **Date**: 4/14/2018

Time	Maximum Queue
11:00 AM	3
11:15 AM	4
11:30 AM	7
11:45 AM	4
12:00 PM	10
12:15 PM	7
12:30 PM	3
12:45 PM	7
1:00 PM	10
1:15 PM	7
1:30 PM	3
1:45 PM	5