Central El Dorado Hills Specific Plan
Transportation Impact Analysis

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County of El Dorado

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1.0 INTRODUCTION

1.1 REPORT OVERVIEW

This study presents the results of a transportation impact analysis completed for the Central El Dorado Hills Specific Plan (CEDHSP) (project) in El Dorado Hills, California, which is an unincorporated area of El Dorado County (County). The project includes two planning areas: the Serrano Westside planning area east of the intersection of El Dorado Hills Boulevard and Serrano Parkway, and the Pedregal planning area west of El Dorado Hills Boulevard between Wilson and Olson Way, adjacent to the Ridgeview subdivision. Given the close proximity of the planning areas, a consolidated traffic impact assessment was conducted for the entire project and the surrounding transportation network.

The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA). This study was performend in accordance with the *El Dorado County Department of Transportation's Traffic Impact Study Protocols and Procedures*, and the scope of work developed in colloboration with County staff and Caltrans.

The remaining sections of this report document the proposed project, analysis methodolgies, impacts and mitigations.

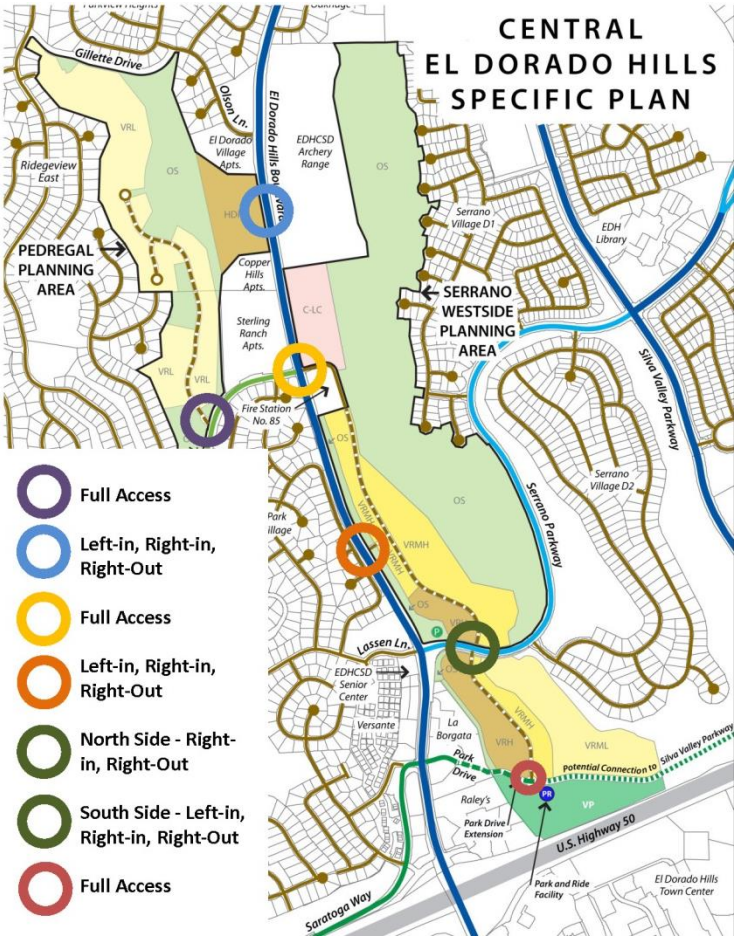
1.2 PROJECT DESCRIPTION

The proposed CEDHSP includes the development of up to 1,000 dwelling units, 11 acres of public facility/recreational use or 50,000 square feet of commercial use, 15 acres of public village park, and 169 acres of open space in the center of the El Dorado Hills Community. The proposed project also includes implementation of the CEDHSP and an amendment to the existing El Dorado Hills Specific Plan (EDHSP) approved in 1988 to transfer the density at Serrano Village D-1 (Lots C and D) to the proposed project. Figure 1, adapted from the project's *Notice of Preparation of a Draft Environmental Impact Report,* provides an overview of the proposed project and internal roadway network for the two planning areas that comprise the project.

Serrano Westside is immediately north of U.S. Highway 50 (US 50). Existing land uses adjacent to the Serrano Westside planning area include office and retail uses to the south and west (Raley's and La Borgata) and single-family residential uses at the Serrano Community to the east. The approximately 240-acre Serrano Westside planning area would be an extension of the existing Serrano development with

gated residential neighborhoods and would include 763 dwelling units, civic or commercial, and village park development.

The Pedregal planning area is less than 1 mile north of US 50 and less than 2 miles south of Folsom Lake. The Pedregal planning area is immediately adjacent to low-density residential uses (the existing Ridgeview neighborhood) to the west and three existing multi-family developments (the Copper Hill Apartments, El Dorado Village Apartments, and Sterling Ranch Apartments) along El Dorado Hills Boulevard to the east. The approximately 102-acre Pedregal planning area would include a residential neighborhood of approximately 37 single family (that may or may not be gated) and 200 multi-family dwelling units.



Proposed access for the Central El Dorado Hills Specific Plan is shown above. The single family portion of the Pedregal Planning Area will access Wilson Boulevard (no access to Gillette Drive is proposed) with access for the multi-family portion on El Dorado Hills Boulevard. The Serrano Westside Planning Area will access El Dorado Hills Boulevard, Serrano Parkway, and Park Drive.

1.3 NOTICE OF PREPARATION COMMENTS REVIEW

The project's Notice of Preparation (NOP), which is required by CEQA, was issued on February 20, 2013. The NOP and subsequent public scoping meeting provided interested parties the opportunity to formally comment on the project. This transportation analysis is informed by comments received during the NOP comment period. The following list summarizes transportation-related comments received by affected agencies and the general public.

Agency Comments Received

- Caltrans request to review the transportation scope. Caltrans recommended specific procedures for the analysis of state facilities. *Note: Coordination with Caltrans was completed during the NOP phase and included a meeting between Caltrans and El Dorado County to review study area and analysis methods.*
- CalFire request to review dead end road length calculations. *Note: The project has been reviewed and meets the requested length parameter.*

Public Comments Received (By Topic)

As applicable, public comments were incorporated into the environmental analysis.

- Project Access
    - Realign Wilson Boulevard to include turn lanes and bike lanes. *Note: Proposed mitigation incorporates bike lane on Wilson Boulevard.*
    - Propose high density residential access from El Dorado Hills Boulevard instead of Olson Lane. *Note: Proposed access for Pedregal high-density residential land use is located on El Dorado Hills Boulevard.*
    - Concern over Serrano Parkway traffic with a specific recommendation to add a right turn lane from eastbound Serrano Parkway onto Vila Flor Place.
    - Address Gillette project access safety due to grade and proposed intersection location. *Note: Pedregal Plan Area has been revised. Gillette access is no longer proposed.*
    - Consider impact gated communities have on circulation. *Note: Pedregal Plan Area may or may not be gated.*
- Pedestrian, Bicycle, Parking
    - Accommodation of open space access and parking. *Note: Parking requirements will be based on County standards.*
    - Suggestion to provide a path between existing development and proposed shopping areas. *Note: Westside Plan Area includes access between the project and the Raley's Shopping Center.*
    - Include pedestrian facilities, sidewalk on Wilson and a bicycle path through the project. *Note: Proposed mitigation incorporates bike lane on Wilson Boulevard.*
    - Provide pedestrian and bicycle access to transit, especially in the dark. *Note: Analysis incorporates pedestrian and bicycle facilities, and transit service.*

- Traffic Operations
    - Impact on traffic flow and drop-off/pick-up at William Brooks Elementary.
    - Concern regarding traffic operations and safety at Olson Lane / El Dorado Hills Boulevard. *Note: Intersection included in analysis.*
    - Resolve present traffic issues at and near US 50/El Dorado Hills Boulevard interchange before considering more development. *Note: County is nearing completion of US 50/El Dorado Hills Boulevard interchange improvements.*
    - Complete US 50/Silva/White Rock interchange before more high density residential is allowed. *Note: County is beginning construction of US 50/Silva Valley Parkway interchange.*
    - Concern regarding congestion on the Green Valley corridor. *Note: Intersections on Green Valley Road included in analysis.*

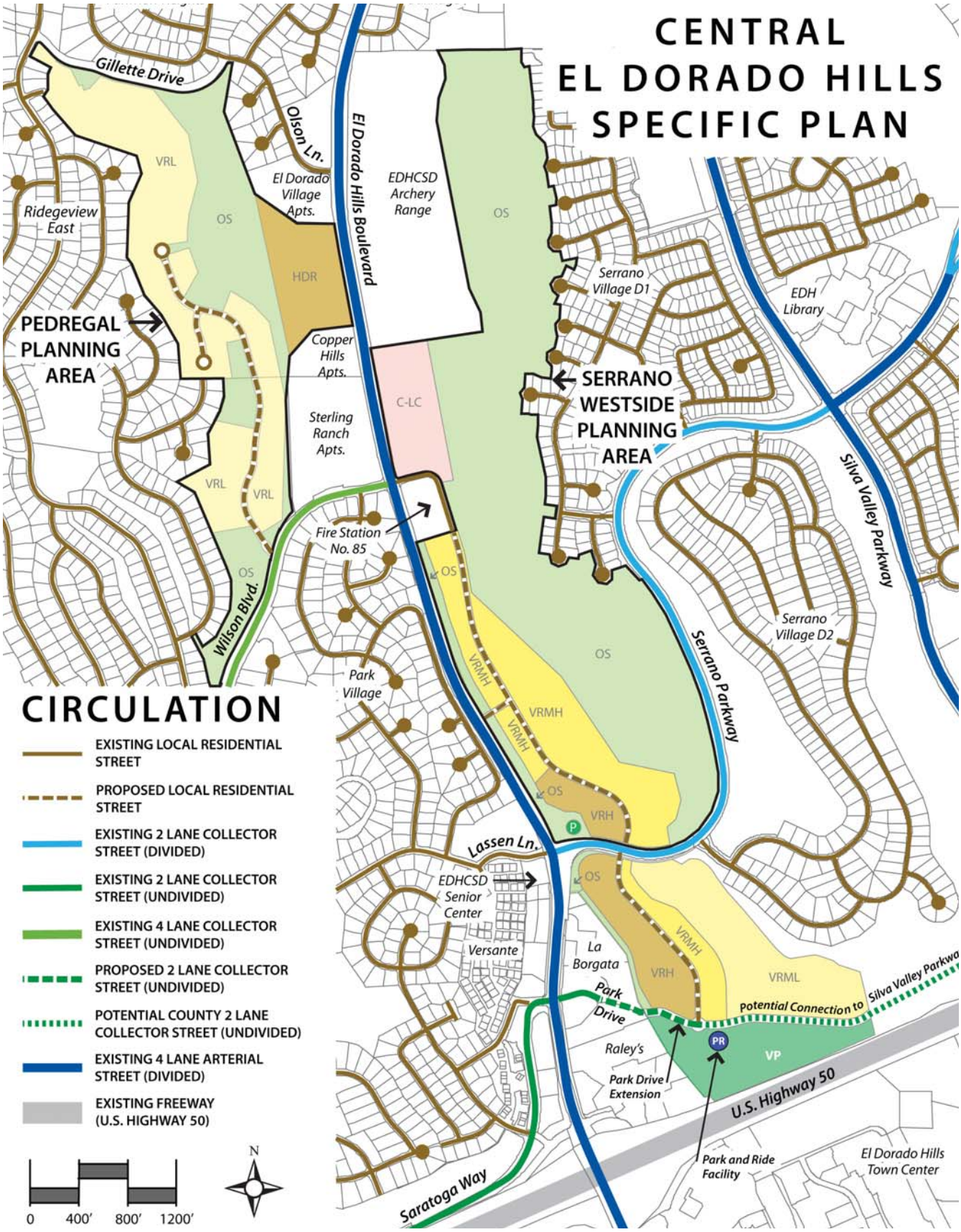


Figure 1.

Proposed Project

2.0 REGULATORY SETTING

Existing transportation polices, laws, and regulations that would apply to the proposed project are summarized below. This information provides a context for the impact discussion related to the project's consistency with applicable regulatory conditions.

2.1 STATE

2.1.1 CALIFORNIA DEPARTMENT OF TRANSPORTATION

The California Department of Transportation (Caltrans) is responsible for operating and maintaining the State highway system. In the project vicinity, US 50 falls under Caltrans jurisdiction. Caltrans provides administrative support for transportation programming decisions made by the California Transportation Commission (CTC) for state funding programs. The State Transportation Improvement Program (STIP) is a multi-year capital improvement program that sets priorities and funds transportation projects envisioned in long-range transportation plans.

In June 2014, Caltrans approved a *Transportation Concept Report and Corridor System Management Plan (TCR/CSMP) for United States Route 50*. Caltrans prepares a TCR/CSMP, which is a long-range (20-year) planning document, for each state highway. The purpose of each TCR/CSMP is to identify existing route conditions and future needs and to communicate the vision for the development of each route during a 20-year planning horizon. Caltrans has established LOS E as the 'concept LOS' consistent with the El Dorado County General Plan LOS policy. Since LOS E is identified as the concept LOS no further degradation of service from existing "E" is acceptable. The Concept LOS is a generalized LOS for large study segments used by Caltrans that reflect the minimum level of service or quality of operations acceptable for each route segment.

According to the *Guide for the Preparation of Traffic Impact Studies* (Caltrans, December 2002), the existing LOS should be maintained if a freeway facility is currently operating at an unacceptable LOS (e.g., LOS F). A project impact is said to occur if the project degrades LOS from an acceptable to unacceptable level. A project impact may also occur when the addition of project trips exacerbates existing LOS F conditions and leads to a perceptible increase in density on freeway mainline segments or ramp junctions, or a perceptible increase in service volumes in a weaving area. In addition, a project impact is said to occur when the addition of project trips causes a queue on the off-ramp approach to a ramp terminal intersection to extend beyond its storage area and onto the freeway mainline.

2.2 LOCAL

2.2.1 SACRAMENTO AREA COUNCIL OF GOVERNMENTS

The Sacramento Area Council of Governments (SACOG) is an association of local governments in the six-county Sacramento Region. Its members include the counties of Sacramento, El Dorado, Placer, Sutter, Yolo, and Yuba as well as 22 cities. SACOG provides transportation planning and funding for the region, and serves as a forum for the study and resolution of regional issues. In addition to preparing the region's long-range transportation plan, SACOG assists in planning for transit, bicycle networks, clean air, and airport land uses.

The *Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for 2035* (SACOG 2012) is a federally mandated long-range fiscally constrained transportation plan for the six-county area. Most of this area is designated a federal non-attainment area for ozone, indicating that the transportation system is required to meet stringent air quality emissions budgets to reduce pollutant levels that contribute to ozone formation. To receive federal funding, transportation projects nominated by cities, counties, and agencies must be consistent with the MTP/SCS.

The *2013/16 Metropolitan Transportation Improvement Program (MTIP)* is a list of transportation projects and programs to be funded and implemented over the next 3 years. SACOG submits this document to Caltrans and amends the program on a quarterly cycle. Only projects listed in the MTP/SCS may be included in the MTIP.

2.2.2 EL DORADO COUNTY TRANSPORTATION COMMISSION (EDCTC)

The EDCTC is the Regional Transportation Planning Agency (RTPA) for El Dorado County, except for that portion of the County within the Tahoe Basin, which is under the jurisdiction of the Tahoe Regional Planning Agency (TRPA).

One of the fundamental responsibilities which results from RTPA designation is the preparation of the County's Regional Transportation Plan. The *El Dorado County Regional Transportation Plan 2010 – 2030 (RTP)* is designed to be a blueprint for the systematic development of a balanced, comprehensive, multi-modal transportation system. The EDCTC submits the RTP to SACOG for inclusion in the MTP/SCS process.

The *El Dorado County Bicycle Transportation Plan - 2010 Update* provides a blueprint for the development of a bicycle transportation system on the western slope of El Dorado County. The plan updates the currently adopted El Dorado County Bicycle Master Plan, which was adopted in January 2005.

In May 2013, The EDCTC completed the *El Dorado Hills Community Transit Needs Assessment and US 50 Corridor Operations Plan* (Plan), which explores how the recent growth and projected development impact the need for transit services, and identifies the most appropriate type and level of service needed given the demand. The Plan represents a recommendation from the Western El Dorado County 2008 Short-Range Transit Plan to study and consider improved transit service in the El Dorado Hills area.

In August 2008, The EDCTC adopted the *Coordinated Public Transit – Human Services Transportation Plan,* which is intended to improve mobility of individuals who are disabled, elderly, or of low-income status. The plan focuses on identifying needs specific to those population groups and identifying strategies to meet their needs.

2.2.3 COUNTY OF EL DORADO

The County of El Dorado provides for the mobility of people and goods within El Dorado Hills, which is an unincorporated area of the County.

The Transportation and Circulation Element of the El Dorado County General Plan (amended January 2009) outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following goals and their associated policies are relevant to the project.

- GOAL TC-1: To plan for and provide a unified, coordinated, and cost-efficient countywide road and highway system that ensures the safe, orderly, and efficient movement of people and goods.
- GOAL TC-X: To coordinate planning and implementation of roadway improvements with new development to maintain adequate levels of service on County roads. (The LOS policy specific to this project is described in Section 4.2.)
- GOAL TC-2: To promote a safe and efficient transit system that provides service to all residents, including senior citizens, youths, the disabled, and those without access to automobiles that also helps to reduce congestion, and improves the environment.
- GOAL TC-3: To reduce travel demand on the County's road system and maximize the operating efficiency of transportation facilities, thereby reducing the quantity of motor vehicle emissions and the amount of investment required in new or expanded facilities.
- GOAL TC-4: To provide a safe, continuous, and easily accessible non-motorized transportation system that facilitates the use of the viable alternative transportation modes.
- GOAL TC-5: To provide safe, continuous, and accessible sidewalks and pedestrian facilities as a viable alternative transportation mode.

The El Dorado County Community Development Agency's (CDA) Transportation Impact Study Guidelines set forth the protocols and procedures for conducting transportation analysis in the County (El Dorado

County, 2014), including the identification of the study area. All of the study intersections for the proposed project are within the County's jurisdiction. This traffic analysis is consistent with the County-established methods at the commencement of the project.

2.2.4 EL DORADO COUNTY TRANSIT AUTHORITY

El Dorado County Transit Authority (EDCTA) operates El Dorado Transit, which provides public transit service within the project area. El Dorado Hills is currently served by El Dorado Transit Dial-A-Ride services, Commuter Service, and the Iron Point Connector Route.

The El Dorado Park-and-Ride Facilities Master Plan, November 2007 calls for constructing nine new facilities over 20 years. The Plan calls for EDCTA to assume primary responsibility for existing Park-and-Ride facilities in the county and sets forth an annual program to fund the upkeep and operation. The Plan reiterates that demand exceeds supply at the Park-and-Ride lot, referred to as the El Dorado Hills Multi-modal Facility, located in the northeast corner of the White Rock Road/Latrobe Road intersection. In particular, Table 2 of the Plan suggests that future (year 2027) deficiency at this location is 172 additional spaces. The Plan identifies the construction of a 325-space multi-story parking garage with ground floor retail as priority project #12 in the Capital Improvement Program list. The proposed location is the existing Park-and-Ride lot.

3.0 METHOD OF ANALYSIS

3.1 ANALYSIS PROCEDURES

Intersections, roadways, and freeway facilities were selected for analysis based on coordination with the El Dorado County CDA, Long Range Planning staff and Caltrans, and based on the expected distribution of project trips and review of the El Dorado County CDA's *Transportation Impact Study Guidelines*.

Each study roadway facility was analyzed using the concept of Level of Service (LOS). LOS is a qualitative measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, for intersections and roadways LOS A represents conditions with little to no delay and congestion, and LOS F represents greater delay and more congestion. For basic freeways segments (i.e., like US 50 west of El Dorado Hills Boulevard), LOS A represents a vehicle density of up to 11 passenger cars per mile per lane and vehicle speeds (a secondary performance measure) at or above 65 miles per hour, and LOS F represents a vehicle density of greater than 45 passenger cars per mile per lane and vehicle speeds less than 52 miles per hour.

3.1.1 INTERSECTIONS

Traffic operations at the study intersections were analyzed using procedures and methodologies contained in the Highway Capacity Manual (HCM), Transportation Research Board, 2000 and 2010 (as confirmed with County staff). These methodologies were applied using Synchro or SimTraffic software packages (Version 7), developed by Trafficware. Table 1 displays the delay range associated with each LOS category for signalized and unsignalized intersections based on the HCM.

The micro-simulation analysis software, SimTraffic, was used to analyze operations at the US 50/El Dorado Hills Boulevard interchange (Town Center Boulevard to Saratoga Way to accurately analyze the effect of closely-spaced intersections. Simulation was requested by El Dorado County staff and Caltrans. The SimTraffic micro-simulation analysis applied the following methodology:

- The simulation was conducted for the entire peak hour (i.e., 60 minutes) using four 15-minute intervals with the peak hour factor applied in the second interval
- The results were based on the average of ten model runs
- Each of the ten simulation runs applied a ten-minute seeding time

The existing conditions SimTraffic model was validated to field measured traffic volumes and observed maximum vehicle queue lengths.

The HCM methodology determines the level of service (LOS) at signalized intersections by comparing the average control delay (i.e. delay resulting from initial deceleration, queue move-up time, time actually stopped, and final acceleration) per vehicle at the intersection to the established thresholds. The LOS for traffic signal controlled and all-way stop controlled intersections is based on the average control delay for the entire intersection. For side-street stop-controlled intersections, the LOS is evaluated separately for each individual movement with delay reported for the critical (i.e., worst case) turning movement.

The following procedures and assumptions were applied for the analysis of existing and cumulative conditions:

- Roadway geometric data were gathered using aerial photographs and field observations.
- Peak hour traffic volumes were entered according to the peak hour of each intersection, except for the US-50/El Dorado Hills Boulevard interchange and adjacent intersections. For the interchange and adjacent intersections, a consistent peak hour was used so that volumes would balance (a requirement for accurate simulation analysis). Due to volume balancing, some of the turning movement volumes used for analysis will not match existing turning movement traffic counts, since peak hour travel occurs at different times at several of the intersections. The volume balancing was small relative to the traffic through the interchange and within the daily variation of traffic flows. The traffic simulation was supported by extensive field observations of driver behavior, driver aggressiveness, and travel origin/destination flows at the interchange. The peak hour of the freeway is based on traffic counts.
- Headway factors were adjusted based on the observed driver behavior. Drivers were observed to be more aggressive and use smaller headway to travel through the intersections near the US 50/El Dorado Hills Boulevard interchange.
- The peak hour factor (PHF) was calculated based on traffic counts and applied by approach, except for the interchange and adjacent intersections, which applied the intersection PHF (a requirement for accurate simulation analysis).
- The counted pedestrian and bicycle volumes will be used with a minimum of two pedestrians per approach per peak hour.
- Heavy vehicle percentages were based on traffic counts and applied by movement.
- Signal phasing and timings were based on existing signal timing sheets provided by El Dorado County and field observations at the US 50/El Dorado Hills Boulevard interchange.
- Speeds for the model network were based on the posted speed limit.
- The PHF calculated for existing conditions was used for cumulative conditions, except for the interchange and adjacent intersections. Those intersections used a PHF of 0.95.
- The existing heavy vehicle percentages were maintained for cumulative conditions.
- The existing pedestrian and bicycle volumes were maintained for cumulative conditions.
- Traffic signals were optimized to serve future traffic volumes.

TABLE 1: INTERSECTION LEVEL OF SERVICE CRITERIA

Level-of-Service	Average Control Delay (seconds/vehicle)		Description
	 Signalized	 Stop Controlled	
A	< 10.0	< 10.0	Very low delay. At signalized intersections, most vehicles do not stop.
B	10.1 to 20.0	10.1 to 15.0	Generally good progression of vehicles. Slight delays.
C	>20.1 to 35.0	>15.1 to 25.0	Fair progression. At signalized intersections, increased number of stopped vehicles.
D	>35.1 to 55.0	>25.1 to 35.0	Noticeable congestion. At signalized intersections, large portion of vehicles stopped.
E	>55.1 to 80.0	>35.1 to 50.0	Poor progression. High delays and frequent cycle failure.
F	>80.0	>50.0	Oversaturation. Forced flow. Extensive queuing.

Source: Highway Capacity Manual (Transportation Research Board, 2010)

3.1.2 ROADWAY SEGMENTS

Roadway segment LOS was determined by comparing traffic volumes for selected roadway segments with peak hour LOS capacity thresholds. These thresholds are shown in Table 2 and were calculated based on the methodology contained in the Highway Capacity Manual (Transportation Research Board, 2000) and applied for the analysis of the 2004 El Dorado County General Plan.

TABLE 2:
PEAK HOUR ROADWAY SEGMENT CAPACITIES BY FUNCTIONAL CLASSIFICATION AND LOS

Functional Classification	Lanes	Roadway Segment Capacity (Vehicles per Hour)				
		LOS A	LOS B	LOS C	LOS D	LOS E
Arterial (Divided)	4	N/A	N/A	1,850	3,220	3,290
	5	N/A	N/A	2,350	4,060	4,110
	6	N/A	N/A	2,760	4,680	4,710
	7	N/A	N/A	3,215	5,410	5,420
Arterial (Undivided)	2	N/A	N/A	850	1,540	1,650
	4	N/A	N/A	1,760	3,070	3,130

Source:
Peak hour roadway segment capacities based on the HCM 2010 and developed by El Dorado County CDA, Long Range Planning. Five-lane capacity calculated by adding half of the difference between the two-lane and four-lane capacity to the four-lane capacity. Seven-lane capacity calculated by adding half of the difference between the four-lane and six-lane capacity to the four-lane capacity.

3.1.3 FREEWAY FACILITIES

The Highway Capacity Manual (Transportation Research Board), 2010, includes three different tiers of analysis for freeway facilities, which include planning, design, and operations analysis. The different tiers are intended to provide flexibility to the user in selecting the appropriate analysis level given available resources (e.g., time and availability of analysis inputs) and the desired breadth of analysis coverage (e.g., more locations with less detail vs. fewer locations with more detail). For example, a planning level analysis requires relatively generalized analysis inputs and is regularly used when the breadth of coverage is more important than analysis detail. For example, Caltrans uses planning level analysis for long-range planning efforts like the US 50 Corridor System Management Plan, which groups many freeway facilities into single analysis segments. The project level analysis in this report is based on operations analysis methods and analyzes each freeway facility separately, focusing on analysis detail instead of breadth of coverage. The operations analysis method is consistent with General Plan Policy TC-Xd and Caltrans traffic impact study guidelines.

Freeway operations were analyzed using the procedures and methodologies contained in the Highway Capacity Manual (Transportation Research Board, 2010)). Table 3 describes the HCM LOS criteria for freeway mainline, freeway ramp junctions, and freeway weaving segments. For weaving segments, Caltrans District 3 prefers analysis based on the Leisch Method, which is described in the *Highway Design Manual* (Caltrans, last updated July 1, 2008). For consistency with both the El Dorado County General Plan and Caltrans preference, analysis of freeway weaving segments was conducted using both the HCM and Leisch Methods.

TABLE 3:
FREEWAY FACILITY LEVEL OF SERVICE CRITERIA

Level of Service	Density (vehicles/mile/lane)		
	Mainline	Ramp Junction	Weaving
A	≤ 11	≤ 10	
B	11 – 18	10 – 20	
C	18 – 26	20 – 28	
D	26 – 35	28 – 35	
E	35 – 45	> 35	
F	> 45	Demand exceeds capacity	

Source: Transportation Research Board, 2010

3.2 THRESHOLDS OF SIGNIFICANCE

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in a significant adverse impact on the environment. Informed by the 2014 California Environmental Quality Act (CEQA) Statues and Guidelines, specifically Appendix G, the following criteria have been established to determine whether or not the project would have a significant impact on transportation and circulation.

The intent of CEQA Section 15064 is for the responsible agency to establish the thresholds in the context of what their specific values are towards environmental resources or impacts. Therefore, the standards of significance in this analysis are based on the framework presented in CEQA Appendix G and the current practice of the appropriate regulatory agencies. For most areas related to transportation and circulation, policies from the *2004 El Dorado County General Plan (amended January 2009)* the El Dorado County CDA's *Transportation Impact Study Guidelines* (El Dorado County, 2014) were used. For the freeway system, Caltrans' standards were used. Implementation of the project would have a potentially significant impact on transportation and circulation if it causes any of the following outcomes:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness (MOEs) for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the

circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. The following specific MOEs, which have been generated by the regulatory agencies, are applicable to this project.

- General Plan Circulation Policy TC-Xd provides Level of Service standards for County-maintained roads and state highways as follows[1]:
  - Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume to capacity ratio of the roadway segments listed in Table TC-2 as applicable shall not exceed the ratio specified in that table. *(Note: None of the study roadways are presented in Table TC-2)*
  - If a project causes the peak hour level of service or volume/capacity ratio on a county road or state highway that would otherwise meet the County standards (without the project) to the LOS threshold, then the impact shall be considered significant.
  - If any county road or state highway fails to meet the above listed county standards for peak hour level of service or volume/capacity ratios under existing conditions, and the project will "significantly worsen" conditions on the road or highway, then the impact shall be considered significant. The term "significantly worsen" is defined for the purpose of the paragraph according to General Plan Policy TC-Xe as follows:
    A. A two (2) percent increase in traffic during the AM peak hour, PM 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 AM peak hour or the PM peak hour.
- Caltrans considers the following to be significant impacts:
  - Off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway (i.e., exceed the available storage capacity);
  - Project traffic increases that cause any ramp's merge/diverge level of service to be worse than the freeway's level of service.
  - Any additional traffic generated by the project is added to a facility already operating at LOS F[2].

[1] El Dorado County CDA's *Transportation Impact Study Guidelines*

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
    - The County has published the following issues and General Plan goals as relevant to traffic impact study assessments. The project may trigger a potentially significant impact if it's in conflict with any of the following:
        - Access to Public Transit Services consistent with General Plan Circulation Element Goal TC-2: "To promote a safe and efficient transit system that provides service to all residents, including senior citizens, youths, the disabled, and those without access to automobiles that also helps to reduce congestion, and improves the environment."
        - Transportation System Management consistent with General Plan Circulation Element Goal TC-3: "To reduce travel demand on the County's road system and maximize the operating efficiency of transportation facilities, thereby reducing the quantity of motor vehicle emissions and the amount of investment required in new or expanded facilities."
        - Non-Motorized Transportation consistent with General Plan Circulation Element Goal TC-4: "To provide a safe, continuous, and easily accessible non-motorized transportation system that facilitates the use of the viable alternative transportation modes."
- Conflict with adopted policies, plans or programs regarding the delivery of goods and services.

[2] The US 50 Transportation Corridor Concept Report identifies LOS E as the "Concept LOS" for US 50 from the Sacramento/El Dorado County line to Cameron Park Drive.

4.0 EXISTING SETTING

4.1 STUDY AREA

Based on coordination with the El Dorado County CDA (Long Range Planning) staff and Caltrans, the expected distribution of project trips, and review of the *El Dorado County Department of Transportation's Traffic Impact Study Protocols and Procedures,* the following study intersections, roadway, and freeway facilities have been selected for analysis during both the AM and PM peak hours. Figure 2 identifies the study area.

The following lists both existing intersections and intersections proposed as part of the project. Intersections 25 and 26 are applicable only to the Cumulative Conditions analysis.

Existing Intersections:

1. Green Valley Road / Francisco Dr
2. Green Valley Road / El Dorado Hills Blvd
3. Green Valley Road/Silva Valley Pkwy
4. El Dorado Hills Blvd / Francisco Dr
5. Silva Valley Pkwy / Apian Way
6. El Dorado Hills Blvd / Harvard Way
7. Harvard Way / Silva Valley Pkwy
8. El Dorado Hills Boulevard/Olson Lane
9. El Dorado Hills Boulevard/Wilson Boulevard
10. El Dorado Hills Boulevard/Serrano Parkway
11. Serrano Parkway/Penela Way
12. Serrano Parkway/Silva Valley Parkway
13. El Dorado Hills Boulevard/Saratoga Way/Park Drive (Project Access)
14. El Dorado Hills Boulevard/Park Drive
15. El Dorado Hills Boulevard/US 50 Westbound Ramps
16. Latrobe Road/ US 50 Eastbound Ramps
17. Latrobe Road /Town Center Boulevard
18. Latrobe Road /White Rock Road
19. White Rock Road/Post Street
20. White Rock Rd./Valley View Parkway/Vine St.

Future Intersections:

21. El Dorado Hills Boulevard/Pedregal Multi-Family Access – Left-in and Right-in/Right-out
22. El Dorado Hills Boulevard/Project Access - Left-in and Right-in/Right-out
23. Serrano Parkway/Project Access
24. Wilson Boulevard/Project Access

25. Silva Valley Parkway/US 50 Westbound Ramps (Cumulative Conditions)
26. Silva Valley Parkway/US 50 Eastbound Ramps (Cumulative Conditions)

Roadways:

- El Dorado Hills Boulevard
- Latrobe Road
- White Rock Road
- Silva Valley Parkway
- Serrano Parkway
- Saratoga Way
- Wilson Way
- Olson/Gillette Drive
- Harvard Way

Freeway Facilities:

- US 50 Mainline (Eastbound and Westbound) – Sacramento County to Cameron Park Drive
- El Dorado Hills Boulevard Interchange
- Bass Lake Road Interchange
- Cameron Park Interchange
- Silva Valley Parkway Interchange (Future Conditions)

4.2 ROADWAY NETWORK

The characteristics of the roadway system in the vicinity of the project are described below. Where applicable, the roadway designation given in the *2004 El Dorado County General Plan (amended January 2009)* is provided.

US Route 50 (US 50) is an east-west freeway located south of the project site. Generally, US 50 serves the majority of El Dorado County's major population centers and provides regional connections to the west (i.e., Sacramento) and to the east (i.e., State of Nevada). Primary access to the project from US 50 is provided via the US 50/El Dorado Hills Boulevard/Latrobe Road interchange. Near the project, westbound US 50 has a high-occupancy vehicle (HOV) lane and two general purpose travel lanes and eastbound US 50 has an HOV lane and three general purpose travel lanes. The General Plan identifies US 50 as an eight

lane freeway under future conditions. US 50 serves about 80,000 vehicles per day east of Latrobe/El Dorado Hills Boulevard.

Completed in 2015, construction at the US 50/El Dorado Hills Boulevard/Latrobe Road interchange improved the westbound on- and off-ramps, added 1,000 feet of auxiliary lane to westbound US 50, and provided westbound ramp metering and a dedicated HOV on-ramp lane. Future improvements are planned for this interchange as described in Section 6.1, Table 14.

The new US 50/Silva Valley Parkway/White Rock Road interchange just east of the project area is under construction. The interchange will be constructed in two phases. Phase 1 (CIP Project No: 71328) will construct a new connection to US 50 with new signalized slip on- and off-ramps westbound and a slip off-ramp and loop on-ramp eastbound. The mainline will have an overcrossing for Silva Valley Parkway and will be improved to include eastbound and westbound auxiliary lanes between the US 50/El Dorado Hills Boulevard/Latrobe Road interchange and the new US 50/Silva Valley interchange. Completion of Phase 1 is scheduled for 2016. Phase 2 will construct a westbound loop on-ramp and eastbound slip on-ramp (CIP Project No: 71345). The westbound loop on-ramp will begin the addition of an auxiliary lane that will continue westbound through the El Dorado Hills Boulevard interchange and terminate at the planned US 50/Empire Ranch interchange (CIP Project No: 53120).

The planned reconstruction of the US 50/Bass Lake Road interchange (CIP Project No: 71330 and GP148), will add a westbound auxiliary lane between the Bass Lake Road and Silva Valley Parkway interchanges.

El Dorado Hills Boulevard is a north-south roadway that continues as Salmon Falls Road on the north and Latrobe Road on the south. The roadway is four lanes with a center median between Park Drive and Governor Drive. Between US 50 and Park Drive, the roadway section widens to three lanes northbound to accommodate vehicle demand near the US 50 interchange. The County's General Plan identifies El Dorado Hills Boulevard as a four lane divided road except near US 50 where the designation changes to a six lane divided road. Project access points are proposed on El Dorado Hills Boulevard. El Dorado Hills Boulevard serves about 22,000 vehicles per day north of Wilson Boulevard.

Gillette Drive is a two-lane local roadway that connects to El Dorado Hills Boulevard via Olson Lane. Gillette Drive serves less than 3,000 vehicles per day.

Green Valley Road is an east-west roadway that connects Placerville with western portions of El Dorado County and eastern Sacramento County, south of Folsom Lake. Through the project area, Green Valley Road provides one travel lane in each direction to just west of El Dorado Hills Boulevard. West of Francisco Drive, Green Valley is a four lane facility. The General Plan identifies Green Valley Road as a four

lane divided road between the El Dorado County / Sacramento County line and Deer Valley Road. Green Valley Road serves about 27,000 vehicles per day west of Francisco Drive.

Harvard Way is a relatively short (2,000-foot) east-west roadway that connects El Dorado Hills Boulevard on the west and Silva Valley Parkway on the east. It is an undivided four lane roadway that provides direct access to Oak Ridge High School. Rolling Hills Middle School is located directly opposite Harvard Way at the Silva Valley Parkway intersection. Harvard Way serves about 7,000 vehicles per day.

Latrobe Road is a north-south roadway and is the continuation of El Dorado Hills Boulevard south of US 50. Latrobe Road is six lanes near the US 50 interchange, narrows to four lanes south of White Rock Road and eventually narrows to two lanes as it continues south to connect with State Route 16 in Amador County. The General Plan identifies Latrobe Road as a six lane divided roadway near the US 50 interchange transitioning to a four lane divided road, then a two lane major road and eventually a two lane regional road serving the southwest portion of the County. Latrobe Road serves about 30,000 vehicles per day north of White Rock Road.

Olson Lane is a two lane local roadway serving as one of the primary access points to residential areas west of El Dorado Hills Boulevard. Olson Road terminates at Gillette Drive. Olson Lane serves about 3,000 vehicles per day west of El Dorado Hills Boulevard

Park Drive is a two lane local roadway serving the Raley's shopping center located in the northeast quadrant of the US 50/El Dorado Hills Boulevard interchange. Park Drive intersects El Dorado Hills Boulevard at two locations, opposite the new US 50 westbound loop off-ramp, and Saratoga Way. Park Drive is proposed as a project access for the portion of the Serrano West Side Planning Area south of Serrano Parkway. Park Drive serves about 6,000 vehicles per day east of El Dorado Hills Boulevard.

Saratoga Way is currently two lanes and extends west of El Dorado Hills Boulevard to Finders Way. Saratoga is planned as a four-lane divided arterial that will connect to Iron Point Road in the City of Folsom. Saratoga Way serves about 3,000 vehicles per day west of El Dorado Hills Boulevard.

Serrano Parkway primarily serves residential land uses east of El Dorado Hills Boulevard. The roadway provides one lane in each direction with a landscaped median between El Dorado Hills Boulevard and Silva Valley Parkway. The General Plan identifies this segment of Serrano Parkway as a major two lane road. Serrano Parkway is proposed as a project access for the Serrano Westside site. Serrano Parkway serves about 9,000 vehicles per day west of Silva Valley Parkway.

Silva Valley Parkway is a north-south roadway that generally runs parallel to El Dorado Hills Boulevard north of US 50. Silva Valley Parkway ranges from two lanes to four lanes with a center median within the

study area. The General Plan identifies Silva Valley Parkway as a four lane divided road. A new US 50 interchange at Silva Valley/White Rock Road is under construction and included in the Cumulative conditions transportation analysis. The interchange project provides a realigned Silva Valley Parkway that will connect to the existing four-lane Silva Valley Parkway to the north and the existing two-lane White Rock Road on the south. A new signalized intersection will be installed where the new Silva Valley Parkway will intersect old White Rock Road on the south. Silva Valley Parkway serves about 10,300 vehicles per day north of US 50.

White Rock Road is the continuation of Silva Valley Parkway south of US 50. White Rock Road is predominately a two or three lane roadway until west of Latrobe Road where the cross section widens to four lanes. White Rock Road was recently widened east of Latrobe Road to Monte Verde Drive to accommodate four lanes, sidewalks and Class II bicycle lanes. The General Plan identifies White Rock Road as a six lane divided road east of Latrobe Road and a four lane divided road west of Latrobe Road. The US 50/Silva Valley Parkway/White Rock Road interchange will modify the roadway alignment and introduce a new signalized intersection at the intersection of White Rock Road/Existing Silva Valley Parkway/New Silva Valley Parkway and is assumed under Cumulative conditions. White Rock Road serves about 10,600 vehicles per day west of Latrobe Road.

Wilson Boulevard primarily serves residential areas west of El Dorado Hills Boulevard. Wilson Boulevard is proposed as a project access for the Pedregal site. Wilson Boulevard continues for one mile west of El Dorado Hills Boulevard, with four lanes between El Dorado Hills Boulevard and Ridgeview Drive and two lanes west of Ridgeview Drive, where it dead ends. Wilson Boulevard terminates just east of El Dorado Hills Boulevard where a roadway extension is proposed as part of the project. This new connection would serve as a primary roadway within the Serrano Westside site with a direct connection to Serrano Parkway on the south. Wilson Boulevard serves about 5,000 vehicles per day west of El Dorado Hills Boulevard.

4.3 EXISTING CONDITIONS PEAK HOUR TRAFFIC VOLUMES

Intersection, roadway segment, and freeway counts were collected to determine the existing traffic operations of study facilities. Weather conditions were generally dry and local schools were in full session, during the traffic count data collection.

For study intersections, AM peak period (7 AM to 9 AM) and PM peak period (4 PM to 6 PM) intersection turning movement counts were collected in May 2012 and January 2013. For study roadways, 24-hour traffic counts were collected in May 2012. Construction was ongoing at the US 50/El Dorado Hills Boulevard interchange. Field observations conducted during the AM and PM peak periods identified extensive vehicle queuing near the US 50/El Dorado Hills Boulevard interchange, with the longest queues

southbound during the AM peak hour and northbound during the PM peak hour. However, all queued vehicles were served during the peak hour, so the traffic counts are representative of peak hour travel demand. Each intersection's peak hour within the peak period was used for the analysis. For the majority of study intersections, the counts indicate that the AM peak hour is between 7:15 and 8:15 and the PM peak hour is between 5:00 and 6:00. Figure 3 provides peak hour traffic volumes, lane configurations and traffic controls at each of the study intersections.

Roadway segment traffic counts were collected for 26 roadway segments on El Dorado Hills Boulevard, Latrobe Road, White Rock Road, Silva Valley Parkway, Serrano Parkway, Saratoga Way, Wilson Way, Olson Lane, Gillette Drive, and Harvard Way.

For US 50, directional traffic counts were collected during the AM peak period (6 AM to 9 AM) and PM peak period (3 PM to 6 PM) and included vehicle classification (i.e., automobiles and trucks) and vehicles using the high occupancy vehicle (HOV) lanes. The freeway traffic counts were conducted midweek (i.e., Tuesday, Wednesday, and Thursday) in August 2013. The August 2013 traffic counts were verified for reasonableness by comparing to traffic data from Caltrans' Performance Measurement System (PeMS) and the Transportation Systems Network (TSN) data. PeMS data is collected continuously from traffic counts detectors located in the travel lanes of freeway facilities (HOV, general purpose, and on- and off-ramps). The TSN data includes an estimate of peak hour traffic based on seven day traffic counts. Figure 4 provides peak hour traffic volumes and lane configurations on US 50. Based on the August 2013 counts, heavy vehicles (i.e., trucks) represented one- and two-percent of westbound traffic during the morning and evening peak hours, respectively. In the eastbound direction, heavy vehicles represented four- and one-percent of traffic during the morning and evening peak hours, respectively. These peak hour heavy vehicle percentages are lower than rates based on daily traffic volumes, since heavy vehicles avoid peak hour conditions.

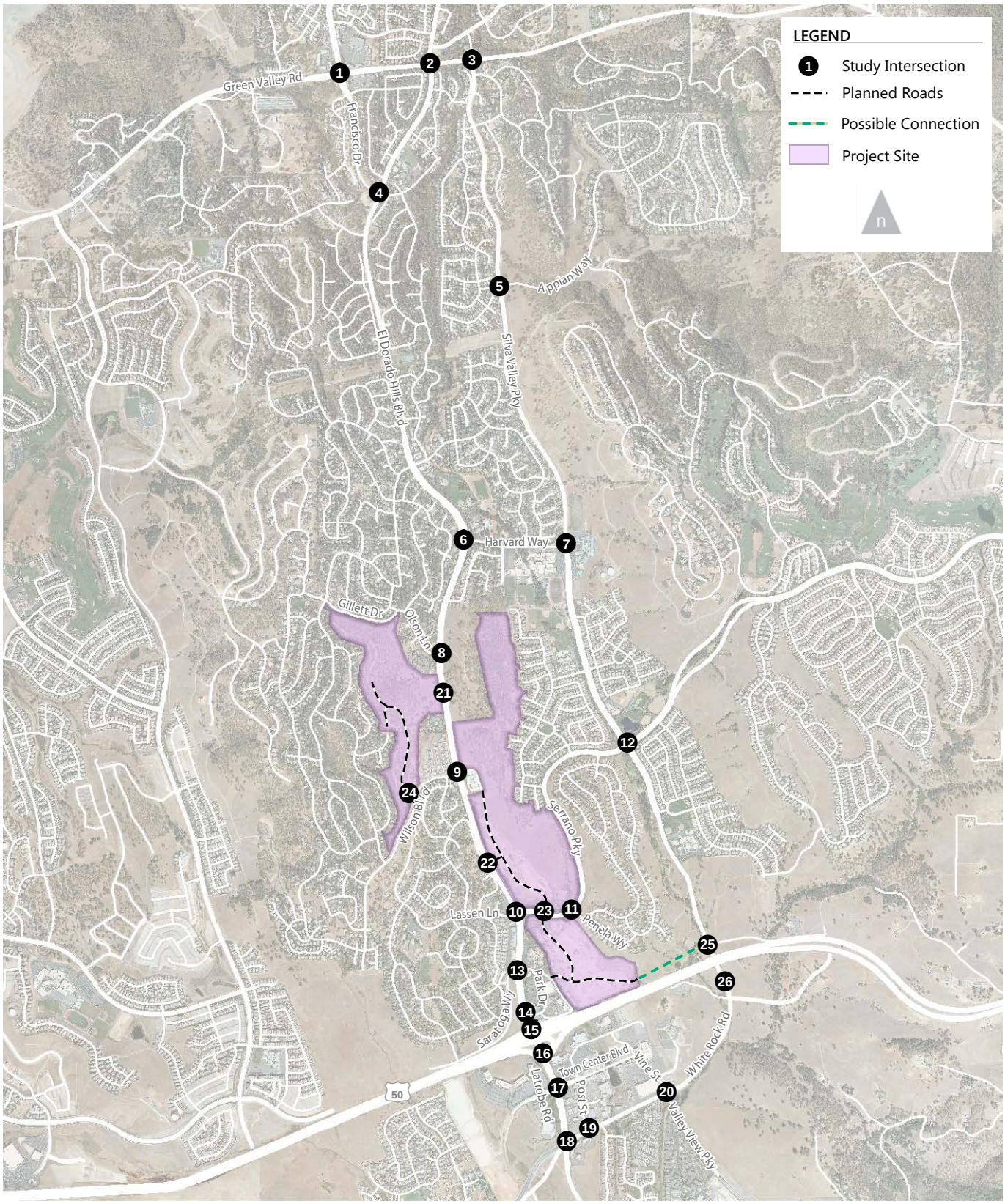


Figure 2.

Study Area

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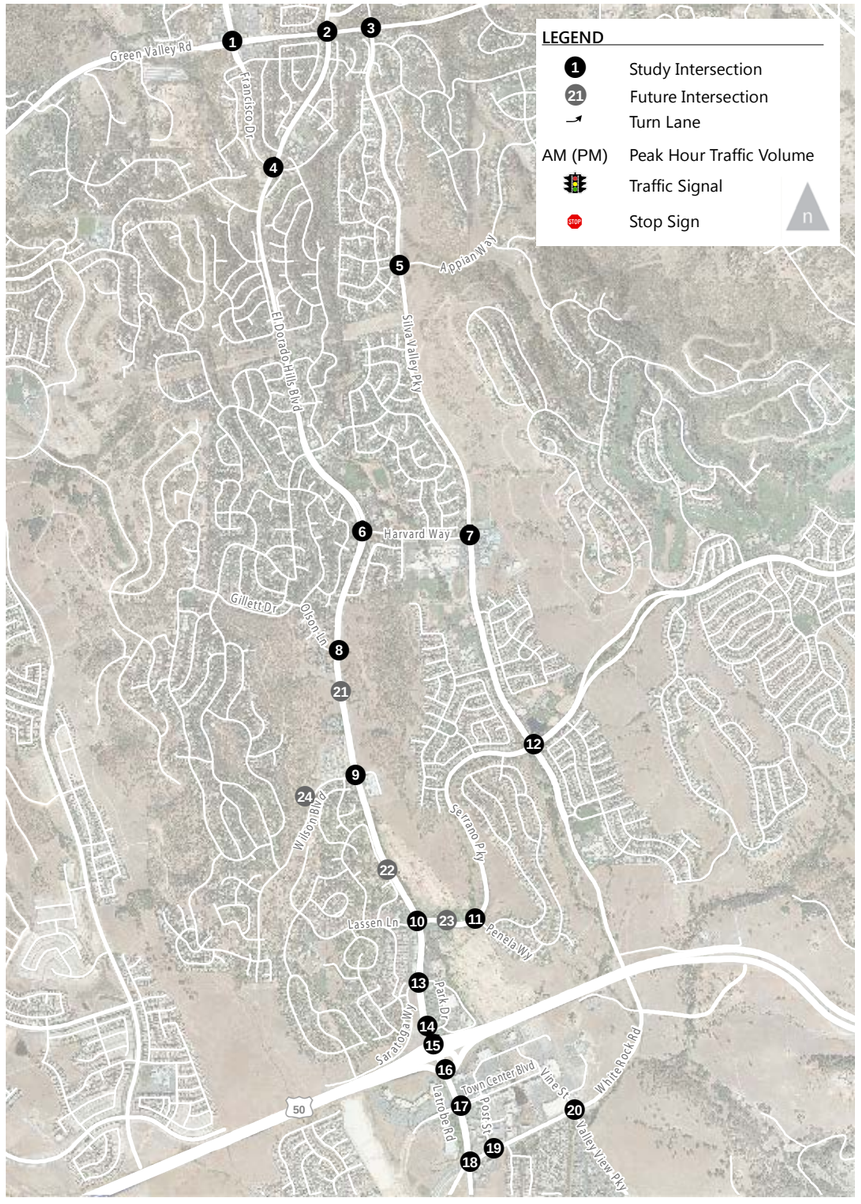

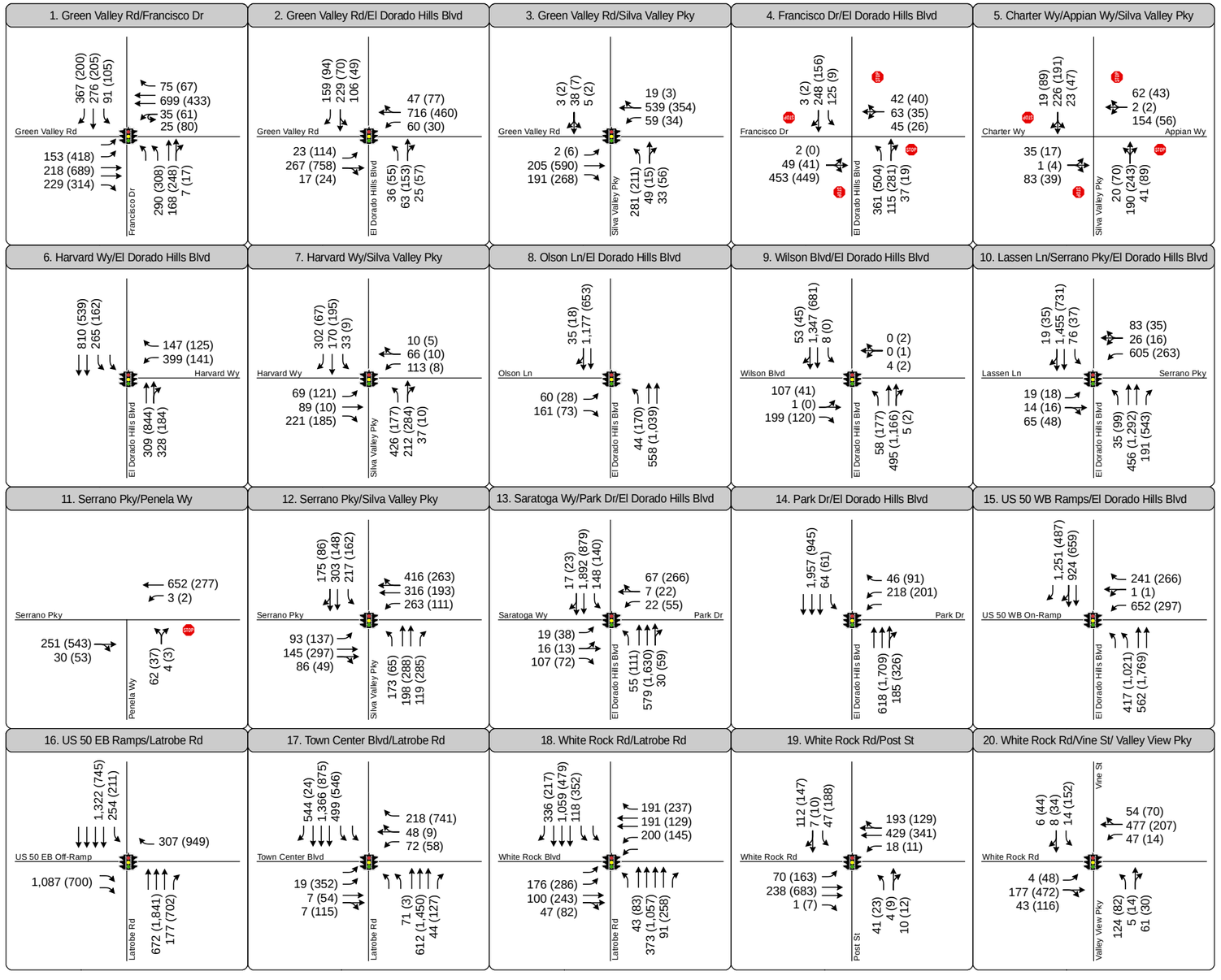

Figure 3.

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

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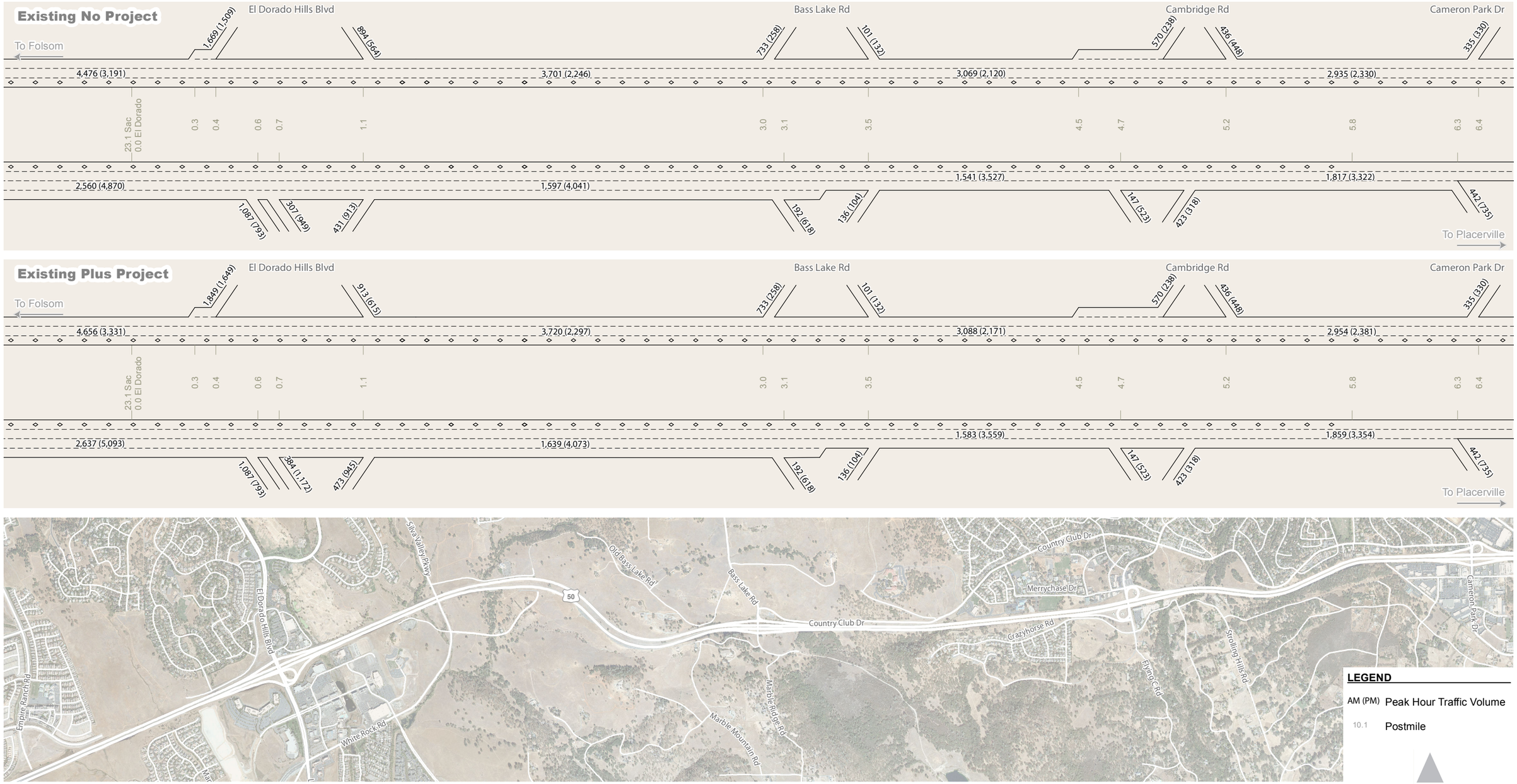

Figure 4.

US 50 Freeway Mainline and Ramp Peak Hour Traffic Volumes - Existing Conditions

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FEHR PEERS

4.4 EXISTING CONDITIONS PEAK HOUR VEHICLE LEVEL OF SERVICE

4.4.1 INTERSECTIONS

Table 4 summarizes existing conditions AM and PM peak hour Level of Service (LOS) for the study intersections. The LOS of a facility is a qualitative measure used to describe operating conditions. LOS ranges from A (best), which represents short delays, to LOS F (worst), which represents long delays and a facility that is operating at or near its functional capacity.

As described in Section 4.2, an intersection that is operating at LOS E or better in a Community Region is considered to operate at an acceptable level. One study intersection, Francisco Drive / El Dorado Hills Boulevard, operates unacceptably (LOS F) during both the AM and PM peak hours. The intersection is currently all-way stop controlled. This intersection has just been improved by the county to provide an eastbound to southbound free right-turn pocket. Construction was completed in 2015. Future roadway improvements (i.e., roadway realignment, signalization, etc.) are proposed as described in Section 6.1, Table 14.

At the commencement of this study, construction was ongoing at the US 50/El Dorado Hills Boulevard interchange. Field observations conducted during the AM and PM peak periods identified extensive vehicle queuing near the US 50/El Dorado Hills Boulevard interchange, with the longest queues southbound during the AM peak hour and northbound during the PM peak hour. The vehicle queuing results in LOS D operations at the Serrano Parkway/Lassen Lane and Saratoga Way intersections during the AM peak hour and at the Town Center Boulevard intersection during the PM peak hour and is a result of poor lane utilization caused by the interchange construction.

Detailed LOS analysis sheets are contained in Appendix A. See section 3.1 and Table 1 for a definition of LOS as it relates to intersection delay.

TABLE 4: PEAK HOUR LEVEL OF SERVICE – EXISTING CONDITIONS (INTERSECTION)

Intersection	Traffic Control	LOS / Delay (seconds)	
		AM Peak Hour	PM Peak Hour
1. Green Valley Rd / Francisco Dr	Signal	D / 40	D / 46
2. Green Valley Rd/El Dorado Hills Blvd/Salmon Falls Rd	Signal	E / 67	D / 46
3. Green Valley Rd / Silva Valley Pkwy	Signal	C / 31	B / 20
4. Francisco Dr / El Dorado Hills Blvd	AWSC	**F / 88**	**F / 69**
5. Silva Valley Pkwy / Apian Wy	AWSC	C / 23	B / 15
6. El Dorado Hills Blvd / Harvard Wy	Signal	C / 30	B / 17
7. Silva Valley Pkwy / Harvard Wy	Signal	D / 39	C / 22
8. El Dorado Hills Blvd/Olson Ln	Signal	B / 12	A / 9
9. El Dorado Hills Blvd/Wilson Blvd	Signal	B / 20	B / 16
10. El Dorado Hills Blvd/Serrano Pkwy/Lassen Ln	Signal	D / 49	C / 21
11. Serrano Pkwy/Penela Wy	SSSC	D / 32	C / 23
12. Serrano Pkwy/Silva Valley Pkwy	Signal	D / 40	C / 30
13. El Dorado Hills Blvd/Park Dr/Saratoga Wy	Signal	D / 36	C / 25
14. El Dorado Hills Blvd/Saratoga Wy	Signal	E / 56	B / 15
15. El Dorado Hills Blvd/US 50 WB Ramps	Signal	D / 43	C / 29
16. Latrobe Rd/US 50 EB Ramps	Signal	B / 15	B / 14
17. Latrobe Rd/Town Center Blvd	Signal	C / 29	E / 75
18. Latrobe Rd/White Rock Rd	Signal	C / 35	D / 44
19. White Rock Rd/Post St	Signal	C / 24	C / 31
20. White Rock Rd/Valley View Dr/Vine St	Signal	C / 21	C / 27

Notes: SSSC = side-street stop-control, AWSC = all-way stop control
The average delay is measured in seconds per vehicle. For signalized and AWSC intersections, the delay shown is the average control delay for the overall intersection. For SSSC intersections, the LOS and control delay for the worst movement is shown.
Intersection LOS and delay is calculated based on the procedures and methodology contained in the *HCM* (TRB, 2000). Intersections 1-12, and 18-20 are analyzed in Synchro 7. Intersections 13-17 are analyzed in SimTraffic. Source: Fehr & Peers, 2014

4.4.2 ROADWAY SEGMENTS

Table 5 summarizes existing conditions AM and PM peak hour LOS for the study roadways. All study area roadway segments operate at acceptable levels (better than LOS F), with most operating at LOS C or better.

Detailed LOS analysis sheets are contained in Appendix A. See section 3.1 and Table 2 for a definition of LOS as it relates to roadway segments.

TABLE 5: PEAK HOUR LEVEL OF SERVICE – EXISTING CONDITIONS (ROADWAY SEGMENTS)

Roadway	Segment	Facility Type	Volume / Volume – Capacity (V/C) Ratio / LOS	
			AM Peak Hour	PM Peak Hour
El Dorado Hills Blvd	Green Valley Rd to Francisco Dr	2 lane arterial	430 / 0.26 / C[1]	389 / 0.24 / C[1]
	Francisco Dr to Governor Dr	2 lane arterial	1,324 / 0.80 / D	1,319 / 0.80 / D
	Governor Dr to Wilson Blvd	4 lane divided arterial	2,010 / 0.61 / D	1,935 / 0.59 / D
	Wilson Blvd to Serrano Pkwy	4 lane divided arterial	2,108 / 0.64 / D	2,148 / 0.65 / D
	Serrano Pkwy to Saratoga Way	5 lane divided arterial	2,807 / 0.70 / D	2,976 / 0.74 / D
	Saratoga Way to US 50	6 lane divided arterial	2,685 / 0.57 / C[1]	2,806 / 0.60 / D
Latrobe Rd	US 50 to Town Center Blvd	6 lane divided arterial	3,339 / 0.71 / D	4,081 / 0.87 / D
	Town Center Blvd to White Rock Rd	6 lane divided arterial	2,253 / 0.48 / C[1]	2,628 / 0.56 / C[1]
	White Rock Rd to Golden Foothill Pkwy	4 lane divided arterial	1,813 / 0.55 / C[1]	2,104 / 0.64 / D
	Golden Foothill Pkwy to Sun Ridge Meadow Rd	2 lane arterial	1,225 / 0.74 / D	1,246 / 0.76 / D
	Sun Ridge Meadow Rd to S. Shingle Rd	2 lane arterial	256 / 0.16 / C[1]	295 / 0.18 / C[1]
White Rock Rd	Scott Rd to Four Seasons Dr	2 lane arterial	603 / 0.37 / C[1]	863 / 0.52 / D
	Four Seasons Dr to Latrobe Rd	4 lane divided arterial	893 / 0.27 / C[1]	1,040 / 0.32 / C[1]
	Latrobe Rd to Vine St	2 lane arterial	831 / 0.5 / C[1]	969 / 0.59 / D
	Vine St to US 50	2 lane arterial	830 / 0.5 / C[1]	945 / 0.57 / D
Silva Valley Pkwy	Green Valley Rd to Glenwood Wy	2 lane arterial	651 / 0.39 / C[1]	591 / 0.36 / C[1]
	Glenwood Wy to Appian Wy	2 lane arterial	555 / 0.34 / C[1]	630 / 0.38 / C[1]
	Appian Wy to Harvard Wy	2 lane arterial	796 / 0.48 / C[1]	681 / 0.41 / C[1]

TABLE 5: PEAK HOUR LEVEL OF SERVICE – EXISTING CONDITIONS (ROADWAY SEGMENTS)

Roadway	Segment	Facility Type	Volume / Volume – Capacity (V/C) Ratio / LOS	
			AM Peak Hour	PM Peak Hour
	Harvard Wy to Serrano Pkwy	4 lane divided arterial	1,402 / 0.43 / C[1]	1,084 / 0.33 / C[1]
	Serrano Pkwy to US 50	2 lane arterial	1,142 / 0.69 / D	946 / 0.57 / D
Serrano Pkwy	EDH Blvd to Silva Valley Pkwy	2 lane arterial	995 / 0.6 / D	910 / 0.55 / D
	Silva Valley Pkwy to Villagio Dr	4 lane divided arterial	1,476 / 0.45 / C[1]	1,311 / 0.4 / C[1]
	Villagio Dr to Bass Lake Rd	2 lane arterial	453 / 0.27 / C[1]	417 / 0.25 / C[1]
Saratoga Wy	EDH Blvd to Arrowhead Dr	2 lane arterial	222 / 0.13 / C[1]	279 / 0.17 / C[1]
Wilson Wy	EDH Blvd to Ridgeview Dr	4 lane undivided arterial	418 / 0.13 / C[1]	384 / 0.12 / C[1]
Olson Ln/Gillette Dr	EDH Blvd to Gillette Dr	2 lane arterial	300 / 0.18 / C[1]	289 / 0.18 / C[1]
Harvard Wy	EDH Blvd to Silva Valley Pkwy	4 lane undivided arterial	1,139 / 0.36 / C[1]	612 / 0.20 / C[1]

Notes: Volume-to-Capacity ratio and LOS is based on the peak hour level of service thresholds contained in Table 5.4-1 of the *El Dorado County General Plan DEIR* (EDAW, 2003)
[1] LOS at this location is C or better
Source: Fehr & Peers, 2014

4.4.3 FREEWAY FACILITIES

Freeway facilities in the County are under the jurisdiction of the California Department of Transportation (Caltrans). In recent years, US 50 and interchanges within or proximate to the study area have undergone or are undergoing various improvements to increase capacity and improve traffic operations. These recently completed improvements include: extension of High Occupancy Vehicle (HOV) lanes east to Cameron Park Drive and modifications to the US 50/El Dorado Hills Boulevard/Latrobe Road interchange westbound ramps. As described in Section 2.2, the US 50/Silva Valley Parkway/White Rock Road interchange is under construction.

Table 6 summarizes existing peak hour freeway operations. All of the study facilities currently operate acceptably. A secondary performance measure, average speed, was used to verify the results shown in Table 6 that are based on the primary performance measure of density. Average midweek (i.e., Tuesday, Wednesday, and Thursday non-holiday) speed data was collected from the Caltrans Performance Measurement System (PeMS) for the period from October 2013 through September 2014. The speed data was collected for general purpose lanes (i.e., not the HOV lane) on eastbound and westbound US 50 near the El Dorado/Sacramento county line. As a secondary performance measure, the PeMS speed data is consistent with and confirms the LOS results shows in Table 6 for the segments of US 50 at the county line. The PeMS data identifies average speeds of 60 and 59 miles per hour on eastbound and westbound US 50, respectively, during peak hours. Detailed LOS analysis sheets are contained in Appendix A. See section 3.1 and Table 3 for a definition of LOS as it relates to freeway facilities.

TABLE 6: FREEWAY FACILITY PEAK HOUR LEVEL OF SERVICE – EXISTING CONDITIONS

Freeway	Segment	Facility Type	Existing Density[1] / LOS	
			AM	PM
US 50 EB	Latrobe Rd off-ramp	Diverge	22 / C	31 / D
	El Dorado Hills Blvd off-ramp	Diverge	14 / B	27 / C
	Latrobe Rd on-ramp	Merge	14 / B	26 / C
	El Dorado Hills Blvd on-ramp to Bass Lake Rd off-ramp	Basic	10 / A	20 / C
	Bass Lake Rd off-ramp	Diverge	14 / B	25 / C
	Bass Lake Rd on-ramp	Merge	16 / B	28 / C
	Bass Lake Rd on-ramp to Cambridge Rd off-ramp	Basic	13 / B	25 / C
	Cambridge Rd off-ramp	Diverge	18 / B	31 / D
	Cambridge Rd on-ramp	Merge	18 / B	26 / C
US 50 WB	Cambridge Rd off-ramp	Diverge	27 / C	22 / C
	Cambridge Rd on-ramp to Bass Lake Rd off-ramp	Merge	19 / B	12 / B
	Cambridge Rd on-ramp to Bass Lake Rd off-ramp	Basic	23 / C	16 / B
	Bass Lake Rd off-ramp	Diverge	28 / D	21 / C
	Bass Lake Rd on-ramp	Merge	31 / D	20 / C
	Bass Lake Rd on-ramp to El Dorado Hills Blvd off-ramp	Basic	29 / D	17 / B
	El Dorado Hills Blvd off-ramp	Diverge	33 / D	22 / C
	El Dorado Hills Blvd on-ramp	Merge	34 / D	24 / C

Notes: [1] Density reported as passenger cars per mile per lane. Density is not reported for LOS F operations.

Source: Fehr & Peers, 2014

4.5 PEDESTRIAN CIRCULATION

Attached or landscape-separated detached sidewalks are provided intermittently throughout the project study area. Given the primarily rural residential nature of El Dorado Hills, it is not necessarily the desire to provide sidewalks in all areas. However, some of the following major roadway facilities lack sidewalks and result in pedestrian network gaps:

- The majority of the west side of El Dorado Hills Boulevard lacks sidewalk
- Both sides of Latrobe Road lack sidewalk except for detached sidewalk on the east side between US 50 and Town Center Drive
- Both sides of White Rock Road lack sidewalk except for west of Post Street (both sides) and on the north side adjacent to development just west of Vine Street
- The east side of Silva Valley Parkway north of Harvard and both sides of the street north of US 50 to Oak Meadow Elementary School
- The north side of Serrano Parkway has a sidewalk/path that begins at El Dorado Hills and continues east.
- Wilson Boulevard lacks pedestrian facilities between Ridgeview Drive (and approximately 500 feet west of El Dorado Hills Boulevard)
- Olson Lane / Gillette Drive do not have sidewalks
- Green Valley mostly lacks sidewalk except for the south side between Miller Road on the west and east of Francisco Drive

Most study intersections provide signal-controlled pedestrian crossings with marked crosswalks. As described in Section 2.6 below, Class I bicycle paths double as pedestrian facilities. In particular, the New York Creek Nature Trail, adjacent to El Dorado Hills Boulevard, provides connectivity between the Pedregal and Serrano Westside planning areas.

4.6 BICYCLE CIRCULATION

Existing bicycle facilities within the study area are displayed in Figure 5. Bicycle facilities are classified into three categories.

- Class I Bicycle Path– Off-street bike paths within exclusive right-of-way; usually shared with pedestrians
- Class II Bicycle Lane – Striped on-road bike lanes adjacent to the outside travel lane on preferred corridors for biking
- Class III Bicycle Route– Shared on-road facility, usually delineated by signage and pavement markings

According to the *El Dorado Bicycle Transportation Plan, 2010 Update (El Dorado County Transportation Commission)*, mapping information provided by the County, and field observations, the following major bikeway facilities are present within the study area:

- Class II bicycle lanes on Serrano Parkway, Saratoga Way, White Rock Road, Latrobe Road and Green Valley Road (west of Francisco Drive) and portions of Silva Valley Parkway and El Dorado Hills Boulevard
- Class I bicycle path, New York Creek Nature Trail, which is adjacent to El Dorado Hills Boulevard on the east side between Serrano Parkway to St Andrews Drive
- Class I bicycle path adjacent to El Dorado Hills Boulevard on the west side north of Telegraph Hill Road to Green Valley Road
- Class I bicycle path, Bull Frog Gully trail, on the north/west side of Serrano Parkway opposite Penela Way

Figure 5 also identifies planned bikeways presented in the *El Dorado Bicycle Transportation Plan, 2010 Update and the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for 2035*.

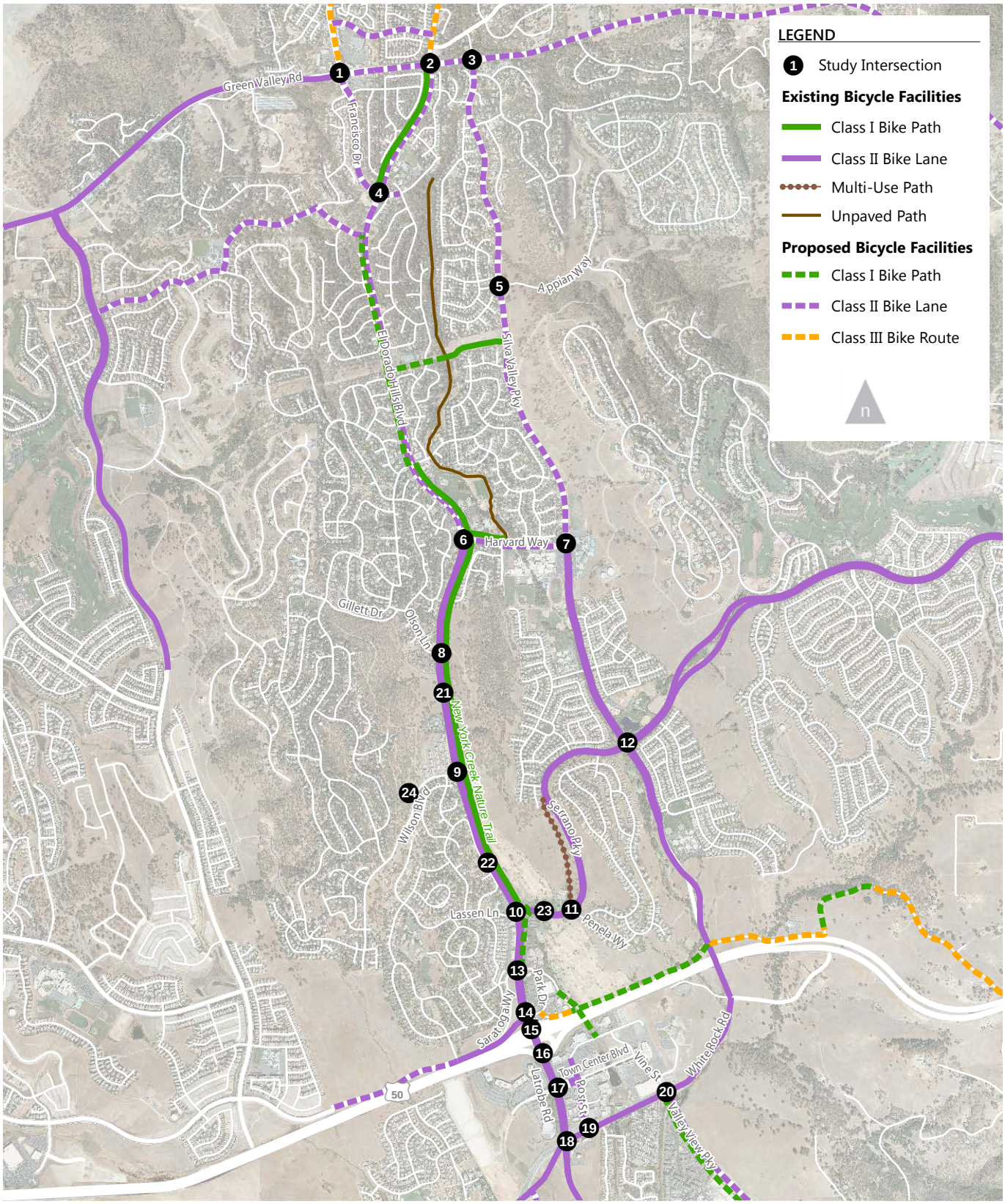


Figure 5.

Bicycle Facilities

4.7 TRANSIT

El Dorado County Transit Authority (El Dorado Transit) provides public transit service within the project area. El Dorado Hills is currently served by El Dorado Transit Dial-A-Ride services, Commuter Service, and the Iron Point Connector Route. Both the Commuter Service and the Iron Point Connector Route serve only the El Dorado Hills Park-and-Ride Lot and do not circulate within the community.

In May 2013, The EDCTC completed the *El Dorado Hills Community Transit Needs Assessment and US 50 Corridor Operations Plan* (Plan), which explores how the recent growth and projected development impact the need for transit services, and identifies the most appropriate type and level of service needed given the demand. All three services are addressed in the Plan and are described briefly below.

- **Dial-A-Ride** service is a demand response service designed for seniors and disabled passengers, with limited access available for the general public. The service is available on a first-come, first-serve basis Monday through Friday between the hours of 7:30 AM and 5:00 PM, and between 8:00 AM and 5:00 PM on Saturdays and Sundays. El Dorado Hills is one of twelve geographic zone service areas.
- **Commuter Service** is offered Monday through Friday between El Dorado County and downtown Sacramento. Morning departures from El Dorado County locations are scheduled from 5:10 AM to 8:00 AM, and afternoon eastbound departures from Sacramento occur from 2:40 PM to 6:00 PM. A reverse commuting service is offered. The El Dorado Hills Park-and-Ride located in Town Center at the White Rock Road/Post Street intersection is the nearest stop location for the project. According to the Plan, nearly half of commute passengers boarded at the El Dorado Hills Park-and-Ride in the morning, which makes this location the highest boarding stop offered as part of the Commuter Service.
- **Iron Point Connector (IPC) Route** provides direct service from El Dorado County to Folsom with connections to Sacramento Regional Transit light rail on weekdays. This route runs twice in the morning and twice in the afternoon from the Central Transit Center to the Iron Point Light Rail Station in Folsom. The El Dorado Hills Park-and-Ride located in Town Center at the White Rock Road/Post Street intersection is the nearest stop location for the project.

The El Dorado Hills Park-and-Ride Lot provides 120 parking spaces. The Plan reports that parking demand exceeds supply. Specifically, Table 19 of the Plan reports 96% parking utilization in 2004 and 108% parking utilization in 2005 based on Sacramento Area Council of Governments and Caltrans data. The Plan also describes other transit providers that serve western El Dorado County, including the Senior Shuttle Program, which has recently initiated service in El Dorado Hills.

In addition, the Serrano El Dorado Owners' Association provides rideshare services for its residents.

5.0 EXISTING PLUS PROJECT CONDITIONS

5.1 TRIP GENERATION

Based on information contained in the Notice of Preparation and subsequent correspondence with County staff and the applicant, Fehr & Peers prepared trip generation estimates for the project based on methodologies and trip rates presented in Trip Generation, 9th Edition (Institute of Transportation Engineers), with adjustments to account for internal vehicle trips and walking trips given the proximity and access that portions of the project will have to nearby retail and commercial services located in the Raley's and La Borgata shopping centers and along El Dorado Hills Boulevard.

This traffic study determined that the combined effects of the Project's land use, location, and development scale would contribute to a reduction in off-site average weekday vehicle "trips" (e.g., one vehicle trip is when a person drives from their home to shopping or their job. Their return drive home is another trip). This reduction is due largely to the Project's proximity to commercial and retail services and connections between the project and these services. That is, most of the reduction in total off-site vehicle trips generated by the Project is attributable to those trips beginning on the Project site, traveling to adjacent services, and ending on the Project site without using off-site roadways or by walking.

Traditionally, traffic engineers and transportation planners have estimated internalization of project trips using one of two methods. First, they would estimate it based on their professional judgment. Alternatively, professionals relied on the Institute of Transportation Engineers' (ITE) internalization methodology presented in the ITE Trip Generation Handbook. Although this has been applied in thousands of studies in California, the methodology was limited as it was based on only six surveys in Florida. Additionally, the ITE internalization methodology only accounts for the land use types on the mixed-use site. Given the limited input information (land use amount and type) and the limited range of data (six surveys), the accuracy of the internalization estimates has recently been found to generally under-estimate internalization of trips from mixed-use projects.

Recognizing the limitations of the simplified methodology applied in the ITE handbook, the United States Environmental Protection Agency commissioned a study to develop a more substantial, statistically superior methodology. This methodology, identified as MXD (or mixed-use development trip generation), begins with ITE rates and developed trip internalization estimates based on a series of factors tied to numerous site attributes. It should also be noted that the MXD model has been developed in cooperation with the US Environmental Protection Agency (EPA) and ITE and that ITE is currently reviewing the model

for potential inclusion in their updated recommended practice for evaluating MXD projects. The MXD methodology is described in greater detail below.

MXD Trip Internalization Methodology

The internal capture percentage reported is not an "assumed" number, but rather is a number that was derived using a best practices trip generation model designed specifically for mixed-use development (MXD) projects and estimates trip generation and internal capture by adjusting trip generation rates to account for the influence of built environment variables. A variety of research studies have demonstrated that these variables influence vehicle trip generation.

The MXD model used was developed based on household travel survey data obtained from 239 existing mixed-use developments in six metropolitan regions throughout the U.S., including developments in Sacramento. The internal capture percentage calculated for the project is reflective of the land uses that would be developed as part of the Project and land use near the project, which would reduce the need to travel beyond the Project site or surrounding area. A set of 16 independent mixed use sites that were not included in the initial model were tested to help validate the model. Among the validation sites, use of the MXD model produced superior statistical performance when comparing the model results to observed data. Given the statistical robustness of the MXD model, it was deemed the most appropriate approach for estimating internalization of project trips.

MXD Model Inputs and Trip Generation Estimates

To determine the amount of trips that would be internal to the Project site, an MXD trip generation estimate was prepared. The MXD analysis first begins with gross trip rates identified in the Institute of Transportation Engineers' Trip Generation (9th Edition, 2012). It then incorporates the MXD methodology for "matching" trips to estimate the amount of internalization within the project site. Tables 7, 8 and 9 summarize project land use, assumed trip rates, calculated trip generation totals, and MXD adjustments for both Serrano Westside and Pedregal.

The entire project is projected to generate 8,757 daily vehicle trips, 694 AM peak hour vehicle trips and 979 PM peak hour vehicle trips. The daily total includes a modest reduction of 192 vehicle trips for internalization, which are vehicle trips made that remain within the project site or travel to nearby service adjacent to the project site without using external roadways. An additional reduction of 150 vehicle trips was made in acknowledgement of feasible walking trips in lieu of vehicle trips for the Serrano Westside site that is within a reasonable walking distance of nearby commercial and shopping land uses.

TABLE 7: TRIP GENERATION – SERRANO WESTSIDE

Land Use	Quantity	ITE Code	Trip Rate			Trips						
			Daily	AM	PM	Daily	AM			PM		
							In	Out	Total	In	Out	Total
Multifamily Housing (Dwelling Units)	330	220	6.65	0.51	0.62	2,195	34	134	168	133	72	205
Single Family Detached Housing (Dwelling Units)	433	210	9.52	0.75	1.00	4,122	81	244	325	273	160	433
Civic - Limited Commercial (1,000 Square Feet)	50	710	11.03	1.56	1.49	552	69	9	78	13	62	75
Village Park (Acres)	15	[1]	36.55	1.08	9.07	548	9	7	16	94	42	136
Gross Trips						7,416	193	394	587	513	335	848
Internal Capture						192	6	6	12	8	8	16
Walking Trips						150	3	8	11	9	6	15
Net Trips Made by Motor Vehicle						7,075	184	380	564	496	322	818

[1]Trip generation for the village park land use is based on field measured trip generation at the Promontory (Alexandra Drive) and El Dorado Hills Community Pare (El Dorado Hills Boulevard at Harvard Way). Observed activities included little league baseball, la Crosse, and softball.
Source: Fehr & Peers, 2014

TABLE 8: TRIP GENERATION – PEDREGAL

Land Use	Quantity	ITE Code	Trip Rate			Trips						
			Daily	AM	PM	Daily	AM			PM		
							In	Out	Total	In	Out	Total
Multifamily Housing (Dwelling Units)	200	220	6.65	0.51	0.62	1,330	20	82	102	81	43	124
Single Family Detached Housing (Dwelling Units)	37	210	9.52	0.75	1.00	352	7	21	28	23	14	37
Net Trips Made by Motor Vehicle						1,682	27	103	130	104	57	161

Source: Fehr & Peers, 2014

TABLE 9: TRIP GENERATION – CENTRAL EL DORADO HILLS (SERRANO WESTSIDE + PEDREGAL)

Land Use	Quantity	ITE Code	Trip Rate			Trips						
			Daily	AM	PM	Daily	AM			PM		
							In	Out	Total	In	Out	Total
Multifamily Housing (Dwelling Units)	530	220	6.65	0.51	0.62	3,525	54	216	270	214	115	329
Single Family Detached Housing (Dwelling Units)	470	210	9.52	0.75	1.00	4,474	88	265	353	296	174	470
Civic - Limited Commercial (1,000 Square Feet)	50	710	11.03	1.56	1.49	552	69	9	78	13	62	75
Village Park (Acres)	15	-[1]	36.55	1.08	9.07	548	9	7	16	94	42	136
Gross Trips						9,099	220	497	717	617	392	1,009
Internal Capture						192	6	6	12	8	8	16
Walking Trips						150	3	8	11	9	6	15
Net Trips Made by Motor Vehicle						8,757	211	483	694	600	379	979

[1]Trip generation for the village park land use is based on field measured trip generation at the Promontory (Alexandra Drive) and El Dorado Hills Community Pare (El Dorado Hills Boulevard at Harvard Way. Observed activities included little league baseball, la Crosse, and softball.
Source: Fehr & Peers, 2014

5.2 TRIP DISTRIBUTION AND ASSIGNMENT

The expected distribution of project trips is shown on Figure 6. The distribution was developed using the following sources and analytical techniques:

- Existing travel patterns based on the existing traffic counts
- Traffic assignment using the validated base year El Dorado County travel demand forecasting model
- Project access and internal circulation

As shown on Figure 6, the largest share of project trips (37 percent) will use US 50 to/from the west in the morning and evening with nine percent traveling on US 50 to/from the east. Travel to/from the north on El Dorado Hills Boulevard and to/from the south on Latrobe Road is fairly balanced at 25 percent and 24 percent, respectively. Figure 7 shows only project trips based on the trip distribution shown on Figure 6. The resulting AM and PM peak hour traffic volumes under existing plus project conditions are presented on Figure 8.

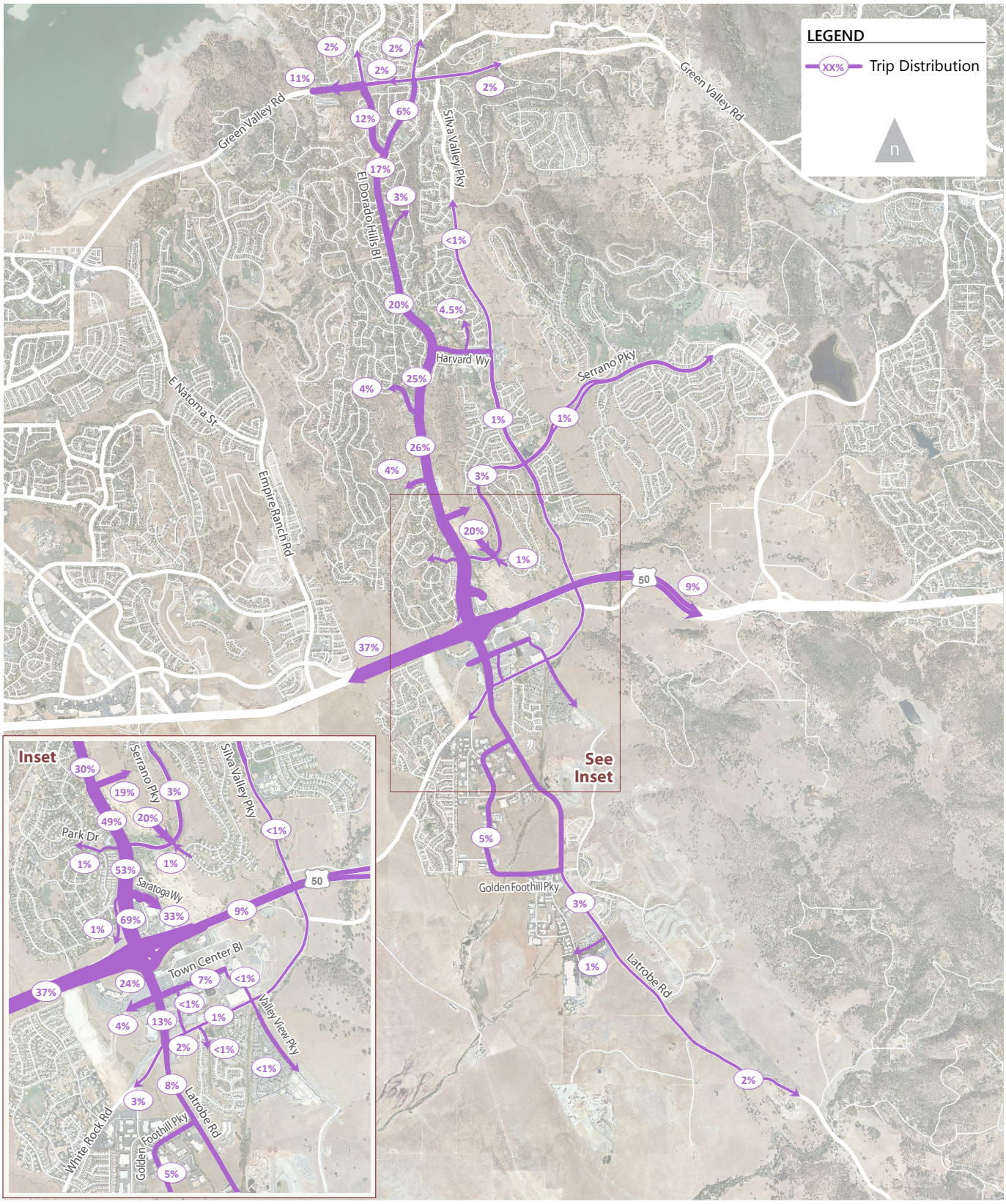
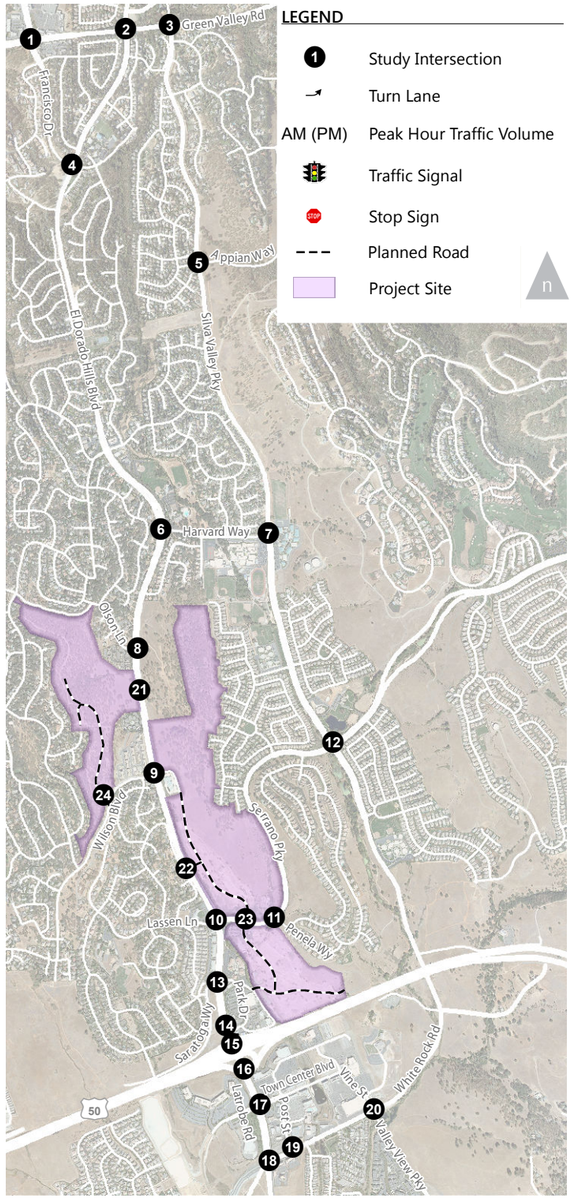


Figure 6.

Trip Distribution - Existing Conditions



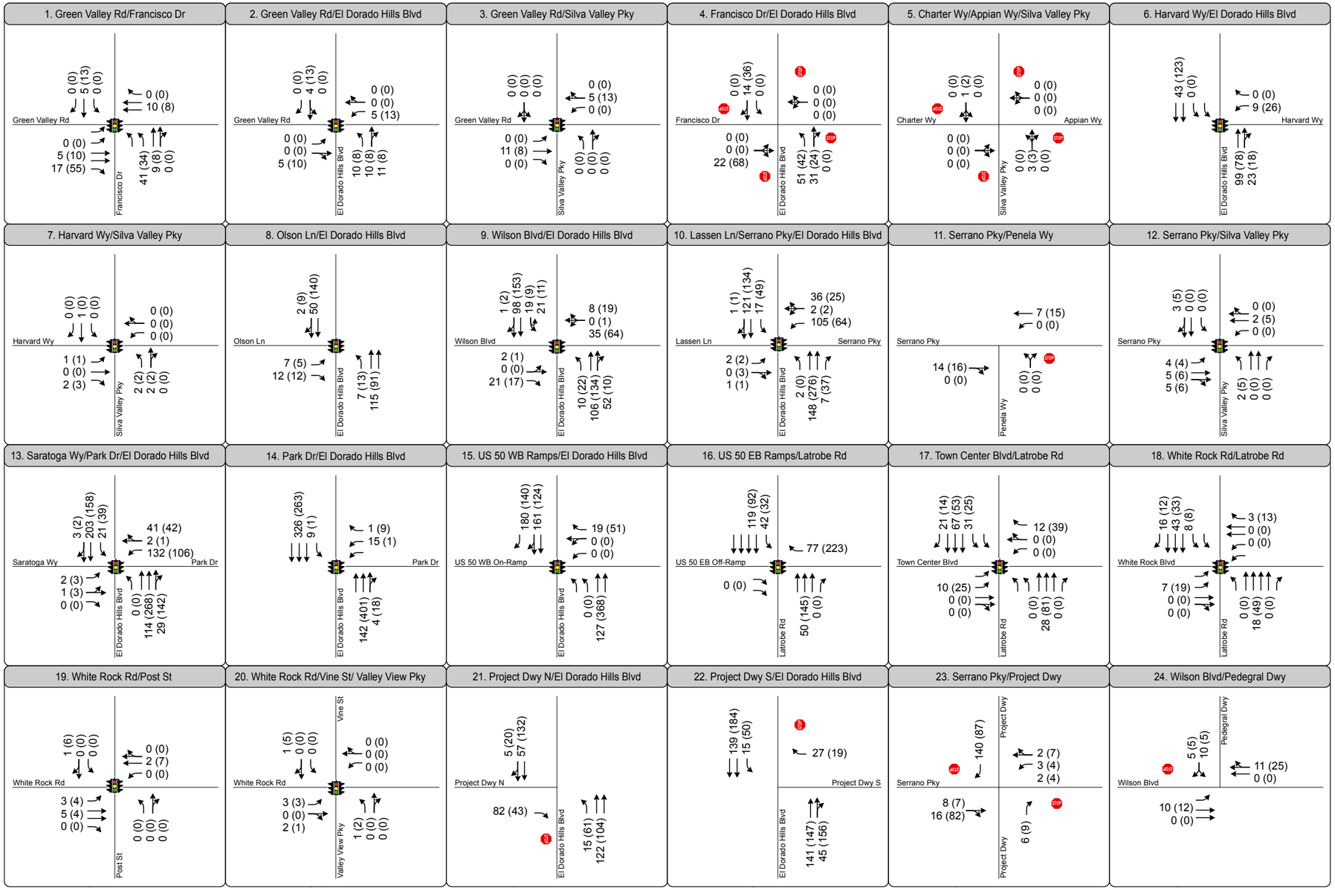


Figure 7.

Project Only Trip Assignment - Existing Conditions

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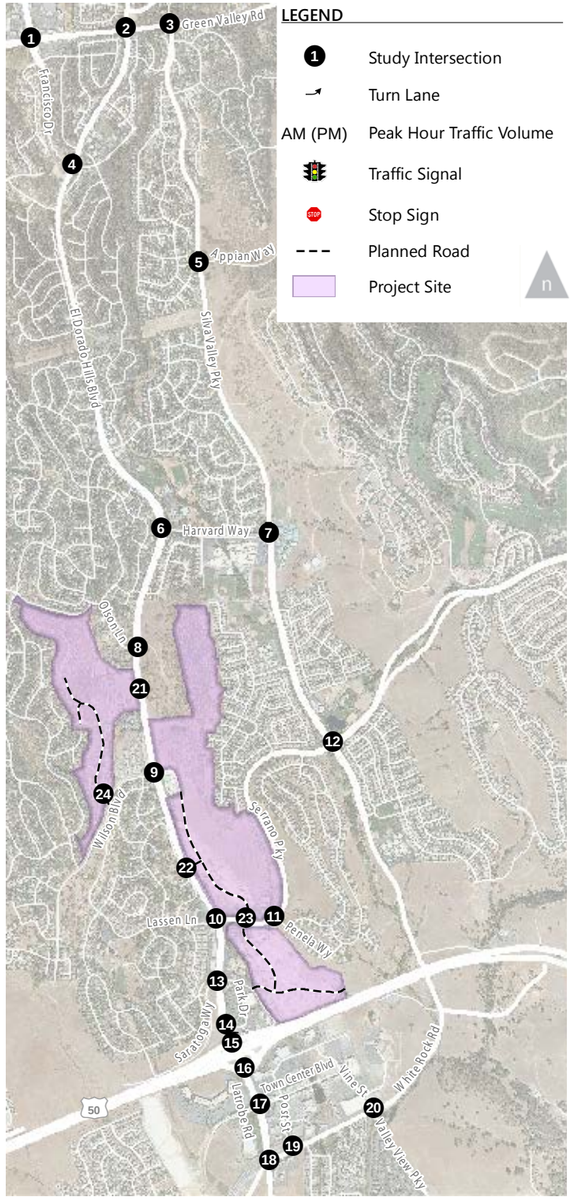


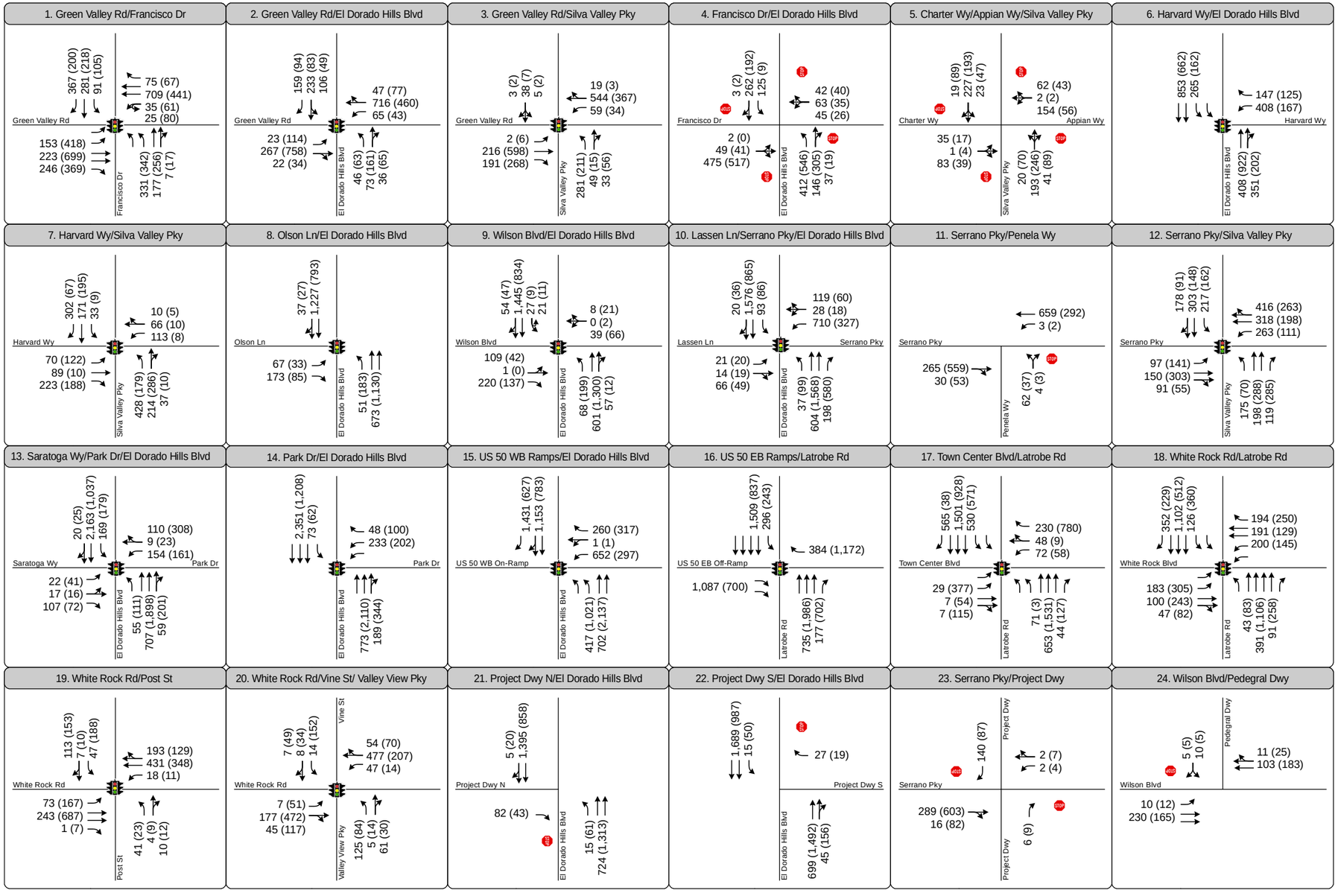


Figure 8.

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions

5.3 PEAK HOUR VEHICLE LEVEL OF SERVICE

5.3.1 INTERSECTIONS

Analysis results, which are presented in Table 10, indicate that most study intersections will operate acceptably, except for the all-way stop controlled Francisco Drive / El Dorado Hills Boulevard intersection, which will operate at LOS F during the AM and PM peak hours. Traffic generated by the project result in potential impacts at the following locations:

- Francisco Drive / El Dorado Hills Boulevard (intersection 4) – This location operates at LOS F without the project. The project adds more than 20 seconds of delay to overall intersection operations. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the AM and PM peak hours.
- Latrobe Road / Town Center Boulevard (intersection 17) – This location operates acceptably LOS E without the project. The project results in unacceptable LOS F conditions during the PM peak hour.

5.3.2 ROADWAY SEGMENTS

Analysis results, which are presented in Table 11, indicate that all study roadway segments will operate acceptably. Traffic generated by the project is not anticipated to result in roadway segment impacts according to established significance criteria. A comparison of the results in Table 11 to the results in Table 10 shows that the number of through travel lanes on the study area roadways is adequate, but that improvements are needed at intersections, which are the locations where drivers experience delay traveling through the study area.

TABLE 10: INTERSECTION LOS AND DELAY – EXISTING PLUS PROJECT CONDITIONS

Intersection	Control	Existing Conditions (LOS / Delay)		Existing Plus Project (LOS / Delay)	
		AM	PM	AM	PM
1. Green Valley Rd / Francisco Dr	Signal	D / 40	D / 46	D / 41	D / 46
2. Green Valley Rd/El Dorado Hills Blvd/Salmon Falls Rd	Signal	E / 67	D / 46	E / 73	D / 54
3. Green Valley Rd / Silva Valley Pkwy	Signal	C / 31	B / 20	C / 32	B / 20
4. Francisco Dr / El Dorado Hills Blvd	AWSC	**F / 88**	**F / 69**	***F / 108***	***F / 98***
5. Silva Valley Pkwy / Apian Wy	AWSC	C / 23	B / 15	C / 23	B / 15
6. El Dorado Hills Blvd / Harvard Wy	Signal	C / 30	B / 17	C / 33	B / 18
7. Silva Valley Pkwy / Harvard Wy	Signal	D / 39	C / 22	D / 39	C / 22
8. El Dorado Hills Blvd/Olson Ln	Signal	B / 12	A / 9	B / 12	B / 10
9. El Dorado Hills Blvd/Wilson Blvd	Signal	B / 20	B / 16	C / 30	C / 30
10. El Dorado Hills Blvd/Serrano Pkwy/Lassen Ln	Signal	D / 49	C / 21	E / 70	C / 35
11. Serrano Pkwy/Penela Wy	SSSC	D / 32	C / 23	D / 34	C / 24
12. Serrano Pkwy/Silva Valley Pkwy	Signal	D / 40	C / 30	D / 41	C / 30
13. El Dorado Hills Blvd/Park Dr/Saratoga Wy	Signal	D / 36	C / 24	E / 62	D / 44
14. El Dorado Hills Blvd/Saratoga Wy	Signal	E / 56	B / 15	E / 58	C / 29
15. El Dorado Hills Blvd/US 50 WB Ramps	Signal	D / 43	C / 29	C / 32	D / 36
16. Latrobe Rd/US 50 EB Ramps	Signal	B / 15	B / 14	B / 15	D / 42
17. Latrobe Rd/Town Center Blvd	Signal	C / 29	E / 75	C / 30	***F / 128***

TABLE 10: INTERSECTION LOS AND DELAY – EXISTING PLUS PROJECT CONDITIONS

Intersection	Control	Existing Conditions (LOS / Delay)		Existing Plus Project (LOS / Delay)	
		AM	PM	AM	PM
18. Latrobe Rd/White Rock Rd	Signal	C / 35	D / 44	C / 35	D / 44
19. White Rock Rd/Post St	Signal	C / 24	C / 31	C / 24	C / 31
20. White Rock Rd/Valley View Dr/Vine St	Signal	C / 21	C / 27	C / 21	C / 27
21. El Dorado Hills Blvd / Project Dwy North	SSSC	-	-	B / 10	A / 10
22. El Dorado Hills Blvd / Project Dwy South	SSSC	-	-	A / 9	B / 14
23. Serrano Pkwy / Project Dwy	SSSC	-	-	C / 20	B / 13
24. Wilson Blvd / Pedregal Dwy	SSSC	-	-	A / 10	A / 10

Note: SSSC = side-street stop-control, AWSC = all-way stop control

Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.

The average delay is measured in seconds per vehicle. For signalized and AWSC intersections, the delay shown is the average control delay for the overall intersection. For TWSC intersections, the LOS and control delay for the worst movement is shown.

Intersection LOS and delay is calculated based on the procedures and methodology contained in the *HCM* (TRB, 2000). Intersections 1-12, and 18-25 are analyzed in Synchro 7. Intersections 13-17 are analyzed in SimTraffic.

Source: Fehr & Peers, 2014

TABLE 11: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS

Roadway	Segment	Facility Type	Existing Volume / Volume – Capacity (V/C) Ratio / LOS		Existing + Project Volume / Volume – Capacity (V/C) Ratio / LOS	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
El Dorado Hills Blvd	Green Valley Rd to Francisco Dr	2 lane arterial	430 / 0.26 / C[1]	389 / 0.24 / C[1]	458 / 0.28 / C[1]	428 / 0.26 / C[1]
	Francisco Dr to Governor Dr	2 lane arterial	1,324 / 0.80 / D	1,319 / 0.80 / D	1,456 / 0.88 / D	1,505 / 0.91 / D
	Governor Dr to Wilson Blvd	4 lane divided arterial	2,010 / 0.61 / D	1,935 / 0.59 / D	2,177 / 0.66 / D	2,170 / 0.66 / D
	Wilson Blvd to Serrano Pkwy	4 lane divided arterial	2,108 / 0.64 / D	2,148 / 0.65 / D	2629 / 0.8 / D	2,882 / 0.88 / D
	Serrano Pkwy to Saratoga Way	5 lane divided arterial	2,807 / 0.70 / D	2,976 / 0.74 / D	3,265 / 0.82 / E	3,622 / 0.91 / D
	Saratoga Way to US 50	6 lane divided arterial	2,685 / 0.57 / C[1]	2,806 / 0.60 / D	3,143 / 0.67 / E	3,452 / 0.73 / D
Latrobe Rd	US 50 to Town Center Blvd	6 lane divided arterial	3,339 / 0.71 / D	4,081 / 0.87 / D	3,499 / 0.74 / D	4,306 / 0.91 / D
	Town Center Blvd to White Rock Rd	6 lane divided arterial	2,253 / 0.48 / C[1]	2,628 / 0.56 / C[1]	2,343 / 0.5 / C[1]	2,755 / 0.58 / C[1]
	White Rock Rd to Golden Foothill Pkwy	4 lane divided arterial	1,813 / 0.55 / C[1]	2,104 / 0.64 / D	1,869 / 0.57 / D	2,182 / 0.66 / D
	Golden Foothill Pkwy to Sun Ridge Meadow Rd	2 lane arterial	1,225 / 0.74 / D	1,246 / 0.76 / D	1,239 / 0.75 / D	1,266 / 0.77 / D

TABLE 11: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS

Roadway	Segment	Facility Type	Existing Volume / Volume – Capacity (V/C) Ratio / LOS		Existing + Project Volume / Volume – Capacity (V/C) Ratio / LOS	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
	Sun Ridge Meadow Rd to S. Shingle Rd	2 lane arterial	256 / 0.16 / C[1]	295 / 0.18 / C[1]	263 / 0.16 / C[1]	305 / 0.18 / C[1]
White Rock Rd	Scott Rd to Four Seasons Dr	2 lane arterial	603 / 0.37 / C[1]	863 / 0.52 / D	624 / 0.38 / C[1]	892 / 0.54 / D
	Four Seasons Dr to Latrobe Rd	4 lane divided arterial	893 / 0.27 / C[1]	1,040 / 0.32 / C[1]	914 / 0.28 / C[1]	1,069 / 0.32 / C[1]
	Latrobe Rd to Vine St	2 lane arterial	831 / 0.5 / C[1]	969 / 0.59 / D	838 / 0.51 / C[1]	979 / 0.59 / D
	Vine St to US 50	2 lane arterial	830 / 0.50 / C[1]	945 / 0.57 / D	830 / 0.5 / C[1]	945 / 0.57 / D
Silva Valley Pkwy	Green Valley Rd to Glenwood Wy	2 lane arterial	651 / 0.39 / C[1]	591 / 0.36 / C[1]	654 / 0.4 / C[1]	596 / 0.36 / C[1]
	Glenwood Wy to Appian Wy	2 lane arterial	555 / 0.34 / C[1]	630 / 0.38 / C[1]	558 / 0.34 / C[1]	635 / 0.38 / C[1]
	Appian Wy to Harvard Wy	2 lane arterial	796 / 0.48 / C[1]	681 / 0.41 / C[1]	799 / 0.48 / C[1]	686 / 0.42 / C[1]
	Harvard Wy to Serrano Pkwy	4 lane divided arterial	1,402 / 0.43 / C[1]	1,084 / 0.33 / C[1]	1,409 / 0.43 / C[1]	1,094 / 0.33 / C[1]
	Serrano Pkwy to US 50	2 lane arterial	1,142 / 0.69 / D	946 / 0.57 / D	1,149 / 0.7 / D	956 / 0.58 / D
Serrano Pkwy	EDH Blvd to Silva Valley Pkwy	2 lane arterial	995 / 0.6 / D	910 / 0.55 / D	1,016 / 0.62 / D	939 / 0.57 / D

TABLE 11: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS

Roadway	Segment	Facility Type	Existing Volume / Volume – Capacity (V/C) Ratio / LOS		Existing + Project Volume / Volume – Capacity (V/C) Ratio / LOS	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
	Silva Valley Pkwy to Villagio Dr	4 lane divided arterial	1,476 / 0.45 / C[1]	1,311 / 0.4 / C[1]	1,483 / 0.45 / C[1]	1,321 / 0.4 / C[1]
	Villagio Dr to Bass Lake Rd	2 lane arterial	453 / 0.27 / C[1]	417 / 0.25 / C[1]	455 / 0.28 / C[1]	420 / 0.25 / C[1]
Saratoga Wy	EDH Blvd to Arrowhead Dr	2 lane arterial	222 / 0.13 / C[1]	279 / 0.17 / C[1]	229 / 0.14 / C[1]	289 / 0.18 / C[1]
Wilson Wy	EDH Blvd to Ridgeview Dr	4 lane undivided arterial	418 / 0.13 / C[1]	384 / 0.12 / C[1]	425 / 0.14 / C[1]	394 / 0.13 / C[1]
Olson Ln/Gillette Dr	EDH Blvd to Gillette Dr	2 lane arterial	300 / 0.18 / C[1]	289 / 0.18 / C[1]	307 / 0.19 / C[1]	299 / 0.18 / C[1]
Harvard Wy	EDH Blvd to Silva Valley Pkwy	4 lane undivided arterial	1,139 / 0.36 / C[1]	612 / 0.20 / C[1]	1,170 / 0.37 / C[1]	656 / 0.21 / C[1]

Notes: Volume-to-Capacity ratio and LOS is based on the HCM 2010 peak hour level of service thresholds
1 LOS at this location is C or better
Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.
Source: Fehr & Peers, 2014

5.3.3 FREEWAY FACILITIES

Analysis results, which are presented in Table 12, indicate that all but one study freeway facilities segments will operate acceptably. Traffic generated by the project will result in LOS F conditions at the US 50 westbound on-ramp from El Dorado Hills Boulevard.

TABLE 12: FREEWAY FACILITY PEAK HOUR LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS

Freeway	Segment	Facility Type	Existing Density[1] / LOS		Existing + Project Density[1] / LOS	
			AM	PM	AM	PM
US 50 EB	Latrobe Rd off-ramp	Diverge	22 / C	31 / D	23 / C	34 / D
	El Dorado Hills Blvd off-ramp	Diverge	14 / B	27 / C	14 / B	28 / C
	Latrobe Rd on-ramp	Merge	14 / B	26 / C	15 / B	26 / C
	El Dorado Hills Blvd on-ramp to Bass lake Rd off-ramp	Basic	10 / A	20 / C	11 / A	20 / C
	Bass Lake Rd off-ramp	Diverge	14 / B	25 / C	15 / B	26 / C
	Bass Lake Rd on-ramp	Merge	16 / B	28 / C	16 / B	28 / C
	Bass Lake Rd on-ramp to Cambridge Rd off-ramp	Basic	13 / B	25 / C	14 / B	26 / C
	Cambridge Rd off-ramp	Diverge	18 / B	31 / D	18 / B	31 / D
	Cambridge Rd on-ramp	Merge	18 / B	26 / C	19 / B	27 / C
US 50 WB	Cambridge Rd off-ramp	Diverge	27 / C	22 / C	27 / C	23 / C
	Cambridge Rd on-ramp to Bass Lake Rd off-ramp	Merge	19 / B	12 / B	19 / B	13 / B
	Cambridge Rd on-ramp to Bass Lake Rd off-ramp	Basic	23 / C	16 / B	23 / C	16 / B
	Bass Lake Rd off-ramp	Diverge	28 / D	21 / C	28 / D	21 / C
	Bass Lake Rd on-ramp	Merge	31 / D	20 / C	31 / D	21 / C

TABLE 12: FREEWAY FACILITY PEAK HOUR LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS

Freeway	Segment	Facility Type	Existing Density[1] / LOS		Existing + Project Density[1] / LOS	
			AM	PM	AM	PM
	Bass Lake Rd on-ramp to El Dorado Hills Blvd off-ramp	Basic	29 / D	17 / B	29 / D	17 / B
	El Dorado Hills Blvd off-ramp	Diverge	33 / D	22 / C	33 / D	22 / C
	El Dorado Hills Blvd on-ramp	Merge	34 / D	24 / C	***- / F***	25 / C

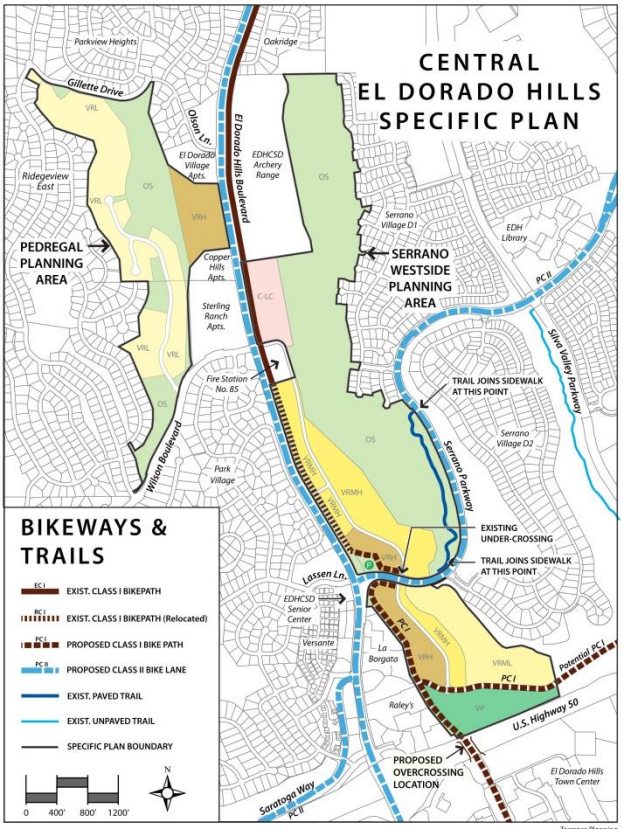
Notes: [1] Density reported as passenger cars per mile per lane. Density is not reported for LOS F operations.

Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.

Source: Fehr & Peers, 2014

5.4 PEDESTRIAN AND BICYCLE CIRCULATION

The project proposes the following bicycle and pedestrian facilities, which are shown to the right that will integrate with existing and planned facilities in the study area:



- Relocate the existing Class I (off street) bike path east separated from El Dorado Hills Boulevard to the existing drainage channel, extending from just south of the fire station to US 50 at the Village Park
- Connect the bike path to the existing undercrossing of Serrano Parkway
- Relocate the planned bicycle/ pedestrian crossing of US 50 to connect the off-street bike path at the planned Village Park to El Dorado Hills Town Center (overcrossing to be constructed by the County)
- Connection between the project site and the Raley's and La Borgata shopping centers
- Connect to a potential Class I bike path between project boundary and Silva Valley Parkway. This would complete the connection to the Country Club Drive extension between Silva Valley Parkway and Bass Lake Road as identified in the 2004 General Plan Circulation Element.

5.5 TRANSIT

The Specific Plan provides for a Park and Ride location in the Serrano Westside portion of the Plan Area, as a joint-use facility between El Dorado Transit and the El Dorado Hills CSD. As many as 50 parking stalls within the Village Park land use designation may be reserved for Park-n-Ride use during weekday business hours when park activities are minimal. The details of the Park-n-Ride facility will be determined at the time the Village Park is developed. In addition, opportunities exist to accommodate bus stop (turnout and shelter) on the east side of El Dorado Hills Boulevard next to the Serrano Westside Planning Area, provided the existing Class I bike path is relocated to the east side of the drainage channel. An

addition bus stop (turnout and shelter) may be accommodated on the future extension of Park Drive near the Village Park. Based on ridership data presented in the El Dorado Hills Community Transit Needs Assessment and US 50 Corridor Transit Operations Plan, Final Report, 41,760 annual commute trips are made by El Dorado Hills residents using El Dorado Transit Commuter Service. Residents of El Dorado Hills account for about 72 percent of boardings at the El Dorado Hills Park-n-Ride lot, which includes riders that park in the lot and riders that use other means to access the service (i.e., walk, bike, and drop-off).

Based on this information, about one annual commute trip is generated per El Dorado Hills resident, assuming a population of 42,100 (2010 Census) in El Dorado Hills. Therefore, the project's 1,000 dwelling units could result in demand of about 2,600 annual commute trips (assuming a household population of 2.6 persons), or about 10 commute trips per weekday.

6.0 CUMULATIVE CONDITIONS

6.1 TRAVEL DEMAND FORECASTS

For this project, the El Dorado County model was utilized to develop forecasts in the study area. However, as is standard practice with large area travel demand models, a thorough model review was completed and the model was refined to ensure that it produced reasonable results in the study area.

The following refinements were implemented in the study area:

- Added roadway network detail
- Updated land use to reflect 2012 conditions
- Refined the traffic analysis zones (TAZs) in order to get more refined loading of trips in the study area
- Updated network attributes in the study area to reflect existing conditions (e.g. verified roadway network speeds, number of lanes on the roadway, and roadway capacities to reflect existing conditions)
- Updated the future year roadway network in the study area to only reflect the SACOG Metropolitan Transportation Plan (MTP) constrained roadway network, which is consistent with the County's Capital Improvement Program (2015 CIP)
- Updated the future land use information to reflect approved and reasonably foreseeable projects in the study area
- Added peak hour assignment functionality

Specific information related to the model's performance is described below:

6.1.1 BASE YEAR MODEL VALIDATION

Before any model can be applied for use in a major specific plan application, it must first satisfy specific validation criteria identified by Caltrans, the Federal Highways Administration (FHWA), and the California Transportation Commission (CTC). These criteria were developed to ensure that a model is developed such that it can accurately forecast existing conditions based on land use and roadway network information, which improves the model's ability to accurately forecast future conditions. The state-of-the-practice for developing defensible forecasts for changes in the roadway network and/or changes in proposed land use is to use a valid base year model.

The first step of any model validation is to ensure that the model generally produces similar results to existing counts. Please note that, since the model is being used to generate AM peak hour and PM peak hour forecasts, the model must be valid at our study facilities for both time periods.

Key metrics for model validation guidelines are described below:

- The volume-to-count ratio is computed by dividing the volume assigned by the model and the actual traffic count for individual roadways (or intersections). The volume-to-count ratio should be less than 10%.
- The deviation is the difference between the model volume and the actual count divided by the actual count. Caltrans provides guidance on the maximum allowable deviation by facility type (e.g. lower-volume roadways can have a higher deviation than higher-volume roadways). 75% of the study facilities should be within the maximum allowable deviation.
- The correlation coefficient estimates the correlation between the actual traffic counts and the estimated traffic volumes from the model. The correlation coefficient should be greater than 0.88.
- The percent Root Mean Square Error (RMSE) is the square root of the model volume minus the actual count squared divided by the number of counts. It is a measure similar to standard deviation in that it assesses the accuracy of the entire model. The RMSE should be less than 40%.

The model validation statistics are summarized in Table 13. As shown in Table 13, the model meets or exceeds the identified model validation statistics in the study area. As such, the model is deemed appropriate for use in this assessment.

TABLE 13: TRAVEL DEMAND FORECASTING MODEL SUB AREA VALIDATION

Metric	Model Validation	Maximum Allowable Deviation
AM Peak Hour – 114 Count Locations		
Model/Count Ratio	1.04	Between 0.90 and 1.10
Percent Within Caltrans Maximum Deviation	85%	> 75%
Percent Root Mean Square Error	24%	< 40%
Correlation Coefficient	0.98	> 0.88
PM Peak Hour – 114 Count Locations		
Model/Count Ratio	1.06	between 0.90 and 1.10
Percent Within Caltrans Maximum Deviation	86%	> 75%
Percent Root Mean Square Error	21%	< 40%
Correlation Coefficient	0.98	> 0.88

Source: Fehr & Peers, 2014

6.1.2. FUTURE (YEAR 2035) MODELING ASSUMPTIONS

All modifications incorporated into the validated Base Year model were incorporated into the future year (2035) travel demand forecasting model. Additionally, as previously mentioned, the model was also updated to include only roadway improvements consistent with the SACOG's MTP and the County's 2015 CIP.

Table 14 describes capacity-enhancing improvements to roadway facilities in the project study area that are planned to occur prior to year 2035 and are included in the cumulative analysis. This information is primarily based on El Dorado County's 2015 CIP (Section 8.1 – West Slope Road/Bridge Individual Project Summaries) and SACOG's MTP/SCS (Appendix A1: MTP/SCS Project List). All relevant projects with the El Dorado County Department of Transportation as the lead agency are identified in Table 14. The validated El Dorado County model was used to develop AM and PM peak hour forecasts for the following scenarios:

- Cumulative No Project – Corresponds to a 2035 No Project Cumulative horizon that accounts for planned roadway improvements, land use growth consistent with the 2004 General Plan, and with approved and reasonably foreseeable projects in the study area, including the following:

    - Bass Lake Hills Specific Plan
    - Cameron Estates
    - Carson Creek Specific Plan
    - Dixon Ranch
    - Lime Rock Valley Specific Plan
    - Marble Valley Specific Plan
    - Promontory
    - Rancho Dorado
    - Ridgeview
    - San Stino Residential Project
    - Serrano
    - Tilden Park
    - Valley View Specific Plan

    Please note that this scenario assumes the allowable development levels based on General Plan designation in the Pedregal Planning Area (144 multi-family dwelling units and 37 single family dwelling units) and development of Serrano Village D-1, Lots C and D (i.e., 135 single family dwelling units).

- Cumulative Plus Proposed Project – Includes similar assumptions to the Cumulative No Project scenario, but incorporates buildout of the Proposed Project and associated roadway network. As outlined in the NOP, the project includes a density transfer from Serrano Village D-1, Lots C and D

to the Serrano Westside Planning Area. Consequently, Lots C and D of Serrano Village D-1 would not be constructed.

Consistent with state-of-the-practice travel demand forecasting practice, model error was corrected using the methodologies identified in the National Cooperative Highway Research Program Report 255 (Transportation Research Board, 1982) using the "difference method" (e.g. add model predicted growth to existing volumes) for roadway segments and intersections.

Figures 9 and 10 present AM and PM peak hour traffic volume forecasts for cumulative conditions without and with the proposed project, respectively.

TABLE 14: CAPACITY–ENHANCING ROADWAY IMPROVEMENTS (ASSUMED COMPLETION BY 2035)

Project Name	Project Description	Estimated Completion
Bass Lake Road Frontage Improvements	Perform roadway operational improvements on Bass Lake Road constructed by Silver Springs development. CIP#66109	By 2035
Bass Lake Road Improvements - Phase 1A	Widen and reconstruct Bass Lake Road from US 50 to Hollow Oak Road to 2-lane divided road with 4-foot shoulders and bicycle/pedestrian paths. Includes an 8-foot median, sidewalk, and bike lane from Hollow Oak Road to US 50; median improvements only from Hollow Oak Road to Serrano Parkway; improvements of park-and-ride lot with frontage road improvement to Old Bass Lake Road and Tierra de Dios. (See ELD19225/CIP#GP166 for Phase 1B). CIP#66109	By 2035
Bass Lake Road Widening	Widen Bass Lake Road from US 50 to Silver Springs Pkwy to accommodate 4 lanes of traffic (divided), curb, gutter, and sidewalk. (See ELD19224 for Phase 1A) CIP#GP166	By 2035
Country Club Drive Extension – Bass Lake Road to Silver Dove Road	Construct 2-lane extension of Country Club Drive from Bass Lake Road to Silver Dove Road. Roadway includes 6-foot paved shoulders and new intersection at Bass Lake Road. (Curb, gutter, and sidewalk may be included.) CIP#GP124	By 2035
Country Club Drive Extension - Silver Dove to west end Bass Lake Hills	Construct new 2-lane extension of Country Club Drive from Silver Dove Road to the west end of Bass Lake Hills Specific Plan boundary for future connection to Silva Valley Parkway. Project includes 6-foot paved shoulders. (Curb, gutter, and sidewalk may be included). CIP#GP125	By 2035

TABLE 14: CAPACITY–ENHANCING ROADWAY IMPROVEMENTS (ASSUMED COMPLETION BY 2035)

Project Name	Project Description	Estimated Completion
El Dorado Hills Boulevard/Francisco Drive – Realignment	Realign existing El Dorado Hills Boulevard / Francisco Drive / Brittany Way intersection and approach roadways to result in a new 4-way intersection with extensions and signal installation. Northern portion of El Dorado Hills Boulevard (at this intersection) will become new minor traffic way, and current Francisco Drive between El Dorado Hills Boulevard and Green Valley Road will become new major traffic way. CIP#72332	By 2035
El Dorado Hills Boulevard Widening - Lassen Lane to Park Drive	Widen El Dorado Hills Boulevard from Lassen Lane to Park Drive from 4 to 5 lanes (divided) by adding a third southbound lane. Project includes curb, gutter, and sidewalk. CIP#GP183	By 2035
Green Valley Road – Traffic Signal Interconnect	Install traffic signal interconnect to coordinate three traffic signals on Green Valley Road at the intersections of Francisco Drive, El Dorado Hills Boulevard, and Silva Valley Parkway. Includes modifications to El Dorado Hills Boulevard turn lanes and traffic signal. CIP#73151	By 2016
Green Valley Rd Widening - Francisco to Salmon Falls	Widen Green Valley Rd from Francisco Dr to Salmon Falls Rd to 4-lanes divided with curb, gutter, and sidewalk. CIP#GP178	By 2035
Green Valley Road – Salmon Falls Road to Deer Valley Road	Widen Green Valley Road from 2-lane undivided roadway to 4-lane undivided arterial from Salmon Falls Road to Deer Valley Road. CIP#GP159	By 2035
Green Valley Road Widening - County Line to Francisco Drive	Construct a second eastbound through lane from the commercial area near Sophia Parkway intersection to Francisco Drive with traffic signal installation at the Green Valley Road/Browns Ravine/Miller Road intersection. Also add a second westbound lane from Francisco Drive to the commercial area near the Sophia Parkway intersection.	Completed
Latrobe Road Widening – Golden Foothill to Investment	Widen Latrobe Rd from Golden Foothill Pkwy (south end) to Investment Blvd from 2-lanes undivided to 4-lanes divided with curb, gutter, and Class II bike lanes; modify signal at Investment Blvd. CIP#72350	By 2035
Latrobe Road Widening – White Rock Road to Carson Creek	Widen: 6 lanes (divided with 4-foot shoulders) from White Rock Rd. to Carson Creek (Suncast Ln.). CIP#GP154	By 2035

TABLE 14: CAPACITY–ENHANCING ROADWAY IMPROVEMENTS (ASSUMED COMPLETION BY 2035)

Project Name	Project Description	Estimated Completion
Latrobe Connection	New connector road from the El Dorado Hills Business Park to White Rock Rd west of Four Seasons/Stonebriar intersection; Phase 1 to perform route alignment study and prepare PSR; Phase 2 will include environmental, design and construction; may require coordination with Sacramento County, City of Folsom, Southeast Connector JPA and area developers. CIP#66116	By 2035
Saratoga Wy Ext -Phase 1	Construct new 2-lane arterial to extend Saratoga Wy from current terminus near Finders Wy to Sacramento County Line; includes median, 6-ft shoulders, right-turn pocket onto Finders Way, asphalt path, drainage system, environmental clearance and secure ROW for future 4-lane road from County Line to El Dorado Hills Blvd. CIP#71324 (Phase 2 CIP#GP147 - See ELD19234 in MTP.)	By 2035
Saratoga Wy. (Phase 2)	Widen: 4 lanes from the Sacramento/El Dorado County line to El Dorado Hills Blvd. Includes: full curb, gutter, and sidewalk. (See ELD16010 for Phase 1) CIP#GP147	By 2035
Silva Valley Parkway/Serrano Parkway Traffic Circulation Improvement	Improvements to existing transportation infrastructure required to optimize traffic operations at and near the Silva Valley Parkway/Serrano Parkway intersection prior to the opening of the US 50/Silva Valley Parkway freeway interchange. CIP#72141	By 2016
Silva Valley Pkwy / Golden Eagle Ln - Signalization	Signalize intersection at Silva Valley Pkwy and Golden Eagle Ln (Silva Valley Elementary School). CIP#GP182	By 2035
Silver Springs Parkway to Bass Lake Road (South Segment)	Realign Bass Lake Road south of Green Valley Road through the proposed Silver Springs subdivision, which is west of the existing Bass Lake Road. The new road is named Silver Springs Parkway. That development is responsible for building Silver Springs Parkway through their development. Silver Springs Parkway will be a two-lane standard divided roadway with shoulders. CIP#76108	By 2019
Silver Springs Parkway to Green Valley Road Intersection Signalization	Construct new Silver Springs Parkway through the Silver Springs Development from Bass Lake Road to Green Valley Road and install signal at Silver Springs Parkway and Green Valley Road intersection. . CIP#76107	Completed

TABLE 14: CAPACITY–ENHANCING ROADWAY IMPROVEMENTS (ASSUMED COMPLETION BY 2035)

Project Name	Project Description	Estimated Completion
US 50 / Bass Lake Road Interchange Improvements (Phase 2)	Phase 2 improvements to the Bass Lake Road interchange are assumed to include additional ramp and road widening; eastbound auxiliary lanes from Bass Lake Road to Cambridge Road interchanges; and widening of a portion of the westbound auxiliary lane at the westbound off-ramp. Assumed ramp widening includes a second westbound off-ramp lane, additional eastbound off-ramp turn lanes, and adding an eastbound on ramp HOV bypass lane. CIP#GP148.	By 2035
US 50 / Cambridge Road Interchange Improvements (Phase 2)	Phase 2 improvements to the Cambridge Road interchange consist of bridge widening to add lanes, widen ramps, and construct WB auxiliary lane from the Bass Lake Road Interchange to Cambridge Road Interchange. CIP#GP 149	By 2035
US 50 Aux Lane WB - El Dorado Hills to Empire Ranch	Widen US 50 and add auxiliary lane to westbound US 50 connecting the El Dorado Hills Blvd/Latrobe Rd Interchange to the future Empire Ranch Rd Interchange located in the City of Folsom; (City of Folsom will construct the EB aux lane.) Timing of construction to be concurrent with or after the El Dorado Hills Blvd Interchange (ELD15630/CIP71323) or Empire Ranch Interchange. CEQA/NEPA cleared through the Empire Ranch Interchange environmental document. CIP#53115	By 2035
US 50 50 Auxiliary Lane Eastbound – Cambridge to Ponderosa	Construct eastbound auxiliary lane on US 50 between Cambridge Rd and Ponderosa Rd interchanges. CIP GP150	By 2035
US 50 HOV Lanes – Phase 1	Phase 1 (El Dorado Hills to Bass Lake Grade) - Add HOV lanes in median of US 50 between El Dorado Hills Blvd/Latrobe Rd and Bass Lake Rd interchanges (PM 0.5 to PM 4.2 eastbound and PM 0.9 to PM 2.9 westbound); includes extension of EB truck climbing lane from Latrobe Rd to base of Bass Lake Grade, median widenings of Clarksville Rd and Bass Lake Rd undercrossings, and replacement of EDH Blvd undercrossings including EB off-ramp. (See ELD19287 for Phase 2A, ELD19290 for Phase 2B and ELD19289 for future unfunded Phase 3 in the MTP). CIP#53110	Completed
US 50 Mainline Widening at El Dorado Hills	Construct new westbound aux lane within median of US 50 between Silva Valley Pkwy and Empire Ranch Rd future new interchanges; requires coordination with Silva Valley I/C (ELD15610/CIP#71328), El Dorado Hills I/C (ELD15630/CIP71323) and Empire Ranch I/C (City of Folsom project). CIP#53120	By 2035

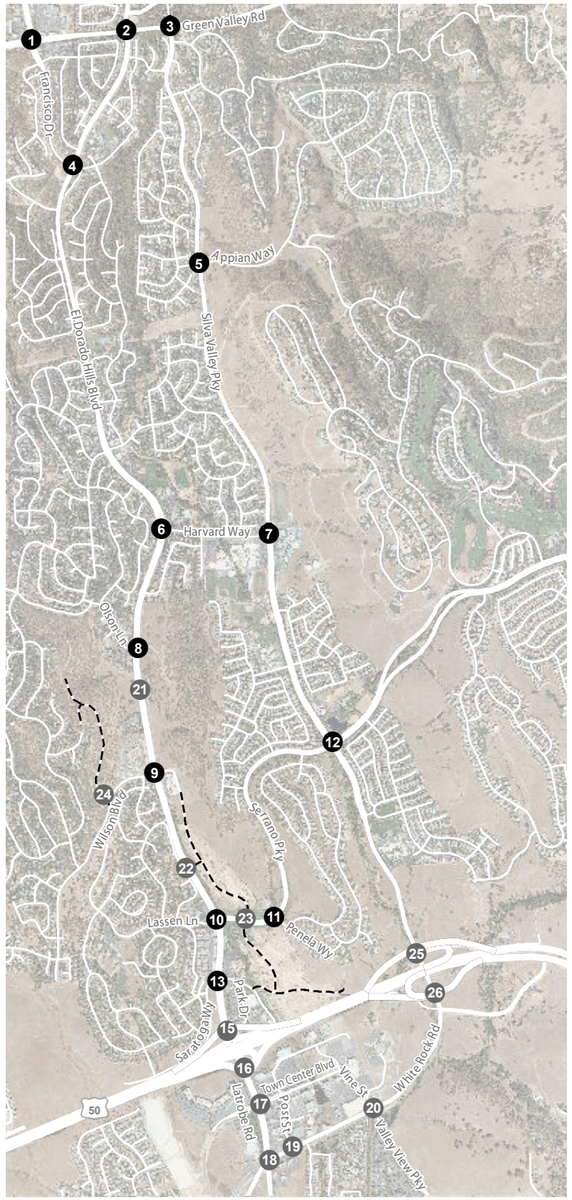
TABLE 14: CAPACITY–ENHANCING ROADWAY IMPROVEMENTS (ASSUMED COMPLETION BY 2035)

Project Name	Project Description	Estimated Completion
US 50 / Bass Lake Rd Interchange - Phase 1	Phase 1 of a larger project for the complete reconstruction of the Bass Lake Road interchange. Phase 1 of the project includes a detailed study to determine the complete improvements needed. Phase 1 is assumed to include ramp widenings, road widening, signals, and the WB auxiliary lane between Bass Lake and Silva Valley interchanges. Phase 1 assumes bridge replacement. CIP#71330	By 2035
US 50 / Cambridge Rd. Interchange – Phase 1	Phase 1 improvements to Cambridge Road interchange consists of widening the existing EB and WB off-ramps; addition of new WB on-ramp from SB Cambridge Road; reconstruction of the local intersections to provide for additional capacity, both turning and through lanes; and the installation of traffic signals at the EB ramp-terminal intersection. Also preliminary engineering for Phase 2 improvements to the Cambridge Interchange. CIP#71332	By 2035
US 50 / Cameron Park Dr. Interchange Improvements	Interchange Improvements: this project includes detailed study to identify capacity improvement alternatives and selection of preferred alternative; assumes reconstruction of US 50 bridges to widen Cameron Park Dr. to 8 lanes under the overcrossing; road and ramp widening. CIP#72361	By 2035
US 50 / El Dorado Hills Blvd Interchange Improvements – (Phase 2B)	Reconstruct eastbound diagonal on-ramp and eastbound loop off-ramp for the ultimate configuration; add a lane to northbound El Dorado Hills Blvd under the overpass (eliminates merge lane and improves traffic flow from the eastbound loop off-ramp); eastbound diagonal on-ramp will be metered and have an HOV bypass. Project split from ELD15630 (CIP#71323).	By 2035
US 50 / El Dorado Hills Blvd Pedestrian Overcrossing	Construct ped/bike overcrossing over US 50 just east of El Dorado Hills Blvd. Interchange; includes a Class 3 mixed use path; construction and ROW acquisition for 10-ft wide sidewalk and adjacent retaining walls, barriers, railings, and landscape replacement included with CIP71323 (see ELD15630). CIP#71340.	By 2035
US 50 / Silva Valley Pkwy Interchange - Phase 1	New Interchange: Phase 1 includes US 50 on-/off-ramps, overcrossing, and US 50 aux lanes. (See ELD19291/CIP#71345 for Phase 2). CIP#71328	Ongoing

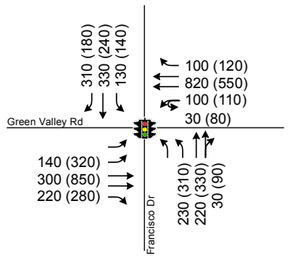
TABLE 14: CAPACITY–ENHANCING ROADWAY IMPROVEMENTS (ASSUMED COMPLETION BY 2035)

Project Name	Project Description	Estimated Completion
US 50 / Silva Valley Pkwy Interchange - Phase 2 – On-Ramps and Auxiliary Lanes on US 50(Connector Segment)	Final phase of new interchange: construction of eastbound diagonal and westbound loop on-ramps to US 50. (See ELD15610/CIP#71328 for Phases 1). CIP#71345	By 2035
White Rock Rd Widening - Manchester to Sacramento County Line (Connector Segment)	Widen White Rock Rd from 2 to 4 lanes, divided, from Manchester Dr west to Sacramento County Line. CIP#GP137	By 2035
White Rock Rd Widening – Monte Verde to US 50 / Silva Valley Parkway Interchange (Connector Segment)	Widen White Rock Rd from 2-lanes undivided to 4 lanes divided, from Monte Verde Dr east to new future US 50/Silva Valley Pkwy Interchange (ELD15610/CIP71328); includes curb, gutter, sidewalk, and Class II bike lanes. ROW costs include acquisition for ultimate 6-lane facility (see CIP#GP152/ELD19235 in MTP). CIP#72374	By 2035
White Rock Rd Widening – Latrobe to Monte Verde (Connector Segment)	Widen White Rock Rd (2 lanes undivided to 4 lanes divided) from Post St to the culvert east of Monte Verde Dr; install new traffic signal at White Rock Rd/Windfield Wy; includes curb, gutter, sidewalk, and Class II bike lanes. CIP#72372	Completed
White Rock Rd Widening – 4 to 6 Lanes, Latrobe Road to US 50/Silva Valley Parkway Interchange (Connector Segment)	Widen White Rock Road from four to six lanes, divided, from Latrobe Road to the new US 50/Silva Valley Parkway Interchange. CIP#GP152..	By 2035
White Rock Rd / Post St - Signalization (Connector Segment)	Signalize intersection at White Rock Rd and Post St in El Dorado Hills. CIP#73310	Completed

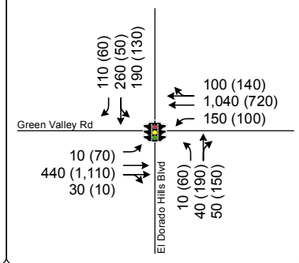
Source: El Dorado County's CIP (Section 8.1 – West Slope Road/Bridge Individual Project Summaries) and SACOG's MTP/SCS (Appendix A1: MTP/SCS Project List).



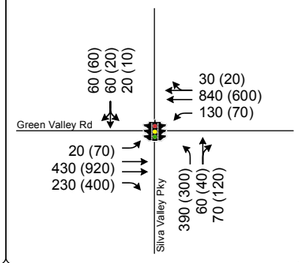
1. Green Valley Rd/Francisco Dr



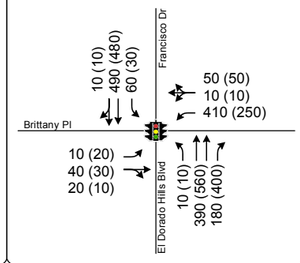
2. Green Valley Rd/El Dorado Hills Blvd



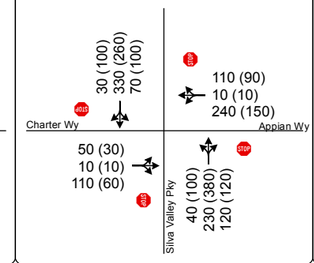
3. Green Valley Rd/Silva Valley Pky



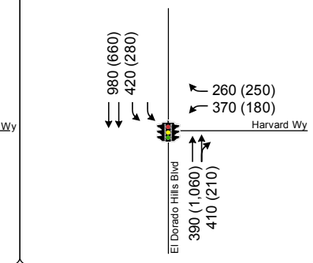
4. Francisco Dr/El Dorado Hills Blvd



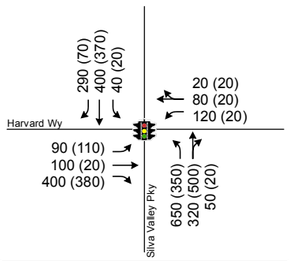
5. Charter Wy/Appian Wy/Silva Valley Pky



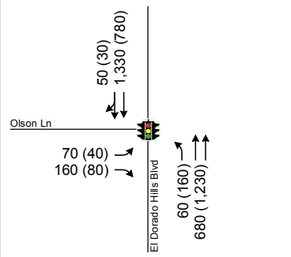
6. Harvard Wy/El Dorado Hills Blvd



7. Harvard Wy/Silva Valley Pky



8. Olson Ln/El Dorado Hills Blvd



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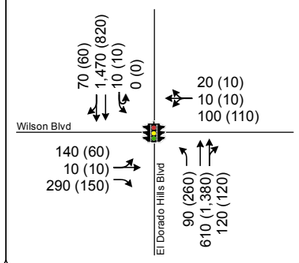
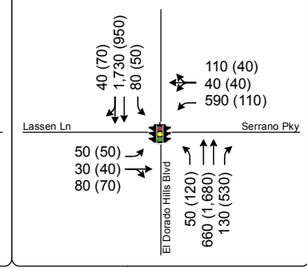
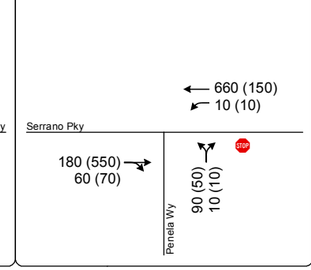


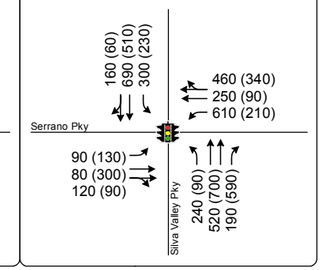
10. Lassen Ln/Serrano Pky/El Dorado Hills Blvd



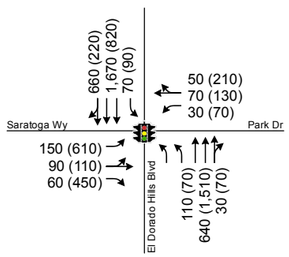
11. Serrano Pky/Penela Wy



12. Serrano Pky/Silva Valley Pky



13. Saratoga Wy/Park Dr/El Dorado Hills Blvd



14. Park Dr/El Dorado Hills Blvd

Intersection no longer exists under cumulative conditions

LEGEND

- 1 — Study Intersection
- 15 — Intersection on Sheet B
- Turn Lane
- AM (PM) — Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign
- Planned Road

Figure 9A.

Peak Hour Traffic Volumes and Lane Configurations - Cumulative No Project Conditions

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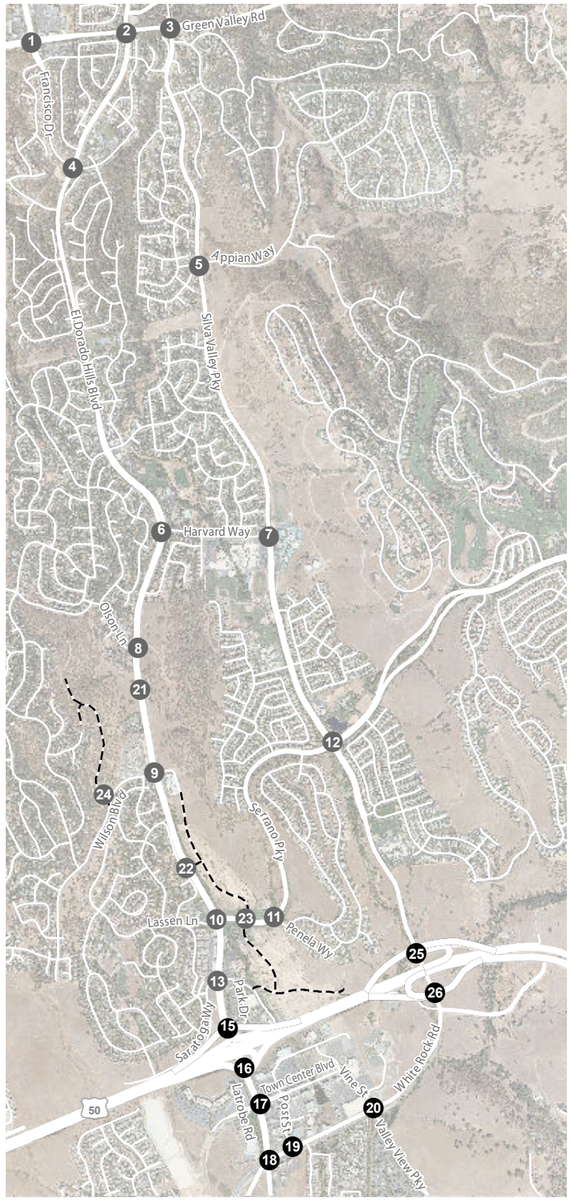

LEGEND

15	Study Intersection
1	Intersection on Sheet A or Future Intersection
→	Turn Lane
AM (PM)	Peak Hour Traffic Volume
	Traffic Signal
STOP	Stop Sign
- - -	Planned Road

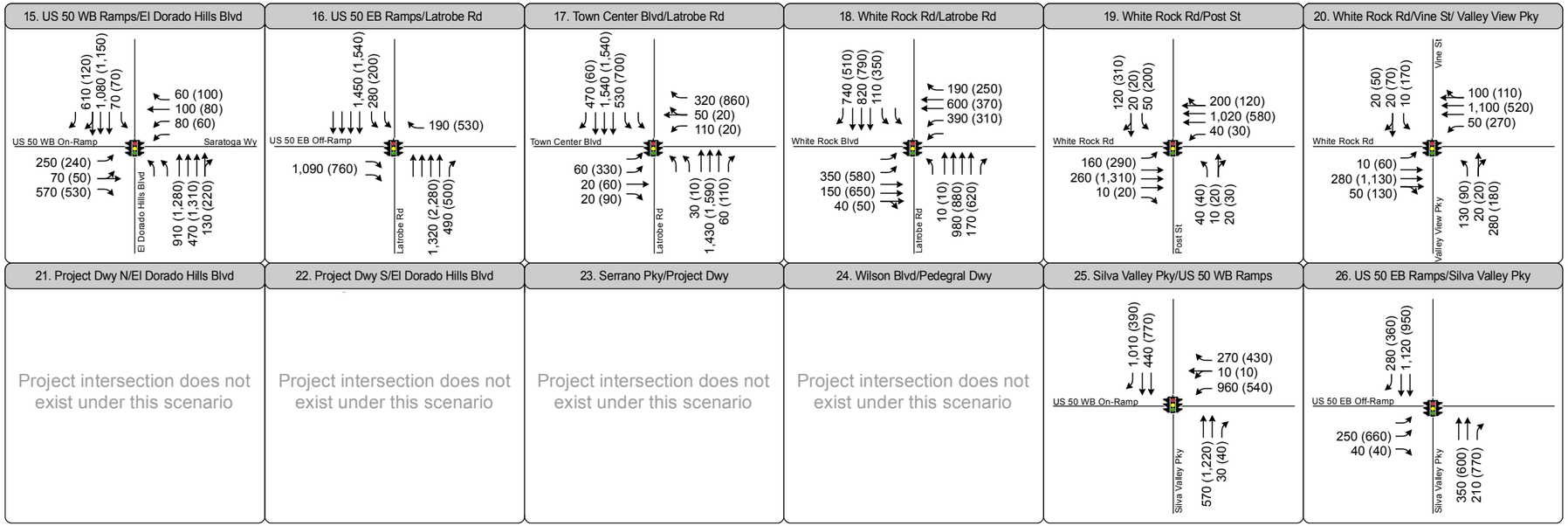

Figure 9B.

Peak Hour Traffic Volumes and Lane Configurations - Cumulative No Project Conditions

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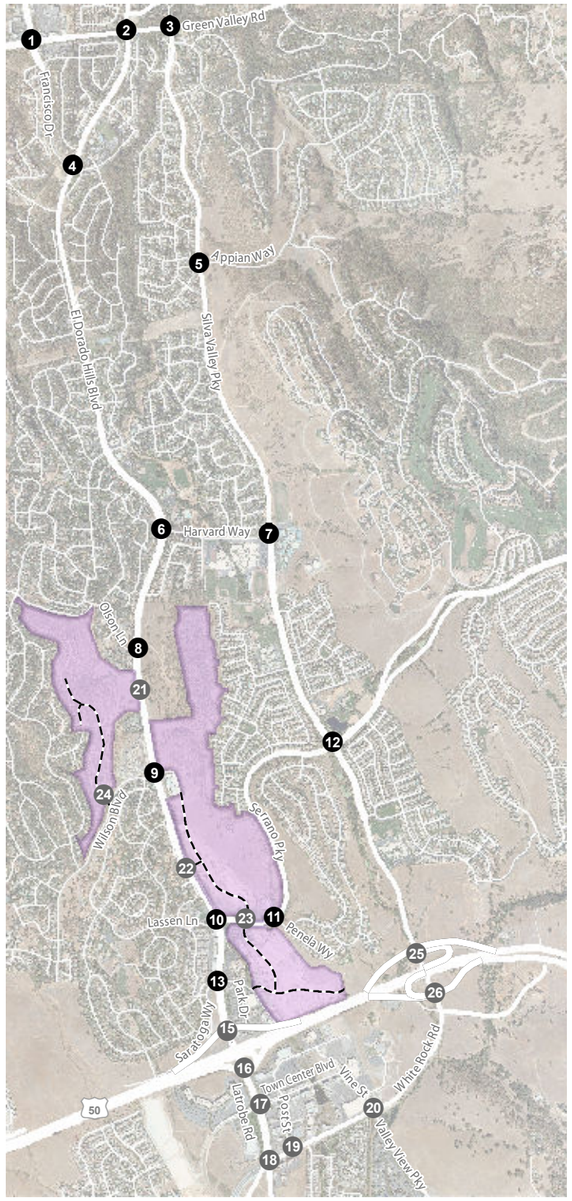


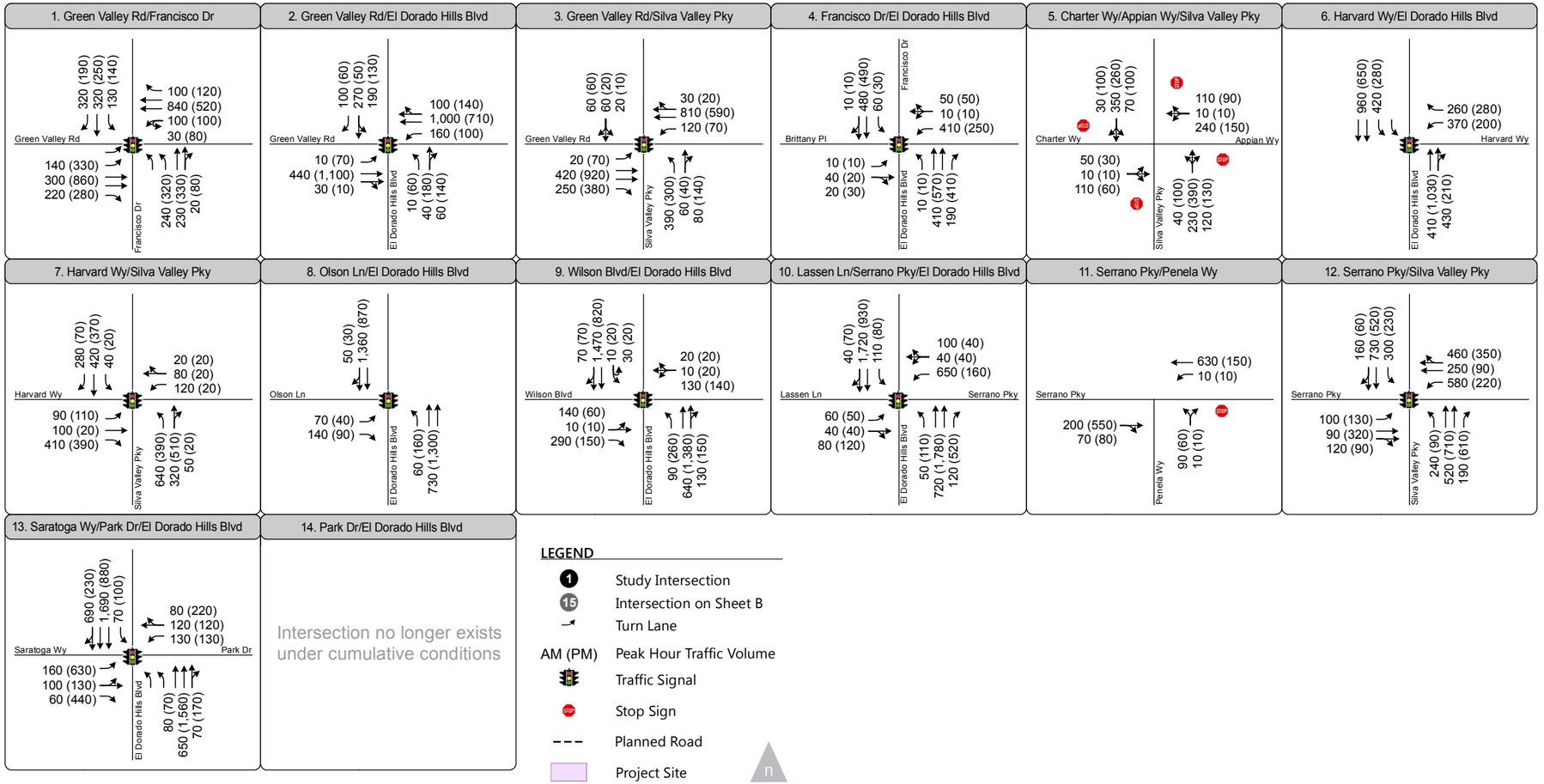
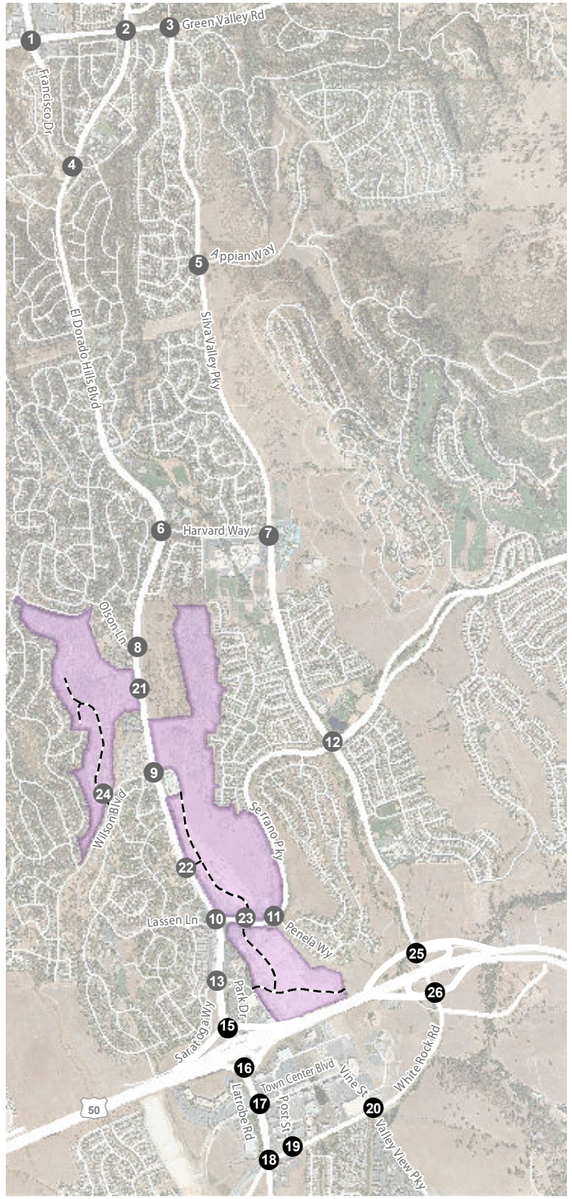
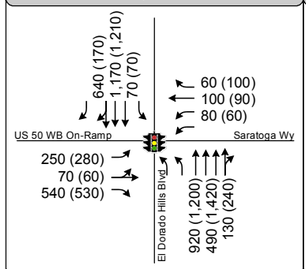


Figure 10A.

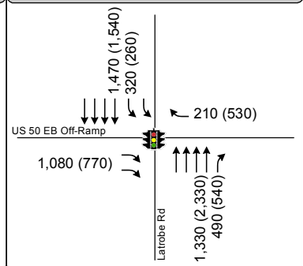
Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus Project Conditions



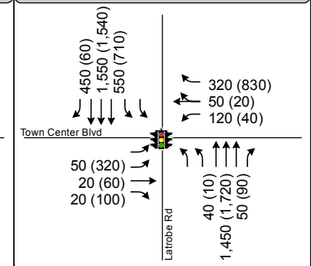
15. US 50 WB Ramps/El Dorado Hills Blvd



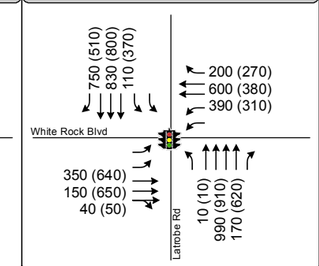
16. US 50 EB Ramps/Latrobe Rd



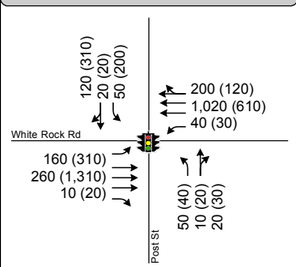
17. Town Center Blvd/Latrobe Rd



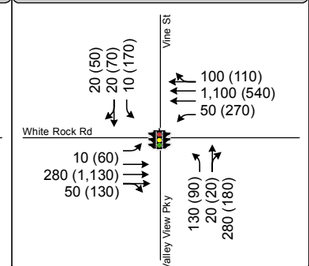
18. White Rock Rd/Latrobe Rd



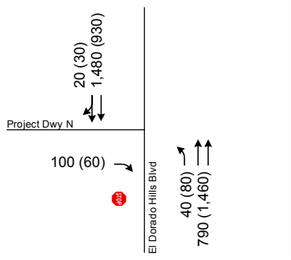
19. White Rock Rd/Post St



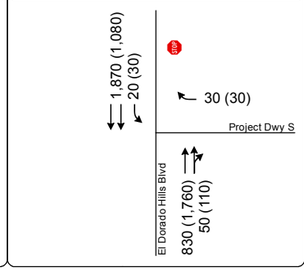
20. White Rock Rd/Vine St/ Valley View Pky



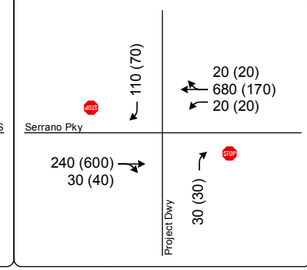
21. Project Dwy N/El Dorado Hills Blvd



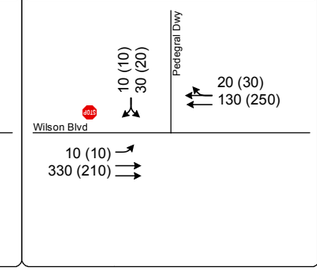
22. Project Dwy S/El Dorado Hills Blvd



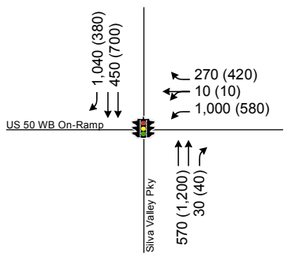
23. Serrano Pky/Project Dwy



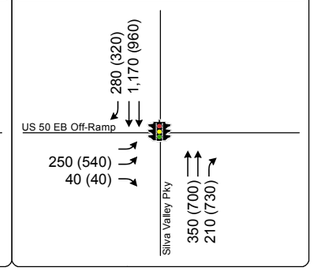
24. Wilson Blvd/Pedegral Dwy



25. Silva Valley Pky/US 50 WB Ramps



26. US 50 EB Ramps/Silva Valley Pky



LEGEND

15	Study Intersection
1	Intersection on Sheet A or Future Intersection
	Turn Lane
AM (PM)	Peak Hour Traffic Volume
	Traffic Signal
	Stop Sign
	Planned Road
	Project Site

Figure 10B.

Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus Project Conditions

6.2 PEAK HOUR VEHICLE LEVEL OF SERVICE

6.2.1 INTERSECTIONS

Analysis results, which are presented in Table 15, indicate that most study intersections will operate acceptably under cumulative conditions, except for the following:

- Silva Valley Parkway / Appian Way (Intersection 5) – This intersection will operate unacceptably at LOS F without the project during both the AM and PM peak hours. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the AM and PM peak hours.
- Silva Valley Parkway / Harvard Way (Intersection 7) – This intersection will operate unacceptably at LOS F without the project during the AM peak hour. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the AM peak hour.
- Serrano Parkway / Silva Valley Parkway (Intersection 12) – This intersection will operate unacceptably at LOS F without the project during the AM and PM peak hours. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during both the AM and PM peak hours.
- El Dorado Hills Boulevard / Park Drive / Saratoga Way (Intersection 13) – This intersection will operate unacceptably at LOS F without the project during the PM peak hour. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the PM peak hours.
- Latrobe Road / Town Center Boulevard (Intersection 17) – This intersection will operate unacceptably at LOS F without the project during the PM peak hour. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the PM peak hour.

TABLE 15: INTERSECTION LOS AND DELAY – CUMULATIVE PLUS PROJECT CONDITIONS

Intersection	Control	Cumulative Conditions (LOS / Delay)		Cumulative Plus Project (LOS / Delay)	
		AM	PM	AM	PM
1. Green Valley Rd / Francisco Dr	Signal	D / 41	D / 47	D / 41	D / 46
2. Green Valley Rd/El Dorado Hills Blvd/Salmon Falls Rd	Signal	D / 50	E / 56	D / 52	D / 53
3. Green Valley Rd / Silva Valley Pkwy	Signal	D / 40	C / 26	D / 39	C / 26
4. Francisco Dr / El Dorado Hills Blvd	Signal	C / 27	B / 19	C / 27	B / 19
5. Silva Valley Pkwy / Appian Wy	AWSC	**F / >180**	**F / 105**	***F / >180***	***F / 113***
6. El Dorado Hills Blvd / Harvard Wy	Signal	C / 31	C / 22	C / 32	C / 23
7. Silva Valley Pkwy / Harvard Wy	Signal	**F / 93**	C / 33	***F / 97***	C / 35
8. El Dorado Hills Blvd/Olson Ln	Signal	B / 13	A / 10	B / 13	A / 10
9. El Dorado Hills Blvd/Wilson Blvd	Signal	D / 52	D / 39	E / 63	E / 62
10. El Dorado Hills Blvd/Serrano Pkwy/Lassen Ln	Signal	E / 58	C / 24	E / 64	C / 31
11. Serrano Pkwy/Penela Wy	SSSC	E / 38	C / 21	E / 37	C / 22
12. Serrano Pkwy/Silva Valley Pkwy	Signal	**F / 99**	**F / 82**	***F / 98***	***F / 88***
13. El Dorado Hills Blvd/Park Dr/Saratoga Wy	Signal	C / 34	**F / 112**	D / 45	***F / 115***
14. El Dorado Hills Blvd/Saratoga Wy	Signal	Does Not Exist			
15. El Dorado Hills Blvd/US 50 WB Ramps/Saratoga Wy	Signal	D / 46	D / 43	D / 47	D / 43
16. Latrobe Rd/US 50 EB Ramps	Signal	C / 24	C / 34	C / 22	C / 33
17. Latrobe Rd/Town Center Blvd	Signal	E / 76	**F / 173**	***F / 86***	***F / 166***

TABLE 15: INTERSECTION LOS AND DELAY – CUMULATIVE PLUS PROJECT CONDITIONS

Intersection	Control	Cumulative Conditions (LOS / Delay)		Cumulative Plus Project (LOS / Delay)	
		AM	PM	AM	PM
18. Latrobe Rd/White Rock Rd	Signal	D / 42	E / 69	D / 42	E / 78
19. White Rock Rd/Post St	Signal	C / 29	C / 34	C / 30	C / 34
20. White Rock Rd/Valley View Dr/Vine St	Signal	B / 19	D / 37	B / 19	D / 37
21. El Dorado Hills Blvd / Project Dwy North	SSSC	-	-	B / 11	A / 9
22. El Dorado Hills Blvd / Project Dwy South	SSSC	-	-	A / 9	B / 13
23. Serrano Pkwy / Project Dwy	SSSC	-	-	C) / 17	B / 14
24. Wilson Blvd / Pedregal Dwy	SSSC	-	-	B / 11	B / 11
25. Silva Valley Pkwy/US 50 WB Ramps	Signal	C / 20	B / 14	C / 25	C / 21
26. Silva Valley Pkwy/US 50 EB Ramps	Signal	A / 5	A / 9	A / 5	A / 10

Notes: SSSC = side-street stop-control, AWSC = all-way stop control

Bold text indicates LOS worse than established threshold. ***Italic and underlined*** text identifies a potential impact.

The average delay is measured in seconds per vehicle. For signalized and AWSC intersections, the delay shown is the average control delay for the overall intersection. For SSSC intersections, the LOS and control delay for the worst movement is shown.

Intersection LOS and delay is calculated based on the procedures and methodology contained in the *HCM* (TRB, 2000). Intersections 1-12, and 18-24 are analyzed in Synchro 7. Intersections 13-17 and 25-26 are analyzed in SimTraffic.

Source: Fehr & Peers, 2014

6.2.2 ROADWAY SEGMENTS

Analysis results, which are presented in Table 16, indicate that all roadway segments will operate acceptably under cumulative conditions, due primarily to the capacity increasing roadway project included in the County's 2015 CIP, which are documented in Table 14.

TABLE 16: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS

Roadway	Segment	Facility Type	Cumulative Volume / Volume – Capacity (V/C) Ratio / LOS		Cumulative + Project Volume / Volume – Capacity (V/C) Ratio / LOS	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
El Dorado Hills Blvd	Green Valley Rd to Francisco Dr	2 lane arterial	450 / 0.27 / C[1]	460 / 0.28 / C[1]	460 / 0.28 / C[1]	440 / 0.27 / C[1]
	Francisco Dr to Governor Dr	2 lane arterial	1,515 / 0.92 / D	1,564 / 0.95 / E	1,535 / 0.93 / D	1,554 / 0.94 / E
	Governor Dr to Wilson Blvd	4 lane divided arterial	2,260 / 0.69 / D	2,290 / 0.70 / D	2,300 / 0.70 / D	2,290 / 0.70 / D
	Wilson Blvd to Serrano Pkwy	4 lane divided arterial	2,640 / 0.80 / D	2,790 / 0.85 / D	2,740 / 0.83 / D	2,840 / 0.86 / D
	Serrano Pkwy to Saratoga Way	5 lane divided arterial	3,170 / 0.77 / D	3,400 / 0.83 / D	3,310 / 0.81 / D	3,520 / 0.86 / D
	Saratoga Way to US 50	7 lane divided arterial	2,700 / 0.50 / C[1]	2,900 / 0.54 / C[1]	2,700 / 0.50 / C[1]	3,050 / 0.56 / C[1]
Latrobe Rd	US 50 to Town Center Blvd	7 lane arterial	4,360 / 0.80 / D	5,080 / 0.94 / D	4,380 / 0.81 / D	5,110 / 0.94 / D
	Town Center Blvd to White Rock Rd	6 lane divided arterial	3,090 / 0.66 / D	3,340 / 0.71 / D	3,110 / 0.66 / D	3,440 / 0.71 / D
	White Rock Rd to Golden Foothill Pkwy	6 lane divided arterial	2,270 / 0.48 / C[1]	2,660 / 0.56 / C[1]	2,300 / 0.49 / C[1]	2,670 / 0.57 / C[1]
	Golden Foothill Pkwy to Sun Ridge Meadow Rd	4 lane arterial undivided	1,600 / 0.51 / C[1]	1,590 / 0.51 / C[1]	1,600 / 0.51 / C[1]	1,590 / 0.51 / C[1]
	Sun Ridge Meadow Rd to S. Shingle Rd	2 lane arterial	590 / 0.36 / C[1]	610 / 0.37 / C[1]	590 / 0.36 / C[1]	600 / 0.36 / C[1]

TABLE 16: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS

Roadway	Segment	Facility Type	Cumulative Volume / Volume – Capacity (V/C) Ratio / LOS		Cumulative + Project Volume / Volume – Capacity (V/C) Ratio / LOS	
White Rock Rd	Scott Rd to Four Seasons Dr	4 lane divided arterial	1,570 / 0.48 / C[1]	2,010 / 0.61 / D	1,560 / 0.47 / C[1]	2,040 / 0.62 / D
	Four Seasons Dr to Latrobe Rd	4 lane divided arterial	1,650 / 0.50 / C[1]	1,980 / 0.60 / D	1,640 / 0.50 / C[1]	2,000 / 0.61 / D
	Latrobe Rd to Vine St	6 lane divided arterial	1,480 / 0.31 / C[1]	1,730 / 0.37 / C[1]	1,490 / 0.32 / C[1]	1,780 / 0.38 / C[1]
	Vine St to US 50	6 lane divided arterial	1,740 / 0.37 / C[1]	2,240 / 0.48 / C[1]	1,730 / 0.37 / C[1]	2,260 / 0.48 / C[1]
Silva Valley Pkwy	Green Valley Rd to Glenwood Wy	2 lane arterial	930 / 0.56 / D	900 / 0.55 / D	920 / 0.56 / D	910 / 0.55 / D
	Glenwood Wy to Appian Wy	2 lane arterial	780 / 0.47 / C[1]	900 / 0.55 / D	770 / 0.47 / C[1]	900 / 0.55 / D
	Appian Wy to Harvard Wy	2 lane arterial	1,090 / 0.66 / D	1,030 / 0.62 / D	1,110 / 0.67 / D	1,010 / 0.61 / D
	Harvard Wy to Serrano Pkwy	4 lane divided arterial	2,130 / 0.65 / D	1,880 / 0.57 / D	2,160 / 0.66 / D	1,900 / 0.58 / D
	Serrano Pkwy to US 50	4 lane divided arterial	2,650 / 0.81 / D	2,590 / 0.79 / D	2,660 / 0.81 / D	2,610 / 0.79 / D
Serrano Pkwy	EDH Blvd to Silva Valley Pkwy	2 lane arterial	1,010 / 0.61 / D	920 / 0.56 / D	1,000 / 0.61 / D	920 / 0.56 / D
	Silva Valley Pkwy to Villagio Dr	4 lane divided arterial	1,830 / 0.56 / C[1]	1,720 / 0.52 / C[1]	1,800 / 0.55 / C[1]	1,750 / 0.53 / C[1]
	Villagio Dr to Bass Lake Rd	2 lane arterial	1,010 / 0.61 / D	1,100 / 0.67 / D	1,010 / 0.61 / D	1,100 / 0.67 / D

TABLE 16: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS

Roadway	Segment	Facility Type	Cumulative Volume / Volume – Capacity (V/C) Ratio / LOS		Cumulative + Project Volume / Volume – Capacity (V/C) Ratio / LOS	
Saratoga Wy	EDH Blvd to Arrowhead Dr	2 lane arterial	1,050 / 0.64 / D	1,550 / 0.94 / E	1,110 / 0.67 / D	1,560 / 0.95 / E
Wilson Wy	EDH Blvd to Ridgeview Dr	4 lane undivided arterial	550 / 0.18 / C[1]	510 / 0.16 / C[1]	550 / 0.18 / C[1]	510 / 0.16 / C[1]
Olson Ln/Gillette Dr	EDH Blvd to Gillette Dr	2 lane arterial	310 / 0.19 / C[1]	300 / 0.18 / C[1]	310 / 0.19 / C[1]	300 / 0.18 / C[1]
Harvard Wy	EDH Blvd to Silva Valley Pkwy	4 lane undivided arterial	1,370 / 0.44 / C[1]	830 / 0.27 / C[1]	1,380 / 0.44 / C[1]	840 / 0.27 / C[1]

Notes: Volume-to-Capacity ratio and LOS is based on the HCM 2010 peak hour level of service thresholds
[1] LOS at this location is C or better
Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.
Source: Fehr & Peers, 2014

6.2.3 FREEWAY FACILITIES

Analysis results, which are presented in Table 17, indicate that all study freeway facilities will operate acceptably under cumulative conditions, except for the eastbound off-ramp diverge influence area at the US 50/Bass Lake Road interchange, which will operate unacceptably at LOS E during the PM peak hour without the proposed project. According to established significance criteria, the project is projected to "significantly worsen" conditions at this location, since the project would result in an increase of more than 10 trips to the off-ramp during the PM peak hour.

The capacity increasing projects from the County's 2015 CIP, which are documented in Table 14, include many projects that will add capacity of US 50, increase east/west parallel capacity, and add new interchange connections to US 50 that will provide alternatives to the existing US 50/El Dorado Hills Boulevard interchange. The following lists some of the more significant transportation improvements in the US 50 corridor:

Interchange Projects

- US 50/El Dorado Hills Boulevard Interchange Improvements (final improvement phases)
- US 50/Silva Valley Parkway Interchange (new connection to US 50)
- US 50/Empire Ranch Road Interchange (new connection to US 50)
- US 50/Bass Lake Road Interchange Upgrade
- US 50/Cambridge Road Interchange Upgrade

Mainline Projects

- Westbound US 50 interchange-to-interchange auxiliary lane (Bass Lake Road to Silva Valley Parkway)
- Westbound US 50 auxiliary lane (Silva Valley Parkway to Empire Ranch Road)
- Westbound US 50 interchange-to-interchange auxiliary lane (Silva Valley Parkway to El Dorado Hills Boulevard)
- Eastbound US 50 interchange-to-interchange auxiliary lane (El Dorado Hills Boulevard to Silva Valley Parkway)
- Westbound US 50 interchange-to-interchange auxiliary lane (Cambridge Drive to Bass Lake Road)
- Eastbound US 50 interchange-to-interchange auxiliary lane (Bass Lake Road to Cambridge Drive)

Arterial Roadway Projects

- Saratoga Way Extension from El Dorado Hills Boulevard to Iron Point Road
- Extension of Empire Ranch Road from US 50 to White Rock Road
- Latrobe Road Connector (new roadway between Latrobe Road and White Rock Road)

Figure 11 compares existing conditions on US 50 to US 50 with the interchange and mainline projects listed above. Figure 12 shows peak hour US 50 mainline and ramp volumes under cumulative conditions. About 11 percent of project trips will have an origin/destination in Rancho Cordova or other areas to the west.

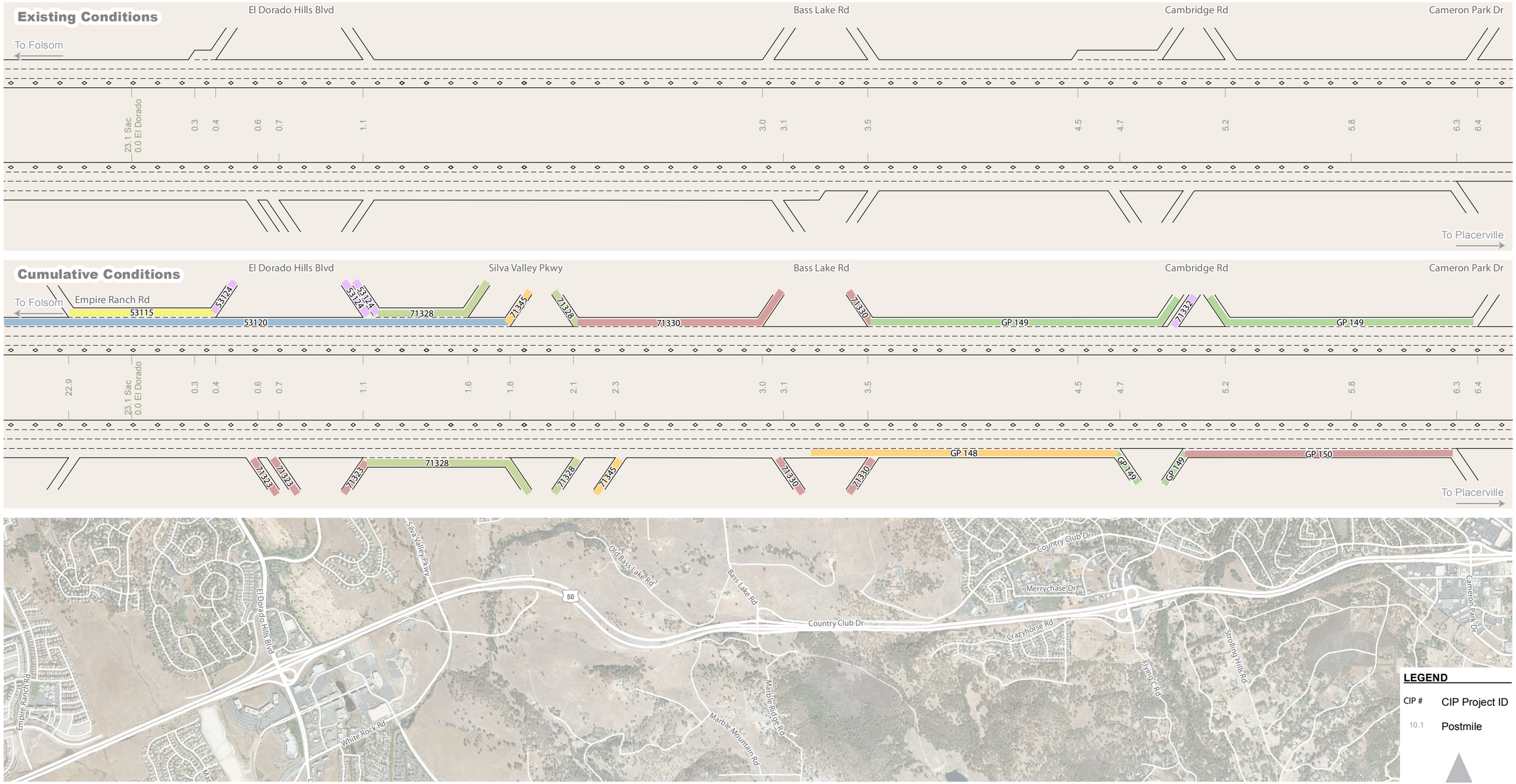


Figure 11.

Programmed Freeway Improvements

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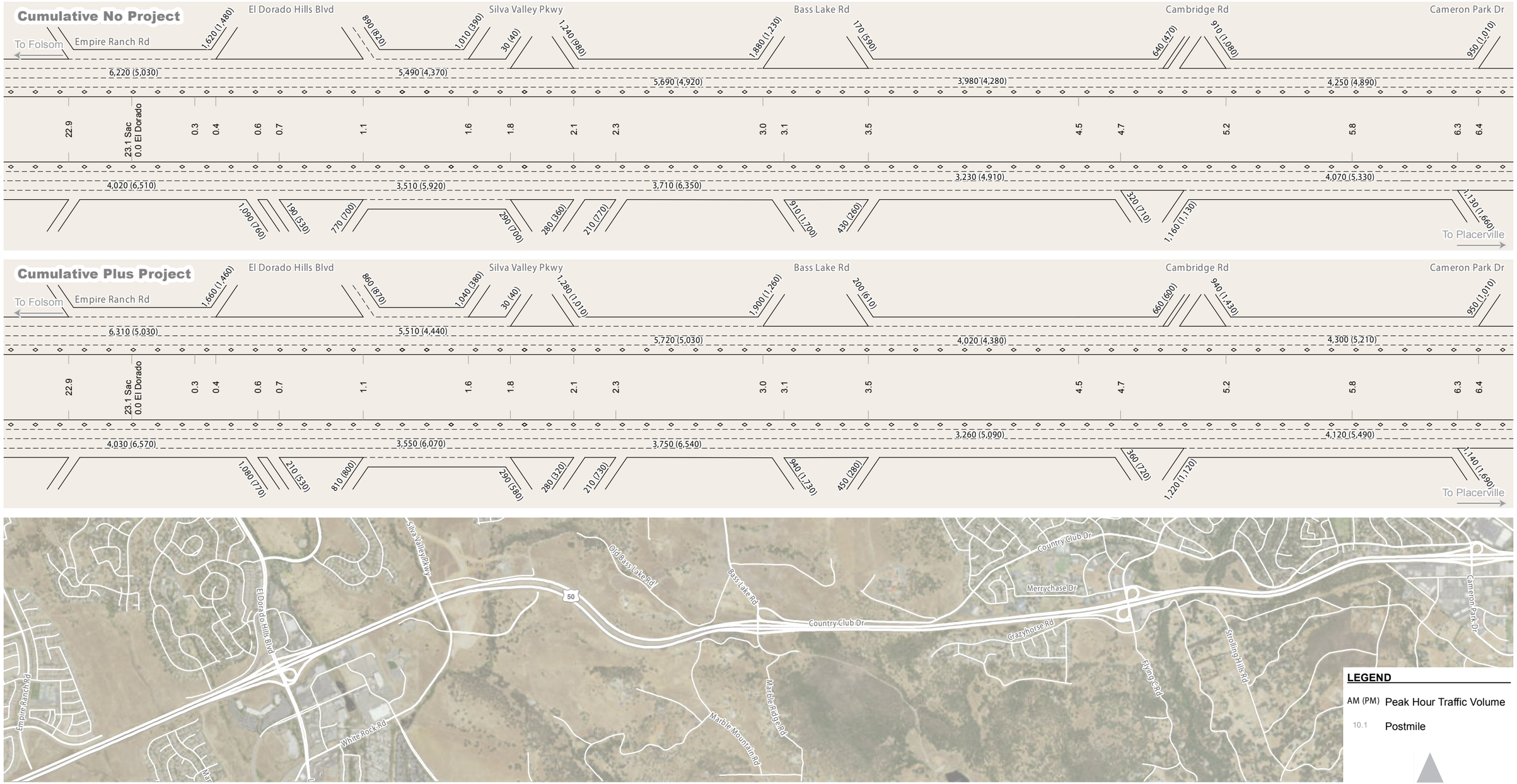

Figure 12.

US 50 Freeway Mainline and Ramp Peak Hour Traffic Volumes - Cumulative Conditions

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FEHR PEERS

TABLE 17: PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS (FREEWAY)

Freeway	Segment	Facility Type	Cumulative Density[1] / LOS		Cumulative + Project Density[1] / LOS		Notes
			AM	PM	AM	PM	
US 50 EB	Latrobe Rd off-ramp	Diverge	28 / C	35 / D	28 / C	35 / D	
	El Dorado Hills Blvd off-ramp	Diverge	20 / C	31 / D	20 / C	31 / D	
	El Dorado Hills Blvd on-ramp to Silva Valley Pkwy off-ramp	Weave (HCM)	22 / C	37 / E	23 / C	21 / C	3
		Weave (Leisch)	- / B	- / D	- / B	- / D	
	Silva Valley Pkwy loop on-ramp	Merge	19 / B	27 / C	19 / B	27 / C	
	Silva Valley Pkwy slip on-ramp	Merge	19 / B	32 / D	20/ B	32 / D	
	Silva Valley Pkwy on-ramp to Bass Lake Rd off-ramp	Basic	21 / C	32 / D	21 / C	34 / D	
	Bass Lake Rd off-ramp	Diverge	26 / C	**36 / E**	26 / C	***37 / E***	
	Bass Lake Rd on-ramp to Cambridge Rd off-ramp	Weave (HCM)	30 / D		31 / D		
		Weave (Leisch)	Outside the realm of weaving				
		Basic	16 / B	22 / C	17 / B	23 / C	2

TABLE 17: PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS (FREEWAY)

Freeway	Segment	Facility Type	Cumulative Density[1] / LOS		Cumulative + Project Density[1] / LOS		Notes
			AM	PM	AM	PM	
	Cambridge Rd on-ramp to Cameron Park Dr off-ramp	Basic	21 / C	26 / C	21 / C	26 / D	2
	Cameron Park Dr on-ramp to Cambridge Rd off-ramp	Weave (HCM)	42 / E		43 / E		
		Basic	21 / C	23 / C	21 / C	25 / C	2
	Cambridge Rd on-ramp to Bass Lake Rd off-ramp	Basic	19 / C	20 / C	19 / C	20 / C	2
	Bass Lake Rd on-ramp to Silva Valley Pkwy off-ramp	Basic	29 / D	24 / C	29 / D	24 / C	2
US 50 WB	Silva Valley Pkwy Loop on-ramp	Merge	16 / B	14 / B	16 / B	14 / B	
	Silva Valley Slip on-ramp to El Dorado Hills Blvd off-ramp	Weave (HCM)	37 / E	26 / C	37 / E	26 / C	
		Weave (Leisch)	- / C		- / C		
		Basic		15 / B		16 / B	2
	El Dorado Hills Blvd on-ramp to Empire Ranch off-	Weave (HCM)	43 / E	34 / D	44 / E	34 / D	

TABLE 17: PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS (FREEWAY)

Freeway	Segment	Facility Type	Cumulative Density[1] / LOS		Cumulative + Project Density[1] / LOS		Notes
			AM	PM	AM	PM	
	ramp	Weave (Leisch)	- / D	- / C	- / D	- / C	

Notes: 1 Density reported as passenger cars per mile per lane. Density is not reported for LOS F operations or weave segments. Weave segment's operations are based on the HCM 2010 and Leisch Method. If the weave segment is outside the realm of weaving, it is analyzed as a basic segment.
Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.
2 Facility analyzed as basic segment due to a combination of weaving volume and segment length, which places the segment outside of the realm of weaving analysis.
3 For Cumulative Plus Project PM peak hour conditions the facility is analyzed as basic segment due to a combination of weaving volume and segment length, which places the segment outside of the realm of weaving analysis..

Source: Fehr & Peers, 2014

6.3 PEDESTRIAN AND BICYCLE CIRCULATION

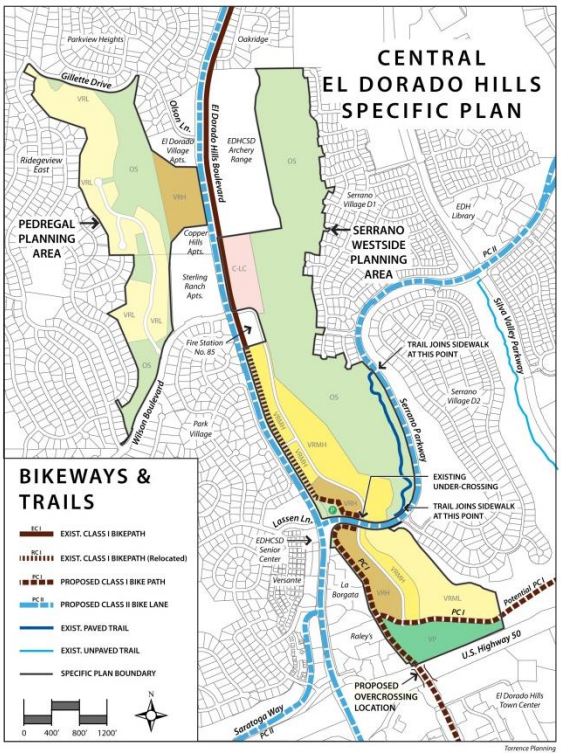
Bicycle network improvements are planned within the study area. Figure 5 identifies planned bikeways presented in the *El Dorado Bicycle Transportation Plan, 2010 Update* and the *Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for 2035*. The following are planned improvement projects:

- El Dorado Hills Class I bike path - SMUD Corridor: Design and construct a Class I bike path between El Dorado Hills Boulevard and Silva Valley Parkway within the powerline easement operated by the Sacramento Municipal Utility District (SMUD). A portion of this project has been constructed between Silva Valley and New York Creek,
- Latrobe Road Class II bike lanes from Investment Boulevard to Deer Creek/SPTC
- Old Bass Lake Road – El Dorado Hills Boulevard to Bass Lake Road Connection, Phase 1: Use existing roadway as Class I path from Tong Road to Old Bass Lake Road
- Saratoga Way Extension Class II bike lanes included in extension of Saratoga Way from Finders Way to County Line. (Alternatively construct a Class I bike path prior to construction of extension of Saratoga Way to Iron Point Road) An informal trail exists connecting these roadways,
- Bass Lake Road Class II bike lanes from Green Valley Road to US 50
- Bike path parallel to US 50 on the north side – El Dorado Hills Boulevard to Bass Lake Road Connection, Phase 2: Connect Silva Valley Road to El Dorado Hills Village Center Shopping Center. As outlined below, the project will implement a portion of this bike path.
- El Dorado Hills Boulevard bike lanes, Phase 1: Saratoga Way to Governor Drive/St. Andrews
- El Dorado Hills Boulevard bike path, Phase 2: Utilizing an existing golf cart undercrossing of Serrano Parkway, extend the bike path from the current terminus at Serrano Parkway to Raley's Center. As outlined below, the proposed project will implement this improvement.
- El Dorado Hills Boulevard to Bass Lake Connection, Phase 1; Class III bike route on Tong Road, Class III bike route on Old Bass Lake Road.
- Green Valley Road Class II bike lanes from Francisco Drive to Pleasant Grove Middle School
- Harvard Way bike path from Clermont Road to El Dorado Hills Boulevard
- Silva Valley Parkway bike lanes from the new connection with White Rock Road to Green Valley Road
- SPTC/El Dorado Trail Class I bike path from Latrobe Road to County Line

- Class I bike path and US 50 Undercrossing or overcrossing between the El Dorado Hills Town Center and El Dorado Hills Village Center (not fully funded or listed in MTP/SCS). As outlined below, the proposed project proposes to locate the overcrossing of US 50 adjacent to the Village Park with, connecting the planned bike path north of US 50 to the El Dorado Hills Town Center.
- Class I bike path within the SMUD power line easement between El Dorado Hills Boulevard and Sophia Parkway (not fully funded or listed in the MTP/SCS)

The project proposes the following bicycle and pedestrian facilities, which are shown below that will integrate with existing and planned facilities in the study area:

- Relocate the existing Class I (off street) bike path east separated from El Dorado Hills Boulevard to the existing drainage channel, extending from just south of the fire station to US 50 at the Village Park
- Connect the bike path to the exiting undercrossing of Serrano Parkway
- Relocate the planned bicycle/pedestrian crossing of US 50 to connect the off-street bike path at the planned Village Park to El Dorado Hills Town Center (overcrossing to be constructed by the County)
- Connection between the project site and the Raley's and La Borgata shopping centers
- Connect to a potential Class I bike path between project boundary and Silva Valley Parkway. This would complete the connection to the planned Country Club Drive extension between Silva Valley Parkway and Bass Lake Road as identified in the 2004 General Plan Circulation Element.



Trails and Bikeways, Torrence Planning

6.4 TRANSIT

The Specific Plan provides for a Park and Ride location in the Serrano Westside portion of the Plan Area, as a joint-use facility between El Dorado Transit and the El Dorado Hills CSD. As many as 50 parking stalls within the Village Park land use designation may be reserved for Park-n-Ride use during weekday business hours when park activities are minimal. The details of the Park-n-Ride facility will be determined at the time the Village Park is developed. In addition, opportunities exist to accommodate bust stop (turnout and shelter) on the east side of El Dorado Hills Boulevard next to the Serrano Westside Planning Area, provided the existing Class I bike path is relocated to the east side of the drainage channel. An addition bus stop (turnout and shelter) may be accommodated on the future extension of Park Drive near the Village Park. Based on ridership data presented in the El Dorado Hills Community Transit Needs Assessment and US 50 Corridor Transit Operations Plan, Final Report, 41,760 annual commute trips are made by El Dorado Hills residents using El Dorado Transit Commuter Service. Residents of El Dorado Hills account for about 72 percent of boardings at the El Dorado Hills Park-n-Ride lot, which includes riders that park in the lot and riders that use other means to access the service (i.e., walk, bike, and drop-off).

Based on this information, about one annual commute trip is generated per El Dorado Hills resident, assuming a population of 42,100 (2010 Census) in El Dorado Hills. Therefore, the project's 1,000 dwelling units could result in demand of about 2,600 annual commute trips (assuming a household population of 2.6 persons), or about 10 commute trips per weekday.

7.0 IMPACT STATEMENTS AND MITIGATION MEASURES

Project impacts were determined by comparing conditions with the project to conditions without the project in accordance with the established significance criteria presented in Section 4.2.

7.1 EXISTING PLUS PROJECT

Analysis results, which are presented in Table 18, indicate that the addition of the project would exacerbate unacceptable operations at one intersection and result in unacceptable operation at another study intersection. The following discusses these impacts and associated mitigation:

7.1.1 INTERSECTIONS

Impacts

Impact 1 - Francisco Drive/El Dorado Hills Boulevard (intersection 4) – This location operates at LOS F without the project. The project adds more than 20 seconds of delay to overall intersection operations. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the AM and PM peak hours. **This is a significant impact**.

Impact 2 - Latrobe Road/Town Center Boulevard (intersection 17) – This location operates acceptably LOS E (close to the LOS F threshold) without the project. The project results in unacceptable LOS F conditions during the PM peak hour. **This is a significant impact**.

Mitigation

Mitigation 1 - Francisco Drive/El Dorado Hills Boulevard (Intersection 4) – Implementation of the following improvements to the Francisco Drive/El Dorado Hills Boulevard intersection would result in acceptable LOS C operation during the AM and PM peak hours:

- Add a dedicated eastbound right-turn lane to provide a shared through/left-turn lane and a separate right-turn lane on the eastbound approach
- Add a southbound acceleration lane on El Dorado Hills Boulevard south of Francisco Drive beginning at the eastbound right-turn lane
- Lengthen the northbound left-turn pocket

This improvement was completed in 2015. Implementation of this improvement results in acceptable LOS C operation during the AM and PM peak hours. With this improvement, this impact would be **less than significant**. At the commencement of this study, the intersection operated at LOS F due to high demand for the northbound-to-westbound and eastbound-to-southbound turn movements through the intersection.

Payment of traffic impact mitigation fees will satisfy the project's fair share obligation towards this improvement.

Mitigation 2 - Latrobe Road/Town Center Boulevard (Intersection 17) – Implementation of the US 50/El Dorado Hills Boulevard interchange improvements and construction of the new US 50/Silva Valley Parkway interchange (Phase 1), which are currently under construction and will be completed prior to development in the project area, will result in acceptable LOS E or better operations at the Latrobe Road/Town Center Boulevard intersection during the AM and PM peak hours. Unacceptable operations at this intersection were due primarily to poor lane utilization on northbound Latrobe Road during construction. With this improvement, this impact would be **less than significant**.

This improvement will be completed prior to development in the project site. Therefore, payment of traffic impact mitigation fees will satisfy the project's fair share obligation towards this improvement.

TABLE 18: INTERSECTION LOS AND DELAY – EXISTING PLUS PROJECT MITIGATIONS

Intersection	Control	Existing Conditions		Existing + Project Conditions		Existing + Project Mitigations	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
4. Francisco Dr / El Dorado Hills Blvd	AWSC	**F / 88**	**F / 69**	***F / 108***	***F / 98***	C / 21	C / 25
17. Latrobe Rd/Town Center Blvd	Signal	C / 29	E / 75	C / 30	***F / 128***	C / 26	D / 49
24. Wilson Blvd / Pedregal Dwy	SSSC	-	-	A / 10	A / 10	A / 10	A / 10

Note: AWSC = all-way stop control

Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.

The average delay is measured in seconds per vehicle. For signalized and AWSC intersections, the delay shown is the average control delay for the overall intersection.

Intersection 17 is analyzed in SimTraffic.

Source: Fehr & Peers, 2014

7.1.2 FREEWAY FACILITIES

The addition of project traffic will result in one impact to US 50 operations under existing conditions. The analysis results are presented in Table 19.

Impacts

Impact 3 - US 50/Westbound El Dorado Hills Boulevard On-Ramp – The addition of project traffic will result in LOS F conditions at the US 50 westbound on-ramp from El Dorado Hills Boulevard. **This is a significant impact.**

Mitigation

Mitigation 3 - US 50/Westbound El Dorado Hills Boulevard On-Ramp – Implementation of the US 50/El Dorado Hills Boulevard interchange improvements and the new US 50/Silva Valley Parkway interchange, which are currently under construction and will be

completed prior to development in the project area, will result in acceptable LOS E or better operations at westbound on-ramp merge area. The US 50/El Dorado Hills Boulevard interchange improvements added ramp metering to the westbound on-ramp, which meters (i.e., limits) peak hour traffic flow onto US 50, and the new US 50/Silva Valley Parkway interchange will reduce traffic volumes at the interchange, including the westbound on-ramp. With these improvements, this impact would be **less than significant**.

This improvement will be completed prior to development in the project site. Therefore, payment of traffic impact mitigation fees will satisfy the project's fair share obligation towards this improvement.

TABLE 19: FREEWAY FACILITY PEAK HOUR LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS MITIGATION

Freeway	Segment	Facility Type	Existing Density[1] / LOS		Existing + Project Density[1] / LOS		Existing + Project Mitigation Density[1] / LOS	
			AM	PM	AM	PM	AM	PM
US 50 WB	El Dorado Hills Blvd on-ramp	Merge	34 / D	24 / C	***- / F***	25 / C	35 / D	25 / C

Notes: [1] Density reported as passenger cars per mile per lane. Density is not reported for LOS F operations.

Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.

Source: Fehr & Peers, 2014

7.2 CUMULATIVE PLUS PROJECT

Analysis results, which are presented in Table 20, indicate that the addition of the project would exacerbate unacceptable operations at five study intersections. The following discusses these impacts and associated mitigation:

7.2.1 INTERSECTIONS

Impacts

Impact 4 - Silva Valley Parkway/Appian Way (Intersection 5) – This intersection will operate unacceptably at LOS F without the project during both the AM and PM peak hours. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the AM and PM peak hours. **This is a significant impact.**

Impact 5 - Silva Valley Parkway/Harvard Way (Intersection 7) – This intersection will operate unacceptably at LOS F without the project during the AM peak hour. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the AM peak hour. **This is a significant impact.**

Impact 6 - Serrano Parkway / Silva Valley Parkway (Intersection 12) – This intersection will operate unacceptably at LOS F without the project during the AM and PM peak hours. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during both the AM and PM peak hours. **This is a significant impact.**

Impact 7 - El Dorado Hills Boulevard/Park Drive/Saratoga Way (Intersection 13) – This intersection will operate unacceptably at LOS F without the project during the PM peak hour. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the PM peak hour. **This is a significant impact.**

Impact 8 - Latrobe Road/Town Center Boulevard (Intersection 17) – This intersection will operate unacceptably at LOS F without the project during the AM and PM peak hours. According to established significance criteria, the project is projected to "significantly worsen" conditions, since it would add more than 10 trips to the intersection during the AM and PM peak hours. **This is a significant impact.**

Mitigation

Mitigation 4 - Silva Valley Parkway/Appian Way (Intersection 5) – Implementation of the following improvements to the Silva Valley Parkway/Appian Way intersection would result in acceptable LOS D and C operations during the AM and PM peak hours, respectively:

- Install traffic signal control with protected left-turn phasing north and southbound and split phasing east and westbound
- Provide one left-turn lane and a shared through/right-turn lane on the northbound and southbound approaches

- Provide a shared through/left-turn lane and a separate right-turn lane on the westbound approach

With this improvement, this impact would be **less than significant**.

Unacceptable operations at this intersection are due to a combination of increased traffic from cumulative development and due to changes in travel patterns associated with the planned US 50/Silva Valley Parkway interchange.

The Cumulative analysis includes planned roadway improvements, growth consistent with the 2004 General Plan, and with approved and reasonably foreseeable projects within the study area. This is found to be an impact in the cumulative scenario without the project, which includes other foreseeable but unapproved projects. Therefore, the project is responsible for its proportional share of the proposed mitigation under cumulative conditions. Since the impact is identified under the cumulative scenario, the timing of the improvement is a function of the rate of population and employment growth. The County's traffic impact mitigation fee program provides a mechanism for collecting fair share contributions for improvements in the 2015 CIP.

The CIP includes a line item for unprogrammed traffic signal installation and operational and safety improvements at intersections, including improvements like construction of new traffic signals, construction of turn pockets, and the upgrade of existing traffic signal systems. The County annually monitors intersections with potential need for improvement through the Intersection Needs Prioritization Process. The Intersection Needs Prioritization Process is then used to inform the annual update to the CIP, and potential intersection improvements can be added, by the Board of Supervisors, to the CIP as funding becomes available.

Therefore, appropriate mitigation, as determined by the CDA, would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the CIP or constructed by others.

Mitigation 5 - Silva Valley Parkway/Harvard Way (Intersection 7) – Implementation of the following improvements to the Silva Valley Parkway/Harvard Way intersection would result in acceptable LOS D and C operations during the AM and PM peak hours, respectively:

- Restripe the southbound approach to the intersection to provide one left-turn lane, two through lanes, and a separate right-turn lane
- Optimize traffic signal timings to accommodate the revised intersection lane configurations

With this improvement, this impact would be **less than significant**.

Unacceptable operations at this intersection are due to a combination of increased traffic from cumulative development and due to changes in travel patterns associated with the planned US 50/Silva Valley Parkway interchange.

The Cumulative analysis includes planned roadway improvements, growth consistent with the 2004 General Plan, and with approved and reasonably foreseeable projects within the study area. This is found to be an impact in the cumulative scenario without the project, which includes other foreseeable but unapproved projects. Therefore, the project is responsible for its proportional share of the proposed mitigation under cumulative conditions. Since the impact is identified under the cumulative scenario, the timing of the improvement is a function of the rate of population and employment growth. The County's traffic impact mitigation fee program provides a mechanism for collecting fair share contributions for improvements in the 2015 CIP.

The CIP includes a line item for unprogrammed traffic signal installation and operational and safety improvements at intersections, including improvements like construction of new traffic signals, construction of turn pockets, and the upgrade of existing traffic signal systems. The County annually monitors intersections with potential need for improvement through the Intersection Needs Prioritization Process. The Intersection Needs Prioritization Process is then used to inform the annual update to the CIP, and potential intersection improvements can be added, by the Board of Supervisors, to the CIP as funding becomes available.

Therefore, appropriate mitigation, as determined by the CDA, would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the CIP or constructed by others.

Mitigation 6 - Serrano Parkway/Silva Valley Parkway (Intersection 12) – Implementation of the following improvements to the Serrano Parkway/Silva Valley Parkway intersection would result in acceptable LOS E or better operations during the AM and PM peak hours:

- Option 1 – Implement CIP Project Number 72141 with a separate right-turn lane on the westbound approach. CIP Project Number 72141, which is scheduled for construction in 2015, will install split-phase signal operation on the eastbound and westbound approach and restripe the west bound approach to provide one left-turn lane, a shared left-turn/through lane, and a shared through/right-turn lane on the westbound approach.

  OR

- Option 2 – Construct two-lane extension of Country Club Drive from Silva Valley Parkway to connect with CIP Project Number GP125, which will construct Country Club Drive from the west Bass Lake Hills Specific Plan boundary to Silver Dove Road.

  OR

- Option 3 – Construct two-lane extension of Russi Ranch Drive from Village Green Drive to Silva Valley Parkway.

With the construction of any of these improvements, this impact would be **less than significant**.

Unacceptable operations at this intersection are due to a combination of increased traffic from cumulative development and due to changes in travel patterns associated with the planned US 50/Silva Valley Parkway interchange.

The Cumulative analysis includes planned roadway improvements, growth consistent with the 2004 General Plan, and with approved and reasonably foreseeable projects within the study area. This is found to be an impact in the cumulative scenario without the project, which includes other foreseeable but unapproved projects. Therefore, the project is responsible for its proportional share of the proposed mitigation under cumulative conditions. Since the impact is identified under the cumulative scenario, the timing of the improvement is a function of the rate of population and employment growth.

Option 1 – The CIP includes a line item for unprogrammed traffic signal installation and operational and safety improvements at intersections, including improvements like construction of new traffic signals, construction of turn pockets, and the upgrade of existing traffic signal systems. The County annually monitors intersections with potential need for improvement through the Intersection Needs Prioritization Process. The Intersection Needs Prioritization Process is then used to inform the annual update to the CIP, and potential intersection improvements can be added, by the Board of Supervisors, to the CIP as funding becomes available.

Therefore, appropriate mitigation, as determined by the CDA, would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the CIP or constructed by others.

Option 2 and 3 – These improvement options are not in 2015 CIP. Therefore, the project proponent shall work with the County, during the development agreement phase, or development of the public financing plan or like process, to determine its

proportional share. Since the impact is identified under the cumulative scenario, the timing of the improvement is a function of the rate of population and employment growth. Appropriate mitigation, as determined by the CDA, may include construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share, payment of traffic impact mitigation fees if the project is added to the County's 10-year CIP, or proportional share payment.

Mitigation 7 - El Dorado Hills Boulevard/Park Drive/Saratoga Way (Intersection 13) – Implementation of the following improvements to the El Dorado Hills Boulevard/Park Drive/Saratoga Way intersection would result in acceptable LOS D operations during the PM peak hour:

- Modify the northbound approach to provide one left-turn lane, three through lanes, and a separate right-turn lane
- Modify the eastbound approach to provide two left-turn lanes, one through lane, and a separate right-turn lane
- Modify the westbound approach to provide one left-turn lane, one through lane, and a separate right-turn lane
- Provide protected left-turn phasing east and westbound
- Optimize traffic signal timings to accommodate the revised intersection lane configurations
- Restrict access at the Saratoga Way/Mammouth Way intersection to right-in/right-out
- Install a traffic signal at the Saratoga Way/Arrowhead Drive intersection

With this improvement, this impact would be **less than significant**.

Unacceptable operations at this intersection are due to a combination of increased traffic from cumulative development and due to changes in travel patterns associated with the planned infrastructure improvements like the US 50/Silva Valley Parkway interchange and the Saratoga Way Extension project.

The Cumulative analysis includes planned roadway improvements, growth consistent with the 2004 General Plan, and with approved and reasonably foreseeable projects within the study area. This is found to be an impact in the cumulative scenario without the project, which includes other foreseeable but unapproved projects. Therefore, the project is responsible for its proportional share of the proposed mitigation under cumulative conditions. Since the impact is identified under the cumulative scenario, the timing of the improvement is a function of the rate of population and employment

growth. The County's traffic impact mitigation fee program provides a mechanism for collecting fair share contributions for improvements in the 2015 CIP.

The CIP includes a line item for unprogrammed traffic signal installation and operational and safety improvements at intersections, including improvements like construction of new traffic signals, construction of turn pockets, and the upgrade of existing traffic signal systems. The County annually monitors intersections with potential need for improvement through the Intersection Needs Prioritization Process. The Intersection Needs Prioritization Process is then used to inform the annual update to the CIP, and potential intersection improvements can be added, by the Board of Supervisors, to the CIP as funding becomes available.

Therefore, appropriate mitigation, as determined by the CDA, would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the CIP or constructed by others.

Mitigation 8 - Latrobe Road/Town Center Boulevard (Intersection 17) – Implementation of the following improvements to the Latrobe Road/Town Center Boulevard intersection would result in acceptable LOS D and E operations during the AM and PM peak hours, respectively:

- Modify the northbound approach to provide two left-turn lanes, three through lanes, and a shared through/ right-turn lane
- Modify the westbound approach to provide a shared through/left-turn lane, and two right-turn lanes
- Provide right-turn overlap phasing for the westbound approach
- Provide split phasing east and westbound
- Optimize traffic signal timings to accommodate the revised intersection lane configurations

With this improvement, this impact would be **less than significant**.

Unacceptable operations at this intersection are due to a combination of increased traffic from cumulative development and due to changes in travel patterns associated with the planned infrastructure improvements like the US 50/Silva Valley Parkway.

The Cumulative analysis includes planned roadway improvements, growth consistent with the 2004 General Plan, and with approved and reasonably foreseeable projects within the study area. This is found to be an impact in the cumulative scenario without the project, which includes other foreseeable but unapproved projects. Therefore, the

project is responsible for its proportional share of the proposed mitigation under cumulative conditions. Since the impact is identified under the cumulative scenario, the timing of the improvement is a function of the rate of population and employment growth. The County's traffic impact mitigation fee program provides a mechanism for collecting fair share contributions for improvements in the 2015 CIP.

The CIP includes a line item for unprogrammed traffic signal installation and operational and safety improvements at intersections, including improvements like construction of new traffic signals, construction of turn pockets, and the upgrade of existing traffic signal systems. The County annually monitors intersections with potential need for improvement through the Intersection Needs Prioritization Process. The Intersection Needs Prioritization Process is then used to inform the annual update to the CIP, and potential intersection improvements can be added, by the Board of Supervisors, to the CIP as funding becomes available.

Therefore, appropriate mitigation, as determined by the CDA, would include payment of traffic impact mitigation fees to satisfy the project's fair share obligation towards this improvement or construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share if the improvement is needed but not included in future updates to the CIP or constructed by others.

TABLE 20: INTERSECTION LOS AND DELAY – CUMULATIVE PLUS PROJECT CONDITIONS MITIGATIONS

Intersection	Control	Cumulative Conditions		Cumulative + Project Conditions		Cumulative + Project Mitigations	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
5. Silva Valley Pkwy / Appian Wy	AWSC	**F / >180**	**F / 105**	***F / >180***	***F / 113***	D / 40	C / 26
7. Silva Valley Pwky / Harvard Wy	Signal	**F / 93**	C / 33	***F / 97***	C / 35	D / 55	C / 31
12. Serrano Parkway/Silva Valley Parkway (Option 2)	Signal	**F / 99**	**F / 82**	***F /98***	**F / 88**	E /73	E / 60
13. El Dorado Hills Blvd/Park Dr/Saratoga Wy	Signal	C / 24	**F / 112**	D / 45	***F / 115***	D / 35	D / 42
17. Latrobe Rd/Town Center Blvd	Signal	**E / 76**	**F / 173**	***F / 86***	***F / 166***	D / 47	E / 75
24. Wilson Blvd / Pedregal Dwy	SSSC	-	-	B / 11	B / 11	B / 11	B / 11

Note: AWSC = all-way stop control, SSSC = side-street stop control

Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.

The average delay is measured in seconds per vehicle. For signalized and AWSC intersections, the delay shown is the average control delay for the overall intersection. For SSSC intersections, the LOS and control delay for the worst movement is shown. Intersections 5, 7, and 12 are analyzed in Synchro. Intersection 13 and 17 are analyzed in SimTraffic.

Source: Fehr & Peers, 2014

7.2.2 ROADWAYS

Analysis results, which are presented in Table 16, indicate that the all roadway segments would operate acceptably with the addition of the project.

7.2.3 FREEWAY FACILITIES

Analysis results, which are presented in Table 21, indicate that the addition of the project would worsen unacceptable operations on one study freeway facility. The following discusses this impact and associated mitigation:

Impact 9 - US 50 Eastbound Off-Ramp to Bass Lake Road – The addition of the project is projected to "significantly worsen" conditions on the diverge influence area at the US 50 eastbound off-ramp to Bass Lake Road, which is projected to operate unacceptably at LOS E during the PM peak hour without the project, since the project would result in an increase of more than 10 trips to the off-ramp during the PM peak hour. **This is a significant impact.**

Mitigation 9 - US 50 Eastbound Off-Ramp to Bass Lake Road – Implementation of one of the following improvements. With any of these improvements, this impact would be **less than significant**.

- Option 1 – Implement the US 50/Bass Lake Road Interchange Improvements – Phase 1 (CIP Project Number 71330).

  The US 50/Bass Lake Road Interchange Improvements – Phase 1 is in the County's 10-year 2015 CIP with construction scheduled for fiscal year 2025-2026. However, specific design characteristics are not known at this time, but will include ramp widening, roadway widening, and the addition of a westbound auxiliary lane between Bass Lake Road and Silva Valley Parkway. Implementation of a standard deceleration lane with the interchange improvements will provide acceptable LOS D or better operation during the PM peak hour.

  OR

- Option 2 – Construct two-lane extension of Country Club Drive from Silva Valley Parkway to connect with CIP Project Number GP125, which will construct Country Club Drive from the west Bass Lake Hills Specific Plan boundary to Silver Dove Road. Implementation of this improvement will provide acceptable LOS D or better operation during the PM peak hour.

OR

Option 3 – Construct a standard deceleration lane on the eastbound off-ramp to Bass Lake Road. Implementation of this improvement will provide acceptable LOS D or better operation during the PM peak hour.

The Cumulative analysis includes planned roadway improvements, growth consistent with the 2004 General Plan, and with approved and reasonably foreseeable projects within the study area. This is found to be an impact in the cumulative scenario without the project, which includes other foreseeable but unapproved projects. Therefore, the project is responsible for its proportional share, as approved by County, of the proposed mitigation under cumulative conditions. The project proponent shall work with the County, during the development agreement phase, or development of the public financing plan or like process, to determine its proportional share. Since the impact is identified under the cumulative scenario, the timing of the improvement is a function of the rate of population and employment growth.

Appropriate mitigation, as determined by CDA, may include construction of the improvement with reimbursement or fee credit for costs that exceed the project's proportional share, payment of traffic impact mitigation fees if the project is added to the County's 10-year CIP, or proportional share payment if constructed by others.

TABLE 21: FREEWAY FACILITY PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS MITIGATION

Freeway	Segment	Facility Type	Cumulative Density[1] / LOS		Cumulative + Project Density[1] / LOS		Cumulative + Project Mitigation Density[1] / LOS	
			AM	PM	AM	PM	AM	PM
US 50 EB	Bass Lake Road off-ramp	Diverge	26 / C	**36 / E**	26 / C	***37 / E***	16 / B	26 / C

Notes: 1 Density reported as passenger cars per mile per lane. Density is not reported for LOS F operations.
Bold text indicates LOS worse than established threshold. *Italic and underlined* text identifies a potential impact.

Source: Fehr & Peers, 2014

7.2.4 PEDESTRIAN AND BICYCLE FACILITIES

Impact 10 - Implementation of the proposed project will increase demand for pedestrian and bicycle facilities. As outlined in Section 6.3, the project proposes pedestrian and bicycle facilities that will connect and integrate with existing and planned facilities adjacent to the project. In addition, elements of the proposed project will complete planned pedestrian and bicycle facilities. Therefore, the proposed project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. **This is a less than significant impact.**

Mitigation 10 - No mitigation required

7.2.5 TRANSIT

Impact 11 - Implementation of the proposed project will increase demand transit. As outlined in Section 6.4, the project could result in demand of about 2,600 transit commute trips annually, which would be an average of about 10 commute trips per weekday. This increase represents about a two percent increase in El Dorado Transit Commuter Service, which is generally in line with historic population growth rates in El Dorado County. Consequently, the growth in these trips would not likely exceed the ability to serve this ridership growth through existing funding sources for transit that are tied to population growth. However, most of the boardings for the El Dorado Transit Commuter Service at the El Dorado Hills park-n-ride lot are from El Dorado Hills residents. Consequently this increase in commuter trips will increase demand for the El Dorado Hills park-n-ride lot, which operates at capacity. **This is a significant impact.**

Mitigation 11 - Implement one of the following measures:

Provide morning and evening peak period shuttle service (or comparable service) between the proposed project and the El Dorado Hills park-n-ride. This service could be implemented through a transportation demand management association (or similar organization) or be implemented directly with El Dorado Transit.

OR

Dedicate parking at the Village Park during business hours (i.e., when demand for park activities is low) to serve as an overflow park-n-ride facility.

Implementation of either of these measures would reduce this impact to a **less than significant level**.

7.2.6 EMERGENCY ACCESS

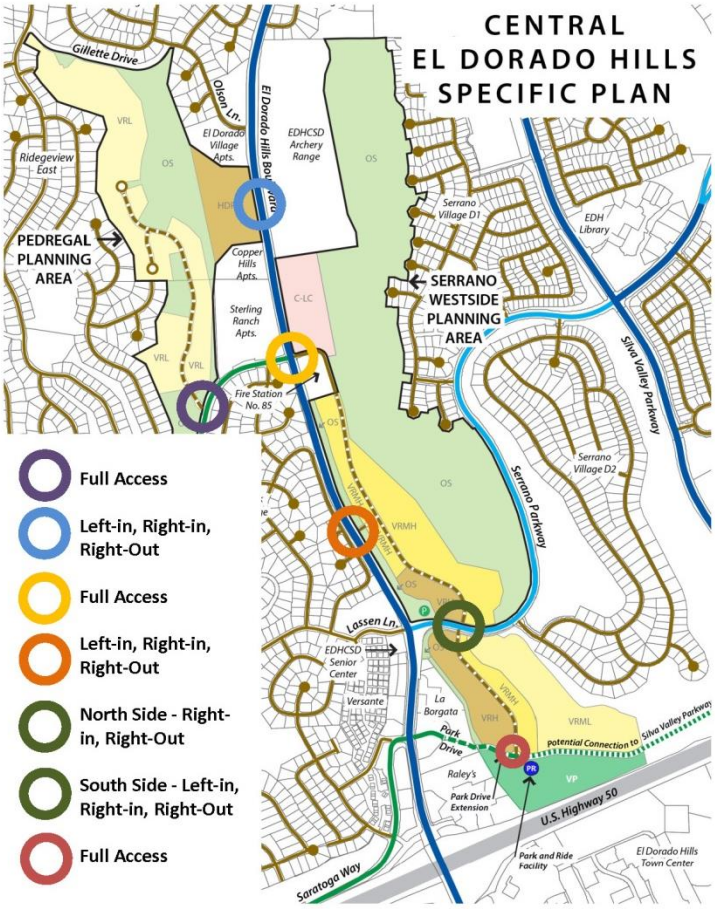
Impact 12 - The portion of the Serrano Westside Planning Area north of Serrano Parkway and east of El Dorado Hills Boulevard will connect to the east leg of Wilson Boulevard for access at the El Dorado Hills Boulevard/Wilson Boulevard intersection, which is also used by the El Dorado Hills Fire Department. The project will add traffic to and increase delay at this intersection. However, the intersection will operate acceptably. The intersection is equipped with emergency vehicle signal preemption, which is designed to give priority to emergency vehicles during emergencies. This is a **less than significant impact**.

Mitigation 12 - No mitigation required

8.0 OTHER CONSIDERATIONS

8.1 SITE ACCESS

Proposed access for the Central El Dorado Hills Specific Plan is shown. The single family portion of the Pedregal Planning Area will access Wilson Boulevard (no access to Gillette Drive is proposed), with access for the multi-family portion on El Dorado Hills Boulevard. The Serrano Westside Planning Area will access El Dorado Hills Boulevard, Serrano Parkway, and Park Drive.



The Pedregal Planning Area access driveway on Wilson Boulevard will operate acceptably at LOS B (cumulative conditions) with side-street stop control. However, Wilson Boulevard is a four-lane undivided roadway with a downhill grade in the eastbound direction. Due to high eastbound vehicle speeds, eastbound left-turn ingress and southbound left-turn egress movements will be difficult.

It is recommended that Wilson Boulevard be restriped as a two-lane roadway with a center median with Class I on-street bicycle lanes. Vehicle demand under existing or cumulative conditions does not warrant four travel lanes. In addition, sidewalks should be added on the north side with Wilson Boulevard between the project access and the existing sidewalk.

Park Drive and Wilson Boulevard Connections

The topography of El Dorado County limits east/west roadway connections. In El Dorado Hills, there are only three local-serving east/west connections between El Dorado Hills Boulevard and Silva Valley

Parkway north of US 50 (i.e., Green Valley Road, Harvard Way, and Serrano Parkway), a distance of about four miles. In addition, only Green Valley Road, US 50, White Rock Road, and Serrano Parkway provide significant east/west regional-level connections. Consequently, more demand is placed on north/south roadways like El Dorado Hills Boulevard and Silva Valley Parkway. There are several east/west regional-level connections in the County's 2015 CIP, including the extension of Saratoga Way between El Dorado Hills Boulevard and Iron Point Road and Country Club Drive between Bass Lake Road and Silva Valley Parkway. These connections will provide an alternative to existing east/west connections and reduce travel demand on El Dorado Hills Boulevard and Silva Valley Parkway near US 50. However, there is a gap in the parallel arterials (north of US 50) that could be closed through the Serrano Westside Planning Area by extending Park Drive from the eastern boundary of the planning area to Silva Valley Parkway. This extension is not needed to provide acceptable LOS E or better operations, but would provide additional redundancy in the circulation network. Similarly, the extension of Wilson Boulevard between its current terminus and the planned Saratoga Way extension would provide similar circulation benefits.

Table 22 compares peak hour roadway segment operation with the two connections. In Table 22, roadway segments that show a decrease in peak hour traffic volume are shaded green and cells that show an increase are shaded blue.

As shown, the Park Drive extension would serve about 500 and 400 vehicles in the AM and PM peaks, respectively. The connection would reduce volumes on segments of El Dorado Hills Boulevard, Silva Valley Parkway (PM peak hour), and Serrano Parkway. AM peak hour traffic volumes would increase on Saratoga Way and Silva Valley Parkway (between US 50 and the Park Drive extension.

As shown, the Wilson Boulevard extension would serve about 700 and 900 vehicles in the AM and PM peaks, respectively. The connection would reduce volumes on segments of El Dorado Hills Boulevard, Silva Valley Parkway (PM peak hour), Serrano Parkway, and Saratoga Way. This connection will have the highest reductions on El Dorado Hills Boulevard near US 50 with a decrease of about 600 vehicles in the AM and PM peak hour north of Saratoga Way. Volume will increase by about 200 and 300 vehicles in the AM and PM peak hours, respectively, on El Dorado Hills Boulevard north of Wilson Boulevard.

These connections will also benefit bicycle and pedestrian circulation by providing shorter, lower volume, east/west connections.

TABLE 22: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS WITH PARK DRIVE AND WILSON BOULEVARD EXTENSIONS

Roadway	Segment	Facility Type	Volume / Volume-to-Capacity Ratio / LOS					
			Plus Project		With Park Drive Extension		With Park Drive and Wilson Boulevard Extensions	
			AM	PM	AM	PM	AM	PM
El Dorado Hills Blvd	Harvard Wy to Wilson Blvd	4 lane divided arterial	2,400/0.64/D	2,400/0.64/D	2,400/0.64/D	2,400/0.64/D	2,600/0.70/D	2,700/0.72/D
	Wilson Blvd to Serrano Pkwy	4 lane divided arterial	2,800/0.75/D	3,000/0.80/D	2,800/0.75/D	3,000/0.80/D	2,400/0.64/D	2,500/0.67/D
	Serrano Pkwy to Saratoga Way/Park Drive	5 lane arterial	2,900/0.62/D	3,300/0.71/D	2,800/0.60/D	3,200/0.69/D	2,300/0.49/C	2,700/0.58/D
	Saratoga Way/Park Drive to US 50	6 lane arterial	2,900/0.52/D	3,300/0.59/D	2,800/0.50/D	3,200/0.57/D	2,700/0.48/C	3,000/0.54/D
Silva Valley	Harvard Wy to Serrano Pkwy	4 lane divided arterial	2,200/0.59/D	1,900/0.51/C	2,200/0.59/D	1,900/0.51/C	2,100/0.56/D	1,800/0.48/C

TABLE 22: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS WITH PARK DRIVE AND WILSON BOULEVARD EXTENSIONS

Roadway	Segment	Facility Type	Volume / Volume-to-Capacity Ratio / LOS					
			Plus Project		With Park Drive Extension		With Park Drive and Wilson Boulevard Extensions	
			AM	PM	AM	PM	AM	PM
Pkwy	Serrano Pkwy to US 50	4 lane divided arterial	2,600/0.70/D	2,700/0.72/D	2,700/0.72/D	2,500/0.67/D	2,700/0.72/D	2,500/0.67/D
Serrano Pkwy	El Dorado Hills Blvd to Silva Valley Pkwy	2 lane arterial	1,000/0.53/D	900/0.48/C	900/0.48/C	900/0.48/C	900/0.48/C	800/0.43/C
Saratoga Wy	El Dorado Hills Blvd to Arrowhead Dr	2 lane arterial	1,200/0.64/D	1,600/0.86/D	1,400/0.75/D	1,600/0.86/D	1,000/0.53/D	1,200/0.64/D
Wilson Boulevard	El Dorado Hills Blvd to Ridgeview Dr	4 lane undivided arterial	500/0.17/C	500/0.17/C	500/0.17/C	500/0.17/C	1,000/0.35/C	1,100/0.35/C
	Extension – Montridge Wy to Saratoga Wy	2 lane arterial			-	-	700/0.37/C	900/0.48/C

TABLE 22: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS WITH PARK DRIVE AND WILSON BOULEVARD EXTENSIONS

Roadway	Segment	Facility Type	Volume / Volume-to-Capacity Ratio / LOS					
			Plus Project		With Park Drive Extension		With Park Drive and Wilson Boulevard Extensions	
			AM	PM	AM	PM	AM	PM
Park Drive	East of EDH Blvd	2 lane arterial	600/0.32/C	900/0.48/C	900/0.48/C	1,000/0.53/D	900/0.48/C	1,000/0.53/D
	Extension – West of Silva Valley Pkwy	2 lane arterial			500/0.27/C	400/0.21/C	500/0.27/C	400/0.21/C

Notes: Volume-to-Capacity ratio and LOS is based on the peak hour level of service thresholds contained in Table 5.4-1 of the *El Dorado County General Plan DEIR* (EDAW, 2003)

Source: Fehr & Peers, 2014

8.2 PEAK HOUR TRAFFIC SIGNAL WARRANT EVALUATION

An evaluation of the need for traffic signal installation was conducted using the peak hour traffic signal warrant methodologies from the California Manual on Uniform Traffic Control Devices, January 2012. The peak hour traffic signal warrant was evaluated for the following existing and proposed stop-controlled intersections:

- El Dorado Hills/Francisco Drive
- Silva Valley Parkway/Appian Way
- Wilson Boulevard/Pedregal Driveway (Full Movement Project Access)

Tables 23 and 24 display the results of the peak hour volume warrant for existing and cumulative conditions, respectively. Under existing conditions, the Francisco Drive/El Dorado Hills Boulevard intersection would satisfy the peak hour warrant based on AM and PM peak hour traffic volumes without or with the project. Under cumulative conditions, peak hour traffic volumes at the Silva Valley/Appian Way intersection would satisfy the peak hour traffic signal warrant.

TABLE 23: PEAK HOUR SIGNAL WARRANT EVALUATION – EXISTING PLUS PROJECT CONDITIONS

Unsignalized Intersections	Peak Hour Signal Warrant Met [1]			
	Existing Conditions		Existing + Project Conditions	
	AM	PM	AM	PM
4. Francisco Dr / El Dorado Hills Blvd	Yes	Yes	Yes	Yes
5. Silva Valley Pkwy / Appian Wy	No	No	No	No
24. Wilson Blvd / Pedregal Drwy	Does Not Exist		No	No

Note: [1] Based on the Peak Hour Volume warrant (for urban areas) contained in the *California Manual on Uniform Traffic Control Devices* (CA MUTCD), Caltrans, 2012.

Source: Fehr & Peers, 2014

TABLE 24: PEAK HOUR SIGNAL WARRANT EVALUATION – CUMULATIVE CONDITIONS

Unsignalized Intersections	Peak Hour Signal Warrant Met [1]			
	Cumulative Conditions		Cumulative + Project Conditions	
	AM	PM	AM	PM
4. Francisco Dr / El Dorado Hills Blvd	Signalized Intersection under Cumulative Conditions			
5. Silva Valley Pkwy / Appian Wy	Yes	Yes	Yes	Yes
24. Wilson Blvd / Pedregal Drwy	Does Not Exist		No	No

Note: [1] Based on the Peak Hour Volume warrant (for urban areas) contained in the *California Manual on Uniform Traffic Control Devices* (CA MUTCD), Caltrans, 2012.

Source: Fehr & Peers, 2014

This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration Manual on Uniform Traffic Control Devices (California MUTCD 2012 Edition. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. El Dorado County should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

8.3 INTERSECTION VEHICLE QUEUING EVALUATION

Tables 25 and 26 summarize estimated vehicle queues for the off ramps at the US 50/El Dorado Hills Boulevard interchange and at the two stop-controlled project access intersections on El Dorado Hills Boulevard under cumulative conditions, respectively. As shown, available and proposed storage will accommodate estimated vehicle queues. For the US 50/El Dorado Hills Boulevard interchange, these results indicate that traffic operations on El Dorado Hills Boulevard will not cause vehicles to back onto US 50 and impact freeway operations.

TABLE 25: 95th PERCENTILE FREEWAY OFF-RAMP VEHICLE QUEUES – CUMULATIVE CONDITIONS

Freeway	Available Storage	95th Percentile Queue			
		Cumulative Conditions		Cumulative + Project Conditions	
		AM	PM	AM	PM
US 50 EB off-ramp at Latrobe Road	1,680 ft	750	850	475	1,100
US 50 EB off-ramp at El Dorado Hills Boulevard	1,230 ft	–	–	–	–
US 50 WB off-ramp at El Dorado Hills Boulevard	1,300 ft	1,000	875	1,050	1,125
US 50 EB off-ramp at Silva Valley Parkway	1,470 ft	100	175	100	150
US 50 WB off-ramp at Silva Valley Parkway	1,350 ft	250	150	375	175

Note: [1] 95th percentile vehicle queue based on output from SimTraffic model. Values rounded to the nearest 25 feet. Greater queue (for either left or right movement) is reported.

Bold and underlined text indicates queue that exceeds available.

" – " No queuing reported for free movements.

Source: Fehr & Peers, 2014

TABLE 26: EL DORADO HILLS BLVD PROJECT DRIVEWAY'S 95th PERCENTILE QUEUE

Intersection	Movement	Available Storage	95th Percentile Queue (feet)			
			Existing Plus Project		Cumulative Plus Project	
			AM	PM	AM	PM
21. El Dorado Hills Blvd / Project Dwy North	NBL	100 ft	25	50	50	50
22. El Dorado Hills Blvd / Project Dwy South	SBL	100 ft	25	75	25	50

Note: [1] 95th percentile vehicle queue based on output from SimTraffic model. Values rounded to the nearest 25 feet.

Source: Fehr & Peers, 2014