# PARTIAL RECIRCULATED DRAFT EIR

# CENTRAL EL DORADO HILLS SPECIFIC PLAN

STATE CLEARINGHOUSE #2013022044

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# List of Acronyms and Abbreviations

| | |
|---|---|
| 2008 Scoping Plan | 2008 Climate Change Scoping Plan for AB 32 |
| 2014 First Update | First Update to the Assembly Bill 32 Scoping Plan |
| AB | Assembly Bill |
| AEP | Association of Environmental Professionals' |
| AP | Adopted Plan |
| APN | Assessor's Parcel Number |
| ARB | California Air Resources Board |
| BAAQMD | Bay Area Air Quality Management District's |
| BAU | business as usual |
| Beyond 2020 | Beyond 2020: The Challenges of Greenhouse Gas Reduction Planning by Local Governments in California |
| C | Commercial |
| CAA | Clean Air Act |
| CALGreen | California Green Building Standards Code |
| CAP | Climate Action Plan |
| CAPCOA | California Air Pollution Control Officers Association |
| CCAs | Community Choice Aggregations |
| CCST | California Center for Science and Technology |
| CDFW | California Department of Fish and Wildlife |
| CEC | California Energy Commission |
| CEDHSP | Central El Dorado Hills Specific Plan |
| CEQA | California Environmental Quality Act |
| $CH_4$ | methane |
| CL1-PD | Civic–Limited Commercial-Planned Development |
| C-LC | Civic-Limited Commercial |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalent |
| County | El Dorado County |
| County General Plan | El Dorado County General Plan |
| CPUC | California Public Utilities Commission |
| CSD | Community Services District |
| dB | decibels |
| DEIR | draft environmental impact report |
| du/ac | dwelling units per acre |
| E3 | Energy + Environmental Economics |
| EDCAQMD | El Dorado County Air Quality Management District |
| EDHSP | El Dorado Hills Specific Plan |
| EO | Executive Order |
| EPA | U.S. Environmental Protection Agency |

| | |
|---|---|
| ESPs | energy service providers |
| F | Fahrenheit |
| FAR | floor area ratio |
| FED | Functional Equivalent Document |
| GHG | greenhouse gas |
| HDR | High-Density Residential |
| IOUs | investor-owned utilities |
| IPCC | Intergovernmental Panel on Climate Change |
| kW | kilowatt |
| LCFS | Low Carbon Fuel Standard |
| $L_{eq}$ | equivalent sound level |
| LRVSP | Lime Rock Valley Specific Plan |
| MFR | multifamily residential |
| MPOs | metropolitan planning organizations |
| MS4 | Municipal Separate Storm Sewer Systems |
| MTP | Metropolitan Transportation Plan |
| $N_2O$ | nitrous oxide |
| NAT | no action taken |
| Newhall Ranch | Center for Biodiversity et al. v. California Department of Fish and Wildlife (S217763) |
| NOP | notice of preparation |
| NPDES | National Pollutant Discharge Elimination System |
| Order | Order No. 2013-0001-DWQ |
| OS | Open Space |
| OS1-PD | Open Space-Planned Development |
| Partial Recirculated DEIR | partial recirculated draft program environmental impact report |
| PD | Planned Development |
| PEV | plug-in electric vehicle |
| PRC | Public Resources Code |
| proposed project | proposed Central El Dorado Hills Specific Plan |
| PV | photovoltaic |
| R1 | Single-Family Residential |
| R1-PD | Single-Family Residential-Planned Development |
| R20-PD | Single-Family Residential-Planned Development |
| R4-PD | Single-Family Residential-Planned Development |
| R2-DC | Limited Multifamily Residential-Design Control |
| R4-PD | Single-Family Residential-Planned Development |
| RCEM | Road Construction Emissions Model |
| Reduction Guide | *Recommended Guidelines for Land Use Emissions Reductions* |
| Regional Water Board | Regional Water Quality Control Board |
| RF | Recreational Facilities |

| | |
|---|---|
| RFH1-PD | Recreational Facility High-Planned Development |
| RHNA | Regional Housing Needs Allocations |
| RM1-PD | CEDHSP zone districts Multifamily Residential-Planned Development |
| RM2-PD | CEDHSP zone districts Multifamily Residential-Planned Development |
| RPS | Renewables Portfolio Standard |
| RTP | regional transportation plan |
| SACOG | Sacramento Area Council of Governments |
| SANDAG | San Diego Association of Governments |
| SB | Senate Bill |
| SCS | sustainable communities strategy |
| sf | square feet |
| SMAQMD | Sacramento Metropolitan Air Quality Management District |
| State Water Board | State Water Resources Control Board |
| SWHS | solar water heating system |
| TGPA | targeted amendments to certain County General Plan policies and land use designations |
| US 50 | U.S. Highway 50 |
| USACE | U.S. Army Corps of Engineers |
| USC | United States Code |
| USFWS | U.S. Fish and Wildlife Service |
| VMT | vehicle miles traveled |
| VMVSP | Village of Marble Valley Specific Plan |
| VP | Village Park |
| VRH | Village Residential – High |
| VRL | Village Residential - Low |
| VRM-H | Village Residential Medium – High |
| VRM-L | Village Residential Medium – Low |
| ZNE | zero net energy |
| ZOU | zoning ordinance update |

# Chapter 1
# Introduction

## 1.1 Purpose of this Document

Section 15088.5 of the California Environmental Quality Act (CEQA) Guidelines provides that all or a portion of a draft environmental impact report (DEIR) shall be recirculated for public review and comment when there is a new or more severe significant impact not analyzed in the DEIR. "Recirculation" simply means that the public is provided an opportunity to comment on the new or revised sections of the DEIR. Recirculation is not required unless significant new information is being added to the DEIR. Recirculation is not required where the new information merely clarifies or amplifies or makes insignificant modifications to the DEIR.

This document is the Partial Recirculated DEIR for the Central El Dorado Hills Specific Plan (CEDHSP) (proposed project). As authorized under Section 15088.5(c), the revisions to the DEIR are limited to portions of the DEIR and therefore, only those portions are included in the Partial Recirculated DEIR. For that reason, the Partial Recirculated DEIR includes only those chapters in which changes are being made. In addition, none of the figures in the DEIR have been changed; therefore, figures are not included in the Partial Recirculated DEIR.

### 1.1.1 Reason for Recirculation

The CEDHSP DEIR (SCH #2013022044) has been partially revised to reflect the direction of the California Supreme Court regarding methods of evaluating greenhouse gas (GHG) emissions. El Dorado County (County) released the CEDHSP DEIR for a 60-day public review period on November 20, 2015 (ICF International 2015). In response to requests from the public, the County subsequently extended the review period for another 30 days, with the review period ending February 19, 2016. The CEDHSP DEIR is available at http://www.edcgov.us/Government/LongRangePlanning/ProposedSpecificPlans/Proposed_Specific_Plans.aspx.

After the CEDHSP DEIR was released for public review, the California Supreme Court decided *Center for Biodiversity et al. v. California Department of Fish and Wildlife* (62 Cal. 4th 204 [http://www.courts.ca.gov/opinions/documents/S217763.PDF]) (hereafter Newhall Ranch) on November 30, 2015, addressing the issue of how GHG analysis is to be conducted. In its decision, the Court invalidated the Newhall Ranch EIR in part because the GHG analysis incorrectly applied the "business as usual" (BAU) [1] threshold. Although the decision confirmed use of BAU and consistency with Assembly Bill (AB) 32 as a valid significance threshold under CEQA, the Court found that the Newhall Ranch EIR lacked substantial evidence in demonstrating that the Newhall Ranch project's reduction of 31% below project BAU is consistent with the AB 32 statewide goal of 29% below statewide BAU. The Court held that applying statewide BAU targets that were developed for the entire state (which consider both existing and new development) to a project-level analysis without

[1] BAU refers to an emissions inventory, typically a future year forecast, that does not assume implementation of any federal, state, or local measures designed to reduce GHG emissions.

any adjustments to isolate new development emissions or consider unique geographic conditions is misleading and not consistent with the AB 32 Scoping Plan's original design.

The Court also opined in a footnote to its decision that use of AB 32 consistency and BAU thresholds as significance criteria are valid for 2020, but post-2020 an agency needs to "consider the project's effects on meeting longer term emissions reduction targets." The topic of whether a GHG emissions analysis must conform to the 2050 reduction target (80% of 1990 emissions by 2050) expressed in Governor Schwarzenegger's Executive Order (EO) S-03-05 is currently before the California Supreme Court in the *Cleveland National Forest Foundation v. San Diego Association of Governments* (hereafter SANDAG) case.

## 1.1.2 Project Changes

No changes to the CEDHSP project are proposed. The changes to the DEIR contained in this Partial Recirculated DEIR are limited to revising the GHG emissions impact analysis in light of the Newhall Ranch decision.

## 1.1.3 Additional Environmental Analysis

### 1.1.3.1 Greenhouse Gas

The CEDHSP DEIR analyzed operational GHG emissions impacts based on a no action taken (NAT) or BAU threshold, which was based on the statewide AB 32 goals, as adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD) and recommended by the El Dorado County Air Quality Management District (EDCAQMD) staff. To address any potential deficiency in light of the Court's holding in the Newhall Ranch decision, this Partial Recirculated DEIR presents a revised GHG analysis for 2020 using a combination of bright-line and efficiency-based thresholds.[2] Given the recent legislative attention and judicial action regarding post-2020 goals and the scientific evidence that additional GHG reductions are needed through 2050 to stabilize carbon dioxide ($CO_2$) concentrations, this document also analyzes full build (2035)[3] GHG impacts in terms of whether the proposed project would impede progress toward meeting the reduction targets identified in EO B-30-15 (setting a state agency goal of GHG reduction of 40% below 1990 levels by 2030) and EO S-03-05 (setting a state agency goal of GHG reduction of 80% below 1990 levels by 2050). This Partial Recirculated DEIR presents this analysis in a new section intended to entirely replace Chapter 3.6, *Greenhouse Gas Emissions*, which was in the CEDHSP DEIR circulated in November 2015.

Additionally, this Partial Recirculated DEIR makes revisions to Chapter 4, *Alternatives Analysis,* and Chapter 5, *Other CEQA Considerations*, which included information pertaining to GHGs All changes to Chapters 4 and 5 concerning the GHG analysis since the DEIR was published are shown in underline (new text) and strikeout (deleted text) format.

[2] A bright-line threshold establishes a numeric GHG emissions limit (e.g., 1,100 metric tons carbon dioxide equivalent [$CO_2e$]) based on a regional gap analysis that is tied to the AB 32 statewide GHG reduction goal. An efficiency-based threshold establishes the rate of emission reductions a project must achieve on a per service population basis to achieve its fair share of California's GHG emissions reduction target established under AB 32.

[3] For purposes of the environmental analysis, the proposed project is assumed to be fully constructed and occupied by 2035. However, as noted in Section 2.3.4 in the project description, buildout of the project would ultimately be dictated by housing market conditions.

# 1.2 Organization of the Document and Summary of Changes

The Partial Recirculated DEIR includes the following sections:

Chapter 1. *Introduction*. This chapter discusses the purpose of this Partial Recirculated DEIR, summarizes the revisions being made to the CEDHSP DEIR, the public review process, and use of this document.

Chapter 2, *Project Description*. This contains the Project Description from the CEDHSP DEIR with no revisions. This information is provided to assist in the review of the Partial Recirculated DEIR.

*New* Chapter 3.6, *Greenhouse Gas Emissions*. This new section replaces the previous Section 3.6 in its entirety and contains the analysis and discussion of GHG emissions using a combination of a bright-line threshold and efficiency metric per service population to determine the significance of GHG emissions in 2020 and at full build (2035).

*Revised* Chapter 4, *Alternatives Analysis*. This chapter includes a revised discussion of GHG impacts for each of the alternatives. No new alternatives are included and discussions of other resources under Section 4.3, *Alternatives Analysis*, are not revised. Proposed additions are shown in <u>underline</u>; any deletions are shown in ~~strikeout~~. The subsections under Section 4.3 that are unchanged are identified by the bracketed phrase: [No changes from November 2015 Draft EIR.].

*Revised* Chapter 5, *Other CEQA Considerations*. This contains excerpts from the DEIR's Other CEQA Considerations chapter containing revised discussions of cumulative GHG emissions impacts. Proposed additions are shown in <u>underline</u>; any deletions are shown in ~~strikeout~~. The remainder of the chapter is unchanged and its text is not included here. The subsections under Section 5.2.2 that are unchanged are identified by the bracketed phrase: [No changes from November 2015 Draft EIR.].

*Revised* Chapter 7*, References*. This includes new references cited in the Partial Recirculated DEIR that are not included in Chapter 7, *References*, of the DEIR.

*Appendices*. Three appendices are provided. Appendix C provides revised GHG model outputs and calculations and replaces the previous Appendix C. Appendices K and L contain no revisions, but are referred to in text and provided for reference.

# 1.3 Public Review Process

The Partial Recirculated DEIR will be available for a 45-day public review period, from April 22, 2016 through June 6, 2016. The Partial Recirculated DEIR was circulated to state agencies for review through the State Clearinghouse of the Governor's Office of Planning and Research. Copies of the Partial Recirculated DEIR are available for public review on the County's website (http://www.edcgov.us/LongRangePlanning/ProposedSpecificPlans/ Proposed_Specific_Plans.aspx); at the El Dorado Hills Library, 7455 Silva Valley Parkway, El Dorado

Hills; the Placerville Library, 345 Fair Lane, Placerville; and during normal business hours at the public counter at the Community Development Agency, 2850 Fairlane Court, Building C, Placerville.

Written comments can be submitted by mail to:

Mr. Rommel (Mel) Pabalinas
El Dorado County Community Development Agency–Long Range Planning Division
2850 Fairlane Court, Building C
Placerville, CA 95667

Written comments can be submitted by email to: CEDHSP@edcgov.us.

### 1.3.1 Limitation on Comments

State CEQA Guidelines Section 15088.5(f)(2) states that:

> When the EIR is revised only in part and the lead agency is recirculating only the revised chapters or portions of the EIR, the lead agency may request that reviewers limit their comments to the revised chapters or portions of the recirculated EIR. The lead agency need only respond to (i) comments received during the initial circulation period that relate to chapters or portions of the document that were not revised and recirculated, and (ii) comments received during the recirculation period that relate to the chapters or portions of the earlier EIR that were revised and recirculated. The lead agency's request that reviewers limit the scope of their comments shall be included either within the text of the revised EIR or by an attachment to the revised EIR.

In keeping with this provision, **El Dorado County requests that commenters limit their written comments to the revisions and new material presented in the Partial Recirculated DEIR, which consists of Chapter 3.6, Greenhouse Gas Emissions, Chapter 4.0, Alternatives Analysis, Chapter 5.0, Other CEQA Considerations, and Chapter 7.0, Reference Cited**. The Final EIR will include written responses to the comments submitted on the portions of the previously circulated DEIR that have not been recirculated, as well as the comments received on the Partial Recirculated DEIR.

## 1.4 Use of this Document

The Partial Recirculated DEIR will be combined with the previously circulated DEIR as part of the Final EIR. The Final EIR will also include the comments received on the un-recirculated portions of the DEIR and the Partial Recirculated DEIR, along with written responses to those comments. Chapter 3.6, *Greenhouse Gas Emissions*, of the Partial Recirculated DEIR will replace the corresponding chapter in the DEIR in total.

The Board of Supervisors will certify the Final EIR prior to completing its deliberations on the project. If it approves the project, then the Board will adopt the findings, statement of overriding considerations, and mitigation monitoring and reporting program that are required by CEQA.

**The Partial Recirculated DEIR is not the Final EIR.** The Final EIR will include other revisions and clarifications in response to the comments received on the DEIR and the Partial Recirculated DEIR, or as needed to otherwise clarify the Final EIR.

# Chapter 2
# **Project Description**

*This chapter is provided for information purposes only to assist the reader in understanding the revised greenhouse gas (GHG) analysis; no changes have been made.*

The proposed Central El Dorado Hills Specific Plan (CEDHSP) (proposed project), features a variety of residential types supported by civic–limited commercial and recreational uses accessible to the public. The proposed project would be developed in multiple phases with full build-out anticipated in 2025 or later. This chapter describes the project setting and project objectives; provides an overview of the proposed project entitlements, land use plan, and project features; and identifies the approvals required to implement the proposed project.

A specific plan is defined as a tool for the systematic implementation of the general plan. It establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. The CEDHSP includes goals, objectives, policies, development standards, and design guidelines that will help guide the development and build-out of the plan area.[4]

The Central El Dorado Hills Specific Plan Public Review Draft is available on the County's website http://www.edcgov.us/Government/LongRangePlanning/ProposedSpecificPlans/Proposed_Specific_Plans.aspx, at the El Dorado County library in El Dorado Hills, and at the public counter at the Community Development Agency, 2850 Fairlane Court, Building C, Placerville. The CEDSHP provides the basis for the County's consideration of all subsequent discretionary and ministerial project approvals and entitlements in the proposed project area. The CEDHSP, in conjunction with the elements of the County Code and other relevant requirements, will govern the design of the CEDHSP's subdivisions, including the size of lots and types of improvements that will be required as conditions of approval. To move forward with a particular CEDHSP project, the County will require full compliance with the CEDHSP policies and development standards; the EIR mitigation measures; applicable chapters of the County Code; and other County standards, policies, and regulations. Processing of individual development applications will be subject to review and approval by the County.

## 2.1 Project Setting

The proposed project site is in El Dorado Hills, California, an unincorporated area of El Dorado County (County) that is approximately 29 miles northeast of downtown Sacramento and 17 miles west of Placerville and considered part of the larger Sacramento Metropolitan Area. El Dorado Hills consists of a number of smaller community developments and has a mix of low-density, large residential lots; high-density, multifamily residential housing; open space; and commercial and retail uses. Figure 2-1 shows the regional location of the proposed project.

[4] The Central El Dorado Hills Specific Plan Public Review Draft is available on the County's website http://www.edcgov.us/LongRangePlanning/ProposedSpecificPlans/Proposed_Specific_Plans.aspx, at the El Dorado County library in El Dorado Hills, and at the public counter at the Community Development Agency, 2850 Fairlane Court, Building C, Placerville.

## 2.1.1 Location

Generally, land uses within the El Dorado Hills community are governed by different specific plans such as the Promontory Specific Plan, the Valley View Specific Plan, or the El Dorado Hills Specific Plan (EDHSP). The proposed project site covers 341 acres within and immediately adjacent to the EDHSP area, north of U.S. Highway 50 (US 50), south of Green Valley Road and Folsom Lake, east of El Dorado Hills Boulevard and the Sacramento–El Dorado County line, and west of Bass Lake Road (El Dorado County Community Development Department 1987:Figure 3).

The proposed project includes two planning areas (Figure 2-2). The proposed Serrano Westside planning area is east of the El Dorado Hills Boulevard and Serrano Parkway intersection. The proposed Pedregal planning area is west of El Dorado Hills Boulevard between Wilson Boulevard and Olson Lane, adjacent to the Ridgeview subdivision.

The proposed project also includes rezoning Serrano Village D-1, Lots C and D, which are part of the approved EDHSP area, to Open Space, thereby relocating 135 planned housing units (EDHSP-vested density at Serrano Village D-1, Lots C and D; File numbers TM08-1483 and TM 08-1484) from the EDHSP area to the Serrano Westside planning area. The existing Lots C and D of Village D-1 are immediately east of, and adjacent to, the Serrano Westside planning area. All of Lot C and all of Lot D, which are currently part of the EDHSP area, would become part of the Serrano Westside planning area.

## 2.1.2 Existing Conditions and Land Uses

The two planning areas are primarily undeveloped with differing existing uses, elevations, and vegetation. The Serrano Westside planning area comprises 141.67 acres within the EDHSP. The remaining portion of the Serrano Westside planning area and the Pedregal planning area are outside of the EDHSP. However, both planning areas lie within the established Community Region of El Dorado Hills, which is an *El Dorado County General Plan* (2004) (County General Plan) designation that denotes the geographic areas in the county with suitable infrastructure and the ability to support higher-intensity land uses. Table 2-1 summarizes the Assessor's Parcel Number (APN), land uses, and zoning. A description of the existing land uses and zoning designations of each planning area is provided below. Figure 2-3 identifies the existing conditions in the vicinity of the Serrano Westside and Pedregal planning areas.

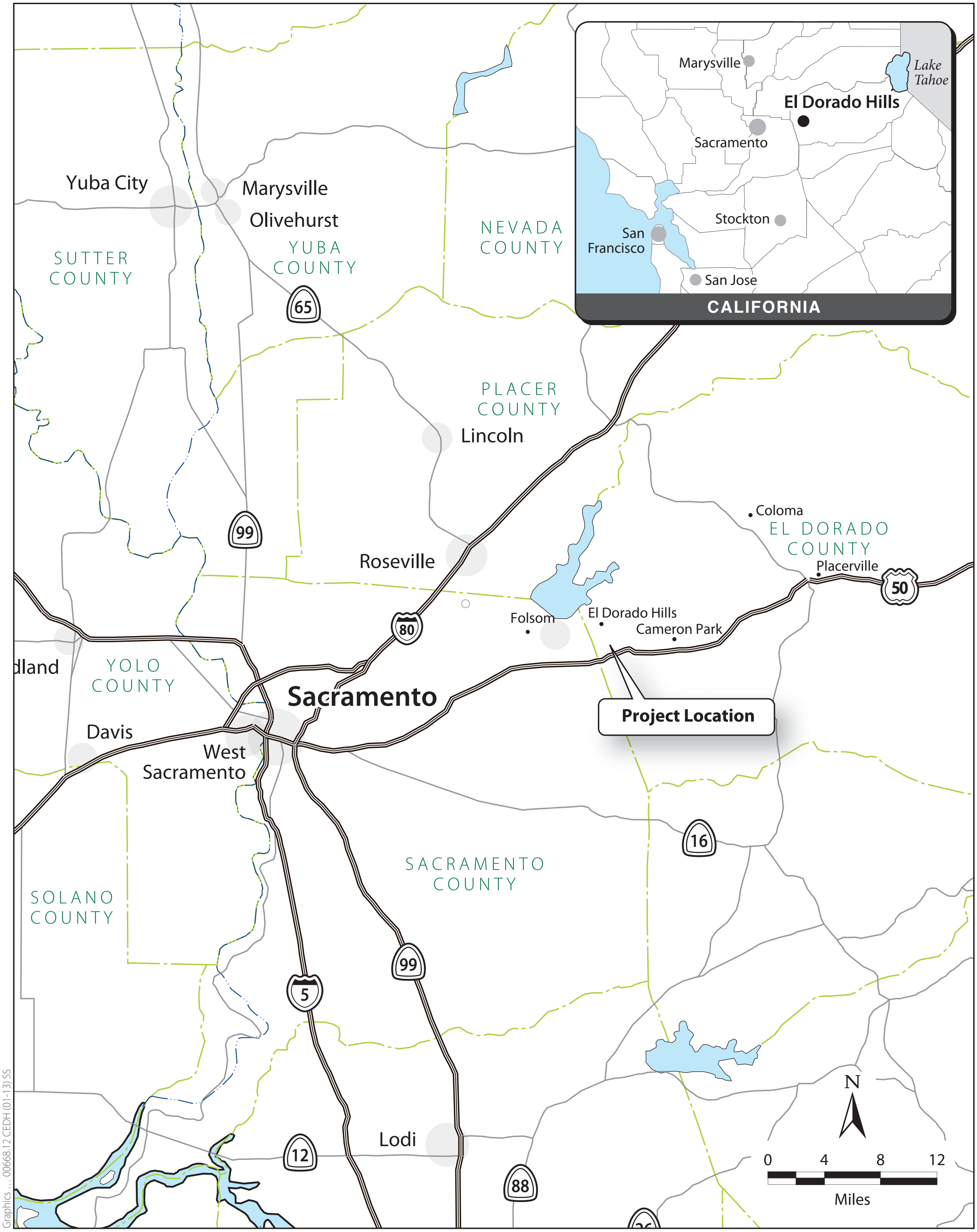

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**Figure 2-1**
**Regional Location**


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**Figure 2-2**
**Project Location**

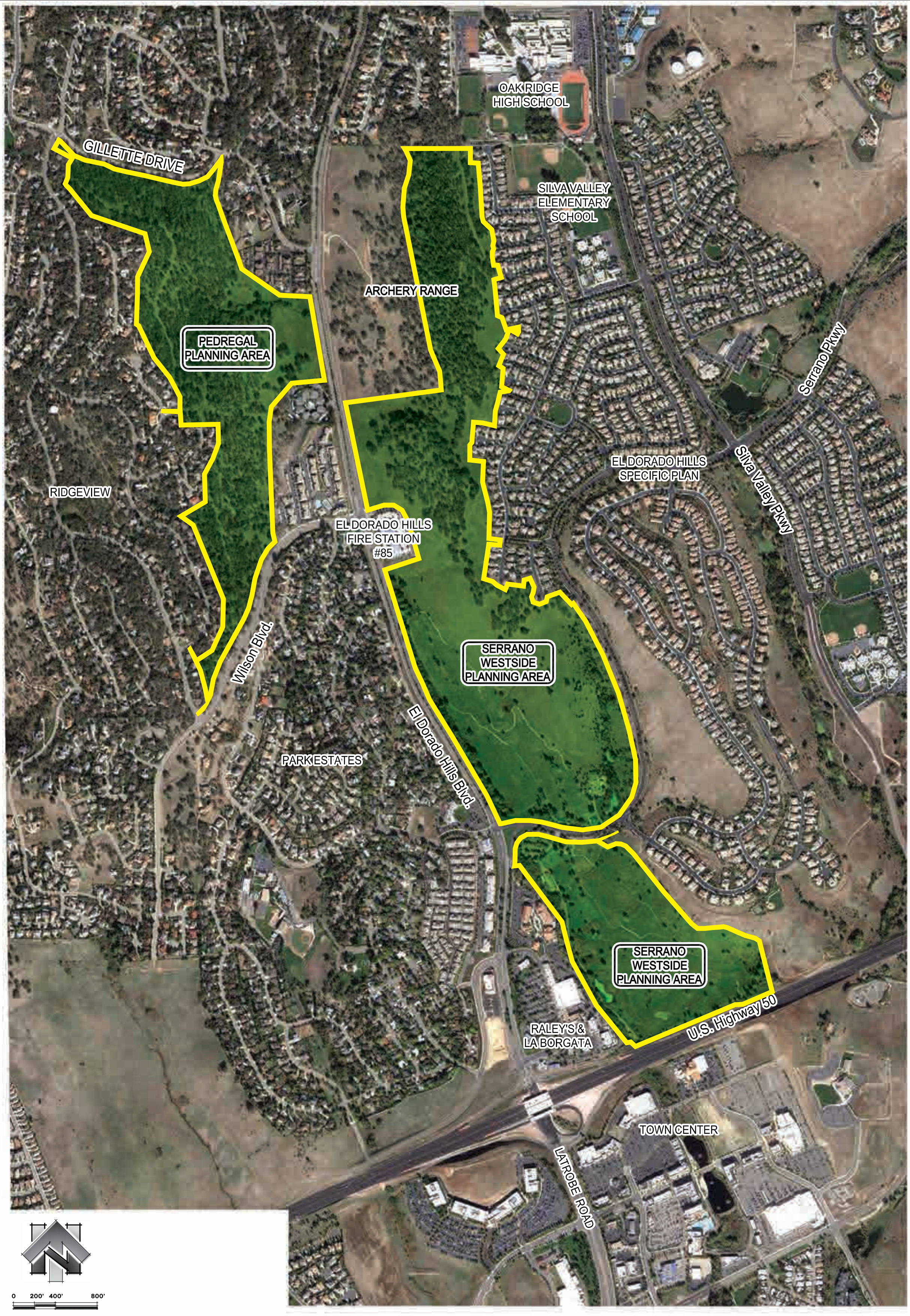


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**Figure 2-3**
**Existing Conditions**

**Table 2-1. Existing Land Use Designations and Zoning**

| Assessor's Parcel No. | Area (acres) | Land Use | Zoning | Max No. Units |
|---|---|---|---|---|
| **Serrano Westside Planning Area** | | | | |
| 121-160-05 | 98 | OS & C | RF | 0 |
| 121-040-20 | 64 | AP | R1-PD | 65 |
| 121-040-29 | 15 | AP | R1-PD | 70 |
| 121-040-31 | 57 | AP | OS | 0 |
| 121-120-24 (portion) | 5 | AP | OS | 0 |
| Subtotal | 239 | | | 135 |
| **Pedregal Planning Area** | | | | |
| 120-050-01 | 69 | HDR | R1 | 345 |
| | 6 | MFR | R2-DC | 144 |
| 120-050-05 | 27 | HDR | R1 | 135 |
| Subtotal | 102 | | | 624 |
| **Total** | **341** | | | **759** |

**General Plan Land Use**
OS = Open Space.
C = Commercial.
AP = Adopted Plan.
HDR = High-Density Residential.
MFR = Multifamily Residential.

**Zoning**
RF = Recreational Facilities.
R1-PD = Single-Family Residential-Planned Development.
OS = Open Space.
R1 = Single-Family Residential.
R2-DC = Limited Multifamily Residential-Design Control.
PD = Planned Development Combining Zone.
DC = Design Control Overlay Zone.

### 2.1.2.1 Serrano Westside Planning Area

The Serrano Westside planning area is 239 acres, consisting of the former El Dorado Hills Executive Golf Course, (approximately 30%) and oak savannah and annual grasslands (the remaining 70%). The elevation ranges from approximately 600 to 1,020 feet above mean sea level. The majority of the former golf course is not actively mowed or irrigated; however, small portions around the driving range and 18th green are currently mowed and irrigated. The former fairways, tees, and greens are made up of Bermuda grass and bluegrass. Introduced tree species are scattered throughout the golf course and include valley oak, blue oak, olive, willows, and cottonwoods. This area includes the following APNs: 121-160-05; 121-040-20, -29, and -31; and a portion of 121-120-24. The land use designations, as identified by the County General Plan, are Open Space (OS), Commercial (C), and Adopted Plan (AP) associated with the EDHSP. The OS land use designation can be used to designate public lands under governmental title (e.g., County, State Parks), where no development other than that specifically needed for government-related open spaces is desired. It may also be used on private lands to maintain natural features within clustered development where a general plan amendment is processed. The C land use designation provides a full range of commercial retail, office, and service uses to the residents, businesses, and visitors of El Dorado County. Mixed-use development of commercial lands within Community Regions and Rural Centers, which each combine commercial and residential uses, can be permitted. The AP land use designation recognizes areas for which specific land use plans have been prepared and adopted (i.e., EDHSP). These plans are accepted and incorporated by this reference, and the respective land use map associated with each such plan is adopted as the general plan map for the area. The existing zoning of the Serrano Westside planning area is Recreational Facilities (RF), Single-Family Residential-Planned Development (R1-PD), and OS.

#### Village D-1, Lots C and D

Lots C and D of Serrano Village D-1 consist of undeveloped vacant land with a diverse mix of native (e.g., oak trees) and nonnative vegetation (e.g., grasses). Lot C is approximately 64 acres with the residential area consisting of approximately 32 acres and Lot D is approximately 17 acres. Lot C APNs include 121-040-20 and -31, and Lot D includes APNs 121-040-29, -31, and -20. Currently, the zoning of Lots C and D is R1-PD. The applicant submitted tentative subdivision map applications to the County in November 2008 (TM 08-1483 and TM 08-1484), and the County deemed them complete for processing on December 1, 2008. Approximately 5.7 acres of Lots C and D are zoned OS and are within the EDHSP area, but entitled for residential development.

### 2.1.2.2 Pedregal Planning Area

The Pedregal planning area consists of oak savannah on steep terrain ranging in elevation from approximately 740 to 1,060 feet above mean sea level. The area is approximately 102 acres. Tree species onsite include blue oak, interior live oak, California buckeye, and gray pine. This area includes APNs 120-050-01 and -05. The land use designations, as identified by the County General Plan, are High-Density Residential (HDR) and Multifamily Residential (MFR). The HDR land use designation identifies those areas suitable for intensive single-family residential development at densities from one to five dwelling units per acre (du/ac). Allowable residential structure types include single-family attached. The MFR land use designation identifies those areas suitable for high-density, multifamily structures such as apartments or condominiums, single-family attached dwelling units, and multiplexes. Mobile home parks, as well as existing and proposed manufactured home parks, are also permitted. The existing zoning of this area is Single-Family Residential (R1) and Limited Multifamily Residential-Design Control (R2-DC).

## 2.1.3 Surrounding Land Uses

The Serrano Westside planning area is adjacent to existing office and retail uses to the south and west (Raley's and La Borgata), and existing residential uses to the east (the Serrano Community) (Figure 2-3). The proposed Serrano Westside development would surround the El Dorado Hills Fire Station (on Wilson Boulevard off of El Dorado Hills Boulevard) to the north, east, and south. To the north and northeast are undeveloped land, an archery range, and two schools (Oak Ridge High School and Silva Valley Elementary School). The Serrano Westside planning area is immediately north of US 50 and less than 2 miles south of Folsom Lake.

The Pedregal planning area is immediately adjacent to high-density residential uses (the existing Ridgeview neighborhood) to the west and three existing multifamily projects (the Copper Hill Apartments, Sterling Ranch Apartments, and El Dorado Village Apartments) along El Dorado Hills

Boulevard to the east (Figure 2-3). Pedregal is less than 1 mile north of US 50 and less than 2 miles south of Folsom Lake.

# 2.2 Project Objectives

El Dorado County's (County's) primary objective for the proposed project is to create development patterns that make the most efficient and feasible use of existing infrastructure and public services while promoting a sense of community as envisioned by the County General Plan. There are an additional 15 objectives of the proposed project, as follows.

- ***Fulfill regional land use objectives by achieving Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) Consistency.*** Establish new development that fulfills regional land use objectives by directing growth to the established community of El Dorado Hills and achieving consistency with The Sacramento Area Council of Governments' (SACOG's) adopted 2035 MTP/SCS.

- ***Curtail suburban sprawl.*** Curtail suburban sprawl (County General Plan Goal 2.1) by utilizing undeveloped infill sites and promoting mixed-use development patterns to accommodate the County's future population growth and support economic expansion.

- ***Assist in meeting future Regional Housing Needs Allocations (RHNA) needs.*** Assist in meeting the County's RHNA for the 2022–2030 Housing Element Update by introducing new lands zoned multifamily.

- ***Broaden the housing stock in El Dorado Hills.*** Maximize opportunities for higher-density housing as an alternative to single-family detached dwellings. Offer land uses to accommodate various lot sizes, densities, and product types to satisfy the market demands of existing and future household types, sizes, and income levels (County General Plan Goal HO-1), including the senior population (County General Plan Goal HO-4).

- ***Provide a strong community identity and quality built environment.*** Establish a community setting with an identifiable character and a visually attractive design theme that is compatible with the surrounding area and contributes to the quality of life and economic health (County General Plan Goal 2.4). Carefully plan and incorporate visual elements that enhance and promote a sense of community (County General Plan Goal 2.5) and provide quality residential environments for all income levels (County General Plan Goal HO-2).

- ***Utilize existing infrastructure and public services.*** Promote compact land use patterns in Community Regions to maximize existing public services, such as water, wastewater, parks, schools, solid waste, fire protection, law enforcement, and libraries, thus accommodating new growth in an efficient manner (County General Plan Goal 5.1).

- ***Improve connectivity of the regional roadway network.*** Provide an opportunity for the County to expand its regional roadway network and improve parallel capacity to US 50.

- ***Encourage future transit opportunities.*** Locate development in the El Dorado Hills Community Region within walking distance of El Dorado Hills Boulevard to improve the feasibility of future transit services, thus reducing traffic congestion and offer alternative transportation choices to a range of users (County General Plan Goal TC-2).

- ***Create a new non-motorized transportation system.*** Create a new non-motorized transportation system (County General Plan Goal TC-4) linking new development to existing retail services. Incorporate Class I bike paths, "complete streets" with Class II bike lanes, and sidewalks in new development to promote alternative transportation modes and reduce vehicle miles traveled.
- ***Improve north-south pedestrian and bicycle connectivity.*** Reduce barriers to pedestrians created by US 50 and improve access between the north and south sides of the freeway and improve pedestrian and bicycle safety.
- ***Provide opportunities for recreational facilities in El Dorado Hills.*** Provide recreational facilities for the health and welfare of residents and visitors (County General Plan Goal 9.1), thus promoting opportunities to capitalize on recreational uses through tourism and recreational-based businesses and industries (County General Plan Goal 9.3).
- ***Maintain characteristics of natural landscape.*** Maintain natural landscape features, including ridgelines (County General Plan Goal 2.3), conserve existing natural resources for ecological value (County General Plan Goal 7.4), and conserve open space to provide for the enjoyment of scenic beauty (County General Plan Goal 7.6).
- ***Minimize impacts on oak woodlands.*** Minimize impacts on the oak woodlands by directing new development to areas with minimal or little oak canopy.
- ***Protect important cultural resources.*** Protect the County's important cultural resources (County General Plan Goal 7.5), including significant pre-historic and Native American resources and unique historical features of the County's Gold Rush history.
- ***Foster sustainable communities.*** Foster sustainable communities (County General Plan Goal 2.1) by utilizing sustainable design practices to reduce greenhouse gas emissions, and increase the efficiency of energy and water use in new development (County General Plan Goal HO-5).

# 2.3 Project Overview

The proposed project would provide for development of up to 1,000 dwelling units, 11 acres of civic–limited commercial use (50,000 square feet of commercial use), 15 acres of community active park, a 1-acre neighborhood park, and 169 acres of open space (168 acres of natural open space and a 1-acre neighborhood park) in the center of the El Dorado Hills community. As mentioned in Section 2.1.2, *Existing Conditions and Land Uses*, the proposed project consists of two planning areas.

- The Serrano Westside planning area would complement the existing Serrano development with gated residential neighborhoods and would include civic or commercial and community park development.
- The Pedregal planning area would have residential neighborhoods, which may or may not be gated.

## 2.3.1 Project Entitlements

The proposed project includes an amendment to the existing EDHSP to transfer the density from Serrano Village D-1, Lots C and D to the Serrano Westside planning area, and to reduce the density and development of the Pedregal planning area as currently provided for in the County General Plan. Specifically, the entitlements that would be required to implement the CEDHSP include: amendments to the EDHSP and County General Plan, adoption and implementation of the CEDHSP, and rezoning. These entitlements are requested under application SP12-0002. A separate application for a Development Agreement for the proposed project is filed under application DA14-0003. Applications have also been filed for a General Plan Amendment (A14-0003), a Rezone (Z14-0005), Planned Development (PD 14-0004), and a Large Lot Tentative Subdivision Map (TM14-1516).

### 2.3.1.1 El Dorado County General Plan Amendments

The proposed project would include the following general plan amendments.

- Amend the County General Plan Land Use Map designation of subject lands within CEDHSP from HDR (1–5 du/ac), MFR (5–24 du/ac), C, OS, and AP-EDHSP to AP-CEDHSP and CEDHSP land use designations Village Residential – Low (VRL) (<1.0 du/ac), Village Residential – High (VRH) (14–24 du/ac, average 18.3 du/ac), Village Residential Medium – High (VRM-H) (8–14 du/ac, average 8.3 du/ac), Village Residential Medium – Low (VRM-L) (5–8 du/ac, average 5.3 du/ac), Civic–Limited Commercial (C-LC), OS, and Village Park (VP). See Table 2-2.
- Amend the County General Plan Land Use Map designation of transferred lands within AP-EDHSP as OS.

### 2.3.1.2 El Dorado Hills Specific Plan Amendments

The proposed project would amend the EDHSP as follows.

- Transfer a total of 141.67 acres (currently Village D-1, Lots C and D [File numbers TM08-1483 and TM 08-1484, deemed complete December 1, 2008] and a portion of open space by Village D2) and associated EDHSP-vested density affecting portions of APN 121-040-20, 121-040-29, 121-040-31, and 121-120-24 from the EDHSP area to the CEDHSP area.
- Transfer a total of 0.47 acres affecting a portion of APN 121-160-05 from the former Executive Golf Course area to the EDHSP area.

### 2.3.1.3 Rezoning

The proposed project would include the following rezoning.

- Amend zone districts from R1, R1-PD, R2-DC, RF, and OS to CEDHSP zone districts Multifamily Residential-Planned Development (RM1-PD, RM2-PD), Single-Family Residential-Planned Development (R20-PD, R4-PD), Civic–Limited Commercial-Planned Development (CL1-PD), Recreational Facility High-Planned Development (RFH1-PD), and Open Space-Planned Development (OS1-PD). Table 2-3 summarizes the definitions of densities per residential zoning.
- Amend zone district of transferred lands within AP-EDHSP as OS.

### 2.3.1.4 Central El Dorado Hills Specific Plan

The CEDHSP would develop a 341-acre project site consisting of 1,000 dwelling units, 11 acres of civic–limited commercial use (50,000 square feet of commercial use), 15 acres of Village Park (VP), 1 acre of neighborhood park, and 168 acres of natural open space.

## 2.3.2 Proposed Land Use Plan

The proposed project would establish the CEDHSP, which proposes the land uses provided in Table 2-2. Figures 2-4a and 2-4b show the specific plan amendments and the land use designations in the Serrano Westside and the Pedregal planning areas.

**Table 2-2. Proposed Land Use Summary (acres)**

| Land Use | Serrano Westside (percent of total area) | Pedregal (percent of total area) | Residential Units Total | Commercial Area (square feet) |
|---|---|---|---|---|
| **Residential** | | | | |
| VRL—Village Residential – Low (<1.0 average du/ac) | – | 45 (13) | 37 | – |
| VRM-L—Village Residential Medium – Low (5–8 du/ac, average 5.3 du/ac) | 23 (7) | – | 123 | – |
| VRM-H—Village Residential Medium – High (8–14 du/ac, average 8.3 du/ac) | 37 (11) | – | 310 | – |
| VRH—Village Residential – High (14–24 du/ac, average 18.3 du/ac) | 16 (5) | 13 (4) | 530 | – |
| **Civic–Limited Commercial** | | | | |
| C-LC—Civic–Limited Commercial | 11 (3) | – | – | 50,000 |
| **Public Facilities** | | | | |
| VP—Village Park[a] | 15 (4) | – | – | – |
| **Open Space** | | | | |
| OS—Open Space | 130[b] (38) | 39 (12) | – | – |
| Roads and Landscaped Lots | 7 (2) | 5 (1) | – | – |
| **Total** | **239 (70)** | **102 (30)** | **1,000** | **50,000** |

Source: Serrano Associates, LLC 2015.

du/ac = dwelling unit per acre.

– = no acres.

[a] Formal developed active park to be maintained by the El Dorado Hills Community Services District (CSD).

[b] Includes a 1.2-acre neighborhood park.

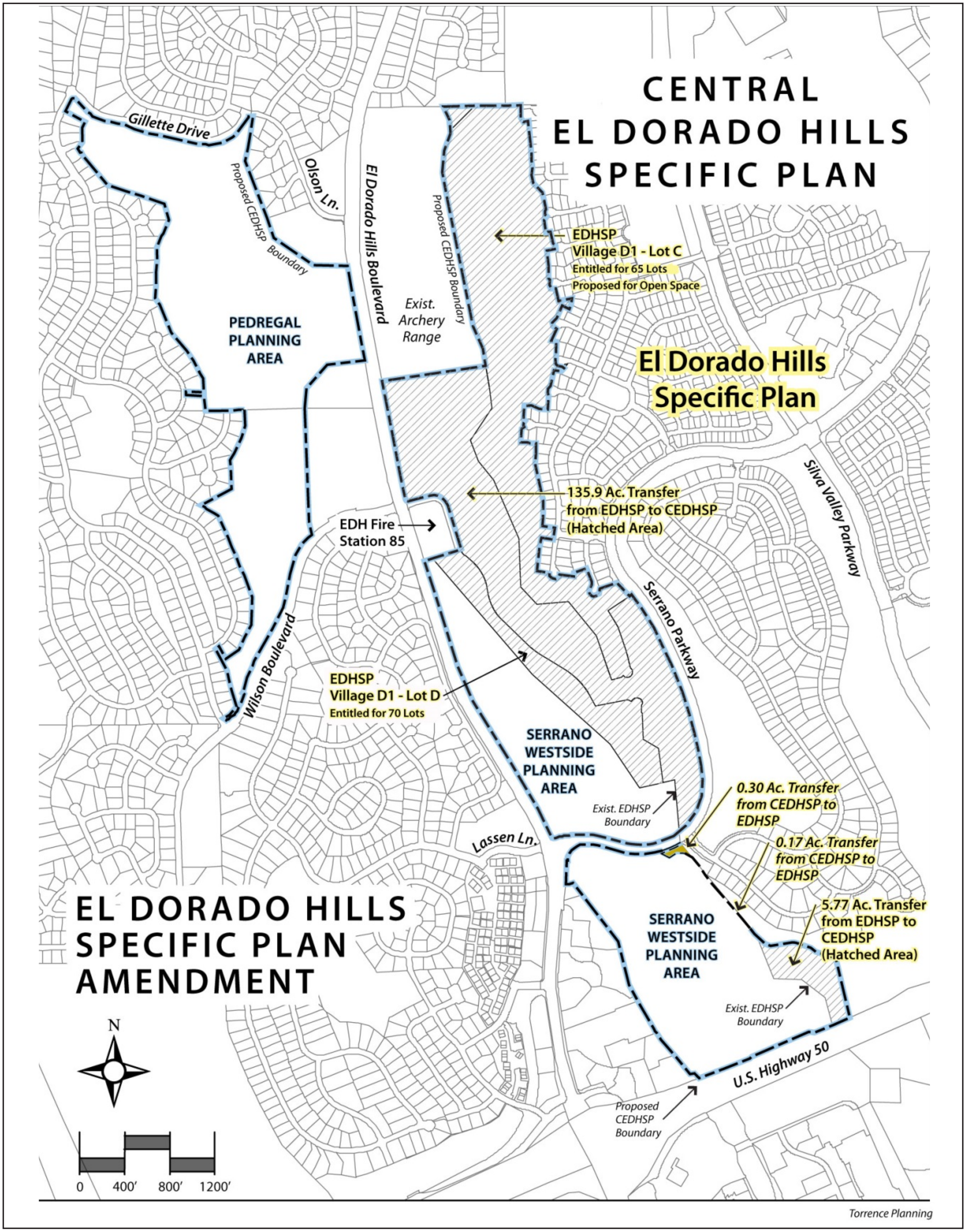


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**Figure 2-4a**
**Proposed Specific Plan Amendments**

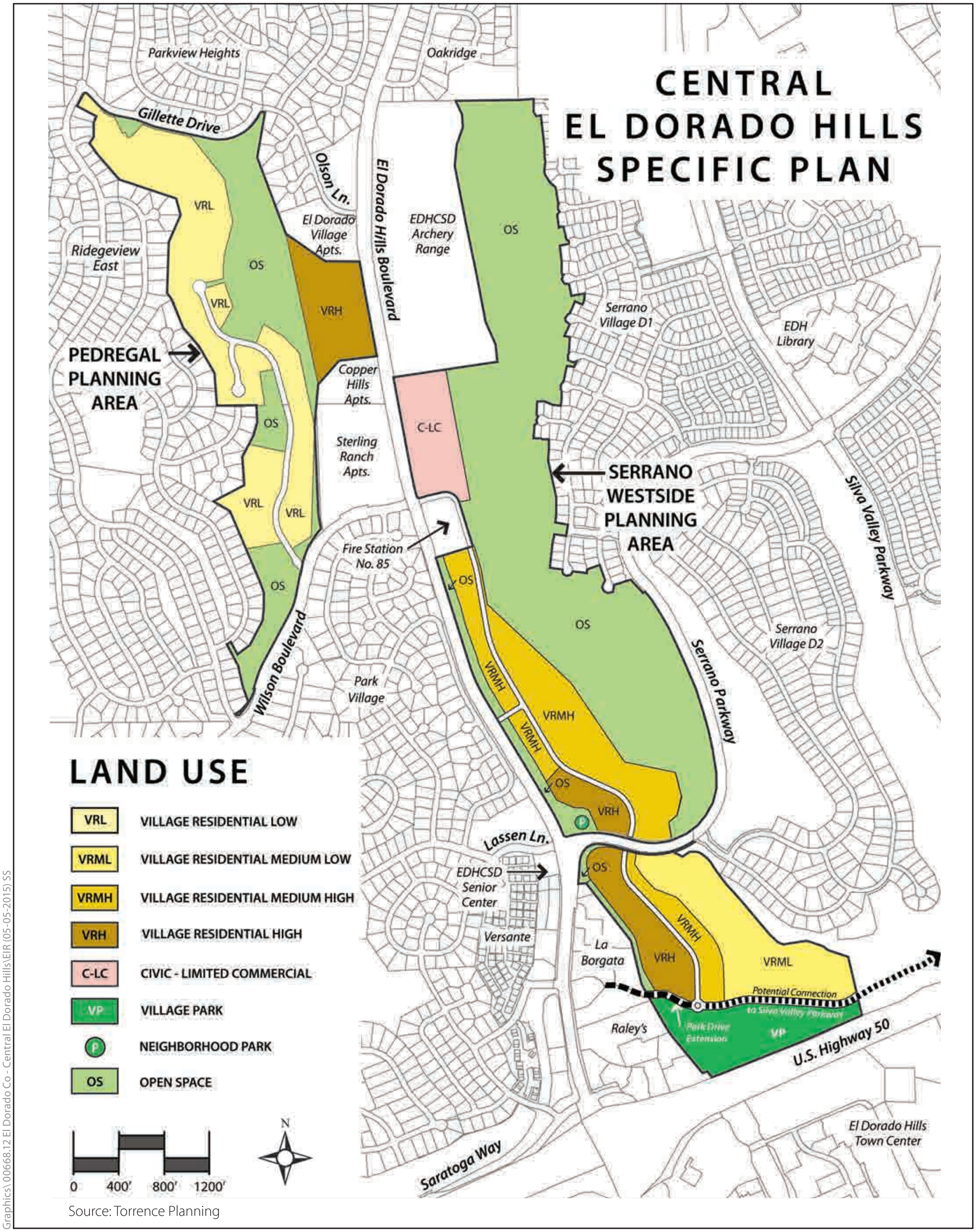


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**Figure 2-4b**
**Proposed Land Use Designations**

As part of the proposed project, rezoning would be required for the two new planning areas. In addition, existing Lots C and D of Village D-1 would need to be rezoned to correctly capture their undeveloped open space use. Table 2-3 shows the proposed zoning of the two planning areas. Figure 2-4c shows the location of the proposed zoning for the Serrano Westside and the Pedregal planning areas.

**Table 2-3. Proposed Zoning Summary (acres)**

| Zoning Designations | Serrano Westside (percent of total area) | Pedregal (percent of total area) | Residential Units Total | Commercial Area (square feet) |
|---|---|---|---|---|
| **Residential** | | | | |
| R20-PD (<1 du/ac) | – | 45 (13) | 37 | – |
| R-4 (5–8 du/ac, average 5.3 du/ac) | 23 (7) | – | 123 | – |
| RM1-PD (8–14 du/ac, average 8.3 du/ac) | 37 (11) | – | 310 | – |
| RM2-PD (14–24 du/ac, average 18.3 du/ac) | 16 (5) | 13 (4) | 530 | – |
| **Civic** | | | | |
| CL1-PD | 11 (3) | – | – | 50,000 |
| **Public Facilities** | | | | |
| RFH1-PD | 15 (4) | – | – | – |
| **Open Space** | | | | |
| OS1-PD (Private Open Space) | 130 (38) | 39 (12) | – | – |
| Roads and Landscaped Lots | 7 (2) | 5 (1) | – | – |
| **Total** | **239 (70)** | **102 (30)** | **1,000** | **50,000** |

Source: Serrano Associates, LLC 2015.

du/ac = dwelling unit/acre.
– = no acres.
PD = Planned Development Combining Zone.
R20-PD = Village Residential – Low (<1 du/ac).
R4-PD = Village Residential Medium – Low (5–8 du/ac).
RM1-PD = Village Residential – Medium – High (8–14 du/ac).
RM2-PD = Village Residential – High (14–24 du/ac).
CL1-PD = Civic–Limited Commercial-Planned Development.
RFH1-PD = Recreational Facilities High-Planned Development.
OS1-PD = Open Space-Planned Development.

### 2.3.2.1 Large Lot Tentative Subdivision Map

The applicant submitted an application for a large lot tentative subdivision map that would divide the 341-acre project site into five separate lots (TM14-1516). Lots 1 and 2 would be the Pedregal planning area, and Lots 3 and 4 would be in the Serrano Westside planning area. Lot 5 would be a portion of the El Dorado Hills Specific Plan. Figure 2-5 shows the locations of the lots. The purpose of the large lot map is to facilitate the sale, lease, and financing of the project area. The County will not issue any building permit for any large lot until the corresponding small lot final subdivision map has been approved and recorded.

## 2.3.3 Project Features

The CEDHSP proposes the development of up to 1,000 dwelling units, 11 acres of civic–limited commercial use (50,000 square feet of commercial use), 15 acres of Village Park (VP), 169 acres[5] of open space (168 acres of natural open space and a 1-acre neighborhood park) within the 341-acre CEDHSP area. The CEDHSP area would be served by open space and active recreational opportunities, including a bike trail network that would connect to and enhance existing trails in the immediate area. The proposed project's circulation system would enhance existing circulation in El Dorado Hills by providing a direct connection from El Dorado Hills Boulevard to the Serrano Westside planning area, with a potential connection to Silva Valley Parkway. The development would be anchored by daily retail and public services within walking distance to the site, including the Raley's shopping center, La Borgata, The Shops, Town Center, El Dorado Hills Fire Station #85, El Dorado Hills Senior Center, and several schools within the Buckeye Union School District.

### 2.3.3.1 Vehicle Circulation Plan

The preliminary vehicle circulation plan for both planning areas is shown in Figure 2-6. The Serrano Westside planning area would provide a direct public connection between El Dorado Hills Boulevard and the Serrano Westside planning area, with a potential connection to Silva Valley Parkway (parallel to US 50). The new roadway from El Dorado Hills Boulevard would connect to Park Drive at a roundabout in the Serrano Westside planning area and is expected to improve access to the Raley's and La Borgata shopping centers for existing residences. The potential connection from Park Drive to Silva Valley Parkway is not required for the project, it would not be constructed as part of the project, and it is not currently in the County General Plan or the MTP/SCS. However, right-of-way within the Serrano Westside planning area and the El Dorado Hills Specific Plan is reserved for such use, and this improvement is addressed briefly in this document for future planning. Other access would include a connection to Wilson Boulevard (north of El Dorado Hills Fire Station), a new full- to partial-access intersection on El Dorado Hills Boulevard (about 1,200 feet north of Serrano Parkway), a partial access (right out) to westbound Serrano Parkway, and potentially a full-access intersection at the entrance of the former golf course parking lot. The Pedregal planning area would be primarily accessed from Wilson Boulevard instead of utilizing adjacent neighborhood roadways, and a new full- to partial-access intersection on El Dorado Hills Boulevard. The proposed project does not propose and would not need access through the circulation systems that serve adjacent residential neighborhoods unless access is required by the El

[5] In the original project application, approximately 84 acres were designated open space. In 2013, after the initial project application was submitted, the project applicant added 85 acres of open space to the northeast corner of the Serrano Westside planning area, bringing the total open space area to 169 acres. The additional 85 acres of open space are referred to in this Draft EIR as the "85-acre addendum area."

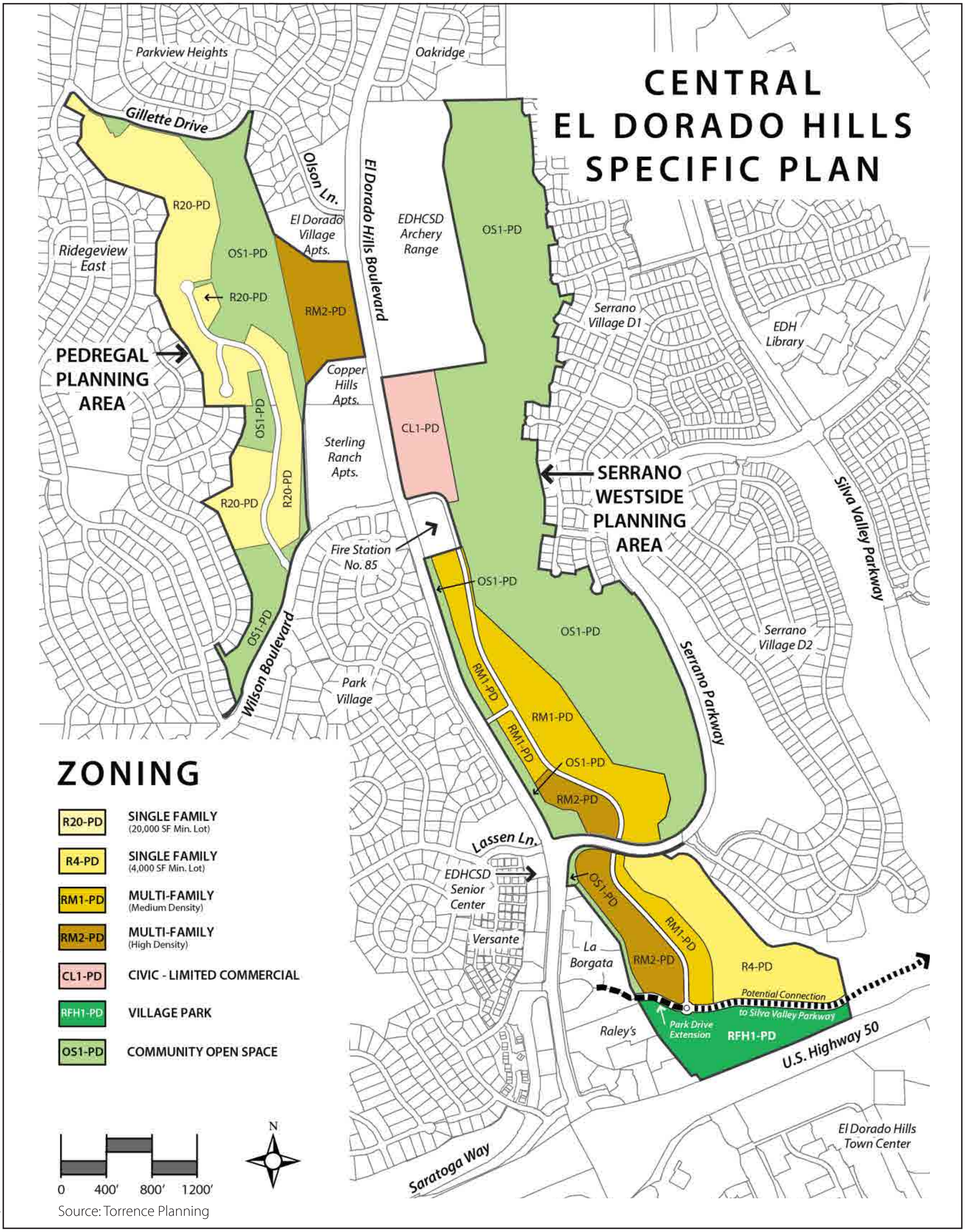


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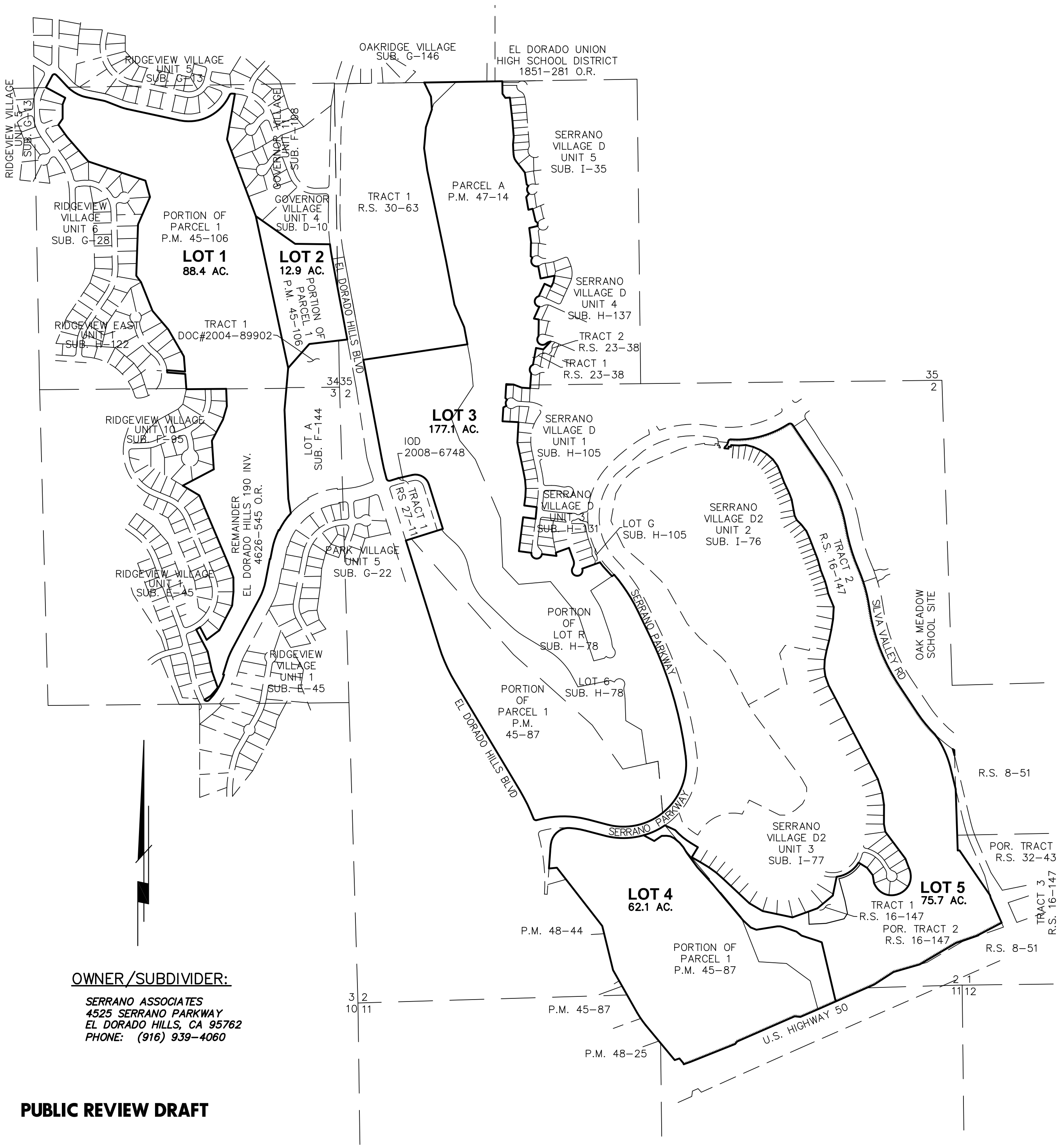
**Figure 2-4c**
**Proposed Zoning**




**PUBLIC REVIEW DRAFT**

Source: R.E.Y. Engineers, Inc. (05-22-2014)



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**Figure 2-5**
**Large Lot Tentative Plan Map**

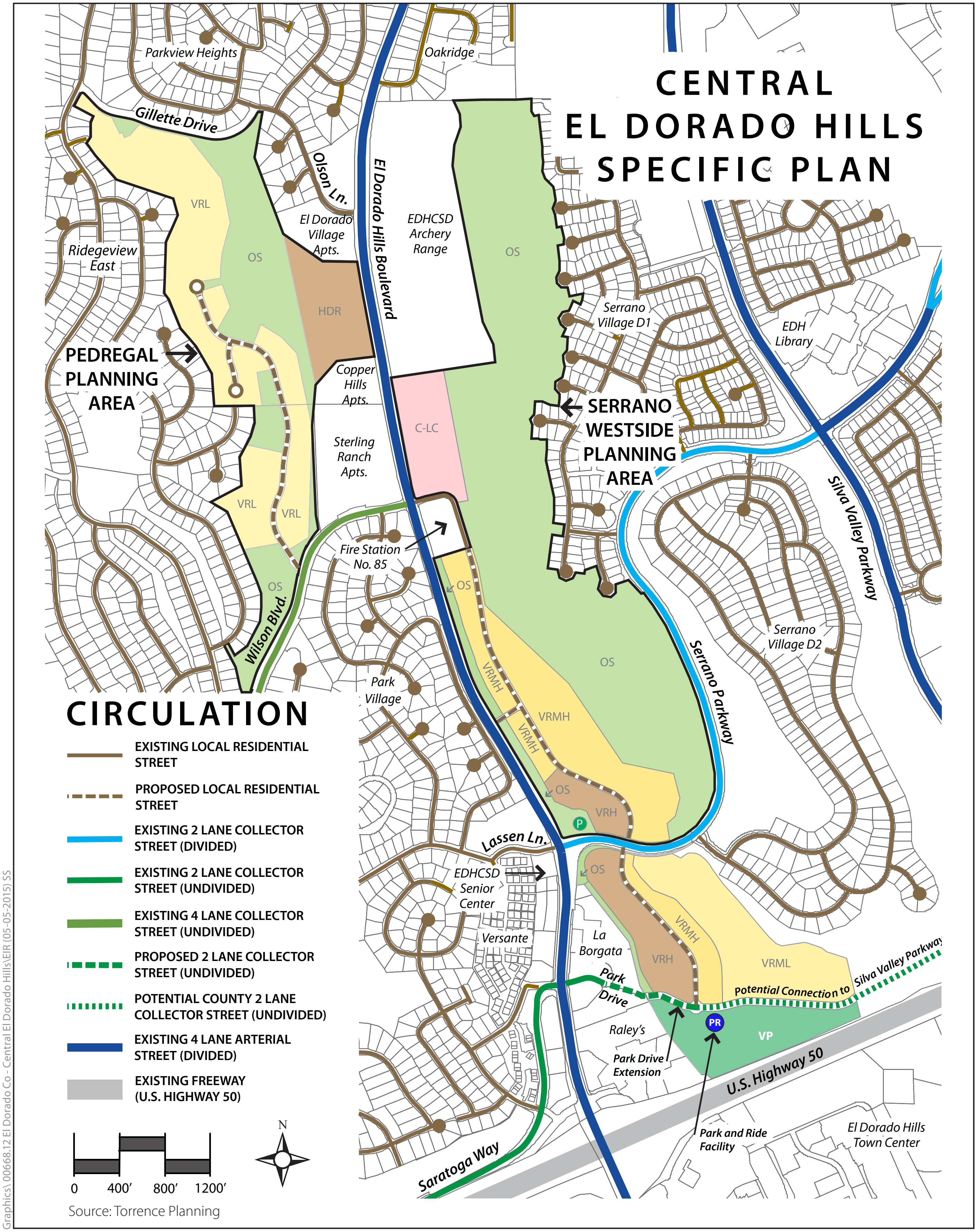




**Figure 2-6**
**Preliminary Vehicle Circulation Plan**

Dorado County Department of Transportation or the local fire protection district or to mitigate traffic impacts.

### Trail Circulation Plan and Recreation Opportunities

The proposed project would establish open space and active recreational opportunities that exceed the requirements of the County General Plan and the requirements of the El Dorado Hills Community Services District (CSD). The proposed project, specifically the Serrano Westside planning area, would provide a paved bicycle and pedestrian trail that would connect to and enhance existing trails and would also provide a new location for safe, dedicated bicycle/pedestrian overcrossing connection, replacing the existing location proposed as part of the El Dorado Hills interchange, to areas south of US 50. The preliminary trail circulation plan shown in Figure 2-7 shows the location of the trail and identifies the proposed open space and recreational opportunities and their integration with trail facilities.

The 15 acres of VP land use designation and RFH1 zoning is applied to an area that would include active and passive recreation facilities for public use and that would be maintained by the El Dorado Hills CSD. This area has some of the flattest terrain in the CEDHSP area to comply with the 2007 *Parks and Recreation Facilities Master Plan* requirement that community parks be 80% level with a maximum of 2% slope. This site allows access from the potential extension of Park Drive and is within walking distance to existing and proposed residences and existing retail establishments. Because it is adjacent to US 50, it is suitable for lighted athletic fields and natural or artificial turf to promote tournament use and provides green space views to highway travelers.

## 2.3.3.2 Utility Plan

In general, both planning areas would infill existing areas where wastewater, water, recycled water, storm drainage, electricity, natural gas, telephone, and roadways are already in place. Most new utility lines that would be required within the planning areas would be placed within the rights-of-way of existing roads in the planning areas, future roads that would be built as part of the proposed project, or within dedicated easements. Figures 2-8a and 2-8b identify the preliminary water, recycled water, and wastewater utility plan for the Serrano Westside planning area and the Pedregal planning area, respectively.

Stormwater runoff from the project would be directed to new storm drain lines within planning area roadways. These swales and underground lines would connect to an existing drainage channel (an unnamed tributary to Carson Creek) that runs along El Dorado Hills Boulevard north of Serrano Parkway and on the east side of the Raley's and La Borgata shopping centers. This existing drainage channel has sufficient capacity for project-generated storm flows.[6] The project would also incorporate stormwater quality protection features by providing riparian corridor and wetland enhancement in the project area. In the drainage channel, the project would remove noxious plants and plant wetland species. In addition, the open space area adjoining the drainage channel would incorporate wetland enhancement and water quality protection features, including regrading the slope to facilitate the wetland enhancements.

[6] A 0.6-acre detention basin would be constructed in the Pedregal planning area to attenuate flows before they reach the drainage channel. Detention basins for stormwater runoff in the Serrano Westside planning area are not required.

### 2.3.3.3 Offsite Improvements

Several offsite infrastructure improvements, outside the CEDHSP area, would be required to support the proposed project. These offsite improvements are shown in Figure 2-9 and are as follows.

- New Pedregal water line from Ridgeview Drive to the northern portion of the Pedregal planning area.
- New Pedregal water line in the southern portion of the Pedregal planning area.
- Extension of Park Drive, a public road, to the project site from El Dorado Hills Boulevard to the Serrano Westside planning area, including realignment of a portion of Park Drive between the Raley's and La Borgata shopping centers and reconfiguration of shopping center parking stalls (see Figure 2-10), with a potential connection to Silva Valley Parkway.
- Two new pedestrian accesses along the southwestern border of the Serrano Westside planning area to connect to the existing office and retail uses at Raley's and La Borgata.
- A new location for the planned US 50 pedestrian overcrossing connecting the southwestern corner of the Serrano Westside planning area north of US 50 to Post Street/Mercedes Lane south of US 50.
- An approximately 300-foot-long segment of existing sewer pipeline within the Serrano Westside planning area north of and extending offsite under Serrano Parkway requires upsizing to conform with the existing 18-inch line in that area.
- One 12-inch recycled water line, 3,000 feet long, generally adjacent to US 50 from the Serrano Westside planning area to Silva Valley Parkway, with a potential need to upsize the line to 16-inch.

The potential environmental impacts of implementing these offsite infrastructure improvements have been evaluated in this EIR as part of the proposed project.

### 2.3.3.4 Public Services

The proposed project site is located within the EID service area for potable and recycled water service and wastewater treatment and is within the El Dorado Hills CSD (El Dorado County 2012). The El Dorado Hills CSD provides public services, such as public parks and recreation services and facilities (El Dorado Hills Community Services District 2013). The El Dorado Hills CSD would be responsible for the amenities in the proposed Village Park (VP). The County would require the El Dorado Hills CSD to submit an application for a Planned Development permit to construct and operate the park. The El Dorado Hills CSD would be responsible for ensuring park operations comply with applicable County ordinances.

The proposed project site is located within the El Dorado Hills Fire Department boundaries and would be expected to be served by the closest fire station (Station #85) in the case of an emergency. The proposed project would be served by the El Dorado County Sheriff's Office for police protection. The residential neighborhoods in the Serrano Westside planning area are proposed to be gated similar to the Serrano neighborhoods in the existing EDHSP (approved in 1988). The Pedregal planning area may or may not be gated. If the communities are gated, they may also have their own security in addition to the public protection offered by the sheriff.

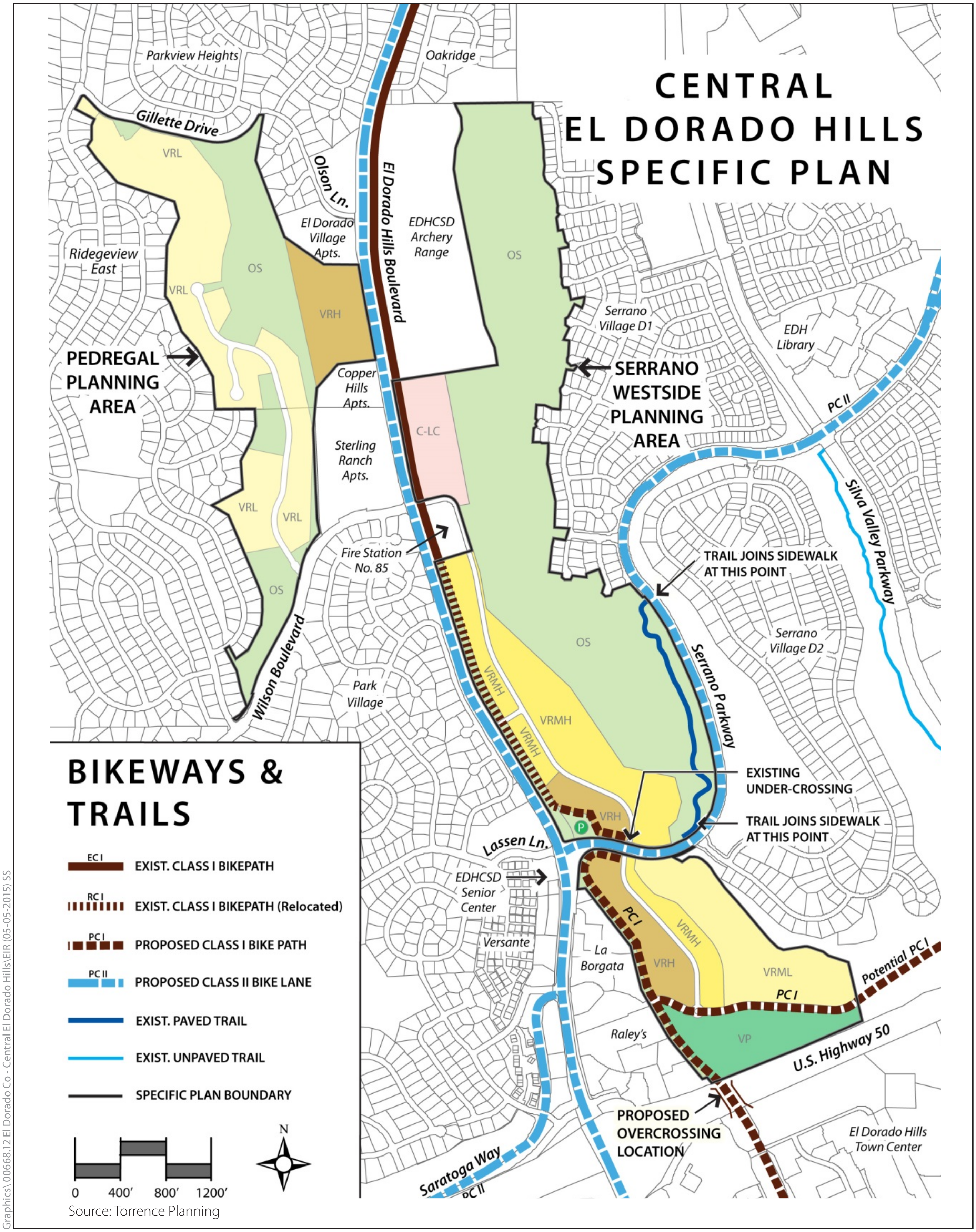


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**Figure 2-7**
**Preliminary Trail Circulation Plan**

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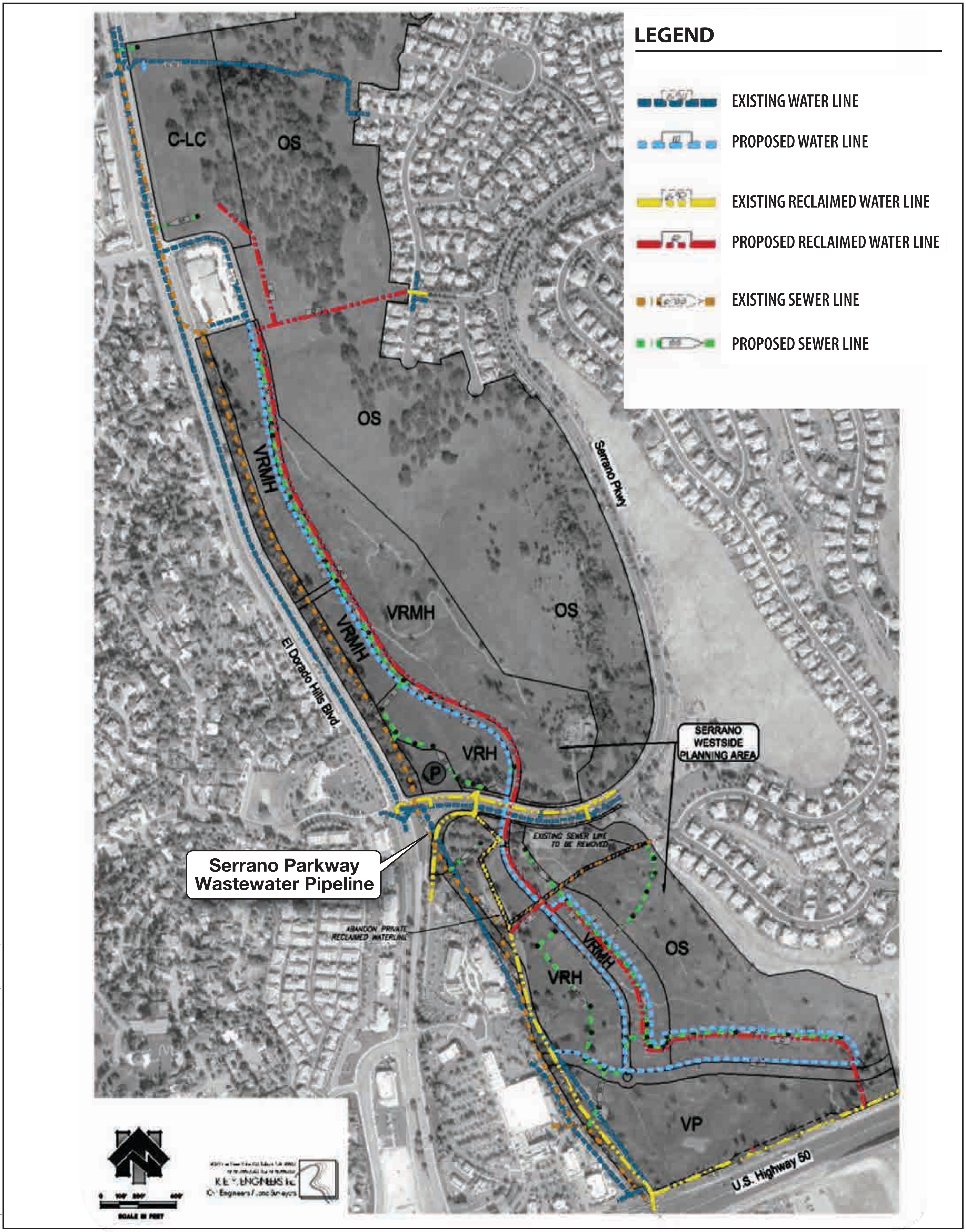




**Figure 2-8a**
**Preliminary Utility Plan for Serrano Westside Planning Area**

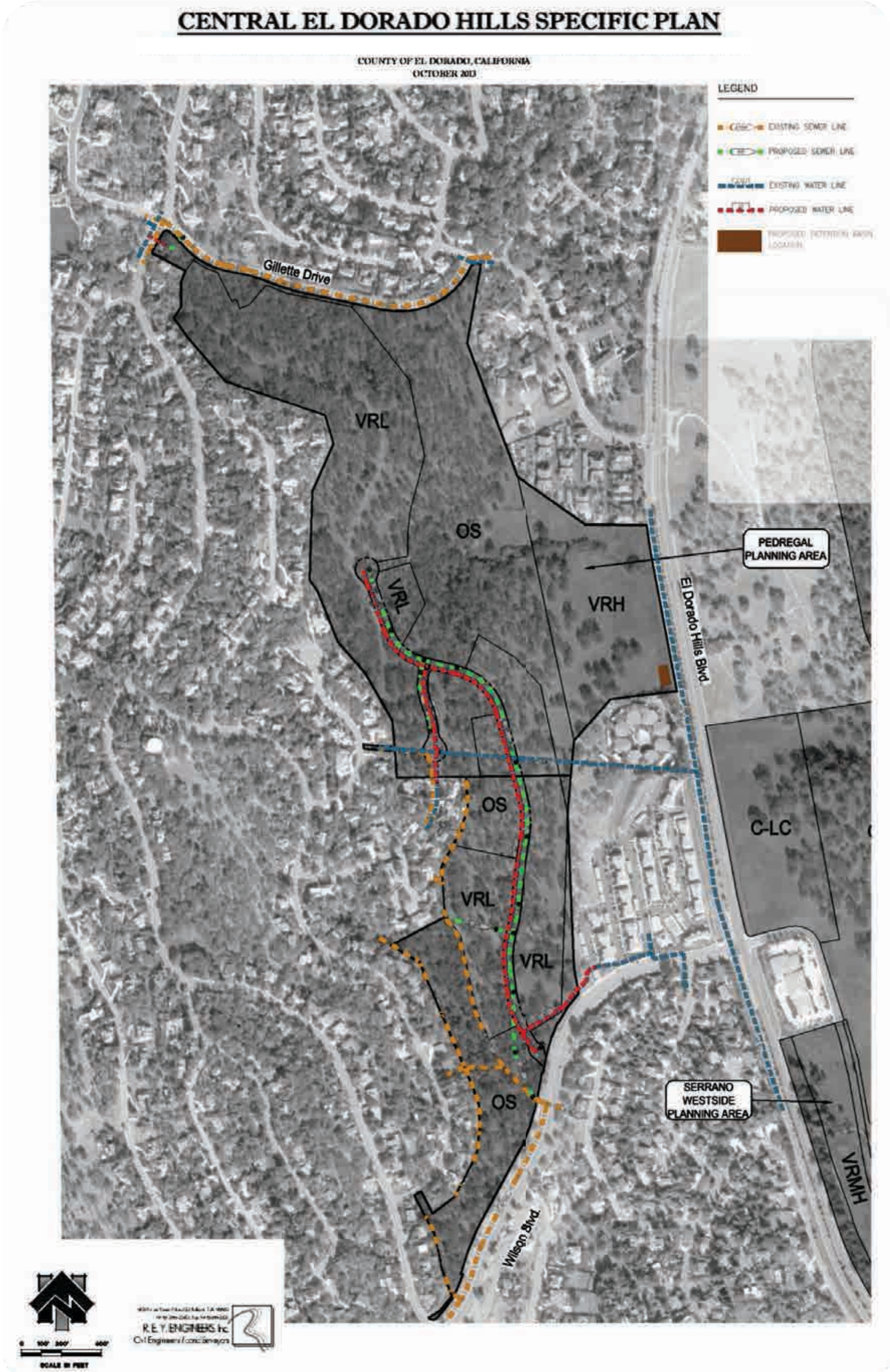


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**Figure 2-8b**
**Preliminary Utility Plan for Pedregal Planning Area**

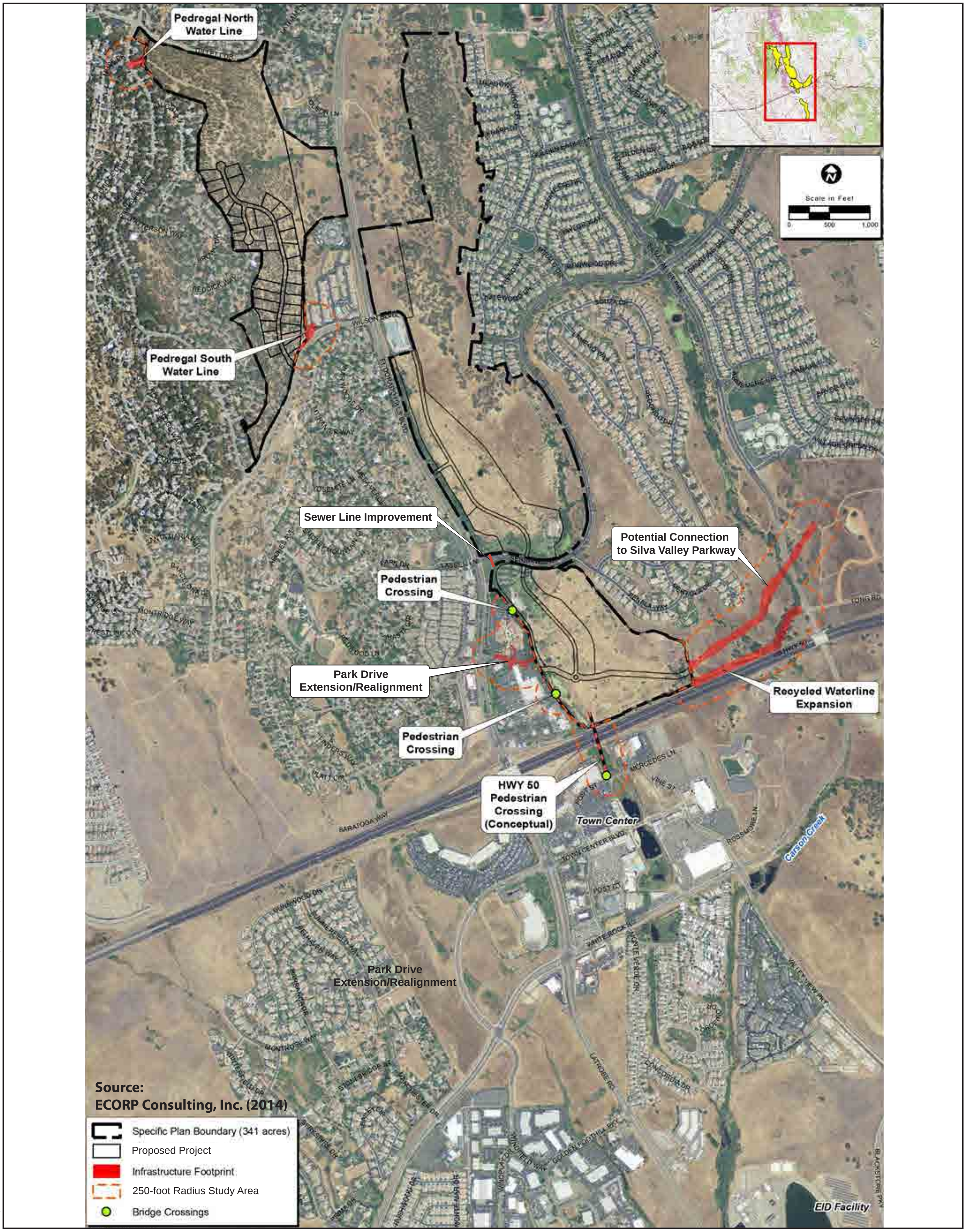


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**Figure 2-9**
**Offsite Infrastructure Improvement Areas**

The proposed project site is in the Buckeye Union Elementary School District and the El Dorado Union High School District. As stated in Section 2.1.3, *Surrounding Land Uses*, the two closest schools to the proposed project site are to the north and northeast, Oak Ridge High School (9th grade through 12th grade) and Silva Valley Elementary School (year round Kindergarten through 5th grade). The County General Plan explains that the El Dorado Hills school districts determine their own minimum levels of service. No new schools or school services are proposed as part of this project.

### 2.3.4 Project Phasing and Construction

It is anticipated that the necessary entitlements for the proposed project would be approved in late 2015 or early 2016. Buildout of the project would likely occur over several years and would ultimately be dictated by housing market conditions. It is anticipated construction would be phased within each planning area.

Construction hours of all phases would conform to County noise ordinances, which apply to construction activities occurring between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends and federally recognized holidays. These standards range from 45 to 90 decibels (dB) equivalent sound level ($L_{eq}$), with the most stringent levels being in Community Regions and AP areas (El Dorado County 2004).

In addition to the implementation of standards required by the proposed CEDHSP, the project proponent would be required to comply with El Dorado County's Storm Water Management Plan; Grading, Erosion, and Sediment Control Ordinance; the Design and Improvement Standards Manual; and the Drainage Manual, all of which require construction site runoff control. At the time of preparation of this EIR, the County is in the process of implementing new requirements of the State Water Resources Control Board's (State Water Board's) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) Order No. 2013-0001-DWQ (Order). The proposed project qualifies as a "Regulated Project" as defined in Section E.12 of the Order and therefore will be required to comply with the standards provided in the Order. The project proponent would be required to follow the County's Development Standards and implement post-construction runoff control.

## 2.4 Required Approvals

This EIR will be used by the County to document the potential environmental impacts of the proposed project and to determine whether the impacts could be avoided or mitigated to less-than-significant levels. The County is the lead agency for the proposed project. As applicable, this EIR may also be used by regulatory and responsible agencies, such as state agencies. These agencies are responsible for issuing permits and approvals that may be needed to proceed with the proposed project. A list of permits and approvals required by the County are identified below.

- Approval by the El Dorado County Board of Supervisors of a general plan amendment.
- Approval by the El Dorado County Board of Supervisors of amendments to the EDHSP.
- Approval by the El Dorado County Board of Supervisors of rezoning.
- Approval by the El Dorado County Board of Supervisors of the CEDHSP.

- Approval by the El Dorado County Board of Supervisors of a Planned Development.
- Approval by the El Dorado County Planning Commission and/or Board of Supervisors of large lot tentative subdivision map dividing the property into residential, civic–limited commercial, open space, recreational, and other large lots.
- Approval by the El Dorado County Board of Supervisors of a development agreement between the applicant, Serrano Associates, LLC, and the County.
- Approval by the El Dorado County Board of Supervisors of a financing plan between the applicant, Serrano Associates, LLC, and the County.
- Approval by the County of building and grading permits, General Permit for Municipal Separate Storm Sewer Systems (MS4) compliance, small lot tentative maps, and final maps.
- Approval by the County of a Planned Development (PD) permit to allow the El Dorado Hills CSD to construct and operate the 15-acre Village Park (VP).
- Approval by El Dorado Irrigation District.

Other state and local approvals for CEQA for the proposed project may be required as the project is implemented. This EIR may be used for other approvals that may be necessary or desirable for project implementation. Other project approvals that may be required are listed below.

- Section 401 certification from the Regional Water Quality Control Board (Regional Water Board).
- Submittal of a Notice of Intent for coverage under the Statewide General Permit (Water Quality Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-006-DWQ) for construction activities to the State Water Board.
- Section 1602 streambed alteration agreement from the California Department of Fish and Wildlife (CDFW).

Federal permits or project approvals that may be required are listed below.

- Section 404 permit from the U.S. Army Corps of Engineers (USACE) for fill of waters of the United States.
- Biological opinion from the U.S. Fish and Wildlife Service (USFWS) for project impacts on special-status species.

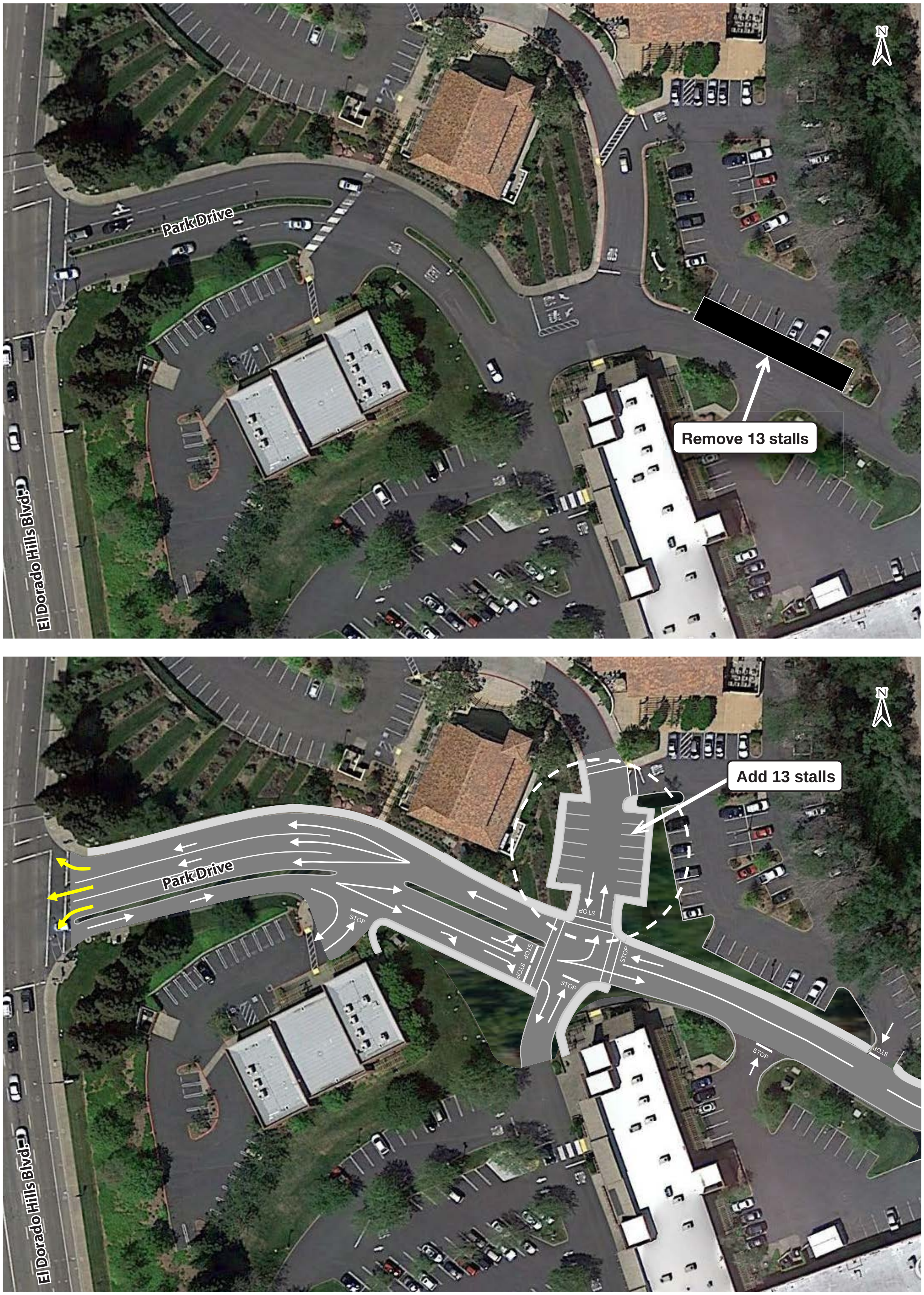


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**Figure 2-10**
**Park Drive Reconfiguration**

Chapter 3
# Impact Analysis–
# Greenhouse Gas Emissions

## 3.6 Greenhouse Gas Emissions

*Section 3.6, Greenhouse Gas Emissions, replaces the previous Section 3.6 of the DEIR in its entirety and contains the analysis and discussion of greenhouse gas (GHG) emissions using a combination of a bright-line threshold and efficiency metric per service population to determine the significance of GHG emissions in 2020 and at full build (2035).*

This section describes the environmental and regulatory setting for GHGs and climate change. It also describes impacts on climate change that would result from implementation of the proposed Central El Dorado Hills Specific Plan (CEDHSP) (proposed project). Impacts related to other air quality parameters are described in Section 3.2, *Air Quality*, of the DEIR (El Dorado County 2015)

## 3.6.1 Existing Conditions

### 3.6.1.1 Regulatory Setting

This section summarizes federal, state, and local regulations related to GHG emissions and climate change that are applicable to the CEDHSP.

#### Federal

Although there is currently no federal overarching law specifically related to climate change or the reduction of GHGs, the U.S. Environmental Protection Agency (EPA) is developing regulations under the federal Clean Air Act (CAA) that may be adopted pursuant to the EPA's authority under the CAA in the next 2 years. Foremost among recent developments have been the settlement agreements between the EPA, several states, and nongovernmental organizations to address GHG emissions from electric generating units and refineries; the U.S. Supreme Court's decision in *Massachusetts v. EPA;* and the EPA's Endangerment Finding, Cause or Contribute Finding, and Mandatory Reporting Rule. Although periodically debated in Congress, there is no federal legislation concerning GHG emissions limitations. In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the United States Court of Appeals upheld the EPA's authority to regulate GHG emissions under the CAA.

#### State

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans. Summaries of key policies, regulations, and legislation at the state level that are relevant to the CEDHSP are described below in chronological order.

### Executive Order S-03-05 (2005)

Executive Order (EO) S-03-05 is designed to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80% below 1990 levels by 2050.

### Assembly Bill 1493—Pavley Rules (2002, Amendments 2009, 2012 Rule-Making)

Known as *Pavley I*, Assembly Bill (AB) 1493 (California Health and Safety Code Section 42823.) standards are the state's first GHG standards for automobiles. AB 1493 requires the California Air Resources Board (ARB) to adopt vehicle standards that will lower GHG emissions from new light duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (referred to previously as *Pavley II* and now referred to as the *Advanced Clean Cars* measure) has been proposed for vehicle model years 2017–2025. Together, the two standards are expected to increase average fuel economy to roughly 43 miles per gallon by 2020 and reduce GHG emissions from the transportation sector in California by approximately 14%. In June 2009, the EPA granted California's waiver request enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

### Senate Bills 1078/107 and Senate Bill X1-2 (2011)—Renewables Portfolio Standard

Senate Bills (SBs) 1078 and 107,[7] California's Renewables Portfolio Standard (RPS), obligates investor-owned utilities (IOUs), energy service providers (ESPs), and Community Choice Aggregations (CCAs) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The California Public Utilities Commission (CPUC) and California Energy Commission (CEC) are jointly responsible for implementing the program. SB X1-2 (2011)[8] set forth a longer range target of procuring 33% of retail sales by 2020.

### Assembly Bill 32—California Global Warming Solutions Act (2006)

AB 32 (Health and Safety Code § 38500 et seq.) codified the state's GHG emissions target by requiring that the state's global warming emissions be reduced to 1990 levels by 2020. Since adoption of the act, ARB, CEC, CPUC, and the Building Standards Commission have been developing regulations that will help meet the goals of AB 32 and EO S-03-05. The 2008 *Climate Change Scoping Plan* for AB 32 (2008 Scoping Plan) identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires ARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHGs. Specifically, the 2008 Scoping Plan articulates a key role for local governments, recommending they establish GHG reduction goals for both their municipal operations and the community consistent with those of the state. The first update to the 2008 Scoping Plan, the *First Update to the AB 32 Scoping Plan* (2014 First Update) was released in February 2014 and includes revised GHG reduction estimates based on updated statewide GHG inventories. The update also discusses the need for continued GHG reduction progress post-2020 (California Air Resources Board 2014).

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[7] Public Resources Code Sections 25620.1, 25740, 25470.5, 25741, 25742, 25743, 25744.5, 25746, 25751; and Public Utilities Code Sections 387, 399.11, 399.12, 399.13, 399.14, 399.15, 399.16, 635, and 2854.

[8] Fish and Game Code Section 705; Public Resources Code Sections 25519.5, 25740, 25740.5, 25741, 25741.5, 25742, 25746, 25747, and 25751; and Public Utilities Code Sections 399.11, 399.12, 399.13, 399.14, 399.15, 399.16, 399.17, 399.18, 399.19, 399.20, 399.26, 399.30, 399.31, 454.5, 910, 911, and 1005.1.

### Executive Order S-01-07—Low Carbon Fuel Standard (2007, 2015)

EO S-01-07 mandates that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020 and that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California. The EO initiates a research and regulatory process at ARB. Based on an implementation plan developed by the CEC, ARB will be responsible for implementing the LCFS. On December 29, 2011, a federal judge issued a preliminary injunction blocking enforcement of the LCFS, ruling that the LCFS violates the interstate commerce clause (Georgetown Climate Center 2012). ARB appealed this ruling in 2012, and on September 18, 2013, a 9th U.S. Circuit Court of Appeals panel upheld the LCFS, ruling that the program does not violate the Commerce Clause. The ARB re-adopted the LCFS on September 15, 2015 in response to stakeholder feedback received during the legal challenges. The re-adopted regulation includes additional cost containment measures, streamlines the application process for alternative fuels, and improves the process for earning credits for electric vehicles.

### Senate Bill 375—Sustainable Communities Strategy (2008)

SB 375[9] provides for a new planning process that coordinates land use planning, regional transportation plans (RTPs), and funding priorities to help California meet the GHG reduction goals established in AB 32. SB 375 requires that the RTPs developed by metropolitan planning organizations (MPOs) include a "sustainable communities strategy" (SCS). The goal of the SCS is to reduce regional vehicle miles traveled (VMT) through land use planning and consequent transportation patterns. ARB released the regional targets in September 2010.

The Sacramento Area Council of Governments (SACOG) is the MPO for the Sacramento region, including the western slope of El Dorado County. SACOG adopted its SB 375–compliant *Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS) in February 2016. SB 375 also includes provisions for streamlined CEQA review for certain types of mixed-use and transit priority projects that meet specific criteria established by SB 375. Per State CEQA Guidelines Section 15183.5, quantified plans, such as the MTP/SCS EIR, "may be used in the cumulative impacts analysis of later projects." More specifically, "[l]ater project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG reduction plan. Section 15183.5 also states:

> An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project.

Environmental documents prepared for projects that are consistent with the MTP/SCS EIR are not required to reference, describe, or discuss the following in their GHG impact analysis.

1. Growth-inducing impacts.
2. A reduced-density alternative to address impacts on transportation or climate change of increased car and truck VMT induced by the project.
3. Any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network.

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[9] California Government Code Sections 14522.1, 14522.2, 65080, 65080, 65080.01, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588, and Public Resources Code Sections 2161.3, 21155, 21159.28.

There are no areas within El Dorado County with sufficient transit service to qualify for transit priority project streamlining introduced under SB 375 (Sacramento Area Council of Governments 2012). However, mixed-use projects consistent with the MTP/SCS may qualify for CEQA streamlining and tier from the MTP/SCS EIR for their project-level GHG emissions analysis.

### State CEQA Guidelines (2010)

The State CEQA Guidelines (Section 15064.4) require lead agencies to describe, calculate, or estimate the amount of GHG emissions that would result from a project. Moreover, the State CEQA Guidelines emphasize the necessity to determine potential climate change effects of a project and propose mitigation as necessary. The State CEQA Guidelines confirm the discretion of lead agencies to determine appropriate significance thresholds but require the preparation of an EIR if "there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with adopted regulations or requirements" (Section 15064.4).

State CEQA Guidelines Section 15126.4 includes considerations for lead agencies related to feasible mitigation measures to reduce GHG emissions, which may include the following, among others.

- Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision.
- Implementation of project features, project design, or other measures that are incorporated into the project to substantially reduce energy consumption or GHG emissions.
- Offsite measures, including offsets that are not otherwise required, to mitigate a project's emissions.
- Measures that sequester carbon dioxide ($CO_2$) or $CO_2$ equivalent ($CO_2e$) emissions.

### California Green Building Standards Code and Title 24 (2010)

The Green Building Standards Code (CALGreen) applies to the planning, design, operation, construction, use, and occupancy of newly constructed buildings and requires the installation of energy- and water-efficient indoor infrastructure for all new projects beginning after January 1, 2011. CALGreen also requires newly constructed buildings develop a waste management plan and divert at least 50% of the construction materials generated during project construction.

Administrative regulations to CALGreen Part 11 and the California Building Energy Efficiency Standards were adopted in 2013 and took effect on January 1, 2014. The 2013 Building Energy Efficiency Standards are 25% more efficient than previous standards for residential construction. Part 11 also established voluntary standards that became mandatory in the 2010 edition of the code, including planning and design for sustainable site development, energy efficiency, water conservation, material conservation, and internal air contaminants. The standards offer builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

The next set of energy efficiency standards will be the 2016 Building Energy Efficiency Standards, which are currently going through the rule-making process. These are expected to be adopted in 2016 and take effect on January 1, 2017. According to the CEC, single-family homes built to the 2016 standards will use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards. While the 2016 standards do not require zero net energy (ZNE) buildings, the 2019 standards are expected to take the final step toward achieving ZNE for newly constructed residential buildings throughout California. Later standards are expected to require ZNE for newly constructed commercial buildings.

#### Executive Order B-30-15 (2015)

EO B-30-15 established a medium-term goal for 2030 of reducing GHG emissions by 40% below 1990 levels and requires ARB to update its current AB 32 Scoping Plan to identify the measures to meet the 2030 target. The EO supports EO S-03-05, described above, but is currently only binding on state agencies. However, there are current (2015/2016) proposals (SB 32) at the state legislature to establish a statutory target for 2030.

#### Senate Bill 350—De Leon (Clean Energy and Pollution Reduction Act of 2015) (2015)

SB 350 was approved by the California legislature in September 2015 and signed by Governor Brown in October 2015. Its key provisions are to require the following by 2030: (1) a renewables portfolio standard of 50% and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. These mandates will be implemented by future actions of the CPUC and CEC.

### Local

#### El Dorado County Air Quality Management District Draft Greenhouse Gas Emissions Thresholds

The El Dorado County Air Quality Management District (EDCAQMD) administers the California and federal CAAs according to guidelines set forth by state and federal agencies. Currently EDCAQMD has not adopted significance thresholds for GHGs in accordance with the State CEQA Guidelines. At present, the Sacramento Metropolitan Air Quality Management District (SMAQMD) along with a committee of EDCAQMD and other regional air districts[10] use guidance from the California Air Pollution Control Officers Association (CAPCOA) (2008) to develop draft threshold concepts for evaluating project-level GHG emissions (Huss pers. comm.). The goal of the thresholds is to capture at least 90% of GHG emissions from new stationary sources and land development projects. These thresholds are discussed further under Section 3.6.2, *Environmental Impacts*.

## 3.6.1.2 Environmental Setting

The unique chemical properties of GHGs enable them to become well-mixed within the atmosphere and transported over long distances. Consequently, unlike other resource areas that are primarily concerned with localized project impacts (e.g., within 1,000 feet of the project site), the global nature of climate change requires a broader analysis approach. The following subsections provide background information on global climate change and principal GHGs associated with implementation of the CEDHSP. Potential impacts of climate change on the study area are also identified.

[10] Air districts in the region include SMAQMD, EDCAQMD, Placer County Air Pollution Control District, Feather River Air Quality Management District, and the Yolo-Solano Air Quality Management District.

## Climate Change

The phenomenon known as the *greenhouse effect* keeps the atmosphere near Earth's surface warm enough for the successful habitation of humans and other life forms. The greenhouse effect is created by sunlight that passes through the atmosphere. Some of the sunlight striking Earth is absorbed and converted to heat, which warms the surface. The surface emits a portion of this heat as infrared radiation, some of which is re-emitted toward the surface by GHGs. Human activities that generate GHGs increase the amount of infrared radiation absorbed by the atmosphere, thus enhancing the greenhouse effect and amplifying the warming of Earth (Center for Climate and Energy Solutions n.d.).

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution. Rising atmospheric concentrations of GHGs in excess of natural levels result in increasing global surface temperatures—a phenomenon commonly referred to as *global warming*. Higher global surface temperatures, in turn, result in changes to Earth's climate system, including increased ocean temperature and acidity, reduced sea ice, variable precipitation, and increased frequency and intensity of extreme weather events (Intergovernmental Panel on Climate Change 2007). Large-scale changes to Earth's system are collectively referred to as *climate change.*

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that the average global temperature will rise by 0.3–4.8° Celsius (0.5–8.6° Fahrenheit) during the twenty-first century (Intergovernmental Panel on Climate Change 2013). Large increases in global temperatures could have substantial adverse effects on the natural and human environments on the planet and in California.

## Greenhouse Gas Emissions and Reporting

The primary GHG emissions associated with the proposed project would be $CO_2$, methane ($CH_4$), and nitrous oxide ($N_2O$). $CO_2$ is the most important anthropogenic (i.e., human-made) GHG and accounts for more than 75% of all GHG emissions caused by humans. The primary sources of anthropogenic $CO_2$ in the atmosphere include the burning of fossil fuels, gas flaring, cement production, and land use changes. $CH_4$ and $N_2O$ are not as abundant as $CO_2$, but are significantly more powerful. Sources of $CH_4$ include growing rice, raising cattle, using natural gas, landfill outgassing, and mining coal. Sources of $N_2O$ include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential methodology defined in the IPCC reference documents. The IPCC defines the global warming potential of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of the $CO_2e$ metric, which compares the gas in question to that of the same mass of $CO_2$ ($CO_2$ has a global warming potential of 1 by definition).

Table 3.6-1 lists the global warming potential of $CO_2$, $CH_4$, and $N_2O$, their lifetimes, and abundances in the atmosphere.

**Table 3.6-1. Lifetimes and Global Warming Potentials of Key Greenhouse Gases**

| Greenhouse Gases | Global Warming Potential (100 years) | Lifetime (years) | Current Atmospheric Abundance |
|---|---|---|---|
| $CO_2$ | 1 | 50–200 | 391 ppm |
| $CH_4$ | 28 | 9–15 | 1,871 ppb |
| $N_2O$ | 265 | 120 | 323 ppb |

Source: Myhre et al. 2013.
$CH_4$ = methane.
$CO_2$ = carbon dioxide.
$N_2O$ = nitrous oxide.
ppm = parts per million.
ppb = parts per billion.

### Potential Effects of Climate Change in California and in the Project Area

Even with the efforts of municipalities throughout the state, a certain amount of climate change is inevitable because of existing and unavoidable future GHG emissions. With respect to the greater Sacramento region, including the project area, climate change effects are expected to result in the following.

- A hotter and drier climate, with average annual temperatures increasing by 3.7–6.5° Fahrenheit (F) in El Dorado County by 2090, relative to baseline conditions (1961–1990) (California Energy Commission 2014).
- More frequent and intense wildfires, with the area burned projected to increase by an estimated 58–69% in El Dorado County by 2050 (California Energy Commission 2014).
- Decreased winter snowpack with April snow water equivalences declining by 88–97% in El Dorado County by 2050, relative to baseline conditions (1961–1990) (California Energy Commission 2014).
- Changes in growing season conditions and species distribution (PRBO Conservation Science 2011).
- Increased heat and decreased air quality, with the result that public health will be placed at risk, and native plant and animal species may be lost (PRBO Conservation Science 2011).

# 3.6.2 Environmental Impacts

## 3.6.2.1 Methods of Analysis

GHG emissions associated with construction and operation of the proposed project were quantified using standard and accepted software tools, techniques, and emission factors. A summary of the methodology is provided below.

### Construction

Construction of the proposed project would generate short-term emissions of $CO_2$, $CH_4$, and $N_2O$. Emissions would originate from mobile and stationary construction equipment exhaust, as well as employee vehicle and haul truck exhaust. Water consumption for dust control would also generate indirect GHG emissions associated with water pumping and conveyance. Construction water demand for the proposed project is based on information provided in the Water Supply Assessment for the proposed project (Appendix K of the DEIR). Emissions generated by construction were estimated using CalEEMod (version 2013.2.2), [11] the Road Construction Emissions Model (RCEM) (version 7.1.5.1), and additional assumptions described in Section 3.2, *Air Quality*.

### Operation

Operation of the proposed project would generate long-term emissions of $CO_2$, $CH_4$, and $N_2O$. Primary sources of emissions would include vehicle exhaust, energy usage, water consumption, waste and wastewater generation, and area sources (e.g., natural gas combustion, landscaping equipment). Operational GHG emissions were estimated using CalEEMod, version 2013.2.2. Vehicle trip information was obtained from the proposed project's traffic impact assessment (see Section 3.14, *Traffic and Circulation,* of the DEIR) and accounts for trip reductions associated with mixed-use design (Appendix L of the DEIR).[12] The primary trip reductions would be achieved by residents who travel from home to services within the project area without using an external roadway (known as "internalization"). Trips made by walking instead of personal vehicle also would contribute to trip reductions (Appendix L of the DEIR). The area sources emissions were modeled using CalEEMod default values. The analysis accounts for emissions benefits achieved from mandatory CEDHSP policies, as discussed further below.

Note that unlike the criteria pollutant analysis included in CEDHSP DEIR Section 3.2, *Air Quality*, the GHG assessment does not evaluate combined construction and operational emissions, consistent with the regional GHG guidance.

## 3.6.2.2 Thresholds of Significance

### Overview

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The State CEQA Guidelines provide guidance to lead agencies for determining the significance of project-level GHG emissions. Section 15064.4(b) provides that, when assessing the significance of impacts from GHG emissions, a lead agency should consider all of the following.

- The extent to which the project may increase or reduce GHG emissions as compared with existing conditions.

[11] The global warming potentials recommended by the IPCC and ARB have been revised since release of CalEEMod, version 2013.2.2. Accordingly, $CO_2e$ emissions were quantified based on the global warming potentials summarized in Table 3.6-1 and the $CO_2$, $CH_4$, and $N_2O$ outputs from CalEEMod. Accordingly, the total $CO_2e$ outputs reported by CalEEMod were not used in this analysis.

[12] Trip reductions achieved by bicycle facilities (CEDHSP Policy 8.2), off-street parking limits (CEDHSP Policy 8.1), electric vehicle use (CEDHSP Policies 8.4 and 8.5), and creation of a transportation management association (CEDHSP Policy 8.10) are not included in the Fehr & Peers (Appendix L of the DEIR) trip rates.

- Whether the project's GHG emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

AB 32 establishes the requirement for reducing statewide GHGs to 1990 emissions levels by 2020. A number of air quality management agencies throughout the state have drafted or adopted varying threshold approaches and guidelines for analyzing 2020 operational GHG emissions in CEQA documents. The different thresholds include (1) compliance with a qualified GHG reduction strategy, (2) performance-based reductions, [13] (3) numeric "bright-line" thresholds, and (4) efficiency-based thresholds. The California Supreme Court decision in the *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (November 30, 2015, 62 Cal. 4th 204) (hereafter Newhall Ranch) confirmed that when an "agency chooses to rely completely on a single quantitative method to justify a no-significance finding, CEQA demands the agency research and document the quantitative parameters essential to that method."

Consistent with the Newhall Ranch decision, the following sections discuss each of the four existing operational GHG threshold approach options, and their applicability to the proposed project. All options are based on AB 32's requirement to reduce statewide GHG emissions from both existing and new development to 1990 levels by 2020.

**Compliance with a Qualified GHG Reduction Strategy.** CEQA authorizes reliance on previously approved GHG reduction plans (i.e., a Climate Action Plan [CAP]) prepared as a "Plan for the Reduction of Greenhouse Gas Emissions" per Section 15183.5 of the State CEQA Guidelines. This section of the State CEQA Guidelines provides that quantified plans "may be used in the cumulative impacts analysis of later projects." More specifically, "[l]ater project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG reduction plan. "An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project" (State CEQA Guidelines Section 15183.5).

"Tiering" from an approved program-level GHG reduction document is recommended by EDCAQMD staff as the preferred method to address GHG emissions in project-level CEQA documents (Baughman pers. comm.). The Newhall Ranch decision affirmed that the AB 32 Scoping Plan encourages the use of adopted local GHG reduction plans, and consistency with a geographically specific GHG reduction plan, or CAP, can relieve some of the burden taken on by local governments in analyzing the cumulative contribution of project-level GHG emissions. Consequently, if a project is consistent with a local CAP and that CAP is consistent with AB 32 and future GHG targets, then the project would be considered consistent with statewide GHG reduction goals for 2020 and the trajectory of statewide GHG planning in the post-2020 period.

SB 375 allows for certain levels of streamlined GHG review and analysis of residential and mixed-use projects that are consistent with SACOG's SCS. Projects eligible for this streamlining can "tier" light-duty automobile and truck emissions off the MTP/SCS EIR for CEQA purposes. While the

[13] Performance-based reductions include the "percent below Business as Usual" threshold approach, which has been used widely in the past. This approach was the subject of the Newhall Ranch case and presently is subject to uncertainty until the issues raised in the Supreme Court ruling are resolved.

project would be eligible for streamlined review, the County has conservatively elected to quantitatively analyze all project-generated emissions, including GHGs generated by mobile sources. El Dorado County does not have an adopted CAP or similar program-level GHG reduction document. Therefore, compliance with a qualified GHG reduction strategy, such as a CAP or the MTP/SCS is not a viable threshold approach for the CEDHSP EIR.

**Performance-Based Reductions**. Performance-based thresholds rely on a percentage reduction from a projected future condition. For example, reducing future business as usual (BAU) emissions by 29% through project design features (e.g., renewable energy) or mitigation. While the Newhall Ranch decision upheld the use of performance reductions based on AB 32, the Court stated that applying statewide BAU targets, which consider both existing and new development, to project-level analyses without any adjustments to isolate new development emissions or consider unique geographic conditions could be misleading and therefore requires further justification.

SMAQMD, along with EDCAQMD and a committee of other regional air districts, have proposed regional GHG threshold guidance.[14] The proposed regional thresholds include a performance-based threshold, where land use development projects with emissions exceeding 1,100 metric tons $CO_2e$ must mitigate to 1,100 metric tons $CO_2e$, or demonstrate a 21.7% reduction from a projected no action taken (NAT) scenario[15] to show consistency with AB 32. The 21.7% reduction was derived from ARB's recalculated 2020 BAU GHG forecast of 545 million metric tons $CO_2e$[16] and the statewide GHG reduction target of 427 million metric tons $CO_2e$.[17]

While using BAU/NAT targets, including the regional threshold of 21.7%, is generally consistent with CEQA, substantial evidence is required to demonstrate that a project, in its local setting, is consistent with broad goals for the entire state. Neither the regional thresholds nor other performance-based targets adopted by air quality management agencies have disaggregated new development emissions on a percentage basis to satisfy this new requirement imposed by the Court. The primary value of a performance-based target, as indicated in the Newhall Ranch decision, is that it can provide a scenario by which to evaluate the effectiveness of a project's efficiency and conservation measures to reduce GHG emissions. Accordingly, use of the draft performance threshold (21.7% below NAT) is not a viable threshold approach for the CEDHSP EIR.

**Numeric Bright-Line.** The Newhall Ranch decision affirmed the use of numeric bright-line thresholds, but noted that their use does not relieve the lead agency of its duty to determine the significance of an impact independently. For example, the Newhall Ranch decision specifically mentions the Bay Area Air Quality Management District's (BAAQMD) bright-line 1,100 metric ton

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[14] A portion of the regional GHG threshold guidance has been adopted by SMAQMD. EDCAQMD and other air districts in the region have not yet formally adopted the guidance or specific GHG thresholds.

[15] The NAT scenario does not include any state regulations designed to reduce GHG emissions, including improvements to the Title 24 standards, RPS, LCFS, or Pavley Rules.

[16] Forecast does not include emissions benefits (i.e., reductions) from Pavley or the RPS.

[17] AB 32 required ARB to adopt a Scoping Plan to describe the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. The Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED) was prepared on August 19, 2011, and included a revision to the 2020 BAU forecast to adjust in part to account for the challenging economic conditions in California. Note that in February 2014, ARB released another update to the 2020 BAU forecast and revised the 1990 inventory. The update addressed changes in global warming potentials and did not affect underlying analysis assumptions; the revised forecast differs by less than 5%, relative to the FED. The regional thresholds may be revised to reflect ARB's February 2014 analysis, but nothing formal has been released by SMAQMD.

$CO_2e$ threshold as an example of a numeric threshold to assist in determining the significance of GHG emissions.

The regional threshold guidance adopted (in part) by SMAQMD and recommended by EDCAQMD staff identify the following bright-line levels for operational emissions:

- **Stationary Source Projects**: 10,000 metric tons $CO_2e$
- **Land Use Development Projects**: 1,100 metric tons $CO_2e$

The bright-line thresholds identified above are based on a capture rate and a gap analysis,[18] which is tied back to AB 32 reduction targets (1990 levels by 2020).[19] The thresholds reflect Sacramento region land use conditions, including density and access to transit. The thresholds are consistent with the BAAQMD's bright-line thresholds referenced in the Newhall Ranch decision.

The regional land use development threshold of 1,100 metric tons $CO_2e$ will be applied to the CEDHSP EIR GHG analysis and meets the criteria identified in the Newhall Ranch decision needed to appropriately analyze project-level GHG emissions (e.g., land use-sector specific). Because the CEDHSP does not include any stationary sources,[20] the 10,000 metric ton $CO_2e$ threshold does not apply to the proposed project.

**Efficiency-Based**. Efficiency-based thresholds represent the rate of emission reductions needed to achieve a fair share of California's GHG emissions reduction target established under AB 32. Efficiency-based thresholds are typically calculated by dividing emissions associated with residential and commercial uses (also termed the "land use sector" in the AB 32 Scoping Plan) within the state by the sum of jobs and residents within the same geography. The sum of jobs and residents is called the "service population," and a project's service population is defined as the people that work and live within the project site.

As discussed in Section 3.6.1, AB 32 establishes a statewide goal of reducing emissions to 1990 levels by 2020. Accordingly, an efficiency-based threshold consistent with the 2020 AB 32 goal (1990 emissions levels by 2020) can be calculated based on the 1990 statewide land use inventory and 2020 forecasted service population, as shown in Equation 3.6-1.

[18] The gap analysis demonstrates the reductions needed at the land use level to achieve state targets. Capture is the process of estimating the portion of projects that would result in emissions that exceed a significance threshold and would be subject to mitigation. In other words, a gap analysis estimates the growth in GHG emissions between 1990 and 2020 attributed to land use development, estimates GHG reductions associated with adopted state and federal regulations, and determines any short fall or "gap" between the 2020 emissions inventory and the AB 32 reduction target.

[19] The AB 32 Scoping Plan identifies specific measures to reduce GHG emissions to 1990 levels by 2020.

[20] Stationary sources refer to any fixed emitter of air pollutants, such as power plants and other heavy industrial sources.

Equation 3.6-1.

$$Threshold = \frac{1990\ Land\ Use\ Inventory}{(2020\ Population + 2020\ Land\ Use\ Sector\ Employment)}$$

Where;

| | | |
|---|---|---|
| Threshold | = | Average emissions efficiency, 4.7 metric tons $CO_2e$ per service population |
| 1990 Inventory | = | Statewide 1990 land use GHG emissions inventory,[21] 267 million metric tons $CO_2e$ (California Air Resources Board n.d.; California Energy Commission 2009; California Integrated Waste Management Board 1999 refer to Appendix C) |
| 2020 Population | = | Statewide population in 2020, 40.6 million (California Department of Finance 2015) |
| 2020 Employment | = | Statewide land use sector jobs in 2020, 15.8 million (California Economic Forecast 2015) |

Based on the above analysis, the proposed project must achieve an average emissions efficiency of 4.7 metric tons $CO_2e$ per service population to achieve a fair share of California's GHG emissions reduction target established under AB 32.

The Newhall Ranch decision did not comment on use of an efficiency-based threshold for analyzing project-level GHG emissions. However, U.S. Supreme Court rulings[22] establish that the U.S. Constitution limits exactions on new development to those having a "nexus" and "rough proportionality" to the impact actually caused by the new development. While there is a nexus for requiring GHG reductions for new development that results in new GHG emissions, the reductions mandated must be proportional to the impact caused by new development. Requiring new development to meet the average statewide GHG efficiency is a proportional measure, but requiring more than average levels of efficiency would be mitigating the effects of existing development by imposing requirements beyond the fair share of new development's effect.

Because it meets the nexus and rough proportionality requirements, the efficiency threshold is an appropriate and fair threshold for evaluation of the significance of new land use development, including the proposed project. The calculated 4.7 metric ton $CO_2e$ per service population efficiency metric is therefore applied to the CEDHSP and meets analysis criteria established by the U.S. and California Supreme Courts (e.g., proportionality, land use sector specific).

## Threshold Approach

### *Operational Emissions*

The Newhall Ranch decision confirmed that there are multiple potential pathways for evaluating project-level GHG emissions consistent with CEQA, depending on the circumstances of a given project. The decision also identified the need to analyze both near-term and post-2020 emissions, as applicable, stating that an "EIR taking a goal-consistency approach to CEQA significance may in the near future need to consider the project's effects on meeting longer term emissions reduction

[21] The land use inventory only includes residential and commercial emission sources; industrial, marine vessels, aviation, and other emission sources not applicable to land use developments are not included in the inventory.
[22] See *Nollan vs. California Coastal Commission* and *Dolan vs. City of Tigard.*

targets." As noted above, all current CEQA GHG threshold concepts recommended by expert agencies are based on AB 32's requirement to reduce statewide GHG emissions to 1990 levels by 2020. Neither AB 32 nor the drafted and adopted CEQA GHG thresholds address reduction targets beyond 2020. While not legally binding on local land use agencies, EO B-30-15 has set forth an interim reduction target to reduce GHG emissions by 40% below 1990 levels by 2030 and EO S-03-05 has set forth a long-term reduction target to reduce GHG emissions by 80% below 1990 levels by 2050 (see Section 3.6.1, *Existing Conditions*). There is also proposed state legislation that would adopt a binding interim (2030) GHG target.[23]

Given the recent legislative attention and judicial action[24] regarding post-2020 goals and the scientific evidence that additional GHG reductions are needed through 2050 to stabilize $CO_2$ concentrations, the Association of Environmental Professionals' (AEP) Climate Change Committee (2015) recommended in its *Beyond 2020: The Challenges of Greenhouse Gas Reduction Planning by Local Governments in California* (Beyond 2020) white paper that CEQA analyses for most land use development projects can continue to rely on current thresholds for the immediate future[25], but that long-term projects should consider "post-2020 emissions consistent with 'substantial progress' along a post-2020 reduction trajectory toward meeting the 2050 target." The *Beyond 2020* white paper further recommends that the "significance determination…should be based on consistency with 'substantial progress' along a post-2020 trajectory." Accordingly, project-related impacts in both 2020 and full build (2035) are considered in this analysis using the threshold concepts summarized below.

**2020 Emissions**: Based on the available threshold concepts recommended by air quality management agencies and recognized by the U.S. and California Supreme Courts (see Overview discussion in *Thresholds of Significance*), the assessment herein analyzes 2020 operational emissions against the Sacramento regional 1,100 metric ton $CO_2e$ bright-line threshold and the average efficiency-metric of 4.7 metric tons $CO_2e$ per service population. The 1,100 metric ton $CO_2e$ threshold is most applicable to individual projects, as opposed to a larger specific plans, and is commonly used as an indicator for further analysis, rather than providing a definitive significance finding. However, the analysis herein conservatively uses the project-level 1,100 metric ton $CO_2e$ threshold to reach a significance conclusion for operational emissions generated by the entire CEDHSP. The analysis also considers project significance under the GHG efficiency metric of 4.7 metric tons $CO_2e$ per service population threshold, which is more appropriate for larger specific plans, like the proposed project An impact determination is made under both thresholds—1,100 metric tons $CO_2e$ and 4.7 metric tons $CO_2e$ per service population—given the lack of state or regional guidance regarding GHG thresholds. This approach fully discloses relevant information and ensures a comprehensive assessment of project emissions relative to all relevant threshold concepts available as of the writing of this document. Accordingly, if emissions exceed 1,100 metric ton $CO_2e$ <u>or</u> 4.7 metric tons $CO_2e$ per service population, the project may impede progress toward the reduction targets of AB 32, and the project's cumulative contribution of GHG emissions would be considered significant.

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[23] The 2030 target of 40% below 1990 levels may be adopted in legislation per the proposed SB 32 (Pavley), which is expected to be considered during the 2016 legislative term.

[24] See the California Appellate Court, 4th District ruling in *Sierra Club vs. County of San Diego* (2014) 231 Cal.App.4th 1152.

[25] With the notable exception of the "percent below Business as Usual" approach with the recent Supreme Court Newhall Ranch ruling as described above.

**Full Build (2035) Emissions**: While there is no current statewide GHG reduction plan that extends beyond 2020,[26] the AEP Climate Change Committee recommends that CEQA GHG analyses evaluate project emissions in light of the trajectory of state climate change legislation and assess their progress toward achieving long-term reduction targets identified in available plans, legislation, or EOs. Consistent with AEP Climate Change Committee recommendations, full build (2035) GHG impacts are analyzed in terms of whether the project would impede progress toward meeting the reduction targets identified in EO B-30-15 and EO S-03-05. Similar to the approach taken to analyze 2020 emissions impacts (see above), a GHG efficiency indicator was calculated based on the 1990 inventory and a linear interpolation of the EO reduction goals. The resulting 2035 efficiency indicator is 2.1 metric tons $CO_2e$ per service population and was calculated using Equations 3.6-2 and 3.6-3.

Equation 3.6-2.

$$Efficiency\ Indicator = \frac{2035\ Emissions\ Goal}{(2035\ Population + 2035\ Employment)}$$

Where:

| | |
|---|---|
| Efficiency Indicator | = Average emissions efficiency, 2.1 metric tons $CO_2e$ per service population |
| 2035 Inventory Goal | = 50% below statewide 1990 land use GHG emissions levels, 133.6 million metric tons $CO_2e$ (linear interpolation of EO goals; see Equation 3.6-3) |
| 2025 Population | = Statewide population in 2035, 45.7 million (California Department of Finance 2015) |
| 2020 Employment | = Statewide land use sector jobs in 2035, 18.2 million (California Economic Forecast 2015) |

Equation 3.6-3.

$$2035\ Inventory\ Goal = 2030\ Goal + (2050\ Goal - 2030\ Goal) * \frac{(2035 - 2030)}{(2050 - 2030)}$$

Where:

| | |
|---|---|
| 2035 Inventory Goal | = 50% below statewide 1990 land use GHG emissions levels, 133.6 million metric tons $CO_2e$ |
| 2030 Goal | = 40% below statewide 1990 land use GHG emissions levels, 160.3 million metric tons $CO_2e$ (per EO B-30-15) |
| 2050 Goal | = 80% below statewide 1990 land use GHG emissions levels, 53.4 million metric tons $CO_2e$ (per EO S-03-05) |

Based on the above analysis, the proposed project must achieve an average emissions efficiency of 2.1 metric tons $CO_2e$ per service population at full build (2035). Emissions in excess of 2.1 metric tons $CO_2e$ per service population may conflict with the trajectory of long-term GHG reduction goals,

[26] EO B-30-15 requires ARB to update the scoping plan to include a plan to achieve the 2030 target, which is expected in late 2016.

as identified by EO B-30-15 and EO S-03-05, and the project's cumulative contribution of long-term GHG emissions would be considered significant.

Table 3.6-2 summarizes the operational GHG thresholds and the efficiency indicator considered in this Partial Recirculated DEIR.

**Table 3.6-2. Operational GHG Thresholds/ Efficiency Indicator**

| Analysis Condition | Threshold/Metric | Basis |
|---|---|---|
| 2020 Development | 1,100 metric tons $CO_2e$ | EDCAQMD staff recommended based on AB 32 |
| | 4.7 metric tons $CO_2e$ per service population | Average project-level efficiency based on AB 32 |
| 2035 Development (Full Build) | 2.1 metric tons $CO_2e$ per service population | 50% reduction below 1990 land use sector emissions[27] |

***Construction Emissions***

The Sacramento regional thresholds guidance adopted (in part) by SMAQMD and recommended by EDCAQMD staff currently propose evaluating construction emissions against a 1,100 metric ton $CO_2e$ emissions threshold. This threshold is consistent with the operational land use development bright-line threshold (see Numeric Bright-Line discussion under *Thresholds of Significance*). Since construction emissions are short-term, utilizing a threshold based on long-term operational emissions provides a conservative assessment of construction impacts. Accordingly, annual construction emissions would be considered significant if they exceed 1,100 metric tons $CO_2e$. Consultation with EDCAQMD staff indicates that if construction emissions exceed the regional threshold of 1,100 metric tons $CO_2e$, the impact determination may consider an evaluation of combined construction and operational emissions where construction emissions are amortized over a 50-year project lifetime (Baughman pers. comm.).

## 3.6.2.3 Impacts and Mitigation Measures

**Impact GHG-1a: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment during construction (less than significant)**

Construction of the proposed project would generate direct emissions of $CO_2$, $CH_4$, and $N_2O$ from mobile and stationary construction equipment exhaust, as well as employee vehicle and haul truck exhaust. Indirect emissions would also be generated by electricity used to pump and convey water to the project site for dust control. Estimated construction emissions associated with the proposed project are summarized in Table 3.6-3. Refer to revised Appendix C for model outputs and detailed assumptions.

[27] Based on EO B-30-15 and EO S-03-05 reduction goals; refer to Equations 3.6-2 and 3.6-3. Note that the 1,100 metric ton $CO_2e$ threshold is not relevant to the 2035 analysis because it is based on the gap analysis completed for the AB 32 emission goal for 2020.

**Table 3.6-3. Estimated Construction GHG Emissions (metric tons per year)**

| Construction Year | $CO_2$ | $CH_4$ | $N_2O$ | Other | $CO_2e$ |
|---|---|---|---|---|---|
| 2016 | 745 | 0.20 | <0.01 | 0.00 | 751 |
| 2017 | 831 | 0.16 | 0.01 | 1.42 | 837 |
| 2018 | 941 | 0.27 | <0.01 | 0.00 | 948 |
| 2019 | 1,024 | 0.26 | <0.01 | 0.12 | 1,031 |
| 2020 | 525 | 0.09 | <0.01 | 0.00 | 527 |
| 2021 | 384 | 0.08 | <0.01 | 0.27 | 386 |
| 2022 | 577 | 0.14 | <0.01 | 0.00 | 581 |
| 2023 | 576 | 0.14 | <0.01 | 0.00 | 580 |
| 2024 | 355 | 0.08 | <0.01 | 0.00 | 357 |
| 2025 | 309 | 0.07 | <0.01 | 0.00 | 311 |
| 2026 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| 2027 | 215 | 0.07 | <0.01 | 0.00 | 217 |
| 2028 | 392 | 0.11 | <0.01 | 0.00 | 395 |
| 2029 | 666 | 0.09 | <0.01 | 0.00 | 670 |
| 2030 | 564 | 0.02 | <0.01 | 1.55 | 565 |
| Total construction emissions | 8,103 | 1.77 | 0.02 | 3.36 | 8,157 |
| Maximum annual emissions (2019) | 1,024 | 0.27 | 0.01 | 1.55 | 1,031 |
| Regional threshold | – | – | – | | 1,100 |

Source: CalEEMod version 2013.2.2 and RCEM version 7.1.5.1(based on ICF modeling).

As shown in Table 3.6-3, construction of the CEDHSP would generate 8,157 metric tons of $CO_2e$ during the construction period. This is equivalent to adding about 1,700 typical passenger vehicles per year to the road during construction (U.S. Environmental Protection Agency 2015). The highest annual emissions would occur in 2019 and are estimated at 1,031 metric tons $CO_2e$. Accordingly, while total emissions over the 15-year construction period would exceed 8,000 metric tons, annual emissions would not violate the regional threshold of 1,100 metric tons $CO_2e$ per year, and an analysis of amortized construction emissions over the life of the project is not required (Baughman pers. comm.). Moreover, the proposed CEDHSP includes the following policies that would help reduce construction-related GHG emissions.

- Policy 8.24 requires a 20% reduction in cement use in residential foundations, which would reduce embodied energy associated with construction.
- Policy 8.25 requires cement and concrete be made with recycled products, which would conserve virgin materials and may reduce manufacturing energy.
- Policy 8.27 requires use of sustainably sourced, regional, bio-based, and reused materials, which may reduce hauling requirements and transportation mileage.
- Policy 8.28 requires a construction waste management plan to increase recycling and divert landfilled waste, which would reduce methane emissions from waste decomposition.
- Policy 8.29 requires a minimum of 65% of the non-hazardous construction waste generated be recycled or salvaged for reuse, which would reduce methane emissions from waste decomposition.
- Policy 8.30 requires topsoil displaced during grading be placed in a designated area for future reuse, which may reduce hauling requirements and transportation mileage.

Because construction emissions would not exceed the regional draft threshold of 1,100 metric tons $CO_2$e per year, and additional reductions can be expected to be achieved by implementing the policies identified above, construction impacts would be less than significant.

### Impact GHG-1b: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment during operation (significant and unavoidable)

Operation of the CEDHSP would generate direct and indirect GHG emissions. Sources of direct emissions include mobile vehicle trips, natural gas combustion, and landscaping activities. Indirect emissions would be generated by electricity generation and consumption, waste and wastewater generation, and water use. Estimated operational emissions in 2020 and at full project build-out in 2035 are summarized in Tables 3.6-4 and 3.6-5. The 2020 emissions estimate only includes operational emissions from development constructed between 2016 and 2019, as outlined in the construction schedule in Table 3.2-5 in Section 3.2, *Air Quality*, of the CEDHSP DEIR. All structures are conservatively assumed to be fully occupied immediately following construction. Tables 3.6-4 and 3.6-5 do not include emissions benefits achieved by CEDHSP polices, but do reflect adopted State regulations designed to reduce GHG emissions.[28] See Appendix C for model outputs and detailed assumptions.

**Table 3.6-4. Estimated 2020 Operational GHG Emissions (metric tons per year, unless otherwise stated)**

| Source | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2$e |
|---|---|---|---|---|
| **Pedregal Planning Area** | | | | |
| Area sources | 31 | <0.1 | <0.1 | 31 |
| Energy use | 27 | <0.1 | <0.1 | 27 |
| Mobile | 96 | <0.1 | <0.1 | 96 |
| Waste generation | 2 | 0.1 | <0.1 | 4 |
| Water consumption | 2 | 0.1 | <0.1 | 4 |
| Subtotal | 157 | 0.2 | <0.1 | 162 |
| **Serrano Westside Planning Area** | | | | |
| Area sources | 254 | 0.1 | <0.1 | 262 |
| Energy use | 230 | <0.1 | <0.1 | 231 |
| Mobile | 1,151 | <0.1 | <0.1 | 1,152 |
| Waste generation | 16 | 0.9 | <0.1 | 42 |
| Water consumption | 13 | 0.2 | <0.1 | 21 |
| Subtotal | 1,663 | 1.4 | <0.1 | 1,707 |
| Total operation[a] | 1,820 | 1.5 | <0.1 | 1,870 |
| Total operation per service population[b] | - | - | - | 4.3 |
| Regional threshold | - | - | - | 1,100 |
| AB 32 efficiency threshold (metric tons per service population) | | | | 4.7 |

Source: CalEEMod version 2013.2.2 (based on ICF modeling).
$CO_2$ = carbon dioxide.
$CH_4$ = methane.
$N_2O$ = nitrous oxide.
$CO_2$e = carbon dioxide equivalents.
GHG = greenhouse gas.
[a] Values may not add due to rounding. Modeling does not include emissions benefits achieved by CEDHSP polices, but does reflect adopted State regulations designed to reduce GHG emissions (Pavley standards, LCFS, and RPS).
[b] Assumes a 2020 service population of 430 (zero jobs and 430 residents) (see Appendix C).

[28] Consistent with the current state of practice, modeled State regulations include of the Pavley standards, LCFS, and RPS (refer to the Regulatory Setting in Section 3.6.1, *Existing Conditions*).

**Table 3.6-5. Estimated 2035 Operational GHG Emissions (metric tons per year, unless otherwise stated)**

| Source | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
|---|---|---|---|---|
| **Pedregal Planning Area** | | | | |
| Area sources | 441 | 0.2 | <0.1 | 454 |
| Energy use | 300 | <0.1 | <0.1 | 302 |
| Mobile | 1,535 | <0.1 | <0.1 | 1,536 |
| Waste generation | 24 | 1.4 | <0.1 | 64 |
| Water consumption | 13 | 0.4 | <0.1 | 27 |
| Subtotal | 2,314 | 2.1 | <0.1 | 2,384 |
| **Serrano Westside Planning Area** | | | | |
| Area sources | 1,248 | 0.7 | 0.1 | 1,288 |
| Energy use | 1,224 | 0.1 | <0.1 | 1,232 |
| Mobile | 6,383 | 0.2 | <0.1 | 6,388 |
| Waste generation | 136 | 8.0 | <0.1 | 360 |
| Water consumption | 60 | 1.6 | <0.1 | 116 |
| Subtotal | 9,051 | 10.6 | 0.1 | 9,384 |
| Total operation[a] | 11,365 | 12.7 | 0.2 | 11,768 |
| Total operation per service population[b] | - | - | - | 4.3 |
| Efficiency indicator (metric tons per service population) | - | - | - | 2.1 |

Source: CalEEMod version 2013.2.2 (based on ICF modeling).
$CO_2$ = carbon dioxide.
$CH_4$ = methane.
$N_2O$ = nitrous oxide.
$CO_2e$ = carbon dioxide equivalents.
GHG = greenhouse gas.

[a] Values may not add due to rounding. Modeling does not include emissions benefits achieved by CEDHSP polices, but does reflect adopted State regulations designed to reduce GHG emissions (Pavley standards, LCFS, and SB 350).

[b] Assumes a 2035 service population of 2,724 (106 jobs and 2,618 residents) (see Appendix C).

#### *2020 Analysis*

Estimated operational emissions in 2020 are 1,870 metric tons $CO_2e$ per year, which exceeds the Sacramento regional threshold of 1,100 metric tons $CO_2e$ per year (see Table 3.6-4). As noted above, the emissions analysis presented in Table 3.6-4 does not include benefits achieved by CEDHSP polices. The CEDHSP includes a comprehensive set of strategies that will improve energy efficiency, reduce water consumption and waste generation, and encourage alternative transportation. While several policies encourage voluntary adoption of actions that will reduce GHG emissions, others identify mandatory targets that will be incorporated into the project design and achieved as a condition of project approval.

Table 3.6-6 summarizes emissions in 2020 with implementation of the following mandatory CEDHSP policies.[29] The table also includes emissions benefits associated with mixed-use design as discussed in the transportation impact analysis study (Appendix L of the CEDHSP DEIR).[30] Emission reductions were estimated using CalEEMod, SMAQMD's (2010) *Recommended Guidelines for Land Use Emissions Reductions* (Reduction Guide),[31] CAPCOA's (2010) *Quantifying Greenhouse Gas Mitigation Measures,* and ICF International's (2014) *California Transportation Electrification Assessment.* Please refer to Appendix C for model outputs and detailed assumptions.

- Policy 8.2, Short- and long-term bicycle parking
- Policy 8.4, Plug-in electric vehicle (PEV) charging stations
- Policy 8.11, Title 24 standards
- Policy 8.14, Energy efficiency glazing
- Policy 8.16, Energy efficient appliances
- Policy, 8.20 High efficiency lighting
- Policy 8.36, Residential indoor water use
- Policy 8.40, Recycled water use
- Policy 8.42, Irrigation controllers,
- Policy 8.45, Turf reduction
- Policy 8.50, Natural gas hearths
- Policy 8.51, Wood-burning fireplaces

Estimated emissions in 2020 with quantifiable mandatory CEDHSP polices are 1,596 metric tons $CO_2e$ per year, which still exceeds the Sacramento regional threshold of 1,100 metric tons $CO_2e$ (see Table 3.6-6). However, the quantified mandatory CEDHSP policies would improve the average GHG efficiency from 4.3 metric tons $CO_2e$ per service population to 3.7 metric tons $CO_2e$ per service population (see Tables 3.6-4 and 3.6-6). The CEDHSP would also achieve additional GHG reductions by voluntary policies that encourage renewable energy, alternative transportation, and passive heating and cooling. However, these strategies were not quantified because the exact number of installed systems and affected structures are currently unknown. Operational emissions in 2020 will therefore likely be lower than those presented in Table 3.6-6.

As discussed above, emissions from projects in excess of 1,100 metric tons $CO_2e$ <u>or</u> 4.7 metric tons $CO_2e$ per service population would be cumulatively considerable. Under the 1,100 metric ton $CO_2e$ threshold, the project's cumulative contribution of GHG emissions in 2020 would be significant.

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[29] Additional mandatory policies outlined in the CEDHSP would be implemented, but emissions benefits were not quantified to avoid potential double-counting with the quantified policies identified above.

[30] The primary trip reductions would be achieved by residents that travel from home to services within the project area without using an external roadway (known as "internalization"). Trips made by walking instead of personal vehicle also would contribute to trip reductions.

[31] SMAQMD updated the Reduction Guide in July 2013. However, the 2010 Reduction Guide may be used to evaluate projects where the notice of preparation (NOP) was issued prior to April 1, 2013 (Sacramento Metropolitan Air Quality Management District 2014). Since the NOP for the CEDHSP EIR was issued February 2013, this guidance uses the 2010 Reduction Guide, consistent with SMAQMD guidance (Sacramento Metropolitan Air Quality Management District 2010). SMAQMD's Reduction Guide is available for use by projects throughout the State, and is most applicable to projects within the Sacramento Region, such as the CEDHSP.

Implementation of Mitigation Measure GHG-1, as described below, would reduce emissions, but not to a level below 1,100 metric tons $CO_2e$. Accordingly, this impact would be significant and unavoidable under the bright-line threshold.

Emissions would not exceed the average efficiency-metric threshold of 4.7 metric tons $CO_2e$ per service population, which is derived from the AB 32 reduction target for 2020 and is the most applicable threshold (of those available at the writing of this document) to larger planning-level projects. Accordingly, the project's cumulative contribution of GHG emissions in 2020 would be less than significant under the service population threshold.

**Table 3.6-6. Estimated 2020 Operational GHG Emissions with Implementation of Quantified Mandatory CEDHSP Policies (metric tons per year, unless otherwise stated)**

| Source | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
|---|---|---|---|---|
| **Pedregal Planning Area** | | | | |
| Area sources | 16 | <0.1 | <0.1 | 16 |
| Energy use | 24 | <0.1 | <0.1 | 25 |
| Mobile | 94 | <0.1 | <0.1 | 94 |
| Waste generation | 2 | 0.1 | <0.1 | 4 |
| Water consumption | 2 | <0.1 | <0.1 | 3 |
| Subtotal | 138 | 0.1 | <0.1 | 142 |
| **Serrano Westside Planning Area** | | | | |
| Area sources | 124 | <0.1 | <0.1 | 125 |
| Energy use | 209 | <0.1 | <0.1 | 210 |
| Mobile | 1,059 | <0.1 | <0.1 | 1,060 |
| Waste generation | 16 | 0.9 | <0.1 | 42 |
| Water consumption | 11 | 0.2 | <0.1 | 17 |
| Subtotal | 1,418 | 1.2 | <0.1 | 1,454 |
| Total operation[a] | 1,556 | 1.3 | <0.1 | 1,596 |
| Total operation per service population[b] | - | - | - | 3.7 |
| Sacramento Regional threshold | - | - | - | 1,100 |
| AB 32 efficiency threshold (metric tons per service population) | - | - | - | 4.7 |

Source: CalEEMod version 2013.2.2 (based on ICF modeling) SMAQMD (2010), CAPCOA (2010), ICF International (2014)

$CO_2$ = carbon dioxide.
$CH_4$ = methane.
$N_2O$ = nitrous oxide.
$CO_2e$ = carbon dioxide equivalents.
GHG = greenhouse gas.

[a] Values may not add due to rounding. Modeling includes emissions benefits achieved by the following CEDHSP polices: 8.2, 8.4, 8.11, 8.14, 8.16, 8.20, 8.36, 8.40, 8.42, 8.45, 8.50, and 8.51. State regulations designed to reduce GHG emissions (Pavley standards, LCFS, and RPS) are also included in the emissions modeling.

[b] Assumes a 2020 service population of 430 (zero jobs and 430 residents) (see Appendix C).

***2035 Analysis***

Estimated operational emissions at full build (2035) are 11,768 metric tons $CO_2e$ per year (see Table 3.6-5). As noted above, the emissions analysis presented in Table 3.6-5 does not include benefits achieved by CEDHSP policies and is therefore conservative. Table 3.6-7 summarizes emissions at full build with implementation of the quantified mandatory CEDHSP policies identified above. The table also includes emissions benefits associated with mixed-use design as discussed in the transportation impact analysis study (Appendix L of the CEDHSP DEIR).

**Table 3.6-7. Estimated 2035 Operational GHG Emissions with Implementation of Quantified Mandatory CEDHSP Policies (metric tons per year, unless otherwise stated)**

| Source | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
|---|---|---|---|---|
| **Pedregal Planning Area** | | | | |
| Area sources | 219 | <0.1 | <0.1 | 220 |
| Energy use | 268 | <0.1 | <0.1 | 270 |
| Mobile | 1,500 | <0.1 | <0.1 | 1,502 |
| Waste generation | 24 | 1.4 | <0.1 | 64 |
| Water consumption | 14 | 0.3 | <0.1 | 25 |
| Subtotal | 2,022 | 1.8 | <0.1 | 2,077 |
| **Serrano Westside Planning Area** | | | | |
| Area sources | 610 | <0.1 | <0.1 | 614 |
| Energy use | 1,087 | <0.1 | <0.1 | 1,094 |
| Mobile | 5,943 | 0.2 | <0.1 | 5,948 |
| Waste generation | 136 | 8.0 | <0.1 | 360 |
| Water consumption | 48 | 1.3 | <0.1 | 94 |
| Subtotal | 7,824 | 9.6 | 0.1 | 8,110 |
| **Total operation[a]** | **9,846** | **11.4** | **0.1** | **10,187** |
| **Total operation per service population[b]** | **-** | **-** | **-** | **3.7** |
| Efficiency indicator (metric tons per service population) | - | - | - | 2.1 |

Source: CalEEMod version 2013.2.2 (based on ICF modeling), SMAQMD (2010), CAPCOA (2010), ICF International (2014)

$CO_2$ = carbon dioxide.
$CH_4$ = methane.
$N_2O$ = nitrous oxide.
$CO_2e$ = carbon dioxide equivalents.
GHG = greenhouse gas.

[a] Values may not add due to rounding. Modeling includes emissions benefits achieved by the following CEDHSP polices: 8.2, 8.4, 8.11, 8.14, 8.16, 8.20, 8.36, 8.40, 8.42, 8.45, 8.50, and 8.51. State regulations designed to reduce GHG emissions (Pavley standards, LCFS, and SB 350) are also included in the emissions modeling.

[b] Assumes a 2035 service population of 2,724 (106 jobs and 2,618 residents) (see Appendix C).

Estimated emissions in 2035 with quantifiable mandatory CEDHSP polices are 10,187 metric tons $CO_2e$ per year or 3.7 metric tons $CO_2e$ per service population, which exceeds the 2035 efficiency indicator. As discussed above, while the State has the AB 32 Scoping Plan and multiple adopted regulations to achieve the AB 32 2020 target, there is no currently adopted State plan to meet long-term GHG reduction goals. With the exception of SB 350 of 2015, which establishes new 2030 objectives for increasing the Renewal Portfolio Standard to 50% and doubling energy efficiency, any calculation of post-2020 emissions therefore cannot account for future State or federal actions that may be taken to achieve long-term reductions.

As discussed in the analysis of consistency with the goals of EO B-30-15 and S-03-05 (Impact GHG-2, below), the achievement of long-term GHG reduction targets will require substantial changes in how energy is produced and consumed, as well as other substantial economy-wide changes, many of which can only be implemented by the State and federal government. Accordingly, placing the entire burden of meeting long-term reduction targets on local government or individual new development projects would be disproportionate and likely ineffective. Nevertheless, given the proposed project's level of emissions compared to the 2035 efficiency indicator and the fact that there is no plan for achieving a post-2020 GHG reduction goal, this analysis conservatively concludes that the project's cumulative contribution of GHG emissions in 2035 would be significant.

As discussed above, the CEDHSP includes a comprehensive set of strategies that will improve energy efficiency, reduce water consumption and waste generation, and encourage alternative transportation. Mitigation Measure GHG-1 identifies CEDHSP polices that will be expanded to further reduce operational GHG emissions. Estimated operational emissions with implementation of Mitigation Measure GHG-1 are summarized in Table 3.6-8. The analysis only includes emissions benefits achieved by strategies 1 and 2. The other strategies would achieve additional GHG savings, although reductions have not been explicitly quantified because they depend either on program participation or the efficiency of other supporting strategies. While reductions associated with these strategies have not been quantified, they are anticipated to be minor compared to savings achieved by strategies 1 and 2.[32]

As shown in Table 3.6-8, with implementation of the identified mitigation strategies, the proposed project's emissions would still exceed the 2035 efficiency indicator. Therefore, even with mitigation, the project's cumulative contribution of GHG emissions in 2035 would be significant and unavoidable.

[32] GHG reductions achieved by Strategy 1 were estimated using the National Renewable Energy Laboratory's System Advisor Model, version 2015.6.30. GHG reductions achieved by Strategy 2 were estimated using CalEEMod.

**Table 3.6-8. Estimated 2035 Operational GHG Emissions with Implementation of Mitigation Measure GHG-1 (metric tons per year, unless otherwise stated)**

| Source | $CO_2$ | $CH_4$ | $N_2O$ | $CO_2e$ |
|---|---|---|---|---|
| **Pedregal Planning Area** | | | | |
| Area sources | 219 | <0.1 | <0.1 | 220 |
| Energy use | 248 | <0.1 | <0.1 | 249 |
| Mobile | 1,500 | <0.1 | <0.1 | 1,502 |
| Waste generation | 24 | 1.4 | <0.1 | 64 |
| Water consumption | 11 | 0.3 | <0.1 | 22 |
| Subtotal | 2,002 | 1.8 | <0.1 | 2,056 |
| **Serrano Westside Planning Area** | | | | |
| Area sources | 610 | <0.1 | <0.1 | 614 |
| Energy use | 1,020 | <0.1 | <0.1 | 1,026 |
| Mobile | 5,943 | 0.2 | <0.1 | 5,948 |
| Waste generation | 136 | 8.0 | <0.1 | 360 |
| Water consumption | 47 | 1.3 | <0.1 | 91 |
| Subtotal | 7,756 | 9.6 | 0.1 | 8,040 |
| **Total operation[a]** | **9,758** | **11.4** | **0.1** | **10,096** |
| **Total operation per service population[b]** | **-** | **-** | **-** | **3.7** |
| Efficiency indicator (metric tons per service population) | - | - | - | 1,100 |

Source: CalEEMod version 2013.2.2 (based on ICF modeling), SMAQMD (2010), CAPCOA (2010), ICF International (2014)

$CO_2$ = carbon dioxide.
$CH_4$ = methane.
$N_2O$ = nitrous oxide.
$CO_2e$ = carbon dioxide equivalents.
GHG = greenhouse gas.

[a] Values may not add due to rounding. Modeling includes emissions benefits achieved by the following CEDHSP polices: 8.2, 8.4, 8.11, 8.14, 8.16, 8.20, 8.36, 8.40, 8.42, 8.45, 8.50, and 8.51. State regulations designed to reduce GHG emissions (Pavley standards, LCFS, and SB 350) are also included in the emissions modeling, as well as strategies 1 and 2 from Mitigation Measure GHG-1.

[b] Assumes a 2035 service population of 2,724 (106 jobs and 2,618 residents) (see Appendix C).

### Mitigation Measure GHG-1: Revise CEDHSP policies to include additional measures to further reduce operational GHG emissions

The project applicant shall implement the operational GHG emissions reduction strategies described below. The strategies will be included as specific requirements of the CEDHSP's Development Plan Permit.

1. On-Site Solar Energy: CEDHSP Policy 8.22 will be revised as follows: Commercial, residential, and public buildings shall be designed to allow for the installation of renewable energy systems including active solar, wind, or other emerging technologies. Where applicable, rooftop photovoltaic (PV) arrays or solar water heating systems (SWHS) shall be installed in accordance with the State Fire Marshal safety regulations and guidelines. All Village Residential-Low and Village Residential Medium-Low

developments will be required to install rooftop solar power to meet minimum baseload electricity needs (expected average system size is 4 kilowatts [kW]).

2. Water Use: CEDHSP Policy 8.37 will be revised as follows: Nonresidential indoor water use shall be ~~encouraged~~ required to be reduced by a minimum of 30% as demonstrated by the prescriptive fixture-based method or according to a water use baseline, in accordance with CALGreen Nonresidential Voluntary Tier 1 Measures.

3. Compost: CEDHSP Policy 8.34 will be revised as follows: On-site reuse of compost and mulch shall be ~~encouraged~~ required in privately owned gardens and landscaping or within common landscaped areas in the Plan Area.

4. Electrical Vehicle Charging: CEDHSP Policy 8.4 will be revised as follows: Off-street parking in all Civic–Limited Commercial, Village Park, and High Density Residential designations shall provide some dedicated parking for plug-in electric vehicles (PEVs) and install minimum Level 2 PEV charging stations in each dedicated PEV parking space, in accordance with CALGreen Nonresidential Tier 1 Voluntary Measures. Installation of 220/240 volt garage circuits to support PEVs will be required in all Village Residential-Low and Village Residential Medium-Low designations.

### Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (significant and unavoidable)

#### *Assembly Bill 32*

AB 32 codifies the state's GHG emissions reduction targets for 2020. The ARB adopted the 2008 Scoping Plan and 2014 First Update as a framework for achieving AB 32. The 2008 Scoping Plan and 2014 First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. Some reductions would need to come in the form of changes pertaining to vehicle emissions and mileage standards. Some would come from changes pertaining to sources of electricity and increased energy efficiency at existing facilities. The remainder would need to come from state and local plans, policies, or regulations that will lower carbon emissions, relative to business as usual conditions.

As discussed above, the CEDHSP includes numerous policies to reduce operational and construction-related GHG emissions. These measures are consistent with strategies identified in the 2008 Scoping Plan and 2014 First Update, as well as statewide goals to improve energy efficiency, reduce building energy consumption, and increase renewable energy generation. However, while the average efficiency-metric threshold of 4.7 metric tons $CO_2e$ per service population would not be exceeded in 2020, total emissions would exceed the 1,100 metric ton $CO_2e$ regional threshold (see Table 3.6-6). Both thresholds are derived from the AB 32 reduction target for 2020. As noted above, the efficiency metric is most applicable to large-scale plans like the proposed project. However, the analysis evaluated project impacts relative to all available thresholds as of the writing of this document. Accordingly, since mass emissions exceed 1,100 metric tons $CO_2e$, GHG emissions associated with the CEDHSP in 2020 may conflict with AB 32.

#### *Metropolitan Transportation Plan and Sustainable Communities Strategy*

Environmental quality and sustainability is one of six MTP principles addressed in the SACOG's MTP/SCS, which was adopted by SACOG on February 18, 2106. The MTP/SCS provides a long-range framework to minimize transportation impacts on the environment, improve regional air quality, protect natural resources, and reduce GHG emissions. The MTP/SCS is consistent with SB 375, which requires SACOG to adopt an SCS that outlines policies to reduce per capita GHG emissions from automobiles and light trucks. The SCS policies include a mix of strategies that encourage compact growth patterns, mixed-used design, alternative transportation, transit, mobility and access, network expansion, and transportation investment.

Implementation of the SCS is intended improve the efficiency of the transportation system and achieve a variety of housing types throughout the SACOG region that meet market demands in a balanced and sustainable manner. The proposed project would develop residential land uses to help meet forecasted growth within unincorporated El Dorado County. Consistent with SACOG goals, the CEDHSP would create a mixed used and pedestrian friendly and walkable community. The land use design would minimize off-street parking to help reduce vehicle trips and support alternative transportation. CEDHSP policies would also provide short- and long-term bicycle parking, as well as dedicated parking for PEV and pre-wiring for future PEV charging stations. These policies would support alternative transportation within the community, which could help reduce per capita GHG emissions from passenger vehicles consistent with SACOG's MTP/SCS.

***Executive Orders EO S-3-05 and EO B-30-15***

As discussed in Section 3.6.1, Existing Conditions, EO B-30-15 established an interim GHG reduction target of 40% below 1990 levels by 2030, and EO S-3-05 established a long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050. Achieving these long-term GHG reduction policies will require systemic changes in how energy is produced and used.

There a number of studies that discuss potential mechanisms for limiting statewide GHG emissions to meet the aggressive goals identified by EO B-30-15 and EO S-3-05. For example, ARB and other State agencies commissioned Energy + Environmental Economics (E3) in 2015 to develop feasible GHG reduction scenarios for 2030. Other studies include a report by the California Center for Science and Technology (CCST) (2012), the California Department of Transportation's (2015) *California Transportation Plan 2040,* ARB's 2014 First Update, and a study published in *Science* that analyzes the changes that will be required to reduce GHG emissions to 80% below 1990 levels by 2050 (Williams et al. 2012). In general, these studies reach similar conclusions—deep reductions in GHG emissions can *only* be achieved with significant changes in electricity production, transportation fuels, and industrial processes (e.g., decarbonizing electricity production, electrifying transportation, utilizing alternative fuels for aviation).

The systemic changes that will be required to achieve EO B-30-15 and EO S-3-05, if they are legislatively adopted, will require significant policy, technical, and economic solutions. Some changes, such as the use of alternative fuels (e.g., biofuel) to replace petroleum for aviation, cannot be accomplished without action by the federal government. Similarly, achieving the reduction goals will require California to dramatically increase the amount of electricity that is generated by renewable generation sources and, correspondingly, advance the deployment of energy storage technology and smart-grid strategies, such as price-responsive demand and the smart charging of vehicles. This would entail a significant redesign of California's electricity system, which can only be accomplished through State action. Accordingly, in evaluating the project's emissions for consistency with EO S-3-05 and EO B-30-15, it is important to note that many of the broad-scale shifts needed to meet the reduction goals are outside of the control of the County and beyond the scope of the CEDHSP.

The long-term climate change policy and regulatory changes that will be enacted to meet 2030 and 2050 emissions reduction targets are unknown at this time. As a consequence, the extent to which the project's emissions and resulting impacts will be mitigated through implementation of statewide (and nationwide) changes is not known. However, some of the anticipated statewide actions (e.g., decarbonization, energy efficiency, alternative transportation) can be facilitated, at least to some extent, through implementation of specific GHG reduction measures in large-scale developments, such as the proposed project. The CEDHSP includes a comprehensive set of policies that will improve energy efficiency, reduce water consumption and waste generation, and encourage alternative transportation.[33] Mitigation Measure GHG-1 further requires the project to implement feasible GHG reduction measures within its control to facilitate attainment of the 2030 and 2050 GHG reduction goals of the executive orders.

While the CEDHSP policies and Mitigation Measure GHG-1 are consistent with anticipated long-term statewide strategies to reduce GHG emissions, they are not adequate on their own to reduce project-level emissions to a level below the 2035 efficiency indicator (see Table 3.6-8). It is possible that future adopted state and federal actions would reduce project emissions below a level consistent with the 2030 and 2050 reduction targets in the EOs, but this cannot be known at this time and, thus it is conservatively assumed that the project's emission levels would be inconsistent with the goals in EO S-3-05 and EO B-30-15.

***Conclusion***

Based on the above analysis, the CEDHSP is consistent with SACOG's MTP/SCS. However, it is conservatively concluded that the project's emission levels would be inconsistent with the goals of AB 32, EO S-3-05, and EO B-30-15. Therefore, this impact would be significant and unavoidable.

[33] Refer to Chapter 8 of the CEDHSP for a summary of sustainability policies.

Chapter 4
# Alternatives Analysis

*This chapter includes a revised discussion of greenhouse gas (GHG) impacts for each of the alternatives. No new alternatives are included and discussions of other resource are not revised. Proposed additions are shown in* <u>underline</u>*; any deletions are shown in* ~~strikeout~~.

## 4.1 Alternatives Overview

CEQA requires that an EIR include a reasonable range of feasible alternatives to the project that meet most or all project objectives while reducing or avoiding one or more significant impacts of the project. According to State CEQA Guidelines Section 15126.6(f), the range of alternatives required in an EIR is governed by a "rule of reason" that requires an EIR to set forth only those alternatives necessary to allow a reasoned choice. An EIR need not consider every conceivable alternative to a project. Instead, the discussion of alternatives must "focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project." Where a potential alternative is examined but not chosen as one of alternatives, the State CEQA Guidelines require that an EIR briefly discuss the reasons the alternative was dismissed. An EIR is not required to consider alternatives which are infeasible. In addition to a range of alternatives, an EIR must discuss the "No-Project Alternative," which describes the reasonably foreseeable probable future conditions if the project is not approved (State CEQA Guidelines Section 15126.6).

The lead agency must consider the alternatives discussed in an EIR before acting on a project. The agency is not required to adopt an alternative that may have environmental advantages over the project if specific economic, social, or other conditions make the alternative infeasible (Public Resources Code [PRC] Section 21002).

This chapter describes the alternatives to the Central El Dorado Hills Specific Plan (CEDHSP) (proposed project) and compares the anticipated environmental impacts of the alternatives to those of the proposed project, analyzed in Chapter 3, *Impact Analysis*, Sections 3.1 through 3.14.

## 4.2 Alternatives Development and Screening Criteria

The alternative screening criteria are listed here and are described below in detail.

- **Ability to meet project objectives**—the extent to which the alternative fulfills the project's objectives.
- **Impact avoidance**—the extent to which the alternative substantially avoids, minimizes, reduces, or eliminates an impact associated with the proposed project.
- **Feasibility—**the extent to which the alternative is potentially capable of being accomplished given economic, environmental, legal, social, and technological factors.

Through this screening process, alternatives were considered and included for further analysis in the Draft EIR or removed from further consideration. Those alternatives that meet the project objectives, that would reduce one or more project impacts, and that appear feasible are discussed in greater detail in Section 4.3, *Alternatives Analysis*. Those alternatives that were considered but removed from further consideration are described below under Section 4.5, *Alternatives Considered but Dismissed from Further Analysis in the EIR.*

### 4.2.1 Ability to Meet Project Objectives

El Dorado County's (County's) primary objective for the proposed project, as described in Chapter 2, *Project Description*, is to create development patterns that make the most efficient and feasible use of existing infrastructure and public services while promoting a sense of community as envisioned by the County General Plan. There are an additional 15 objectives of the proposed project, as follows.

- ***Fulfill regional land use objectives by achieving Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) Consistency.*** Establish new development that fulfills regional land use objectives by directing growth to the established community of El Dorado Hills and achieving consistency with The Sacramento Area Council of Governments' (SACOG's) adopted 2035 MTP/SCS.
- ***Curtail suburban sprawl.*** Curtail suburban sprawl (County General Plan Goal 2.1) by utilizing undeveloped infill sites and promoting mixed-use development patterns to accommodate the County's future population growth and support economic expansion.
- ***Assist in meeting future Regional Housing Needs Allocations (RHNA) needs.*** Assist in meeting the County's RHNA for the 2022–2030 Housing Element Update by introducing new lands zoned multifamily.
- ***Broaden the housing stock in El Dorado Hills.*** Maximize opportunities for higher-density housing as an alternative to single-family detached dwellings. Offer land uses to accommodate various lot sizes, densities, and product types to satisfy the market demands of existing and future household types, sizes, and income levels (County General Plan Goal HO-1), including the senior population (County General Plan Goal HO-4).
- ***Provide a strong community identity and quality built environment.*** Establish a community setting with an identifiable character and a visually attractive design theme that is compatible with the surrounding area and contributes to the quality of life and economic health (County General Plan Goal 2.4). Carefully plan and incorporate visual elements that enhance and promote a sense of community (County General Plan Goal 2.5) and provide quality residential environments for all income levels (County General Plan Goal HO-2).
- ***Utilize existing infrastructure and public services.*** Promote compact land use patterns in Community Regions to maximize existing public services, such as water, wastewater, parks, schools, solid waste, fire protection, law enforcement, and libraries, thus accommodating new growth in an efficient manner (County General Plan Goal 5.1).
- ***Improve connectivity of the regional roadway network.*** Provide an opportunity for the County to expand its regional roadway network and improve parallel capacity to U.S. Highway 50 (US 50).

- ***Encourage future transit opportunities.*** Locate development in the El Dorado Hills Community Region within walking distance of El Dorado Hills Boulevard to improve the feasibility of future transit services, thus reducing traffic congestion and offer alternative transportation choices to a range of users (County General Plan Goal TC-2).
- ***Create a new non-motorized transportation system.*** Create a new non-motorized transportation system (County General Plan Goal TC-4) linking new development to existing retail services. Incorporate Class I bike paths, "complete streets" with Class II bike lanes, and sidewalks in new development to promote alternative transportation modes and reduce vehicle miles traveled.
- ***Improve north-south pedestrian and bicycle connectivity.*** Reduce barriers to pedestrians created by US 50 and improve access between the north and south sides of the freeway and improve pedestrian and bicycle safety.
- ***Provide opportunities for recreational facilities in El Dorado Hills.*** Provide recreational facilities for the health and welfare of residents and visitors (County General Plan Goal 9.1), thus promoting opportunities to capitalize on recreational uses through tourism and recreational-based businesses and industries (County General Plan Goal 9.3).
- ***Maintain characteristics of natural landscape.*** Maintain natural landscape features, including ridgelines (County General Plan Goal 2.3), conserve existing natural resources for ecological value (County General Plan Goal 7.4), and conserve open space to provide for the enjoyment of scenic beauty (County General Plan Goal 7.6).
- ***Minimize impacts on oak woodlands.*** Minimize impacts on the oak woodlands by directing new development to areas with minimal or little oak canopy.
- ***Protect important cultural resources.*** Protect the County's important cultural resources (County General Plan Goal 7.5), including significant pre-historic and Native American resources and unique historical features of the County's Gold Rush history.
- ***Foster sustainable communities.*** Foster sustainable communities (County General Plan Goal 2.1) by utilizing sustainable design practices to reduce greenhouse gas emissions, and increase the efficiency of energy and water use in new development (County General Plan Goal HO-5).

## 4.2.2 Impact Avoidance

In addition to identifying feasible mitigation for a proposed project's impacts, a lead agency must also consider alternatives that could provide a means of avoiding altogether or reducing the level of impact that would otherwise result from implementation of a project. The following significant impacts would result from the proposed project. These impacts are analyzed in detail in Chapter 3, *Impact Analysis*, Sections 3.1 through 3.14.

### 4.2.2.1 Significant and Unavoidable Impacts

#### Air Quality

- Impact AQ-1 and AQ-1 CUM: Conflict with or obstruct implementation of the applicable air quality plan
- Impact AQ-2b and AQ-2b CUM: Violate any air quality standard or contribute substantially to an existing or projected air quality violation during operation

- Impact AQ-2c and AQ-2c CUM: Violate any air quality standard or contribute substantially to an existing or projected air quality violation during combined construction and operation
- Impact AQ-3 and AQ-3 CUM: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)

### Cultural Resources

- Impact CUL-1 CUM: Cause a substantial adverse change in the significance of an archaeological resource that is a historical resource as defined in Section 15064.5.

### Greenhouse Gas Emissions

- Impact GHG-1b and GHG-1b CUM: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment during operation
- Impact GHG-2 and GHG-2 CUM: Conflict with applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases

### Noise and Vibration

- Impact NOI-1a: Expose persons to or generate noise levels in excess of standards established in the General Plan as a result of construction activities
- Impact NOI-4: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project during construction
- Impact NOI-5: Be located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels

## 4.2.2.2 Significant Impacts That Can Be Mitigated to Less-Than-Significant Levels

### Aesthetics

- Impact AES-2: Have a substantial adverse effect on a scenic vista
- Impact AES-4: Substantially degrade the existing visual character or quality of the site and its surroundings

### Air Quality

- Impact AQ-2a: Violate any air quality standard or contribute substantially to an existing or projected air quality violation during construction
- Impact AQ-4d: Expose sensitive receptors to naturally occurring asbestos during construction

### Biological Resources

- Impact BIO-1: Loss of oak woodland canopy and oak woodland habitat
- Impact BIO-2: Loss of riparian woodland

- Impact BIO-3: Loss of jurisdictional wetlands, including seasonal wetlands, seasonal wetland swales, and seeps
- Impact BIO-4: Loss of other waters of the United States, including intermittent drainages, drainage ditches/roadside ditches, and ponds
- Impact BIO-5: Potential impacts on special-status plant species within CEDHSP project area
- Impact BIO-6: Potential mortality or disturbance of California red-legged frog within the CEDHSP project area
- Impact BIO-7: Potential mortality or disturbance of Pacific pond turtle within the CEDHSP project area
- Impact BIO-8: Potential mortality or disturbance of Blainville's horned lizard within the CEDHSP project area
- Impact BIO-9: Potential mortality or disturbance of nesting special-status and non–special-status birds within the CEDHSP project area
- Impact BIO-10: Potential injury, mortality, or disturbance of tree-roosting bats and removal of roosting habitat within the CEDHSP project area
- Impact BIO-11: Interfere with the movement of resident or migratory wildlife
- Impact BIO-13: Potential introduction and spread of invasive plant species
- Impact BIO-14: Potential loss of sensitive natural communities within the offsite infrastructure improvement areas
- Impact BIO-15: Potential loss of waters of the United States within the offsite infrastructure improvement areas
- Impact BIO-16: Potential impacts on special-status plant species within the offsite infrastructure improvement areas
- Impact BIO-17: Potential mortality or disturbance of listed vernal pool branchiopods and their habitat within offsite infrastructure improvement areas
- Impact BIO-18: Loss or disturbance of valley elderberry longhorn beetle and its habitat within offsite infrastructure improvement areas
- Impact BIO-19: Potential mortality or disturbance of California red-legged frog within offsite infrastructure improvement areas
- Impact BIO-20: Potential mortality or disturbance of Pacific pond turtle within offsite infrastructure improvement areas
- Impact BIO-21: Potential mortality or disturbance of Blainville's horned lizard within offsite infrastructure improvement areas
- Impact BIO-22: Potential mortality or disturbance of nesting special-status and non–special-status birds within offsite infrastructure improvement areas
- Impact BIO-23: Potential injury, mortality, or disturbance of tree-roosting bats and removal of roosting habitat within offsite infrastructure improvement areas

## Cultural Resources

- Impact CUL-1: Cause a substantial adverse change in the significance of an archaeological resource that is a historical resource as defined in Section 15064.5
- Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries
- Impact CUL-4: Result in disturbance to or destruction of cultural resources as a result of offsite improvements

## Geology, Soils, Minerals, and Paleontological Resources

- Impact GEO-4: Result in fracturing and/or erosion from special construction methods that could result in unstable geologic or soil conditions
- Impact GEO-9: Directly or indirectly destroy a unique paleontological resource
- Impact GEO-10: Impacts on geological, mineral and paleontological resources resulting from offsite improvements

## Hazards and Hazardous Materials

- Impact HAZ-9: Create a significant hazard to the public or the environment as a result of offsite improvements

## Hydrology, Water Quality, and Water Resources

- Impact WQ-6: Otherwise substantially degrade water quality
- Impact WQ-11: Impacts on hydrology and water quality resulting from offsite improvements

## Noise and Vibration

- Impact NOI-1b: Expose persons to or generate noise levels from project-generated traffic in excess of standards established in the General Plan
- Impact NOI-1c: Expose persons to or generate noise levels in excess of standards established in the General Plan for stationary or non-transportation noise sources during project operation
- Impact NOI-2: Expose persons to or generate excessive groundborne vibration or groundborne noise levels
- Impact NOI-3: Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Impact NOI-7: Result in noise impacts due to activities associated with project offsite improvements

## Public Services and Utilities

- Impact PSU-3: Require or result in the construction of new wastewater treatment or conveyance facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects

- Impact PSU-4: Require or result in the construction of new water treatment or conveyance facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects
- Impact PSU-5: Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects

#### Traffic and Circulation

- Impact TRA-1: Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and on-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrians and bicycle paths, and mass transit
- Impact TRA-5: Result in inadequate emergency access
- Impact TRA-6: Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities
- Impact TRA-8: Result in inadequate emergency access as a result of offsite improvements

### 4.2.3 Feasibility

CEQA requires that alternatives considered in an EIR be feasible. Section 15364 of the State CEQA Guidelines defines *feasible* as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA does not require that an EIR determine the ultimate feasibility of a selected alternative, but rather that an alternative probably be feasible. Factors considered in determining an alternative's feasibility included site suitability, infrastructure availability, general plan consistency, consistency with other plans and regulatory limitations, jurisdictional boundaries, economic viability, and whether an alternate site could reasonably be acquired.

## 4.3 Alternatives Analysis

After the screening process, the County determined that two alternatives—a reduced-density alternative and a reduced-wetland-impact alternative—would fulfill the CEQA requirements of meeting most of the project objectives, being feasible, and reducing or eliminating project impacts. In addition, a No-Project Alternative must be considered in an EIR. Therefore, the following alternatives are evaluated in comparison with the proposed CEDHSP in this Draft EIR.

- Alternative 1—No Project
- Alternative 2—Reduced Density
- Alternative 3—Reduced Wetland Impact

Table 4-1 provides a comparison of the types and extent of development associated with the proposed project and the No-Project, Reduced-Density, and Reduced Wetland-Impact Alternatives. Each of the alternatives analyzed is further described in Sections 4.3.1 through 4.3.4.

## Table 4-1. Alternatives Analyzed

| Land Use | Proposed Project | Alternative 1 – No Project | Alternative 2 – Reduced Density | Alternative 3 – Reduced Wetland Impact |
|---|---|---|---|---|
| Developed Acres[a] | 134 ac | 93 ac | 185 ac | 139 ac |
| Open Space[b] | 168 ac | 235 ac | 130 ac | 173 ac |
| Oak Tree Impacts | 14 ac | 32 acc | 34 acc | 38 acc |
| Wetlands Impacts | 2.9 ac | 0.15 ac | 3.6 ac | 0.25 ac |
| Residential Land Use | | | | |
| HDR/VRL (<1–5 du/ac) | 37 du | 168 du | 472 du | 203 du[c] |
| HDR/VRM-Low (5–8 du/ac) | 123 du | – | – | 159 du |
| HDR/VRM-High (8–14 du/ac) | 310 du | – | – | 200 du |
| MFR/VRH (14–24 du/ac) | 530 du | 144 du | 200 du | 353 du |
| Total Dwelling Units | 1,000 du | 312 du | 672 du | 915 du |
| Road Impacts | 12 ac | 13 ac | 21 ac | 17 ac |
| Private Parks (quantity) | 1 | – | 2 | – |
| Entry Park | 1.2 ac | – | 2.2 ac | – |
| Neighborhood Park | – | – | 2.5 ac | – |
| Total Public Parks (acres) | 26 ac | – | – | 12 ac |
| Village Park – Westside | 15 ac | – | – | – |
| Park/Limited Commercial – Westside | 11 ac | – | – | 12 ac |
| **Total Developed Acres[d]** | **173 ac** | **106 ac** | **211 ac** | **168 ac** |
| **Total Project Area** | **341 ac** | **341 ac** | **341 ac** | **341 ac** |
| Offsite Improvements | | | | |
| Pedregal water lines | X | X | X | X |
| Recycled water line expansion | X | | X | |
| Park Drive extension[e] | X | | X | |
| Two pedestrian crossings | X | | | |
| US 50 pedestrian crossing | X | | | |
| Potential connection to Silva Valley Parkway | X | | | |
| Other roadway connections | | | X | X |

ac = acres (rounded in some cases).
du = dwelling units.

[a] Excludes roads and parks, which are listed separately.
[b] Open space estimated in project area includes Serrano Village D1,Lots C and D.
[c] Duplexes/half-plexes assumed on the VRL lots in Pedregal.
[d] Developed acres, road impacts, and parks.
[e] Extension from El Dorado Hills Boulevard to the Serrano Westside roundabout.

## 4.3.1 Alternative 1 – No Project

Section 15126.6(e)(2) of the State CEQA Guidelines requires an EIR to include an analysis of the No-Project Alternative. Evaluation of the No-Project Alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The No Project Alternative assumes that the proposed project would not be implemented, but does not necessarily preclude use or development of the project site. Rather, the No Project Alternative evaluated in this Draft EIR considers "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (State CEQA Guidelines Section 15126.6 [e][2]).[34]

For this Draft EIR, the No-Project Alternative assumes that the land uses within the project area would remain as currently entitled (Serrano Village D1, Lots C and D) and as current General Plan land use designations allow (Pedregal and the former El Dorado Hills Executive Golf Course). A General Plan amendment, El Dorado Hills Specific Plan amendment, or rezoning would not be required. However, the No-Project Alternative would require a tentative subdivision map, which would be subject to environmental review under CEQA.

Buildout of existing plans and/or entitlements under the theoretic maximum density for the project area would allow development under the No-Project Alternative of up to 759 dwelling units on 181 acres. However, in order to be feasible in the Pedregal planning area in consideration of slope and oak canopy restrictions, the No-Project Alternative development density and dwelling unit count was modified to be consistent with County development requirements, which would limit allowable development to a total of 312 dwelling units on the 341-acre project site (93 developed acres). Figure 4-1 shows the land use assumptions for this alternative.

Under this scenario, the No-Project Alternative would consist of the development of 168 detached, single-family residential units at a density of <1–5 dwelling units per acre (du/ac and 144 multifamily residential units at a density of 14–24 du/ac. The Serrano Westside planning area encompasses Serrano Village D1, Lots C and D, which would be developed with residential uses consistent with the 1988 *El Dorado Hills Specific Plan* (EDHSP). Within the Serrano Westside planning area, 41.2 acres would be developed with detached, single-family residential units at a density of <1–5 du/ac (135 dwelling units). The Pedregal planning area would be developed with 45.3 acres of detached, single-family residential units at a density of <1–5 du/ac (33 units), and 6.3 acres of multifamily residential unit at a density of 14–24 du/ac (144 units). No public or private parks would be dedicated. This alternative would not include the civic–limited commercial land use. The former El Dorado Hills Executive Golf Course property would remain in its existing state as maintained vacant land. Table 4-1 summarizes the development assumptions for this alternative.

Circulation improvements associated with the proposed project, including those associated with vehicular connectivity, pedestrian amenities, and the public trail system, would not be constructed under the No-Project Alternative.

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[34] As provided by State CEQA Guidelines Section 15126(e)(3)(A), a discussion of the No-Project Alternative will usually proceed along one of two lines: a "plan-to-plan" comparison when the project is the revision of an existing land use plan, such as the proposed project; or—if the project is other than a land use plan (e.g., a development project on identifiable property)—a comparison of the environmental effects of the property remaining in its existing state against the environmental effects if the proposed project is approved. The plan-to-plan comparison is the appropriate analysis for this EIR, and a No-Project Alternative under which the project site remains in its existing state does not require evaluation in this Draft EIR.

Offsite infrastructure improvements (outside the project area) would be required to support the No-Project Alternative. These offsite improvements would include new water lines to supply the Pedregal planning area. The No-Project Alternative would not include a recycled water line, the two pedestrian crossings at the Raley's and La Borgata shopping area, the Park Drive extension, a pedestrian crossing over US 50, or a potential connection to Silva Valley Parkway.

The CEDHSP policies would not apply to development in either planning area. Further, the No-Project Alternative is not a specific plan or development proposal. Thus, in the evaluation of environmental impacts of the No-Project Alternative, the analysis generally assumes that development within the Pedregal planning area would be subject to General Plan policies, zoning and development standards set forth in the County Code of Ordinances, and General Plan EIR mitigation measures adopted for mitigating potential environmental effects. In the Serrano Westside planning area, the No-Project Alternative assumes that environmental effects could be addressed through EDHSP policies, EIR mitigation measures, and conditions of approval.

It is reasonable to assume that the mitigation measures identified in this Draft EIR for the proposed project would provide effective environmental protection. Therefore, the proposed project's mitigation measures are referenced in the technical analyses, below, to allow for meaningful comparison with the proposed project and as an indicator of the level of mitigation that could be required for a project with the land uses associated with the Alternative.

### 4.3.1.1 Aesthetics

[No changes from November 2015 Draft EIR.]

### 4.3.1.2 Air Quality

[No changes from November 2015 Draft EIR.]

### 4.3.1.3 Biological Resources

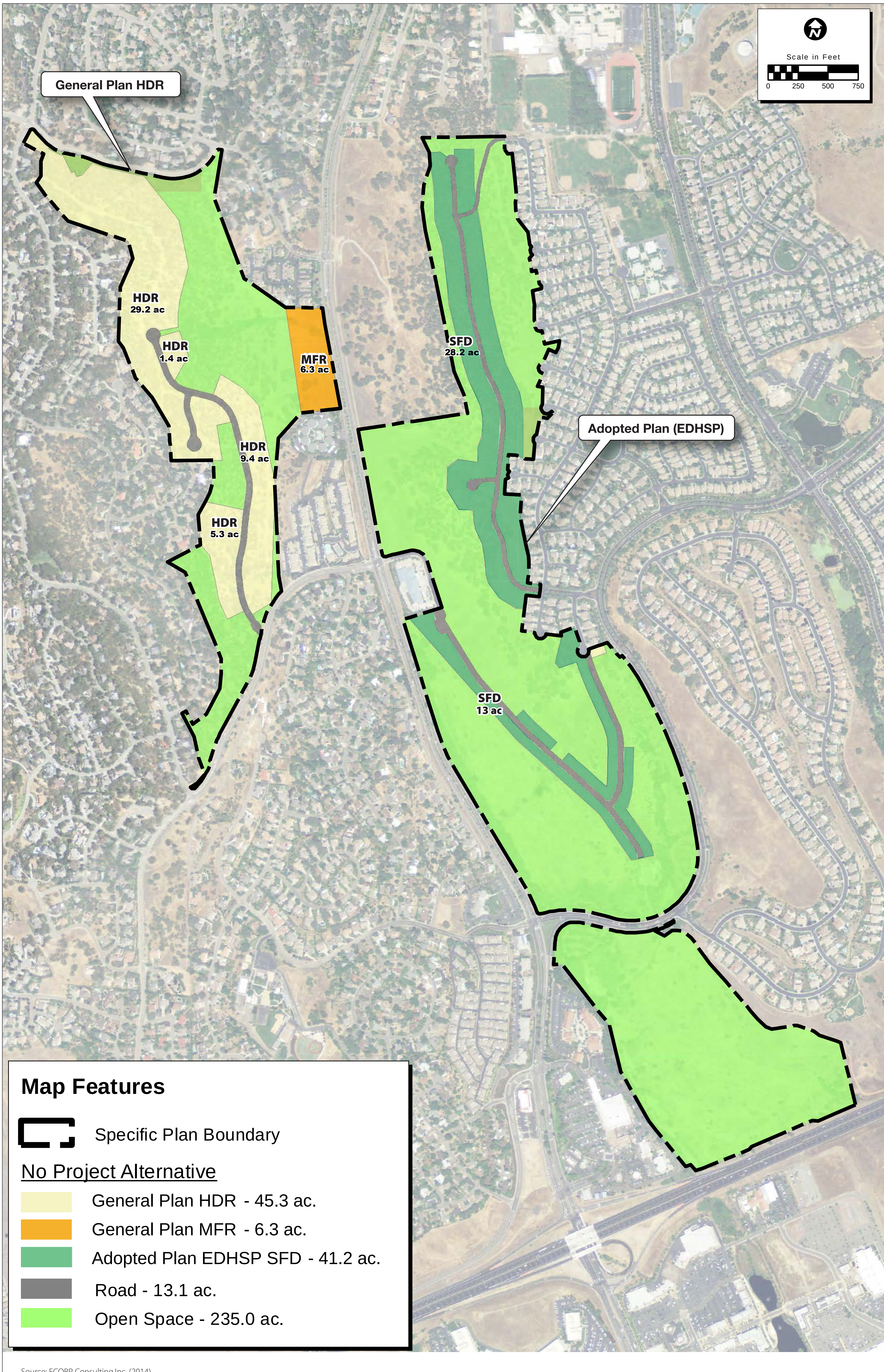
[No changes from November 2015 Draft EIR.]

### 4.3.1.4 Cultural Resources

[No changes from November 2015 Draft EIR.]

### 4.3.1.5 Greenhouse Gas Emissions

Similar to the criteria air pollutant emissions, construction and operational greenhouse gas (GHG) emissions associated with the No-Project Alternative would likely be lower than those estimated for the proposed project. However, because the CEDHSP would not be adopted under the No-Project Alternative, policies outlined in the CEDHSP Sustainability Element intended to reduce GHG emissions would not be incorporated into the project design for the No-Project Alternative. ~~Moreover, mobile source emissions generated by the No-Project Alternative would not be eligible to tier from SACOG's MTP/SCS EIR because the No-Project Alternative would not qualify as a mixed-use residential project.~~ Therefore, although ~~mobile source~~ operational emissions associated with the No-Project Alternative may be less than the proposed project, ~~total operational~~ GHG emissions <u>in 2020</u> may exceed the <u>average efficiency-metric threshold of 4.7 metric tons carbon dioxide equivalent ($CO_2$e) per service population or the mass emissions threshold of 1,100 metric tons, both</u>




Source: ECORP Consulting,Inc. (2014)

Graphics/00668.12 CEDH/EIR (05-20-14) SS

**Figure 4-1**
**Alternative 1**
**No Project Alternative**

of which are derived from the Assembly Bill (AB) 32 reduction target for 2020, ~~Sacramento Area Regional draft GHG threshold (regional draft GHG thresholds),~~ resulting in a significant impact. Similar to the proposed project, it is likely full build emissions will exceed the efficiency indicator, and the No-Project Alternative's cumulative contribution of GHG emissions at full build would therefore be significant. The requirements listed in Mitigation Measure GHG-1, as proposed for the proposed project in Section 3.6, *Greenhouse Gas*, or similarly effective measures would still be needed under the No-Project Alternative. However, even with mitigation, the No-Project Alternative's emissions may still exceed the 2035 efficiency indicator. Therefore, the alternative's cumulative contribution of GHG emissions in 2035 would be significant and unavoidable.

### 4.3.1.6 Hazards and Hazardous Materials

[No changes from November 2015 Draft EIR.]

### 4.3.1.7 Hydrology, Water Quality, and Water Resources

[No changes from November 2015 Draft EIR.]

### 4.3.1.8 Land Use Planning and Agricultural Resources

[No changes from November 2015 Draft EIR].

### 4.3.1.9 Noise and Vibration

[No changes from November 2015 Draft EIR.]

### 4.3.1.10 Population and Housing

[No changes from November 2015 Draft EIR].

### 4.3.1.11 Public Services and Utilities

[No changes from November 2015 Draft EIR.]

### 4.3.1.12 Recreation

[No changes from November 2015 Draft EIR.]

### 4.3.1.13 Traffic and Circulation

[No changes from November 2015 Draft EIR.]

### 4.3.1.14 Application of Screening Criteria

#### Ability to Meet Project Objectives

The County's primary objective for the proposed project is to create development patterns that make the most efficient and feasible use of existing infrastructure and public services while promoting a sense of community as envisioned by the County General Plan. The No-Project Alternative would make efficient and feasible use of existing infrastructure, but it would not necessarily promote a sense of community. The No-Project Alternative would, at least to some extent, meet 6 of the 15 additional project objectives:

- Curtail suburban sprawl.
- Assist in meeting future RHNA needs.
- Broaden the housing stock in El Dorado Hills.
- Utilize existing infrastructure and public services.
- Improve north-south pedestrian and bicycle connectivity.
- Protect important cultural resources.

It would not meet the other objectives listed in Section 4.2.1. Because the density would be low and pedestrian trails would not be included, the No-Project Alternative would not meet objectives related to walkability, bicycle and pedestrian access, and transit opportunities. However, the US 50 overcrossing would be constructed at the old location and so would offer some north-south connectivity for pedestrians and bicycles. The No-Project Alternative would result in the development of the ridgeline in Village D1 and therefore would not meet objectives to maintain the character of the natural landscape or minimize impacts on oaks.

### Impact Avoidance

The No-Project Alternative would avoid impacts related to changes in land use designations or zoning. It would result in development of fewer acres and nearly 70% fewer dwelling units and would therefore result in reduction of impacts related to population and traffic. Impacts on air quality, noise, population and housing, and public services would be reduced, although impacts related to GHGs could increase. Because fewer acres would be developed, it would result in fewer impacts on biological and cultural resources. Potential impacts related to the need for and construction of new recreational facilities which would not exist under the proposed project would be increased under the No-Project Alternative, although likely to a less-than-significant level.

### Feasibility

Implementation of the No-Project Alternative would be possible as described because County requirements for construction and oak preservation have been considered. This alternative would result in far fewer residential units within the same acreage and therefore may not be economically feasible for the applicant.

## 4.3.2 Alternative 2 – Reduced Density

Compared to the proposed project, the Reduced-Density Alternative would reduce the total number of dwelling units from 1,000 to 672 but would increase the development footprint by over 50 acres to accommodate the reduced density (from 134 acres for the proposed project to 185 acres under this alternative). This alternative would provide the least open space—130 acres—of all the alternatives, and 39 fewer acres of open space than the proposed project. This alternative assumes development of Village D1, Lots C and D (135 units) and combines the current approved land uses and existing housing types within the Serrano Westside planning area with development of the Pedregal planning area as envisioned under the proposed project.

Buildout of the Reduced-Density Alternative would result in development of 672 dwelling units, of which 337 would be low density (<1 du/ac), 135 medium-low density (5–8 du/ac), and 200 high density (14–24 du/ac). This alternative would have 300 more low-density (<1 du/ac) and 12 more medium-low density (5–8 du/ac) residential units than the proposed project, while eliminating all medium-density (8–14 du/ac) units and decreasing high-density (14–24 du/ac) units from 530 to 200 (Table 4-1). This alternative would not include the civic–limited commercial land use. Table 4-1, above, summarizes the development assumptions for this alternative.

Roads would occupy 21 acres, and two private parks—a 2.2-acre entry park and a 2.5-acre neighborhood park totaling 4.7 acres—would be developed. No public parks are proposed for the Reduced-Density Alternative, as many of the proposed housing units would be located within the Serrano Westside planning area, where amenities have already been completed, and residents would have access to those facilities. The public trail system, US 50 pedestrian overcrossing, the north and south pedestrian crossings from the Serrano Westside planning area, and the Silva Valley Parkway connection that would be constructed under the proposed project, would not be built under the Reduced-Density Alternative. To facilitate traffic circulation, connections would be made to Penela Drive, Estero Way and Meadow Wood Drive. Figure 4-2 depicts proposed development under the Reduced-Density Alternative.

### 4.3.2.1 Aesthetics

[No changes from November 2015 Draft EIR.]

### 4.3.2.2 Air Quality

[No changes from November 2015 Draft EIR.]

### 4.3.2.3 Biological Resources

[No changes from November 2015 Draft EIR.]

### 4.3.2.4 Cultural Resources

[No changes from November 2015 Draft EIR.]

### 4.3.2.5 Greenhouse Gas Emissions

GHG impacts under the Reduced-Density Alternative would be similar to those under the proposed project but of a lesser magnitude. Construction and operational emissions associated with the Reduced-Density Alternative would likely be lower than those estimated for the proposed project. Compliance with CEDHSP Sustainability Element policies would reduce construction and operational GHG emissions consistent with reductions estimated for the proposed project. Accordingly, since GHG emissions in 2020 ~~impacts~~ would be ~~less than~~ significant under the proposed project, near-term (2020) impacts under the Reduced-Density Alternative would likewise be ~~less than~~ significant. Likewise, similar to the proposed project, it is likely full build (2035) emissions will exceed the efficiency indicator of 2.1 metric tons $CO_2$e per service population. Mitigation Measure GHG-1, established for the proposed project, would reduce long-term GHG emissions generated by the Reduced-Density Alternative. However, even with mitigation, the Reduced-Density Alternative's emissions would still likely exceed the 2035 efficiency indicator given the magnitude of emissions. Therefore, the alternative's cumulative contribution of GHG emissions in 2035 would be significant and unavoidable.

### 4.3.2.6 Hazards and Hazardous Materials

[No changes from November 2015 Draft EIR.]

### 4.3.2.7 Hydrology, Water Quality, and Water Resources

[No changes from November 2015 Draft EIR.]

### 4.3.2.8 Land Use Planning and Agricultural Resources

[No changes from November 2015 Draft EIR.]

### 4.3.2.9 Noise and Vibration

[No changes from November 2015 Draft EIR.]

### 4.3.2.10 Population and Housing

[No changes from November 2015 Draft EIR.]

### 4.3.2.11 Public Services and Utilities

[No changes from November 2015 Draft EIR.]

### 4.3.2.12 Recreation

[No changes from November 2015 Draft EIR.]

### 4.3.2.13 Traffic and Circulation

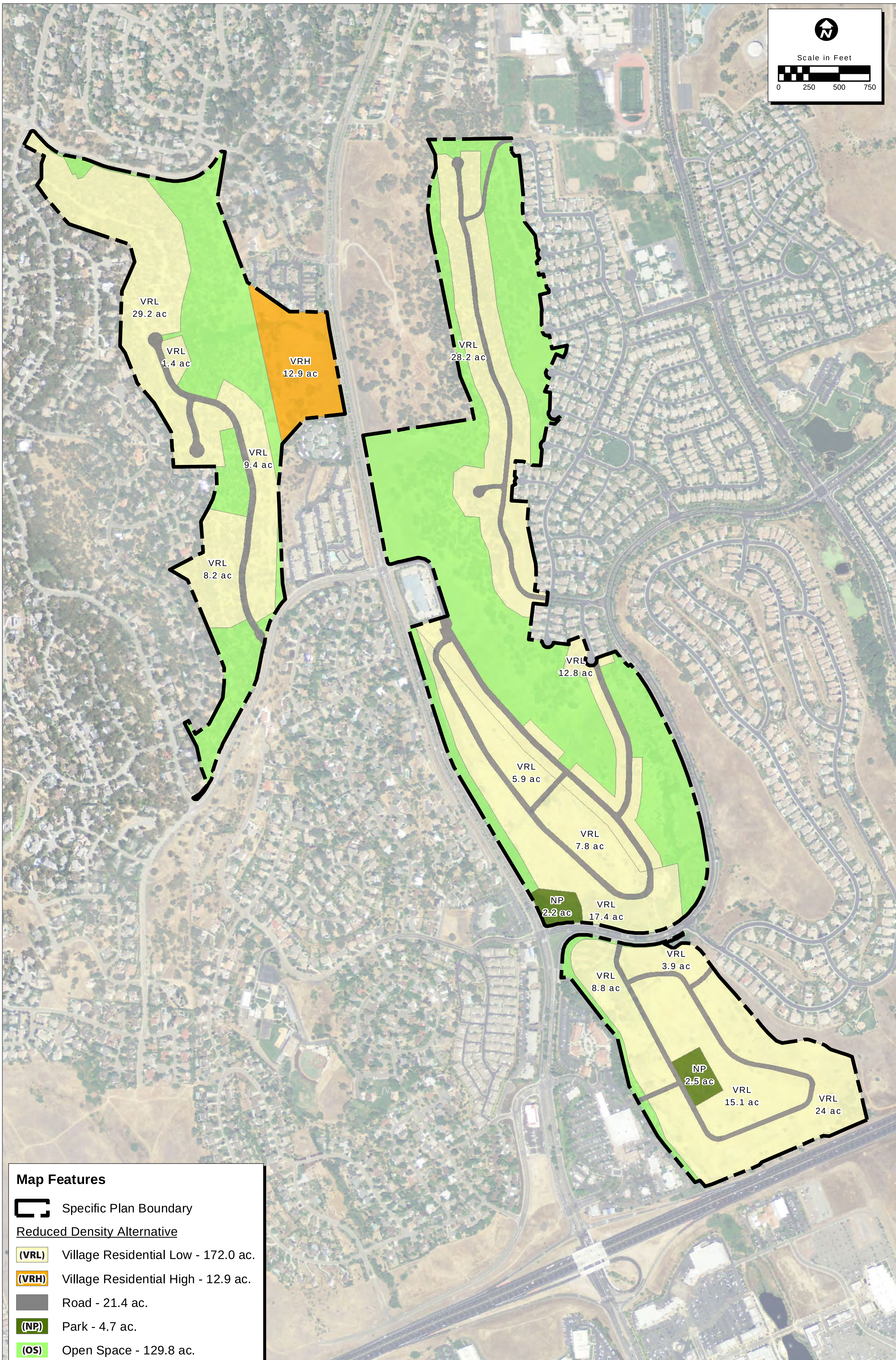
[No changes from November 2015 Draft EIR.]

### 4.3.2.14 Application of Screening Criteria

#### Ability to Meet Project Objectives

The County's primary objective for the proposed project is to create development patterns that make the most efficient and feasible use of existing infrastructure and public services while promoting a sense of community as envisioned by the County General Plan. The Reduced-Density Alternative would make efficient and feasible use of existing infrastructure, and it would promote a sense of community. The Reduced-Density Alternative would, at least to some extent, meet 5 of the15 additional project objectives:

- Curtail suburban sprawl.
- Utilize existing infrastructure and public services.
- Provide opportunities for recreational facilities.
- Encourage future transit opportunities.




Source: ECORP Consulting,Inc. (2014)

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**Figure 4-2**
**Alternative 2**
**Reduced Density**

- Protect important cultural resources.

It would not meet the other objectives listed in Section 4.2.1. Because the density would be lower and public trail system and pedestrian crossings from the Serrano Westside planning area and over US 50 would not be included, this alternative would not meet objectives related to bicycle and pedestrian connectivity and safety. The Reduced-Density Alternative includes only single-family residences and therefore would not meet objectives related to RHNA or housing diversity. The Reduced-Density Alternative would result in the development of the ridgeline in Village D1 and therefore would not meet objectives to maintain the character of the natural landscape or minimize impacts on oaks.

### Impact Avoidance

Although the Reduced-Density Alternative would not altogether avoid any impacts of the proposed project, it would result in development of approximately one-third fewer dwelling units and would therefore result in reduction of impacts related to population and traffic. Impacts on air quality, noise, population and housing, and public services also would be reduced. Because more acres would be developed, it would not result in fewer impacts on biological and cultural resources. Because residential units would be located adjacent to US 50, a significant and unavoidable traffic noise impact would occur that would not occur under the proposed project. This alternative would introduce impacts (although likely less than significant) related to recreational facilities that would not occur under the proposed project, and would require the dedication or payment of in-lieu fees to accommodate new park users.

### Feasibility

Implementation of the Reduced-Density Alternative would be possible as described because County requirements for construction and oak preservation have been considered. This alternative would result in approximately one third fewer residential units and therefore may not be economically feasible for the applicant.

## 4.3.3 Alternative 3 – Reduced Wetland Impact

Alternative 3, the Reduced-Wetland-Impact Alternative (Figure 4-3), is intended to reduce wetland impacts compared to the proposed project through changes to the location and density of development. A total of 0.24 acre of wetland would be affected under this alternative, versus 2.9 acres of wetlands and other waters of the United States under the proposed project.

The Reduced-Wetland-Impact Alternative would reduce the quantity and density of potential dwelling units in the Serrano Westside planning area and would include the development of Serrano Village D1, Lots C and D (135 units), which would be designated as Open Space under the proposed project. Of the 341-acre total site area, 168 acres would comprise the development footprint and approximately 173 acres would remain in open space use. Buildout of the Reduced-Wetland-Impact Alternative would result in the development of 68 low-density units, 294 medium-low density units, 200 medium-high density units, and 353 high-density units, for a total of 915 dwelling units on approximately 139 acres. The Reduced-Wetland-Impact Alternative assumes construction of duplexes and half-plexes within the Pedregal planning area as a means to increase density, while reducing and configuring the development footprint to avoid wetlands. The civic-limited commercial land use of the proposed project would be retained under this alternative but with slightly more acreage (12 acres under The Reduced-Wetland Impact Alternative versus 11 acres under the proposed project). Table 4-1, above, summarizes the development assumptions for this alternative.

Roads would occupy 17 acres, 5 acres more than the proposed project's 12 acres of roadways. The pedestrian crossing of US 50, the pedestrian crossings from the Serrano Westside planning area, and the Park Drive extension included in the proposed project would not be components of this alternative. However, this alternative would include the water line extensions to serve the Pedregal planning area, and the recycled water line expansion. The option for the Silva Valley Parkway connection would not be provided. Vehicle circulation would require connections to Gillette Drive (from the Pedregal planning area) and to Meadow Wood Drive and Estero Way (from the Serrano Westside planning area).

### 4.3.3.1 Aesthetics

[No changes from November 2015 Draft EIR.]

### 4.3.3.2 Air Quality

[No changes from November 2015 Draft EIR.]

### 4.3.3.3 Biological Resources

[No changes from November 2015 Draft EIR.]

### 4.3.3.4 Cultural Resources

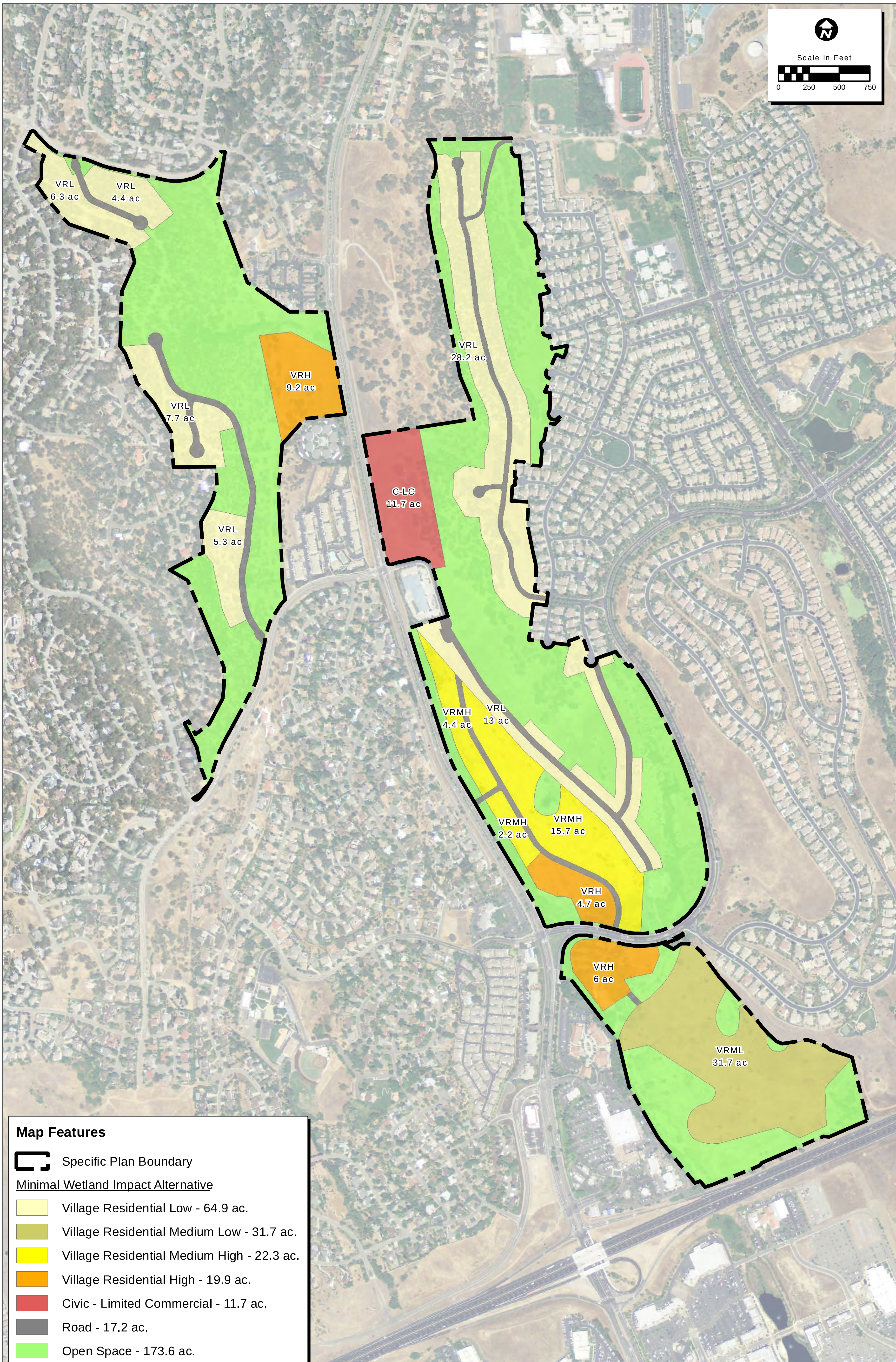
[No changes from November 2015 Draft EIR.]

### 4.3.3.5 Greenhouse Gas Emissions

GHG impacts under the Reduced-Wetland-Impact Alternative would be similar to those under the proposed project but of a slightly lesser magnitude. Similar to the criteria air pollutant emissions, construction and operational GHG emissions associated with the Reduced-Wetland-Impact Alternative would likely be slightly lower than those estimated for the proposed project because of the reduced development. Compliance with CEDHSP Sustainability Element policies would reduce construction and operational GHG emissions consistent with reductions estimated for the proposed project. Accordingly, since GHG emissions in 2020 ~~impacts~~ would be ~~less than~~ significant under the proposed project, near-term (2020) impacts under the Reduced-Wetland-Impact Alternative would likewise be ~~less than~~ significant. Likewise, similar to the proposed project, it is likely full build (2035) emissions will exceed the efficiency indicator of 2.1 metric tons $CO_2e$ per service population. Mitigation Measure GHG-1, established for the proposed project, would reduce long-term GHG emissions generated by the Reduced-Wetland-Impact Alternative. However, even with mitigation, the Reduced-Wetland-Impact Alternative's emissions would still likely exceed the 2035 efficiency indicator given the magnitude of emissions. Therefore, the alternative's cumulative contribution of GHG emissions in 2035 would be significant and unavoidable.

### 4.3.3.6 Hazards and Hazardous Materials

[No changes from November 2015 Draft EIR.]




Source: ECORP Consulting,Inc. (2014)

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**Figure 4-3**
**Alternative 3**
**Reduced-Wetland-Impact Alternative**

## 4.3.3.7 Hydrology, Water Quality, and Water Resources

[No changes from November 2015 Draft EIR.]

## 4.3.3.8 Land Use Planning and Agricultural Resources

[No changes from November 2015 Draft EIR.]

## 4.3.3.9 Noise and Vibration

[No changes from November 2015 Draft EIR.]

## 4.3.3.10 Population and Housing

[No changes from November 2015 Draft EIR.]

## 4.3.3.11 Public Services and Utilities

[No changes from November 2015 Draft EIR.]

## 4.3.3.12 Recreation

[No changes from November 2015 Draft EIR.]

## 4.3.3.13 Traffic and Circulation

No changes from November 2015 Draft EIR.

## 4.3.3.14 Application of Screening Criteria

### Ability to Meet Project Objectives

The County's primary objective for the proposed project is to create development patterns that make the most efficient and feasible use of existing infrastructure and public services while promoting a sense of community as envisioned by the County General Plan. The Reduced-Wetland-Impact Alternative would make efficient and feasible use of existing infrastructure, and it would promote a sense of community. The Reduced-Wetland-Impact Alternative would, to some extent, meet 10 of the 15 project objectives:

- Fulfill regional land use objectives by achieving MTP/SCS Consistency.
- Curtail suburban sprawl.
- Assist in meeting future RHNA needs.
- Broaden the housing stock in El Dorado Hills.
- Provide a strong community identity and quality built environment.
- Utilize existing infrastructure and public services.
- Encourage future transit opportunities.
- Provide opportunities for recreational facilities in El Dorado Hills.
- Protect important cultural resources.

- Foster sustainable communities.

The lack of public trail system and pedestrian crossings from the Serrano Westside Planning area and over US 50 would not result in a walkable community, and objectives related to pedestrian and bicycle safety and connectivity would not be met. This alternative would also develop the ridgeline in Village D1, and therefore would not meet objectives to maintain the character of the natural landscape or minimize impacts on oaks.

### Impact Avoidance

Although the Reduced-Wetland-Impact Alternative would not altogether eliminate any impact, it would substantially reduce impacts on wetlands and on special-status species that occupy wetland habitat, but it would increase impacts on oak woodlands. This alternative would also result in development of slightly fewer acres and approximately 9% fewer dwelling units and would therefore result in very slight reductions of impacts related to air quality, population, public services, and vehicle traffic. This alternative would introduce a significant and unavoidable noise impact related to siting sensitive uses near US 50 and would result in a greater impact than the proposed project because occupied residential uses would be close to US 50. Impacts on geology and soils, paleontological resources, greenhouse gas emissions, and hydrology, water quality and water resources would be slightly reduced. Aesthetic impacts would increase slightly due to development on ridgelines. Potential impacts related to the need for and construction of new recreational facilities which would not exist under the proposed project, would be increased under the Reduced-Wetland-Impact Alternative, although likely to a less-than-significant level.

### Feasibility

Implementation of the Reduced-Wetland-Impact Alternative would likely be economically feasible as the reduction in residential units is less than 10%.

# 4.4 Environmentally Superior Alternative

CEQA requires an EIR to examine a range of feasible alternatives to a proposed project. State CEQA Guidelines Section 15126.6(e)(2) requires that an EIR identify which of those alternatives is the environmentally superior alternative. The *environmentally superior alternative* is considered to be the alternative to the proposed project that has the least environmental impact, compared to the proposed project. If, in the course of identifying the environmentally superior alternative, the No-Project Alternative is found to be the environmentally superior alternative, then Section 15126.6(e)(2) of the State CEQA Guidelines further requires that an EIR identify which among the other alternatives is the environmentally superior alternative. Consequently, although the No-Project Alternative is evaluated and presented for comparison purposes, determination of the environmentally superior alternative in this chapter primarily reflects the differences in impacts among the remaining alternatives. Determination of the environmentally superior alternative uses the impact evaluations of the proposed project and of each alternative in a comparative process. The impacts of each alternative are identified and compared to those of the proposed project. The type and relative magnitude of each alternative's impacts are evaluated, and the alternative found to have the least impact, as compared to the others, is determined to be the environmentally superior alternative.

Table 4-2 provides a comparison of the level of impacts under the alternatives considered in this Draft EIR as compared to the proposed project. In many instances, the potential effects would be similar, meaning that the overall outcome of implementing the proposed project compared to any one of the alternatives would generally result in the same type and magnitude of effects on a specific resource even though the approach of the alternatives differ in some ways from the proposed project.

As shown in Table 4-2, the No-Project Alternative was determined to be environmentally superior. Although it still entails development and is, therefore, not a "no-build," the reduced footprint and reduced overall dwelling units result in lesser environmental impacts overall. The State CEQA Guidelines require that, if the No-Project Alternative is identified as environmentally superior, the EIR must identify an environmentally superior alternative among the other alternatives (Section 15126.6[e][2]). Of the two remaining alternatives, the Reduced-Density Alternative appears to be the environmentally superior alternative. The Reduced-Density Alternative would result in the construction of 672 dwelling units and develop 211 of the 341 acres on the project site. It would also provide more pedestrian facilities than the Reduced-Wetland-Impact Alternative (but not the US 50 overcrossing) and a recycled water line extension.

The Reduced-Density Alternative would facilitate a walkable community, more than would the Reduced-Wetland-Impact Alternative. Though the larger overall footprint (approximately 50 acres more than the proposed project) would result in more potential to affect "on the ground" resources, such as biological, paleontological and archaeological resources and hydrology and water resources, the development of far fewer residential units (328 less than the proposed project) would result in less traffic and fewer traffic-associated air quality and noise impacts. Additionally, impacts on public services, utilities, and recreational facilities would be reduced.

The Reduced-Wetland-Impact Alternative would develop 5 acres less than the proposed project and 43 acres less than the Reduced-Density Alternative, which would avoid potential impacts on the ground resources, including many biological resources, but it would result in more acres of woodland impacts than any other alternative. With the development of 915 dwelling units (only 85 fewer than the proposed project), the reduction in traffic and population-associated impacts would be minimal compared to those of the proposed project and would be greater than those of the Reduced-Density Alternative.

**Table 4-2. Comparison of Environmental Impacts of Alternatives to the Proposed Project**

| Resource Topic | Proposed Project | Alternative 1 – No Project | Alternative 2 – Reduced Density | Alternative 3 – Reduced Wetland Impact |
|---|---|---|---|---|
| **Aesthetics** | | | | |
| Light/Glare | LTS | LTS (=) | LTS (<) | LTS (>) |
| Construction | LTS | LTS (<) | LTS (<) | LTS (=) |
| Operation | LTS w/mit | LTS w/mit (>) | LTS w/mit (>) | LTS w/mit (>) |
| **Air Quality** | | | | |
| Construction | LTS w/mit | LTS w/mit (<) | LTS w/mit (<) | LTS w/mit (=) |
| Operation | SU | SU (<) | SU (<) | SU (=) |
| Combined | SU | SU (<) | SU (<) | SU (=) |
| Health/NOA | LTS w/mit | LTS w/mit (<) | LTS w/mit (<) | LTS w/mit (=) |
| **Biological Resources** | | | | |
| Oak Canopy | LTS w/mit | LTS w/mit (>) | LTS w/mit (>) | LTS w/mit (>) |
| Sensitive Vegetation Communities | LTS w/mit | LTS w/mit (<) | LTS w/mit (>) | LTS w/mit (<) |
| Wetlands | LTS w/mit | LTS w/mit (<) | LTS w/mit (>) | LTS w/mit (<) |
| Special Status Species | LTS w/mit | LTS w/mit (<) | LTS w/mit (>) | LTS w/mit (<) |
| **Cultural Resources** | | | | |
| Known Archaeological Resources | LTS w/mit | LTS w/mit (=) | LTS w/mit (=) | LTS w/mit (=) |
| Potential Disturbance of Unknown Archaeological Resources | LTS w/mit | LTS w/mit (<) | LTS w/mit (>) | LTS w/mit (=) |
| **Geology, Soils, Minerals, and Paleontological Resources** | | | | |
| Geology | LTS w/mit | LTS w/mit (<) | LTS w/mit (>) | LTS w/mit (<) |
| Minerals | LTS | LTS (=) | LTS (=) | LTS (=) |
| Paleontological Resources | LTS w/mit | LTS w/mit (<) | LTS w/mit (>) | LTS w/mit (<) |
| **Greenhouse Gas Emissions** | | | | |
| Generate GHG | SU ~~LTS~~ | SU ~~LTS w/mit~~ (>) | SU ~~LTS~~ (<) | SU ~~LTS~~ (<) |
| Conflict with Plan | SU ~~LTS~~ | SU ~~LTS~~ (>) | SU ~~LTS~~ (<) | SU ~~LTS~~ (<) |
| **Hazards and Hazardous Materials** | | | | |
| Construction | LTS | LTS (<) | LTS (<) | LTS (<) |
| Operation | LTS | LTS (<) | LTS (<) | LTS (<) |
| **Hydrology, Water Quality, and Water Resources** | | | | |
| Construction Site Stormwater Runoff | LTS | LTS (<) | LTS (>) | LTS (<) |
| Urban Stormwater Runoff | LTS | LTS (<) | LTS (>) | LTS (<) |
| Drainage and Flood Hazard | LTS | LTS (<) | LTS (>) | LTS (>) |
| Water Quality (Wetlands and Other Waters) | LTS w/mit | LTS w/mit (<) | LTS w/mit (<) | LTS w/mit (<) |

Note: shading indicates change in significance level from proposed project.

NI = no impact.
LTS = less-than-significant impact.
LTS w/mit = less-than-significant impact with mitigation incorporated.
SU = significant and unavoidable impact.

(<) less than proposed project.
(=) equal to proposed project.
(>) greater than proposed project.

| Resource Topic | Proposed Project | Alternative 1 – No Project | Alternative 2 – Reduced Density | Alternative 3 – Reduced Wetland Impact |
|---|---|---|---|---|
| **Land Use Planning and Agricultural Resources** | | | | |
| Divide Community | LTS | LTS (=) | LTS (=) | LTS (=) |
| **Noise and Vibration** | | | | |
| Construction | SU | SU (=) | SU (>) | SU (=) |
| Traffic | LTS w/mit | LTS w/mit (<) | SU (>) | SU (>) |
| Operation | LTS w/mit | LTS w/mit (<) | LTS w/mit (<) | LTS w/mit (<) |
| Mather Airport noise | SU | SU (=) | SU (=) | SU (=) |
| **Population and Housing** | | | | |
| Growth | LTS | LTS (<) | LTS (<) | LTS (=) |
| Displacement | NI | NI (=) | NI (=) | NI (=) |
| **Public Services and Utilities** | | | | |
| Public Services Facilities | LTS | LTS (<) | LTS (<) | LTS (=) |
| Wastewater Treatment | LTS | LTS (<) | LTS (<) | LTS (=) |
| Water Supply | LTS | LTS (<) | LTS (<) | LTS (>) |
| Other Utilities Demand | LTS | LTS (<) | LTS (<) | LTS (=) |
| Offsite Infrastructure Construction | LTS w/mit | LTS w/mit (<) | LTS w/mit (<) | LTS w/mit (<) |
| **Recreation** | | | | |
| Impacts on Existing Parks | LTS | LTS (>) | LTS (>) | LTS (>) |
| Impacts from New Offsite Parks | NI | LTS (>) | LTS (>) | LTS (>) |
| **Traffic and Circulation** | | | | |
| Construction | LTS w/mit | LTS w/mit (<) | LTS w/mit (>) | LTS w/mit (=) |
| Operation | LTS w/mit | LTS w/mit (<) | LTS w/mit (<) | LTS w/mit (=) |
| Pedestrian/bicycle/public transit | LTS w/mit | LTS w/mit (>) | LTS w/mit (>) | LTS w/mit (>) |

Note: shading indicates change in significance level from proposed project.

NI = no impact.
LTS = less-than-significant impact.
LTS w/mit = less-than-significant impact with mitigation incorporated.
SU = significant and unavoidable impact.

(<) less than proposed project.
(=) equal to proposed project.
(>) greater than proposed project.

# 4.5 Alternatives Considered but Dismissed from Further Evaluation in this Draft EIR

The following alternatives were considered using the process described in Section 4.2, *Alternatives Development and Screening Criteria*, but were dismissed from detailed evaluation in this chapter for the individual reasons stated for each potential alternative.

## 4.5.1 Alternate Location Alternative

The Alternate Location Alternative would use the same land use and density balance but in a different location. Project objectives for this infill project revolve around providing a walkable community, which includes being located within 1 mile of retail, commercial, and emergency services. Other potential locations with close proximity to retain, commercial, and emergency services are rare in El Dorado Hills proper. A few parcels exist on the south side of US 50 that are located across Latrobe Road from the Town Center commercial area. This area would be less conducive to a walkable community because there are no neighborhood retail services or infrastructure in the commercial center. Additionally, Parker Development does not own those parcels. For these reasons, there is no alternative site available for development of this infill project that would result in a substantial reduction of environmental impacts while meeting the project objectives. Therefore, this alternative was removed from further consideration for detailed analysis in this Draft EIR.

## 4.5.2 Equestrian Center Alternative

The Equestrian Center Alternative would consist of developing the former El Dorado Hills Executive Golf Course property (approximately 98 acres) as an equestrian center, and the remainder of the proposed project land uses and densities would remain the same as the proposed project. The equestrian facility would be privately owned and available for use by the general public. While this alternative was popular with some residents of the area, it does not meet the County's central objective of creating development patterns that make the most efficient and feasible use of existing infrastructure and public services while promoting a sense of community. The central location of the Serrano Westside planning area is conducive to residential development because it is near infrastructure (sewer, water, roads) and in close proximity to services (fire, police, schools). While the remainder of the project area would be in residential development, the former El Dorado Hills Executive Golf Course is the most walkable portion of the project area. Additionally, while an equestrian center at this location may reduce traffic-related impacts that are associated with residential development, it would also introduce new potential environmental impacts, including odors and pests that come with livestock and traffic issues that come with larger vehicles (horse trailers). A more rural setting would be more conducive to an equestrian center. Because this alternative would result in additional impacts not resulting from the proposed project, and because this alternative would not meet the core project objectives, this alternative was removed from further consideration for detailed analysis in this Draft EIR.

## 4.5.3 All Parks and Open Space Alternative

The All Parks Alternative would consist of rezoning and designating the entire approximately 341-acre project site as open space and park uses. There would be no residential development. Park facilities, where feasible, could include indoor and outdoor sports facilities with lighting; storage buildings, restrooms and associated infrastructure; internal circulation (roads and paths); and parking areas. Because such a project would not result in the payment of any park impact fees, the facility would likely be privately owned and operated and would be open to the public. If public, it would likely require a special tax to support the acquisition and development of the park land.

The extent of park facilities that could be developed under this alternative would be a function of the physical constraints of each site, such as topography, oak canopy, wetlands, and cultural resource sites, among others. A brief description of these conditions for each planning area is presented below.

The Serrano Westside planning area encompasses 239 acres, including 50 acres in the EDHSP. An All Parks and Open Space Alternative would likely exclude the area known as Village D1, Lots C and D, which would likely be developed with residential uses as allowed by the current specific plan (whereas the proposed project designates this area as permanent open space and retains 21 acres of oak tree canopy). The golf course portion of the Serrano Westside planning area consists of approximately 98 acres, with about half the acreage ranging from 10 to 20% slope. The El Dorado Hills Community Services District's (CSD's) Master Plan (2007) requires that a community park site be at least 80% level (with a 2% slope) and usable. Given the existing topography, the feasibility of the construction of active recreational facilities would be more costly because of the grading necessary to construct the facilities. In addition, if a project proponent elected to grade the more heavily sloped areas of the former golf course, the visual impact of the extensive grading and likely terracing associated with the flat recreational facilities might not be aesthetically pleasing. The land with greater than 30% slopes would likely be designated Open Space.

The Pedregal planning area contains slopes that vary from 10% to more than 30%, and an oak tree canopy of 70% of the site. Given these two constraints, and in order to protect cultural resource sites, most of the property, 96 acres, would only be suitable for natural open space uses with no recreational opportunities. Of the 6 acres along El Dorado Hills Boulevard, 1 acre would be set aside for wetland preservation. The remaining 5 acres might be suitable for an active recreational facility.

While this alternative was popular with some members of the public and local agencies, it does not meet the County's central objective of creating development patterns that make the most efficient and feasible use of existing infrastructure and public services while promoting a sense of community as envisioned by the County General Plan. Furthermore, it would eliminate a multifamily housing opportunity as set forth in the County's adopted 2013–2021 Housing Element. Additionally, while athletic fields at this location may reduce peak-hour traffic-related impacts that are associated with residential development, traffic impacts would still result at game times, when athletes and observers would arrive and leave the facility in large numbers at the same time. It would also introduce new potential environmental impacts, including night-time lighting, the visual impact of active athletic fields, and noise associated with sporting events. Because this alternative would result in additional impacts not resulting from the proposed project, and because this alternative would not meet the core project objectives, this alternative was removed from further consideration for detailed analysis in this Draft EIR.

# Chapter 5
# Other CEQA Considerations

*This chapter includes revisions necessary because of the updated discussion of greenhouse gas (GHG) impacts provided in Section 3.6, Greenhouse Gas Emissions. Discussions of other resource are not revised. Proposed additions are shown in* underline*; any deletions are shown in* ~~strikeout~~.

## 5.1 Overview

This chapter includes the following discussions and analyses required by CEQA.

- Cumulative impacts.
- Growth-inducing impacts.
- Significant and unavoidable environmental impacts.
- Significant irreversible environmental impacts.
- Mitigation measures with the potential for environmental effects.

## 5.2 Cumulative Impacts

The State CEQA Guidelines define a *cumulative impact* as two or more individual impacts that, when considered together, are significant or that compound or increase other significant environmental impacts. The incremental impact of a project may be considerable when viewed in the context of other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over a period of time (State CEQA Guidelines Section 15355).

State CEQA Guidelines Section 15130(b) indicates that an adequate discussion of significant cumulative impacts requires consideration of either of the following.

(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or

(B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan.

This EIR uses a combination of both approaches. That is, the cumulative analysis is initially based on the adopted general plan (the projections approach based on projected population at the planning horizon under the *El Dorado County General Plan* [County General Plan]) supplemented by a list of additional projects that are not currently included in the County General Plan. Inclusion in this analysis does not imply that these proposed projects will be approved by El Dorado County (County). This cumulative impact analysis takes the impacts of these projects into consideration solely in order to meet the intent of State CEQA Guidelines Section 15130 for a worst-case scenario perspective. This combined approach is used to determine whether significant cumulative impacts would occur.

In reaching a conclusion for each resource area (i.e., the topics analyzed in Sections 3.1 through 3.14 of Chapter 3, *Impact Analysis*), five factors were considered: (i) the geographic scope of the cumulative impact area for that resource, (ii) the timeframe within which project-specific impacts could interact with the impacts of other projects, (iii) whether a significant adverse cumulative condition presently exists to which project impacts could contribute, (iv) the significance of the incremental project-specific contribution to cumulative conditions, and (v) whether any cumulative impact is significant.

For the purpose of this EIR, significant cumulative impacts would occur if impacts related to the implementation of the project, combined with the environmental impacts of the planning horizon under the County General Plan and the additional projects indicated below, would result in an adverse significant effect. For an impact to be considered cumulative, these incremental impacts and potential incremental impacts must be related to the types of impacts caused by the project and evaluated in Chapter 3, *Impact Analysis*.

## 5.2.1 Cumulative Scenario

The cumulative analysis considers impacts of the proposed Central El Dorado Hills Specific Plan (CEDHSP) together with the planning horizon under the County General Plan and other reasonably foreseeable projects producing related impacts, as described below.

### 5.2.1.1 General Plan Updated Planning Horizon

The County General Plan, adopted in 2004, presents the County's comprehensive, long-term vision for physical development and resource conservation. The County General Plan analyzed two scenarios, a 20-year planning horizon (estimated to be 2025 at the time of preparation of the 2004 County General Plan) and a maximum theoretical density buildout. The maximum theoretical density permitted under buildout of the County General Plan would result in the development of up to 78,692 new housing units beyond the 44,708 units existing in 1999, for a total of 123,400 dwelling units housing an estimated 317,692 people within the unincorporated west slope area (El Dorado County 2003). The maximum commercial and industrial development permitted at County General Plan maximum theoretical density buildout is estimated to be 6,684 acres, at a floor area ratio (FAR) of 0.25, accommodating a total of 117,122 jobs (El Dorado County 2003, 2004a). In 2007, the County Board of Supervisors approved increasing the FAR to 0.85, accommodating a total of 245,543 jobs (El Dorado County 2007a). Practical constraints, such as slope, waterways, biological resources, and availability of roadways and infrastructure, make it unlikely that maximum theoretical density buildout could be achieved and certainly not within the planning horizon of the County General Plan. In addition, the proposed project is anticipated to be built out within the 20-year planning horizon and therefore, the planning horizon is used as a basis for this cumulative scenario.

The County's forecasts for the 2004 County General Plan 2025 planning horizon calculated that growth to the planning horizon would be an additional 32,491 new housing units beyond the 44,708 units that existed in 1999, for a total of 77,199 units. Approximately 15,000 new housing units have been built since 1999, leaving approximately 17,500 remaining housing units to be built in the planning horizon.

In 2013, the County updated the housing and employment growth projections to assist in the preparation of the updated County Travel Demand Model, which was used for the CEDHSP traffic analysis. These projections, developed by BAE Urban Economics (2013) cover the western slope of El Dorado County (excluding Placerville) and examine growth from 2010 to a planning horizon (now labeled 2035). Growth allocations based on the distribution of new development in the County between 2000 and 2011 and development applications from 2006 through present were used to extrapolate future growth. In 2010, there were 59,668 existing housing units. For 2035, it was projected that there would be 77,077 housing units. The BAE 2013 study projects that by 2015, 62,803 housing units exist, leaving approximately 14,300 housing units to be built in the 2035 planning horizon. The 2035 planning horizon forecasts differ only slightly from the 2025 planning horizon forecasts done in 2002. This is largely a result of the economic recession in the late 2000s, and the resulting drastic reduction in the rate of growth in El Dorado County. Detail on the methodology for the forecasts is presented in the BAE memo, available on the County's website at https://www.edcgov.us/Government/Planning/BAE_Report.aspx.

Among the specific projects included in planning horizon for the County General Plan are those considered to be existing commitments—projects for which a tentative map or development agreement existed before approval of the 2004 County General Plan but that are not built out at the time the 2004 County General Plan was adopted. These projects have the potential to contribute 14,565 dwelling units to the County General Plan total (El Dorado County 2003). Since adoption of the County General Plan, several of the approved projects have decreased in size or were partially built out and are now expected to supply an additional 7,216 of the possible 14,300 new dwelling units. These projects include the Bass Lake Hills Specific Plan, Carson Creek Specific Plan, El Dorado Hills Specific Plan, Marble Valley development, Promontory Specific Plan, and Valley View Specific Plan (Table 5-1).

### Table 5-1. El Dorado County Approved Projects – 2004 County General Plan

| | Residential Uses (dwelling units) | | | Commercial and Industrial/Research and Development Uses (acres) | Parkland and Open Space Uses (acres) |
|---|---|---|---|---|---|
| Project | Entitled | Built | Remaining | | |
| Bass Lake Hills Specific Plan | 1,458 | 99 | 1,359 | 0 | 31 – Park<br>151 – OS |
| Carson Creek Specific Plan | 1,700 | 460 | 1,240 | 99 | 37 – Park<br>199 – OS |
| El Dorado Hills Specific Plan | 6,162 | 3,935[a] | 2,227 | 301 | 60 – Park<br>808 – OS |
| Marble Valley Master Plan | 398[b] | 0 | 398 | 0 | 54 – Park<br>1,271 – OS |
| Promontory Specific Plan | 1,100 | 709[c] | 391 | 7 | 35 – Park<br>101 – OS |
| Valley View Specific Plan | 2,840 | 1,239 | 1,601 | 40 | 86 – Park<br>617 – OS |
| **Total** | **13,658** | **6,442** | **7,216** | **447** | **303 – Park**<br>**3,147 – OS** |

Source: El Dorado County 2003.

[a] As of March 14, 2013.

[b] From approved 1997 Master Plan

[c] Includes 59-109 lots that are recorded but not yet built.

## Bass Lake Hills Specific Plan

The 1,196-acre Bass Lake Hills Specific Plan is approximately 3 miles east of the Sacramento–El Dorado County line, north of U.S. Highway 50 (US 50) between El Dorado Hills and Cameron Park, and abuts the El Dorado Hills Specific Plan (EDHSP) on the east. The Bass Lake Hills Specific Plan was adopted in 1995 and allows development of 1,458 dwelling units with 31 acres of parks and 151 acres of open space (El Dorado County 1995a). As of 2013, only 99 dwelling units had been constructed.

## Carson Creek Specific Plan

The Carson Creek Specific Plan, adopted in 1996 and amended in 1999, allows development of an approximately 710-acre area along the Sacramento County line, south of US 50 and adjacent to the El Dorado Hills Business Park. Buildout of the Carson Creek Specific Plan would allow 1,700 dwelling units, though only 460 have been constructed as of 2013, up to 40,000 square feet (sf) of commercial uses, up to 449,605 sf of research and development uses, and 780,279 sf of industrial uses, 37 acres of public parkland, and 199 acres of open space (El Dorado County 1999).

## El Dorado Hills Specific Plan

The El Dorado Hills Specific Plan allows development of up to 6,162 dwelling units, 301 acres of commercial uses, 60 acres of parks and public facilities, and 808 acres of open space uses on a 3,646-acre site north of US 50 and south of Green Valley Road, as well as approximately 158 acres of commercial land uses south of US 50 (El Dorado County Community Development Department 1988). Only 3,935 dwelling units have been constructed as of 2013.

## Marble Valley Master Plan

The Marble Valley Master Plan development, a 2,418-acre area south of US 50 between the Bass Lake Road and Cambridge Road interchanges, was approved by the County Board of Supervisors in 1997 for 398 dwelling units, 54 acres of parks and public facilities, and 1,271 acres of open space (El Dorado County 2003). However, this project was not constructed, and there is a new proposed plan, which is described under *Other Projects*, below.

## Promontory Specific Plan

The Promontory Specific Plan allows development of an approximately 1,000-acre area, south of Folsom Reservoir and north of US 50, with up to 1,100 dwelling units, 7 acres of commercial and office uses, 35 acres of parks and public facilities, and 101 acres of public open space (El Dorado County 2003). As of 2013, 709 units have been constructed or lots have been recorded.

## Valley View Specific Plan

The Valley View Specific Plan area covers 2,837 acres south of US 50 in the El Dorado Hills area and allows development of up to 2,840 dwelling units, 40 acres of commercial uses, including mixed-use development, 86 acres of multi-use open space (parks and public facilities), two schools, and 617 acres of passive open space and buffer areas (El Dorado County 2003). As of 2013, 1,239 dwelling units have been constructed.

### 5.2.1.2 Other Projects

Other more recent projects not specifically addressed in the County General Plan planning horizon assumptions are the proposed Dixon Ranch residential project, Lime Rock Valley Specific Plan (LRVSP), Saratoga Estates (formerly Rancho Dorado) residential development, San Stino residential project, Tilden Park subdivision, and Village of Marble Valley Specific Plan (VMVSP). In addition, the El Dorado Town Center Apartments, a 250-unit apartment complex approved by the County in 2014, was originally planned as a hotel project in Village T of the EDHSP and was included as such in the planning horizon assumptions described above in the County General Plan. However, the change in use from hotel to residential would result in higher density and require a general plan amendment. The locations of these proposed projects are shown in Figure 5-1. Residential and commercial development, and parks and open space lands associated with these projects, are described below and in Table 5-2. In addition, a targeted general plan amendment and zoning ordinance update (TGPA/ZOU) is currently in process, though there are no development projects associated with it.

**Table 5-2. Other Projects**

| Project | Residential Uses | | Commercial and Industrial/Research and Development Uses (acres) | Parkland and Open Space Uses (acres) |
|---|---|---|---|---|
| | Dwelling Units | Acres | | |
| Dixon Ranch | 605 | 196 | 0 | 84 combined[a] |
| El Dorado Hills Town Center Apartments | 250 | 4.6 | 0 | 0 |
| Lime Rock Valley Specific Plan | 800 | 360 | 0 | 8 – Park<br>333 – OS |
| Saratoga Estates (Rancho Dorado) | 316 | 70.98 | 0 | 5.42 – Park<br>37.04 – OS |
| San Stino | 1,041 | 375 | 0 | 0 – Park[b]<br>270 – OS |
| Tilden Park | 14 | 2.97 | 8.22 | 0 – Park<br>1.64 – OS |
| Village of Marble Valley Specific Plan (as proposed) | 3,236[c] | 797 | 57 | 87 – Park<br>1,284 – OS |
| Subtotal | 6,262 | 1,806.55 | 65.22 | 100.42 – Park<br>1,925.68 – OS |
| Combined Park/OS Total | – | – | – | 2,110.10[d] |

Sources: El Dorado County 2012a, 2012b, 2013a, 2015; G3 Enterprises 2015; Marble Valley Company 2015.

[a] Not included in park or open space subtotal.; the Dixon Ranch land use plan does not identify separate acreages for park and open space land uses.

[b] San Stino NOP states that “two larger lots would also be set aside for future school, park or residential uses” but does not quantify (El Dorado County 2013a).

[c] Includes 398 dwelling units already approved. Net new units would be 3,236 – 398 = 2,838.

[d] Combined Park/OS Total includes Dixon Ranch combined park/open space acreage.

## Dixon Ranch Residential Project

The proposed Dixon Ranch residential project consists of development of 605 dwelling units, 160 of which would be age-restricted (55 years and older), and a clubhouse, on an approximately 280-acre site south of Green Valley Road near Malcolm Dixon Road (El Dorado County 2012a). The project includes 84 acres of active and passive open space uses consisting of parks, trails, landscaped lots, and natural open space.

## El Dorado Hills Town Center Apartments Project

The Town Center Apartments project is a 250-unit apartment complex located at the northwest corner of Town Center Boulevard and Vine Street within the Town Center East Planned Development in El Dorado Hills. The site is within Village T of the EDHSP and was originally planned as a hotel, and as such is included in the County General Plan planning horizon. The project required an amendment to the County General Plan to increase residential density from 24 dwelling units/acre (du/ac) to 55 du/ac, amendments to the EDHSP, rezone, and revisions to the approved Town Center East Development Plan. The County approved the project in 2014 but it is currently under litigation.

## Lime Rock Valley Specific Plan

The proposed Lime Rock Valley Specific Plan would allow development of up to 800 residential units on approximately 360 acres, as well as an 8-acre neighborhood park with recreational amenities, and about 333 acres of public and private open space (El Dorado County 2013c). The project site is south of US 50, southwest of the Cambridge Road interchange, along Flying C Road. A portion of the site adjoins the proposed Village of Marble Valley Specific Plan. It is adjacent to the existing Cameron Estates subdivision on the north and the Royal Equestrian subdivision on the south.

## Saratoga Estates (Rancho Dorado) Residential Development

The proposed Saratoga Estates (formerly Rancho Dorado) residential project would include development of 316 residential units, 5.42 acres of public parkland, 37.04 acres of open space, and 8.4 acres of public roads in the El Dorado Hills area (El Dorado County 2015). The Rancho Dorado site is north of US 50 and 0.5 mile west of the intersection of US 50 and El Dorado Hills Boulevard. The current Saratoga Estates proposal would result in 131 more dwelling units than originally planned for in the Rancho Dorado project.

## San Stino Residential Project

The proposed San Stino residential project would entail development of 1,041 dwelling units on approximately 645 acres south of US 50 between French Creek Road and Old Frenchtown Road, south of Mother Lode Drive (El Dorado County 2013a). Two lots would be set aside for future school, park, or residential development and 270 acres of the site would be devoted to open space uses.

## Tilden Park Subdivision

The Tilden Park subdivision consists of a proposed residential and commercial development on a 12.01-acre site north of Wild Chaparral Drive and 500 feet west of Crosswood Drive in Shingle Springs just north of US 50. The Tilden Park subdivision proposes development of 14 residential

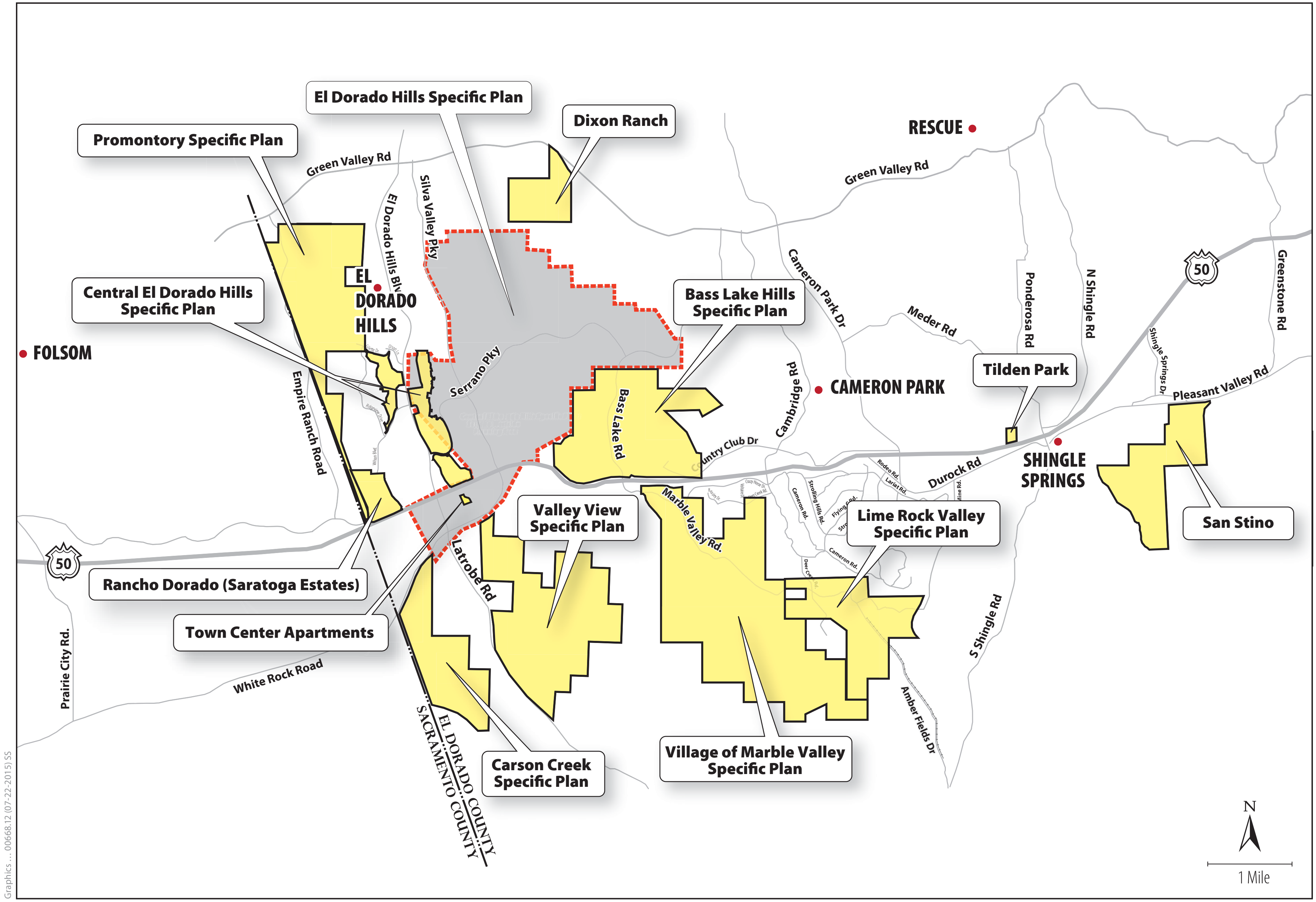


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**Figure 5-1**
**Locations of Cumulative Projects**

units, and a total of 56,500 square feet of commercial development that would include retail, grocery, restaurant and office uses, as well as an 80-unit hotel. The subdivision would dedicate 1.64 acres of land to open space use (El Dorado County 2012b).

#### Village of Marble Valley Specific Plan

The proposed Village of Marble Valley Specific Plan would replace the existing development agreement for the Marble Valley site, and would allow development of up to 3,236 residential units, 475,000 square feet of non-residential uses, 55 acres of agricultural use, 87 acres of public facilities/recreational use (including 47 acres of public parkland), 1,284 acres of open space, and 61 acres of road impact areas and future right-of-way (El Dorado County 2013b). As such, buildout of the proposed Village of Marble Valley Specific Plan would increase the total number of dwelling units proposed within the Marble Valley site—and the county—by 2,838 beyond what is currently approved and described above as part of County General Plan maximum theoretical density buildout (i.e., the total proposed 3,236 dwelling units, less the 398 already approved).

#### Targeted General Plan Amendments/Zoning Ordinance Update

El Dorado County (County) approved targeted amendments to certain County General Plan policies and land use designations (TGPA) and a comprehensive update to the zoning ordinance (ZOU) in December 2015. The project does not include any site-specific development proposals, although it does include adoption of guidelines for mixed-use development. Rather, it is limited to amendments to County General Plan policies and a comprehensive revision of the zoning ordinance. Policies pertinent to the project include policies to increase the maximum density for the residential portion of mixed use projects in Community Regions from 16 du/ac to 20 du/ac, to amend the multifamily residential (MFR) designation to encourage a full range of housing types, to encourage infill projects.

### 5.2.1.3 Folsom South of US Highway 50

One other project considered in the cumulative analysis assumes buildout of the grazing land south of US 50 and north of White Rock Road that was annexed to the city of Folsom in 2012 and is slated for suburban development.

## 5.2.2 Analysis of Potential Cumulative Impacts

### 5.2.2.1 Aesthetics

[No changes from November 2015 Draft EIR.]

### 5.2.2.2 Air Quality

[No changes from November 2015 Draft EIR.]

### 5.2.2.3 Biological Resources

[No changes from November 2015 Draft EIR.]

### 5.2.2.4 Cultural Resources

[No changes from November 2015 Draft EIR.]

### 5.2.2.5 Geology, Soils, Minerals, and Paleontological Resources

[No changes from November 2015 Draft EIR.]

### 5.2.2.6 Greenhouse Gas Emissions

Climate change is a global problem, and greenhouse gases (GHGs) are global pollutants, unlike criteria air pollutants (such as ozone precursors, which are primarily pollutants of regional and local concern). Given their long atmospheric lifetimes (see Table 3.6-1), GHGs emitted by numerous sources worldwide accumulate in the atmosphere. No single emitter of GHGs is large enough to trigger global climate change on its own. Rather, climate change is the result of the individual contributions of past, present, and future sources. Therefore, GHG impacts presented in Section 3.6, *Greenhouse Gas Emissions*, are inherently cumulative.

As discussed in Impacts GHG-1a, GHG-1b, and GHG-2, construction and ~~non-mobile source~~ near-term (2020) operational emissions would not violate the average efficiency-metric threshold of 4.7 metric tons carbon dioxide equivalent ($CO_2e$) emissions per service population, but would exceed the emissions threshold of 1,100 metric tons $CO_2e$. ~~Sacramento Area Regional draft GHG thresholds, which have been established consistent with the state's 2020 Assembly Bill (AB) 32 reduction goals. The project is also consistent with SACOG's MTP/SCS and, as such, non-mobile source GHG emissions would result in a less-than-significant impact on global climate change.~~ Full build (2035) emissions exceed the efficiency indicator of 2.1 metric tons $CO_2e$ per service population. Mitigation Measure GHG-1 would reduce long-term GHG emissions generated by the project. However, even with mitigation, emissions would still exceed the 2035 efficiency indicator. Accordingly, the project's incremental contribution to cumulative GHG impacts is ~~not~~ cumulatively considerable, and the cumulative impact would ~~be less than~~ significant and unavoidable.

### 5.2.2.7 Hazards and Hazardous Materials

[No changes from November 2015 Draft EIR.]

### 5.2.2.8 Hydrology, Water Quality, and Water Resources

[No changes from November 2015 Draft EIR.]

### 5.2.2.9 Land Use Planning and Agricultural Resources

[No changes from November 2015 Draft EIR.]

### 5.2.2.10 Noise and Vibration

[No changes from November 2015 Draft EIR.]

### 5.2.2.11 Population and Housing

[No changes from November 2015 Draft EIR.]

### 5.2.2.12 Public Services and Utilities

[No changes from November 2015 Draft EIR.]

### 5.2.2.13 Recreation

[No changes from November 2015 Draft EIR.]

### 5.2.2.14 Traffic and Circulation

[No changes from November 2015 Draft EIR.]

## 5.3 Significant and Unavoidable Impacts

Section 21100(b) of CEQA and Section 15126(b) of the State CEQA Guidelines require that an EIR describe any significant impacts, including those that can be mitigated but not reduced to a less-than-significant level. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should also be described.

A significant and unavoidable impact is one that would cause a substantial adverse effect on the environment and for which no mitigation is available to reduce the impact to a less-than-significant level. Most of the impacts of the proposed project would be less than significant or would be mitigated to a less-than-significant level. The impacts below are those that would remain significant and unavoidable after mitigation.

### 5.3.1.1 Air Quality

- Impact AQ-1 and AQ-1 CUM: Conflict with or obstruct implementation of the applicable air quality plan
- Impact AQ-2b and AQ-2b CUM: Violate any air quality standard or contribute substantially to an existing or projected air quality violation during operation.
- Impact AQ-2c and AQ-2c CUM: Violate any air quality standard or contribute substantially to an existing or projected air quality violation during combined construction and operation
- Impact AQ-3 and AQ-3 CUM: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).

### 5.3.1.2 Cultural Resources

- Impact CUL-1 CUM: Cause a substantial adverse change in the significance of an archaeological resource that is a historical resource as defined in Section 15064.5.

### 5.3.1.3 Greenhouse Gas Emissions

- <u>Impact GHG-1b and GHG-1b CUM: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment during operation</u>
- <u>Impact GHG-2 and GHG-2 CUM: Conflict with applicable plan, policy or regulation adopted for the purpose of reducing emissions of greenhouse gases</u>

#### 5.3.1.4 Noise

- Impact NOI-1a: Expose persons to or generate noise levels in excess of standards established in the General Plan as a result of construction activities.
- Impact NOI-4: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project during construction.
- Impact NOI-5: Be located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels.

## 5.4 Significant Irreversible Environmental Changes

Section 15126.2 (c) of the State CEQA Guidelines requires that an EIR address any significant irreversible changes that would result from a proposed project, and provides the following direction for the discussion of irreversible changes.

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to ensure that current consumption is justified.

The State CEQA Guidelines describe three distinct categories of significant irreversible changes, including changes in land use that would commit future generations to specific uses; irreversible changes from environmental actions; and consumption of nonrenewable resources.

The transfer of open space and residential development areas would result in the development of undeveloped land, which is a long-term commitment. Though more than half of the project area would remain in open space, 134 acres of currently undeveloped land would be developed in low-, medium- and high-density residential uses, another 26 acres in parks and civic-limited commercial uses, and 12 acres in roads and landscaped lots. Therefore, a total of 172 acres of previously undeveloped land would be developed. Due to the large commitment of capital and infrastructure necessary for site development, it is improbable that the site, once developed, would revert to its current, primarily undeveloped, open space use in the future.

Irreversible environmental changes would result from the actions associated with the conversion of a largely undeveloped site to urban uses. Implementation of the proposed project would include construction of structures, roads, and other infrastructure, which would be composed of a variety of nonrenewable (metal, gravel, concrete) or slowly renewable resources (wood), and would be fueled using primarily non-renewable fossil fuel sources. In addition, consumption of resources would continue in association with the land uses allowed under the CEDHSP. Residential, park, and civic-limited commercial uses would use energy and public utilities. However, the Sustainability Element of the CEDHSP outlines, and requires the execution of, a number of sustainable development strategies. These strategies include recycling and reuse of construction materials, exceeding energy efficiency standards for building, encouraging alternate means of transportation through design, and incorporating energy and water conservation techniques. Implementation of these strategies would minimize the proposed project's consumption of nonrenewable resources.

Chapter 7
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[No changes from November 2015 Draft EIR.]

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# Chapter 4

[No changes from November 2015 Draft EIR.]

# Chapter 5

[No changes from November 2015 Draft EIR.]

Appendix C

# Revised Air Quality Model Output (Construction Output/Emissions)

Appendix C
# Revised Air Quality Model Output (Construction Output/Emissions)

# C.1 Service Population Threshold Calculation

## C.1.1 Greenhouse Gas Inventory

An efficiency-based threshold consistent with the 2020 AB 32 goal (1990 emissions levels by 2020) was calculated by adjusting the 1990 statewide inventory to include only those emission sources applicable to the proposed project.

Table C-1 summarizes the 1990 statewide inventory by main sector and adjusted 1990 land use inventory that was calculated to support the CEDHSP EIR efficiency-based threshold. The calculated value is the difference between the total 1990 statewide inventory for the main sector and the amount omitted from the inventory because all or a portion of that sector is not applicable to the proposed CEDHSP.

**Table C-1. 1990 Statewide Inventory and Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR (Million Metric Tons $CO_2e$)**

| Main Sector | 1990 ARB Statewide Inventory[a] | Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR[b] | Omitted from Calculated Inventory[c] | | Notes on Omission |
|---|---|---|---|---|---|
| | | | Emissions | Percent | |
| Agriculture & Forestry | 19 | 0 | 19 | 100% | All omitted |
| Commercial | 14 | 14 | 1 | 4% | National security |
| Electricity Generation (Imports) | 62 | 41 | 20 | 33% | 33% omitted as industrial electricity (CEC 2009) |
| Electricity Generation (In State) | 49 | 33 | 16 | 33% | 33% omitted as industrial electricity (CEC 2009) |
| Industrial | 94 | 1 | 93 | 99% | Construction emissions |
| Not Specified | 1 | 1 | 0 | 0% | - |
| Residential | 30 | 30 | 0 | 0% | - |
| Transportation | 151 | 138 | 13 | 8% | Rail, marine, aviation and not specified omitted |
| Waste Water Treatment | 4 | 3 | 0 | 11% | Includes domestic WWTP only |
| Landfills | 7 | 7 | 1 | 12% | 12% landfill emissions omitted (CIWMB 1999) |
| **Total** | **431** | **267** | **163** | **38%** | **-** |

[a] Source: California Air Resources Board. n.d. Greenhouse Gas Emission Inventory – Query Tool for years 1990. Available: http://www.arb.ca.gov/app/ghg/1990_1990/ghg_sector.php>. Accessed: March 31, 2016.

[b] Represents the difference between the 1990 statewide inventory and amount omitted.

[c] Emissions not applicable to the land use sector (refer to Table C-2).

Table C-2 lists the specific land use subsector emissions omitted from the 1990 statewide land use inventory for purposes of calculating the CEDSHP EIR efficacy-based threshold. As noted above, emission sources not associated with the land use development sector have been excluded (marked as “no”).

**Table C-2. Detailed 1990 Statewide Inventory and Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR**

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Agriculture & Forestry | Enteric Fermentation | Cattle | Dairy cows | $CH_4$ | 3.6 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Dairy replacements 7-11 months | $CH_4$ | 0.2 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Dairy replacements 12–23 mo. | $CH_4$ | 0.6 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Heifer feedlot | $CH_4$ | 0.1 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Beef replacements 12–23 mo. | $CH_4$ | 0.1 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Bulls | $CH_4$ | 0.1 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Beef replacements 7–11 months | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Heifer stockers | $CH_4$ | 0.1 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Steer stockers | $CH_4$ | 0.5 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Beef cows | $CH_4$ | 1.8 | No |
| Agriculture & Forestry | Enteric Fermentation | Cattle | Steer feedlot | $CH_4$ | 0.3 | No |
| Agriculture & Forestry | Enteric Fermentation | Other Livestock | Sheep | $CH_4$ | 0.2 | No |
| Agriculture & Forestry | Enteric Fermentation | Other Livestock | Goats | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Enteric Fermentation | Other Livestock | Horses | $CH_4$ | 0.3 | No |
| Agriculture & Forestry | Enteric Fermentation | Other Livestock | Swine | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Dairy heifers | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Dairy cows | $CH_4$ | 4.8 | No |
| Agriculture & Forestry | Manure Management | Cattle | Dairy heifers | $N_2O$ | 0.2 | No |
| Agriculture & Forestry | Manure Management | Cattle | Dairy cows | $N_2O$ | 0.1 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - calves <500 lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Feedlot - heifers 500+ lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - bulls 500+ lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - calves <500 lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - steers 500+ lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - bulls 500+ lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - heifers 500+ lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - steers 500+ lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Feedlot - steers 500+ lbs | $N_2O$ | 0.2 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - beef cows | $CH_4$ | 0.1 | No |
| Agriculture & Forestry | Manure Management | Cattle | Feedlot - steers 500+ lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - heifers 500+ lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Feedlot - heifers 500+ lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Cattle | Not on feed - beef cows | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Other Livestock | Sheep | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Other Livestock | Sheep | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Other Livestock | Goats | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Other Livestock | Goats | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Other Livestock | Horses | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Other Livestock | Horses | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - breeding | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market <60 lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market 120-179 lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market 120-179 lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market 60-119 lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - breeding | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market 180+ lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market <60 lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market 180+ lbs | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Swine | Swine - market 60-119 lbs | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Broilers | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Pullets | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Broilers | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Turkeys | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Other chickens | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Hens 1+ yr | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Other chickens | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Pullets | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Turkeys | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Manure Management | Poultry | Hens 1+ yr | $CH_4$ | 0.1 | No |
| Agriculture & Forestry | Net $CO_2$ Flux | Not Specified | Net $CO_2$ flux | $CO_2$ | -6.7 | No |
| Agriculture & Forestry | Forest and Range Management | Not Specified | Forest | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Forest and Range Management | Not Specified | Rangeland | $N_2O$ | 0.0 | No |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Agriculture & Forestry | Forest and Range Management | Not Specified | Forest | $CH_4$ | 0.2 | No |
| Agriculture & Forestry | Forest and Range Management | Not Specified | Rangeland | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Barley | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Orchard & Vineyard | Walnut | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Rice | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Orchard & Vineyard | Almond | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Corn | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Wheat | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Barley | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Rice | $N_2O$ | 0.1 | No |
| Agriculture & Forestry | Ag Residue Burning | Orchard & Vineyard | Walnut | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Orchard & Vineyard | Almond | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Wheat | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Residue Burning | Field Crops | Corn | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Soil Management | Liming | NA | $CO_2$ | 0.1 | No |
| Agriculture & Forestry | Ag Soil Management | Liming | NA | $CO_2$ | 0.0 | No |
| Agriculture & Forestry | Ag Soil Management | Crop Residues | NA | $N_2O$ | 0.1 | No |
| Agriculture & Forestry | Ag Soil Management | Manure | NA | $N_2O$ | 0.1 | No |
| Agriculture & Forestry | Ag Soil Management | Fertilizer | Synthetic fertilizers | $N_2O$ | 2.2 | No |
| Agriculture & Forestry | Histosol Cultivation | Not Specified | NA | $N_2O$ | 0.2 | No |
| Agriculture & Forestry | Ag Soil Management | Nitrogen Fixation | NA | $N_2O$ | 1.0 | No |
| Agriculture & Forestry | Ag Soil Management | Fertilizer | Organic fertilizers | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Soil Management | Manure | NA | $N_2O$ | 1.5 | No |
| Agriculture & Forestry | Ag Soil Management | Fertilizer | Synthetic fertilizers | $N_2O$ | 0.2 | No |
| Agriculture & Forestry | Ag Soil Management | Manure | NA | $N_2O$ | 0.3 | No |
| Agriculture & Forestry | Ag Soil Management | Fertilizer | Organic fertilizers | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Soil Management | Manure | NA | $N_2O$ | 0.3 | No |
| Agriculture & Forestry | Ag Soil Management | Fertilizer | Synthetic fertilizers | $N_2O$ | 0.5 | No |
| Agriculture & Forestry | Ag Soil Management | Fertilizer | Organic fertilizers | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Rice Cultivation | Field Crops | NA | $CH_4$ | 0.5 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Kerosene | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Crop Production | Natural gas | $CO_2$ | 0.4 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Crop Production | Natural gas | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | LPG | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Irrigation | Natural gas | $CO_2$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Livestock | Natural gas | $CO_2$ | 0.1 | No |
| Agriculture & Forestry | Ag Energy Use | Livestock | Natural gas | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Distillate | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Kerosene | $CO_2$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Gasoline | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Natural gas | $CO_2$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Distillate | $CO_2$ | 3.4 | No |
| Agriculture & Forestry | Ag Energy Use | Irrigation | Natural gas | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Kerosene | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Irrigation | Natural gas | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | LPG | $CO_2$ | 0.2 | No |
| Agriculture & Forestry | Ag Energy Use | Livestock | Natural gas | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Distillate | $N_2O$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Crop Production | Natural gas | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Gasoline | $CH_4$ | 0.0 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | Gasoline | $CO_2$ | 0.4 | No |
| Agriculture & Forestry | Ag Energy Use | Not Specified | LPG | $N_2O$ | 0.0 | No |
| Commercial | CHP: Commercial | Useful Thermal Output | Refinery gas | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Propane | $CH_4$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Digester gas | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Digester gas | $CH_4$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Distillate | $CH_4$ | 0.0 | Yes |
| Commercial | National Security | Not Specified | Natural gas | $CO_2$ | 0.6 | No |
| Commercial | Food Services | Food & Liquor | Natural gas | $N_2O$ | 0.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Commercial | Transportation Services | Transportation | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | National Security | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Commercial | Communication | Radio Broadcasting Stations | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Education | College | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Electricity, Natural Gas & Steam | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Food Services | Food & Liquor | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Transportation Services | Transportation | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Electricity, Natural Gas & Steam | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Distillate | $CO_2$ | 1.8 | Yes |
| Commercial | Education | College | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Health Care | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Food Services | Restaurant | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Hotels | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Refrigerated Warehousing | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Communication | U.S. Postal Service | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Residual fuel oil | $CO_2$ | 0.4 | Yes |
| Commercial | Not Specified | Not Specified | Kerosene | $CO_2$ | 0.1 | Yes |
| Commercial | Domestic Utilities | Sewerage Systems | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Education | College | Natural gas | $CO_2$ | 0.7 | Yes |
| Commercial | Not Specified | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Kerosene | $CH_4$ | 0.0 | Yes |
| Commercial | Communication | Radio Broadcasting Stations | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Offices | Not Specified | Natural gas | $CO_2$ | 1.5 | Yes |
| Commercial | Food Services | Restaurant | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Electricity, Natural Gas & Steam | Natural gas | $CO_2$ | 0.1 | Yes |
| Commercial | Offices | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Warehousing | Natural gas | $CO_2$ | 0.3 | Yes |
| Commercial | Transportation Services | Airports | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Streetlights | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | Yes |
| Commercial | Education | School | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Retail | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Communication | Other Message Communications | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Retail | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Health Care | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | LPG | $CH_4$ | 0.0 | Yes |
| Commercial | Education | School | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Refrigerated Warehousing | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Sewerage Systems | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Transportation Services | Transportation | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Streetlights | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Communication | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Communication | Telephone & Cell Phone Services | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Transportation Services | Water Transportation | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Transportation Services | Airports | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Transportation Services | Airports | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Wood (wet) | $CH_4$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Sewerage Systems | Natural gas | $CO_2$ | 0.1 | Yes |
| Commercial | Health Care | Not Specified | Natural gas | $CO_2$ | 1.3 | Yes |
| Commercial | Not Specified | Not Specified | Distillate | $N_2O$ | 0.0 | Yes |
| Commercial | Communication | Telephone & Cell Phone Services | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Water Supply | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Warehousing | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Streetlights | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Refrigerated Warehousing | Natural gas | $CO_2$ | 0.1 | Yes |
| Commercial | Domestic Utilities | Water Supply | Natural gas | $CO_2$ | 0.1 | Yes |
| Commercial | Not Specified | Not Specified | Gasoline | $CO_2$ | 0.7 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Commercial | Retail & Wholesale | Retail | Natural gas | $CO_2$ | 0.3 | Yes |
| Commercial | Food Services | Restaurant | Natural gas | $CO_2$ | 1.6 | Yes |
| Commercial | National Security | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Commercial | Communication | Radio Broadcasting Stations | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Domestic Utilities | Water Supply | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Communication | Not Specified | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Gasoline | $N_2O$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Distillate | $CH_4$ | 0.0 | Yes |
| Commercial | Retail & Wholesale | Warehousing | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Coal | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Landfill gas | $N_2O$ | 0.0 | Yes |
| Commercial | Communication | U.S. Postal Service | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Food Services | Food & Liquor | Natural gas | $CO_2$ | 0.3 | Yes |
| Commercial | Not Specified | Not Specified | Coal | $CO_2$ | 0.1 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Biomass | $N_2O$ | 0.0 | Yes |
| Commercial | Communication | Telephone & Cell Phone Services | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Communication | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | LPG | $N_2O$ | 0.0 | Yes |
| Commercial | Education | School | Natural gas | $CO_2$ | 0.7 | Yes |
| Commercial | Hotels | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Kerosene | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Biomass | $CH_4$ | 0.0 | Yes |
| Commercial | Communication | U.S. Postal Service | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Refinery gas | $CO_2$ | 0.0 | Yes |
| Commercial | Communication | Other Message Communications | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Transportation Services | Water Transportation | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | Communication | Other Message Communications | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | Transportation Services | Water Transportation | Natural gas | $CO_2$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Coal | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | LPG | $CO_2$ | 0.2 | Yes |
| Commercial | Not Specified | Not Specified | Wood (wet) | $N_2O$ | 0.0 | Yes |
| Commercial | Hotels | Not Specified | Natural gas | $CO_2$ | 0.7 | Yes |
| Commercial | Offices | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Propane | $N_2O$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Gasoline | $CH_4$ | 0.0 | Yes |
| Commercial | Not Specified | Not Specified | Natural gas | $CO_2$ | 2.2 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Jet fuel | $CH_4$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Jet fuel | $CO_2$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Jet fuel | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Natural gas | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Natural gas | $CO_2$ | 0.4 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Waste oil | $CO_2$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Propane | $CO_2$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Distillate | $CO_2$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Waste oil | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Landfill gas | $CH_4$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Distillate | $N_2O$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Waste oil | $CH_4$ | 0.0 | Yes |
| Commercial | CHP: Commercial | Useful Thermal Output | Refinery gas | $CH_4$ | 0.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Residual fuel oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Transmission and Distribution | Not Specified | NA | SF6 | 1.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Residual fuel oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CO_2$ | 5.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Residual fuel oil | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Residual fuel oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CO_2$ | 6.6 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $N_2O$ | 0.1 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Residual fuel oil | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Unspecified Imports | PNW | Imported electricity | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Unspecified Imports | PNW | Imported electricity | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CO_2$ | 0.6 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Unspecified Imports | PSW | Imported electricity | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Coal | $CO_2$ | 0.3 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CO_2$ | 3.2 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CO_2$ | 1.1 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Coal | $CO_2$ | 0.9 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $CO_2$ | 0.1 | Yes |
| Electricity Generation (Importsb | Specified Imports | PSW | Natural gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Unspecified Imports | PSW | Imported electricity | $CO_2$ | 23.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PNW | Coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CO_2$ | 0.4 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Natural gas | $CO_2$ | 0.1 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Unspecified Imports | PSW | Imported electricity | $N_2O$ | 0.1 | Yes |
| Electricity Generation (Imports)[b] | Unspecified Imports | PNW | Imported electricity | $CO_2$ | 7.8 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Residual fuel oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (Imports)[b] | Specified Imports | PSW | Coal | $CO_2$ | 11.1 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Landfill gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Associated gas | $N_2O$ | 0.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Natural gas | $CO_2$ | 0.4 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Transmission and Distribution | Not Specified | NA | SF6 | 1.5 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Kerosene | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Petroleum coke | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Kerosene | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Propane | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Landfill gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Lignite coal | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Refinery gas | $CO_2$ | 0.1 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Waste oil | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Digester gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Jet fuel | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Petroleum coke | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Digester gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Landfill gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Jet fuel | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Tires | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Waste oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Digester gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Jet fuel | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | MSW | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | MSW | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Waste oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Landfill gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Refinery gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Petroleum coke | $CO_2$ | 0.5 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Propane | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Other coal | $CO_2$ | 0.1 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Waste oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Other coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Natural gas | $CO_2$ | 25.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Petroleum coke | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Digester gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Waste oil | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Residual fuel oil | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | MSW | $CO_2$ | 0.3 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Residual fuel oil | $CO_2$ | 3.5 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Refinery gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Landfill gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Propane | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Propane | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Jet fuel | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Digester gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Distillate | $CO_2$ | 0.1 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Biomass | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Kerosene | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Other coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Refinery gas | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Biomass | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Biomass | $N_2O$ | 0.1 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Digester gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Biomass | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Waste oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Waste oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Propane | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Waste oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Kerosene | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Biomass | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Propane | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Landfill gas | $N_2O$ | 0.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Distillate | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Jet fuel | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Jet fuel | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Other coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Biomass | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Bituminous coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Petroleum coke | $CO_2$ | 0.5 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Refinery gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Bituminous coal | $CO_2$ | 2.2 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Other coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Lignite coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Refinery gas | $CO_2$ | 0.8 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Associated gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Propane | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Petroleum coke | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Digester gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Lignite coal | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Kerosene | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Landfill gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Natural gas | $CO_2$ | 10.6 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Landfill gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Biomass | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Tires | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Tires | $CO_2$ | 0.1 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Propane | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Refinery gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Waste oil | $CO_2$ | 0.1 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Associated gas | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Refinery gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Natural gas | $CO_2$ | 0.6 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Distillate | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Distillate | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Residual fuel oil | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Digester gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | Utility Owned | Not Specified | Geothermal | $CO_2$ | 1.3 | Yes |
| Electricity Generation (In State)[b] | Merchant Owned | Not Specified | Geothermal | $CO_2$ | 1.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Refinery gas | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Biomass | $CH_4$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Propane | $CO_2$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Bituminous coal | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Commercial | Not Specified | Kerosene | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | Yes |
| Electricity Generation (In State)[b] | CHP: Industrial | Not Specified | Other coal | $CO_2$ | 0.2 | Yes |
| Industrial | CHP: Industrial | Useful Thermal Output | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Refinery gas | $CH_4$ | 0.0 | No |
| Industrial | Not Specified | Not Specified | NA | $CO_2$ | 0.3 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Propane | $CO_2$ | 0.0 | No |
| Industrial | Not Specified | Not Specified | NA | $CO_2$ | 0.1 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Bituminous coal | $CH_4$ | 0.0 | No |
| Industrial | Not Specified | Not Specified | NA | $CO_2$ | 0.1 | No |
| Industrial | Petroleum Refining | Transformation | Natural gas liquids | $CO_2$ | 0.3 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Tires | $CO_2$ | 0.0 | No |
| Industrial | Petroleum Refining | Transformation | Natural gas | $CO_2$ | 2.1 | No |
| Industrial | Petroleum Refining | Transformation | Residual fuel oil | $CO_2$ | 0.2 | No |
| Industrial | Petroleum Refining | Transformation | Naphtha | $CO_2$ | 0.4 | No |
| Industrial | Petroleum Refining | Transformation | Refinery gas | $CO_2$ | 2.1 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Petroleum coke | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Refinery gas | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Petroleum coke | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Distillate | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Petroleum coke | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Associated gas | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Catalyst coke | $CO_2$ | 5.1 | No |
| Industrial | Petroleum Refining | Not Specified | Refinery gas | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | LPG | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Catalyst coke | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Residual fuel oil | $CO_2$ | 0.2 | No |
| Industrial | Petroleum Refining | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Refinery gas | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | LPG | $CO_2$ | 0.9 | No |
| Industrial | Petroleum Refining | Not Specified | Distillate | $CO_2$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Associated gas | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Catalyst coke | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Refinery gas | $CO_2$ | 15.8 | No |
| Industrial | Petroleum Refining | Not Specified | Petroleum coke | $CO_2$ | 0.6 | No |
| Industrial | Petroleum Refining | Not Specified | Distillate | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Natural gas | $CO_2$ | 4.3 | No |
| Industrial | Petroleum Refining | Not Specified | LPG | $N_2O$ | 0.0 | No |
| Industrial | Petroleum Refining | Not Specified | Associated gas | $CO_2$ | 0.7 | No |
| Industrial | Pipelines | Non Natural Gas Pipelines | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Distillate | $CH_4$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Distillate | $CO_2$ | 0.2 | No |
| Industrial | Pipelines | Natural Gas Pipelines | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Crude oil | $CO_2$ | 2.5 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Natural gas | $N_2O$ | 0.0 | No |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Industrial | Oil & Gas Extraction | Not Specified | Associated gas | $CO_2$ | 5.3 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Associated gas | $CH_4$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Distillate | $N_2O$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Natural gas | $CO_2$ | 5.7 | No |
| Industrial | Pipelines | Natural Gas Pipelines | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Residual fuel oil | $CO_2$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Associated gas | $N_2O$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Crude oil | $N_2O$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Crude oil | $CH_4$ | 0.0 | No |
| Industrial | Pipelines | Non Natural Gas Pipelines | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Pipelines | Natural Gas Pipelines | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | No |
| Industrial | Pipelines | Non Natural Gas Pipelines | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Oil & Gas Extraction | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Primary Metals | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Primary Metals | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Primary Metals | Natural gas | $CO_2$ | 0.9 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | Natural gas | $CO_2$ | 1.0 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Printing & Publishing | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CO_2$ | 0.9 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CO_2$ | 0.4 | No |
| Industrial | Manufacturing | Printing & Publishing | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $CO_2$ | 0.4 | No |
| Industrial | Manufacturing | Printing & Publishing | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $CO_2$ | 1.4 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Tobacco | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $CO_2$ | 1.2 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Tobacco | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $CO_2$ | 0.5 | No |
| Industrial | Manufacturing | Tobacco | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Coal | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Tires | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Biomass waste fuel | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Petroleum coke | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Tires | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Biomass waste fuel | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CH_4$ | 0.0 | No |
| Industrial[c] | Landfills | Not Specified | Landfill gas | $N_2O$ | 0.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Petroleum coke | $CO_2$ | 0.3 | No |
| Industrial[c] | Landfills | Not Specified | Landfill gas | $CH_4$ | 7.4 | Yes |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Fossil waste fuel | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Fossil waste fuel | $CH_4$ | 0.0 | No |
| Industrial[d] | Waste Water Treatment | Domestic Waste Water | NA | $CH_4$ | 2.4 | Yes |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Tires | $CO_2$ | 0.0 | No |
| Industrial[d] | Waste Water Treatment | Domestic Waste Water | NA | $N_2O$ | 0.8 | Yes |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CO_2$ | 0.2 | No |
| Industrial | Waste Water Treatment | Industrial Waste Water | Poultry | $CH_4$ | 0.1 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Distillate | $CH_4$ | 0.0 | No |
| Industrial | Waste Water Treatment | Industrial Waste Water | Fruit and vegetables | $CH_4$ | 0.3 | No |
| Industrial | Oil & Gas Extraction | Wastewater Treatment | NA | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Distillate | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Wastewater Treatment | NA | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Wastewater Treatment | NA | $CH_4$ | 0.0 | No |
| Industrial | Waste Water Treatment | Industrial Waste Water | Red meat | $CH_4$ | 0.1 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CO_2$ | 0.7 | No |
| Industrial | Petroleum Marketing | Wastewater Treatment | NA | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Residual fuel oil | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Residual fuel oil | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Coal | $CO_2$ | 2.9 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CO_2$ | 0.8 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Petroleum coke | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Fossil waste fuel | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Residual fuel oil | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Other coal | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Waste oil | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Distillate | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Coal | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Biomass | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Transportation Equip. | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Transportation Equip. | Natural gas | $CO_2$ | 0.5 | No |
| Industrial | Manufacturing | Transportation Equip. | Natural gas | $CH_4$ | 0.0 | No |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Industrial | Manufacturing | Metal Durables | Natural gas | $CO_2$ | 0.6 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Distillate | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $CO_2$ | 0.2 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Instruments & Related Products | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Propane | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Landfill gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Waste oil | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Instruments & Related Products | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Distillate | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Metal Durables | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $CO_2$ | 0.2 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Instruments & Related Products | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Mining | Coal | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | Mining | Metals | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Mining | Coal | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Mining | Non Metals | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Propane | $N_2O$ | 0.0 | No |
| Industrial | Mining | Metals | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Mining | Coal | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Mining | Non Metals | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Mining | Non Metals | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Mining | Metals | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Wood & Furniture | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Wood & Furniture | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Wood & Furniture | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Lignite coal | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Wood & Furniture | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Wood & Furniture | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Tires | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Wood & Furniture | Natural gas | $CO_2$ | 0.2 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Associated gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Construction | Natural gas | $N_2O$ | 0.0 | Yes |
| Industrial | Manufacturing | Construction | Natural gas | $CH_4$ | 0.0 | Yes |
| Industrial | Manufacturing | Construction | Natural gas | $CO_2$ | 0.1 | Yes |
| Industrial | CHP: Industrial | Useful Thermal Output | Distillate | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Construction | Gasoline | $CO_2$ | 0.5 | Yes |
| Industrial | Manufacturing | Construction | Gasoline | $N_2O$ | 0.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Industrial | CHP: Industrial | Useful Thermal Output | Residual fuel oil | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Construction | Gasoline | $CH_4$ | 0.0 | Yes |
| Industrial | Manufacturing | Textiles | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Other coal | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $CO_2$ | 0.3 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Landfill gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Textiles | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Gasoline | $CO_2$ | 1.2 | No |
| Industrial | Manufacturing | Plastics & Rubber | Natural gas | $CO_2$ | 0.2 | No |
| Industrial | Manufacturing | Not Specified | Kerosene | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Distillate | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Natural gas liquids | $CO_2$ | 0.3 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Tires | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Plastics & Rubber | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Gasoline | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | LPG | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Distillate | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Associated gas | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Natural gas liquids | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Refinery gas | $CO_2$ | 0.8 | No |
| Industrial | Manufacturing | Not Specified | Coal | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Residual fuel oil | $CO_2$ | 0.6 | No |
| Industrial | Manufacturing | Not Specified | Kerosene | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | LPG | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Waste oil | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Plastics & Rubber | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Coal | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Plastics & Rubber | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Flaring | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Bituminous coal | $CO_2$ | 1.7 | No |
| Industrial | Manufacturing | Not Specified | Natural gas liquids | $N_2O$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Residual fuel oil | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | LPG | $CO_2$ | 2.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Petroleum coke | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Distillate | $CO_2$ | 3.9 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Lignite coal | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Gasoline | $N_2O$ | 0.0 | No |
| Industrial | Flaring | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Coal | $CO_2$ | 0.6 | No |
| Industrial | Manufacturing | Plastics & Rubber | Natural gas | $N_2O$ | 0.0 | No |
| Industrial | Flaring | Not Specified | Natural gas | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Not Specified | Not Specified | Wood (wet) | $N_2O$ | 0.1 | No |
| Industrial | Manufacturing | Construction | NA | $CH_4$ | 0.0 | Yes |
| Industrial | Manufacturing | Electric & Electronic Equip. | NA | $CH_4$ | 0.0 | No |
| Industrial | Not Specified | Not Specified | Wood (wet) | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Primary Metals | NA | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Bituminous coal | $N_2O$ | 0.0 | No |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Industrial | Manufacturing | Plastics & Rubber | Natural gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Pulp & Paper | NA | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Kerosene | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | NA | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Residual fuel oil | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Food Products | NA | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Not Specified | Natural gas | $CO_2$ | 0.0 | No |
| Industrial | Petroleum Marketing | Storage Tanks | NA | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Lignite coal | $N_2O$ | 0.0 | No |
| Industrial | Oil & Gas Extraction | Storage Tanks | NA | $CH_4$ | 0.3 | No |
| Industrial | Petroleum Marketing | Process Losses | NA | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Biomass | $N_2O$ | 0.0 | No |
| Industrial | Not Specified | Not Specified | NA | $CH_4$ | 0.3 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Petroleum coke | $CO_2$ | 0.3 | NO |
| Industrial | Manufacturing | Not Specified | NA | $CH_4$ | 0.1 | No |
| Industrial | Oil & Gas Extraction | Petroleum Gas Seeps | NA | $CH_4$ | 0.3 | No |
| Industrial | Oil & Gas Extraction | Process Losses | NA | $CH_4$ | 0.5 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Associated gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Storage Tanks | NA | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | NA | $CH_4$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Natural gas | $CO_2$ | 6.6 | No |
| Industrial | Manufacturing | Plastics & Rubber | NA | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Storage Tanks | NA | $CH_4$ | 0.0 | No |
| Industrial | Petroleum Refining | Process Losses | NA | $CH_4$ | 0.2 | No |
| Industrial | Pipelines | Natural Gas | NA | $CH_4$ | 1.8 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Other coal | $CO_2$ | 0.0 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Digester gas | $CH_4$ | 0.0 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | NA | $CO_2$ | 4.6 | No |
| Industrial | Manufacturing | Stone, Clay, Glass & Cement | NA | $CO_2$ | 0.2 | No |
| Industrial | CHP: Industrial | Useful Thermal Output | Digester gas | $N_2O$ | 0.0 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | Petroleum feedstocks | $CO_2$ | 0.9 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | LPG | $CO_2$ | 0.1 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | Natural gas | $CO_2$ | 0.9 | No |
| Industrial | Manufacturing | Chemicals & Allied Products | NA | $N_2O$ | 0.5 | No |
| Industrial | Not Specified | Not Specified | Lubricants | $CO_2$ | 0.5 | No |
| Industrial | Not Specified | Not Specified | Waxes | $CO_2$ | 0.0 | No |
| Industrial | Not Specified | Not Specified | Naphtha | $CO_2$ | 0.9 | No |
| Industrial | Not Specified | Not Specified | Other petroleum products | $CO_2$ | 0.2 | No |
| Industrial | Not Specified | Not Specified | Asphalt | $CO_2$ | 0.0 | No |
| Industrial | Manufacturing | Electric & Electronic Equip. | NA | Halogenated gases | 0.7 | No |
| Not Specified | Not Specified | Not Specified | NA | HFC-23 | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | NA | $CF_4$ | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | NA | HFC-236fa | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | NA | HFC-32 | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | NA | HFC-134a | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | Natural gas | $CO_2$ | 1.1 | Yes |
| Not Specified | Not Specified | Not Specified | LPG | $CO_2$ | 0.1 | Yes |
| Not Specified | Not Specified | Not Specified | Natural gas | $CH_4$ | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | LPG | $CH_4$ | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | LPG | $N_2O$ | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | NA | Other ODS substitutes | 0.0 | Yes |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Not Specified | Not Specified | Not Specified | NA | HFC-143a | 0.0 | Yes |
| Not Specified | Not Specified | Not Specified | NA | HFC-125 | 0.0 | Yes |
| Residential | Household Use | Not Specified | LPG | $CO_2$ | 1.3 | Yes |
| Residential | Household Use | Not Specified | Kerosene | $N_2O$ | 0.0 | Yes |
| Residential | Household Use | Not Specified | Wood (wet) | $CH_4$ | 0.5 | Yes |
| Residential | Household Use | Not Specified | Natural gas | $CO_2$ | 27.7 | Yes |
| Residential | Household Use | Not Specified | Distillate | $CO_2$ | 0.1 | Yes |
| Residential | Household Use | Not Specified | Kerosene | $CO_2$ | 0.1 | Yes |
| Residential | Household Use | Not Specified | Wood (wet) | $N_2O$ | 0.1 | Yes |
| Residential | Household Use | Not Specified | Distillate | $N_2O$ | 0.0 | Yes |
| Residential | Household Use | Not Specified | Kerosene | $CH_4$ | 0.0 | Yes |
| Residential | Household Use | Not Specified | LPG | $CH_4$ | 0.0 | Yes |
| Residential | Household Use | Not Specified | Distillate | $CH_4$ | 0.0 | Yes |
| Residential | Household Use | Not Specified | Natural gas | $CH_4$ | 0.1 | Yes |
| Residential | Household Use | Not Specified | Natural gas | $N_2O$ | 0.0 | Yes |
| Residential | Household Use | Not Specified | LPG | $N_2O$ | 0.0 | Yes |
| Transportation | On Road | Freight | Natural gas | $CO_2$ | 0.0 | Yes |
| Transportation | On Road | Passenger | Natural gas | $CH_4$ | 0.0 | Yes |
| Transportation | On Road | Freight | Natural gas | $N_2O$ | 0.0 | Yes |
| Transportation | On Road | Passenger Cars | Distillate | $N_2O$ | 0.0 | Yes |
| Transportation | On Road | Passenger Cars | Distillate | $CO_2$ | 0.6 | Yes |
| Transportation | On Road | Passenger Cars | Gasoline | $N_2O$ | 2.9 | Yes |
| Transportation | On Road | Passenger Cars | Gasoline | $CO_2$ | 59.7 | Yes |
| Transportation | On Road | Passenger Cars | Gasoline | $CH_4$ | 0.5 | Yes |
| Transportation | On Road | Passenger Cars | Distillate | $CH_4$ | 0.0 | Yes |
| Transportation | On Road | Light-Duty Trucks | Gasoline | $CH_4$ | 0.4 | Yes |
| Transportation | On Road | Light-Duty Trucks | Distillate | $N_2O$ | 0.0 | Yes |
| Transportation | On Road | Light-Duty Trucks | Distillate | $CH_4$ | 0.0 | Yes |
| Transportation | On Road | Light-Duty Trucks | Distillate | $CO_2$ | 0.5 | Yes |
| Transportation | On Road | Light-Duty Trucks | Gasoline | $CO_2$ | 41.3 | Yes |
| Transportation | On Road | Light-Duty Trucks | Gasoline | $N_2O$ | 2.5 | Yes |
| Transportation | On Road | Heavy-Duty Vehicles | Gasoline | $N_2O$ | 0.7 | Yes |
| Transportation | On Road | Heavy-Duty Vehicles | Gasoline | $CO_2$ | 10.6 | Yes |
| Transportation | On Road | Heavy-Duty Vehicles | Distillate | $CO_2$ | 17.4 | Yes |
| Transportation | On Road | Heavy-Duty Vehicles | Distillate | $CH_4$ | 0.0 | Yes |
| Transportation | On Road | Heavy-Duty Vehicles | Gasoline | $CH_4$ | 0.2 | Yes |
| Transportation | On Road | Heavy-Duty Vehicles | Distillate | $N_2O$ | 0.2 | Yes |
| Transportation | On Road | Motorcycles | Gasoline | $CH_4$ | 0.0 | Yes |
| Transportation | On Road | Motorcycles | Gasoline | $CO_2$ | 0.4 | Yes |
| Transportation | On Road | Motorcycles | Gasoline | $N_2O$ | 0.0 | Yes |
| Transportation | Rail | Not Specified | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Rail | Not Specified | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Rail | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Transportation | Rail | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Transportation | Rail | Not Specified | Natural gas | $CO_2$ | 0.0 | No |
| Transportation | Rail | Not Specified | Distillate | $CO_2$ | 2.3 | No |
| Transportation | Water-borne | International | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | International | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | International | Residual fuel oil | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | International | Residual fuel oil | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | International | Residual fuel oil | $CO_2$ | 0.4 | No |
| Transportation | Water-borne | International | Residual fuel oil | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | International | Residual fuel oil | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | International | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | International | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | International | Distillate | $CO_2$ | 0.0 | No |
| Transportation | Water-borne | International | Residual fuel oil | $CO_2$ | 0.1 | No |
| Transportation | Water-borne | International | Distillate | $CO_2$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Residual fuel oil | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Residual fuel oil | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Residual fuel oil | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Residual fuel oil | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Residual fuel oil | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Distillate | $CO_2$ | 1.2 | No |
| Transportation | Water-borne | Intrastate | Distillate | $N_2O$ | 0.0 | No |

| Main Sector | Sub Sector Level 1 | Sub Sector Level 2 | Activity Subset | Greenhouse Gas | 1990 Statewide Inventory (metric tons $CO_2e$)[a] | Include in Calculated 1990 Statewide Land Use Inventory for CEDHSP EIR? |
|---|---|---|---|---|---|---|
| Transportation | Water-borne | Intrastate | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Residual fuel oil | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Residual fuel oil | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Not Specified | Natural gas | $CO_2$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Residual fuel oil | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Residual fuel oil | $CO_2$ | 0.1 | No |
| Transportation | Water-borne | Interstate | Distillate | $CO_2$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Distillate | $CO_2$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Distillate | $CO_2$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Residual fuel oil | $CO_2$ | 0.1 | No |
| Transportation | Water-borne | Intrastate | Residual fuel oil | $CO_2$ | 0.1 | No |
| Transportation | Water-borne | Interstate | Residual fuel oil | $CO_2$ | 0.1 | No |
| Transportation | Water-borne | Intrastate | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Water-borne | Intrastate | Distillate | $CO_2$ | 0.0 | No |
| Transportation | Water-borne | Interstate | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | LPG | $N_2O$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | Residual fuel oil | $CH_4$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | Distillate | $CH_4$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | LPG | $CO_2$ | 0.2 | No |
| Transportation | Not Specified | Not Specified | Distillate | $N_2O$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | Distillate | $CO_2$ | 2.1 | No |
| Transportation | Not Specified | Not Specified | Residual fuel oil | $N_2O$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | LPG | $CH_4$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | Residual fuel oil | $CO_2$ | 0.0 | No |
| Transportation | Aviation | Not Specified | Natural gas | $CH_4$ | 0.0 | No |
| Transportation | Aviation | Not Specified | Natural gas | $CO_2$ | 0.0 | No |
| Transportation | Aviation | Not Specified | Natural gas | $N_2O$ | 0.0 | No |
| Transportation | Aviation | Domestic Air transport | Jet fuel | $N_2O$ | 0.0 | No |
| Transportation | Aviation | Domestic Air transport | Jet fuel | $CH_4$ | 0.0 | No |
| Transportation | Aviation | Domestic Air transport | Aviation gasoline | $CH_4$ | 0.0 | No |
| Transportation | Not Specified | Not Specified | Lubricants | $CO_2$ | 0.6 | No |
| Transportation | Aviation | Domestic Air transport | Aviation gasoline | $N_2O$ | 0.0 | No |
| Transportation | Aviation | Domestic Air transport | Aviation gasoline | $CO_2$ | 0.4 | No |
| Transportation | Aviation | Domestic Air transport | Jet fuel | $CO_2$ | 4.7 | No |
| Transportation | On Road | Passenger | Natural gas | $CO_2$ | 0.0 | Yes |
| Transportation | On Road | Passenger | Natural gas | $CH_4$ | 0.0 | Yes |
| Transportation | On Road | Freight | Natural gas | $CH_4$ | 0.0 | Yes |
| Transportation | On Road | Passenger | Natural gas | $N_2O$ | 0.0 | Yes |
| Transportation | On Road | Passenger | Natural gas | $CO_2$ | 0.0 | Yes |
| Transportation | On Road | Passenger | Natural gas | $N_2O$ | 0.0 | Yes |

[a] Values do not manually add to 431 million metric tons due to rounding.
[b] Excluded 33% as industrial electricity (CEC 2009)
[c] Excluded 12% landfill emissions (CIWMB 1999)
[d] Included domestic WWTP only.

# C.2 Service Population

The service population for the proposed project was calculated based on the anticipated amount of development in 2020 and at Full Build (2035), consistent with the construction schedule summarized in Chapter 3.2, *Air* Quality in the DEIR. Tables C-3 and C-4 summarize the number of residential units, civic-limited commercial square footage, and resulting residential and employees by land use designation.

**Table C-3. Project Population**

| Land Use Designation | Average People per Unit | Number of Units (2020) | Number of Units (2035) | Projected Residents (2020) | Projected Residents (2035) |
|---|---|---|---|---|---|
| VRL | 3.06 | 10 | 37 | 31 | 113 |
| VRM-L | 3.06 | 20 | 123 | 61 | 376 |
| VRM-H | 2.61 | 20 | 310 | 52 | 809 |
| VRH | 2.49 | 115 | 530 | 286 | 1,320 |
| **Total** | | **165** | **1,000** | **430** | **2,618** |

**Table C-4. Project Employment**

| Land Use Designation | Average Employee per Square Feet[a] | Square Feet (2020) | Square Feet (2035) | Projected Employees (2020) | Projected Employees (2035) |
|---|---|---|---|---|---|
| Civic-Limited Commercial | 0.002116098 | 0 | 50,000 | 0 | 106 |
| **Total** | | **0** | **50,000** | **0** | **106** |

[a] Energy Information Administration 2015.

# C.3 References Cited

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Appendix K

# Water Supply Assessment

# El Dorado Irrigation District

# SB 610 Water Supply Assessment for the Central El Dorado Hills Specific Plan

# SB 610 Water Supply Assessment

Prepared for the
Central El Dorado Hills Specific Plan

# Final

August 2013

Prepared by:

Tully & Young
Comprehensive Water Planning

Prepared for:

El Dorado Irrigation District

Approved by Eldorado Irrigation District Board of Directors
on August 26, 2013 as action item #8

Contact: Cindy Megerdigian – Water/Hydro Engineering Manager
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# Table of Contents

# SECTION 1 – PROJECT INTRODUCTION

## 1.1 INTRODUCTION

In December 2012, the El Dorado Irrigation District (EID) received a letter from the El Dorado County Planning Department (County) requesting the completion of a Water Supply Assessment (WSA) for the Central El Dorado Hills Specific Plan (hereafter referred to as the "Proposed Project"). As the proposed water supply purveyor for the Proposed Project, EID has prepared this WSA to assess the availability and sufficiency of EID's water supplies to meet the Proposed Project's estimated water demands. This document provides the necessary information to comply with the assessment of sufficiency as required by statute.

### Statutory Background

Enacted in 2001, Senate Bill 610 added section 21151.9 to the Public Resources Code requiring that any proposed "project," as defined in section 10912 of the Water Code, comply with Water Code section 10910, et seq. Commonly referred to as a "SB 610 Water Supply Assessment," Water Code section 10910 outlines the necessary information and analysis that must be included in an environmental analysis of the project (e.g. CEQA compliance) to ensure that proposed land developments have a sufficient water supply to meet existing and planned water demands over a 20-year projection.

Proposed "projects" requiring the preparation of a SB 610 water supply assessment include, among others, residential developments of more than 500 dwelling units, shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space, commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space and projects that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.[1]

The Proposed Project requires a WSA because it contemplates more than 500 new dwelling units as detailed in Section 1.2.

### Document Organization

This WSA supports the Proposed Project's environmental review process and analyzes the sufficiency of water supplies to meet projected water demands of the Proposed Project through the required planning horizon. The WSA is organized according to the following sections:

- **Section 1: Proposed Project Introduction**. This section provides an overview of WSA requirements, and a detailed description of the Proposed Project, especially the land-use elements that will require water service.

[1] Water Code § 10912, subdivision (a).

- **Section 2: Proposed Project Estimated Water Demands**. This section describes the methodology used to estimate water demands of the Proposed Project and details the estimated water demands at build-out of the Proposed Project.

- **Section 3: Other Estimated Water Demands**. This section details the other water demands currently served by EID and anticipated to be served based on information in the El Dorado County's (County) General Plan as well as known and potential planned modifications since the County's adoption of the General Plan.

- **Section 4: Water Supply Characterization**. This section characterizes the EID water supply portfolio that will serve the Proposed Project along with other current and future water demands. Water rights, along with water service contracts and agreements are characterized for normal, single dry, and multiple dry year conditions.

- **Section 5: Sufficiency Analysis**. This section assesses whether sufficient water will be available to meet the Proposed Project water demands, while recognizing existing and other potential planned water demands within the EID service area. To provide the necessary conclusions required by statute, the analysis integrates the demand detailed in Section 2 and Section 3 with the characterization of EID's water supply portfolio detailed in Section 4.

## 1.2 PROPOSED PROJECT DESCRIPTION

The Proposed Project is an infill development along El Dorado Hills Boulevard, north of Highway 50 encompassing approximately 256 acres in the unincorporated community of El Dorado Hills (see **Figure 1-1**).

The Proposed Project includes 1,028 residences, limited commercial space, a large active use park, a smaller neighborhood park, and open space. Proposed residential dwelling units include 65 ½ to 1-acre custom lots, 123 lots with densities of 5 to 8 dwelling units per acre (designated "medium density-low"), 310 lots with densities of 9 to 14 dwelling units per acre (designated "medium density-high"), and 530 high-density units. The large park for active use will be approximately 15 acres, while the neighborhood park will be about 2 acres. The Proposed Project also includes a civic-limited commercial land use designation that includes 11 acres of civic or recreational use, or a maximum of 50,000 finished square feet of commercial/general office use.

The development is split into two planning areas: Serrano Westside Planning Area (Area 1), and Pedregal Planning Area (Area 2). Area 1 runs along the east side of El Dorado Hills Boulevard, while Area 2 is located on the west side north of Wilson Boulevard and south of Gillette Drive. **Table 1-1** summarizes the proposed land use acreages.

**Figure 1-1 – Proposed Project Location and Land Uses**

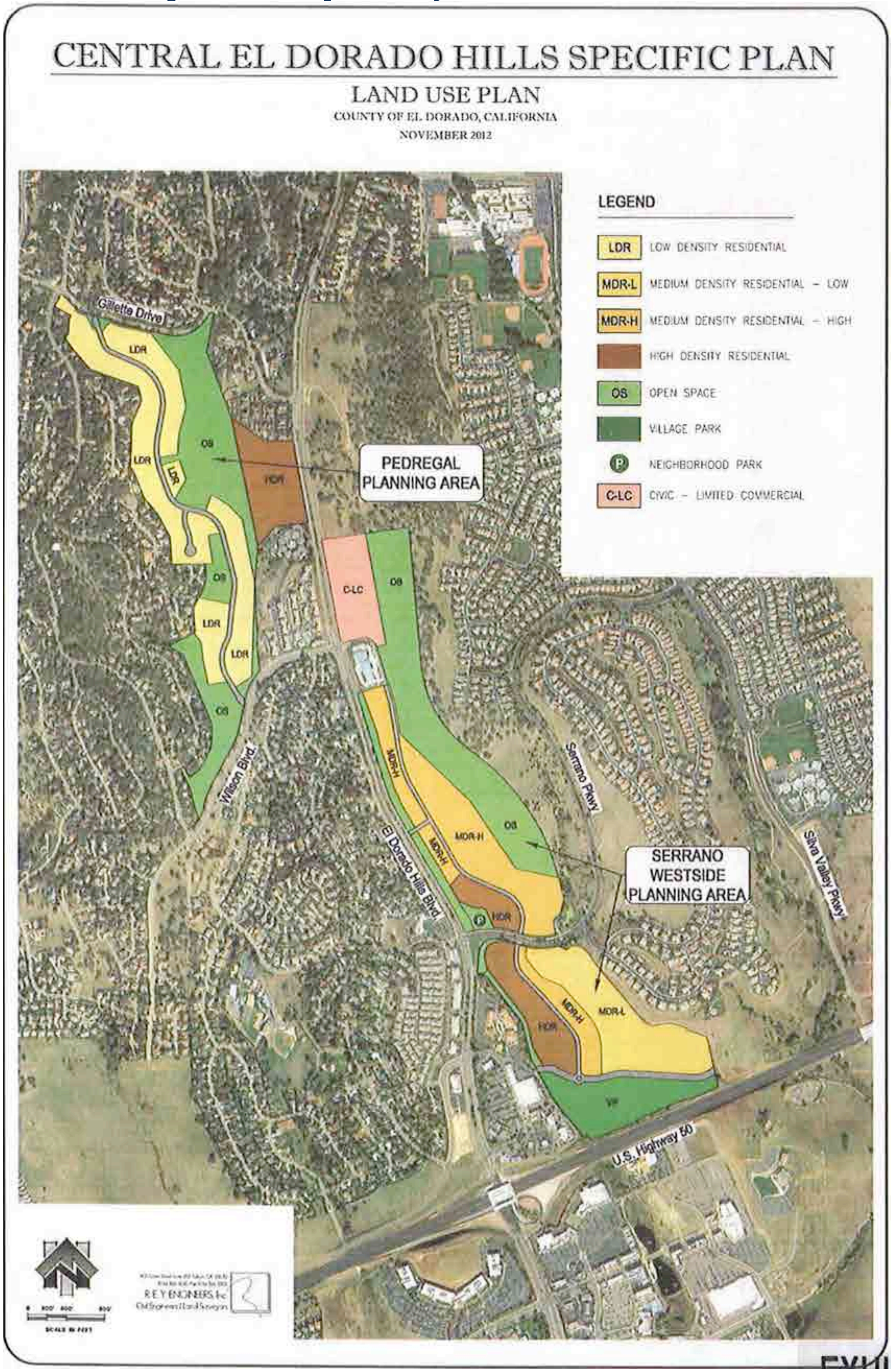

**Table 1-1 –** Summary of Proposed Project Land Uses and Acreages[2]

| Planning Area | Land Use | Section 2.4 Comparison | Acres | Units |
|---|---|---|---|---|
| 2 | Low Density Residential | .5-1 Acre Lots | 43 | 65 |
| 1 | Medium Density Residential - Low | 5,000-7,000 sf lots | 23 | 123 |
| 1 | Medium Density Residential - High | Condo/Townhomes | 36 | 310 |
| 1 | High Density Residential | Apartments | 16 | 330 |
| 2 | High Density Residential | Apartments | 13 | 200 |
| 1 | Limited Commercial | -- | 11 | -- |
| 1 | Village Park | -- | 15 | -- |
| 1 | Open Space | -- | 46 | -- |
| 2 | Open Space | -- | 39 | -- |
| 1 | ROW and Landscaping | -- | 8 | -- |
| 2 | ROW and Landscaping | -- | 6 | -- |
| | | **Total** | **256** | **1,028** |

## 1.3 Proposed Project Phasing

**Table 1-2** describes the Proposed Project's three construction phases. Each phase represents a portion of the development, focusing on particular land-use classifications. Before constructing homes, commercial space, or other parts of the development, the proponents will begin site grading and project-wide infrastructure development. Some infrastructure and site grading will continue throughout all phases of the Proposed Project, as necessary. These activities include installing facilities for potable water, recycled water (as appropriate for the Proposed Project), sewer, electric, telecommunications, gas, stormwater, and roads. During these activities, a small water demand will exist – referred to in this Water Supply Assessment as "construction water." This demand is included in the yearly water demands presented in Section 2.

The initial phase will result in approximately one third of the Proposed Project demanding water service by 2020, with the two subsequent phases each adding an additional third as they are completed. All construction is planned to be completed by 2030, within the 20-year planning horizon of this WSA.

**Table 1-2 –** Proposed Number of Units per Project Phase

| Land Use | Phase 1 By 2020 | Phase 2 2021-2025 | Phase 3 2026-2030 | Total |
|---|---|---|---|---|
| Low Density Residential | 5 | 60 | -- | 65 |
| Medium Density Residential - Low | 60 | 63 | -- | 123 |
| Medium Density Residential - High | 104 | 206 | -- | 310 |
| High Density Residential | 230 | -- | 300 | 530 |

[2] The Specific Plan Land Use Summary was provided by El Dorado County of Development Services Department.

# SECTION 2 – PROPOSED PROJECT ESTIMATED WATER DEMANDS

## 2.1 INTRODUCTION

This section describes the methodology, provides the supporting evidence, and presents the estimated water demands for the Proposed Project. For the purpose of estimating water demand, the Proposed Project is planned to develop according to the phasing in **Table 1-2**.

## 2.2 DETERMINING UNIT WATER DEMAND FACTORS

As detailed in Section 1, the Proposed Project has specific residential and non-residential land-uses with defined residential lot-sizes, types of commercial uses and other characteristics. As these attributes vary among the types of proposed land-uses, so too will the water needs. To understand the water needs of the entire Proposed Project, unique demand factors that correspond with each unique land use are necessary. This subsection presents the methodology for determining the baseline unit water use demand factors that become the basis of the Proposed Project water demand estimates. Two distinct groups of demand factors are presented: (1) residential, and (2) non-residential.

## 2.3 PRIMARY SOURCE OF BASELINE WATER USE DATA

Because the Proposed Project is very similar in nature to particular elements built as part of the Serrano and El Dorado Hills developments over the past few decades, recent water use data for comparable products in these neighborhoods provides a reliable foundation for EID to establish new project-specific water demands. Through comparison of Proposed Project land-use elements to existing land uses, EID determined appropriate existing, established neighborhoods and non-residential facilities that best aligned with each unique residential and non-residential project element. For each comparable neighborhood, EID gathered and assessed total annual water use for the years 2008 through 2012. This selected period of water use best represents 1) the greatest number of homes occupied within each selected area (including established back-yard landscapes), and 2) varied water use over a range of climatic conditions reflecting various rainfall amounts and timing. Average annual uses were derived from the data and are discussed under the respective land-use categories.

## 2.4 BASELINE RESIDENTIAL WATER USE DEMAND FACTORS

The Proposed Project anticipates specific residential products that fall within general lot-size designations. The size of the lot will have the largest impact on the annual per-lot demand for water. Indoor demands remain relatively consistent regardless of lot size, with the exception of apartments, which tend to have fewer people living in each unit and thus a slightly lower indoor use.

For purposes of this WSA, the per-lot demand for residential lots will be described as "the acre-feet of water use annually per dwelling unit" – or simply put, acre-feet/dwelling unit (af/du). This value will reflect indoor and outdoor uses expected for a typical dwelling unit for each of the following classifications:[3]

- ½-acre to 1-acre custom/production lots
- 5,000 to 7,000 square-foot production lots
- Condominiums/townhouses
- Multi-family housing with community facilities including pool and/or clubhouse

The method and basis for determining the baseline unit water demand factor for each of these classifications is detailed in the following subsections.

### ½ Acre to 1-Acre Custom/Production Lots

Water demand factors for the proposed large lots are based on recent water use data records for residential lots in the Serrano development – specifically existing residential lots located on Renaissance Way and Renaissance Place. The proposed lots range in size from ½-acre to 1-acre. However, this WSA assumes that the larger 1-acre lots will have restrictions placed on each lot that limits the developable area to no more than ½-acre. For instance, a lot may include hillside and/or areas of oak woodland that must be protected, resulting in a diminished area for the home's footprint, outdoor hardscapes, and landscaping. Generally, the house itself is large, with extensive outdoor features including pools, hardscapes, water features, and significant landscaping with well-maintained turf areas.

Based on available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is approximately 0.87 af/du.

### 5,000 to 7,000 square-foot Production Lots

The Proposed Project includes several lots designated in this approximate size classification. These lots typify residential subdivisions built throughout the region – including ample size homes, but with nominal outdoor area for hardscapes and landscaping. As a result of the limited outdoor area, many of these lots are limited to front-yard landscaping with well-maintained turf, and back yards often only including hardscapes, pools or other amenities, and lower water using landscapes. Unit water demands are based on recent water use data records for similar lots in the Serrano development – specifically Village D1A and Village E, which include numerous similar-sized lots.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.50 af/du.

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[3] These classifications reflect EID's defined water demand factor categories as EID believes they best relate to the Proposed Project's land-use classifications as shown in the Table 1-1.

### Condominiums/Townhouses

The Proposed Project includes numerous proposed lots characterized as "medium density-high" (9 to 14 units per acre). These proposed lots are anticipated to be similar to projects in the El Dorado Hills area, most notable the Regalo Project in Serrano. The Proposed Project includes large attached housing units, with large individual landscape yards and common areas.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.40 af/du.

### Multi-family Housing

The Proposed Project includes numerous multi-family housing elements. These lots will include community landscaping, multi-story housing structures, community pools and other amenities. These projects are anticipated to be similar to the existing indoor and outdoor demands of the Sterling Apartment and Vineyard Apartment properties currently served by EID. Although both of these properties differ in their layouts and landscape types and coverage, both use approximately the same quantity of water on a per-dwelling unit basis.

Based on the available historic meter data for similar developments served by EID, the baseline unit water demand factor for this land-use category is 0.16 af/du – inclusive of both indoor and outdoor demands.

### Residential Indoor Water Use

Based on EID meter data for the past several years, indoor water use for typical single-family homes averages about 0.18 af/du.[4] The value drops for apartments as a result of less people on average living in each apartment unit.[5] This value can be used to derive separation of residential demands that could be served with non-potable supplies, such as recycled water from the Deer Creek and/or El Dorado Hills wastewater treatment facilities (see Section 2.7.2).

## 2.5 MODIFYING BASELINE VALUES

All of the above-developed water demand factors for the residential classifications are based on similar existing developments in the El Dorado Hills area. However, since construction of the existing houses, a few changes have occurred that will reduce the Proposed Project's water demands from the baseline unit water demands derived from existing meter data. These include:

- CAL Green Code
- California Model Water Efficient Landscape Ordinance

[4] This value is a subset of the total usage estimated for a dwelling unit under each land-use category. Data from 2012 Water Resources and Service Reliability Report, EID, August 13, 2012, Appendix Table A, p.42

[5] El Dorado County indicates the average household size is 2.63 persons per occupied unit. (El Dorado County General Plan, 2008 Housing Element, August 2008 (Amended April 2009), p. 4-7).

### CAL Green Code

In January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (CAL Green Code) that requires the installation of water-efficient indoor infrastructure for all new projects beginning January 1, 2011. CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations.[6] The CAL Green Code applies to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure. All proposed land uses must satisfy the indoor water use infrastructure standards necessary to meet the CAL Green Code. The CAL Green Code requires residential and nonresidential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside the building by 20 percent. The 20 percent water savings can be achieved in one of the following ways: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building "water use baseline."[7] The Proposed Project will satisfy one of these two requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, as well as Energy Star and California Energy Commission-approved appliances.

### California Model Water Efficient Landscape Ordinance

In 2006, the Water Conservation in Landscaping Act was enacted, which required the Department of Water Resources to update the Model Water Efficient Landscape Ordinance (MWELO).[8] In fall of 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required that a retail water supplier adopt the provisions of the MWELO by January 1, 2010 or enact its own provisions equal to or more restrictive than the MWELO provisions.

The provisions of the MWELO are applicable to new construction with a landscape area greater than 2,500 square feet.[9] The MWELO provides a methodology to calculate total water use based upon a given plant factor and irrigation efficiency. Finally, MWELO requires the landscape design plan to delineate hydrozones (based upon plant factors) and then assign a unique valve for each hydrozone (low, medium, high water use).[10] The design of landscape irrigation systems is anticipated to better match the needs of grouped plant-types and thus result in more efficient outdoor irrigation.

### Applying Conservation to Baseline Demand Factors

Collectively, these and other factors will put downward pressure on the baseline residential unit water demand factors – potentially dropping each unit demand by up to 10 percent for the larger

[6] The CAL Green Code is Part 11 in Title 24.
[7] See CAL Green Code.
[8] Gov. Code §§ 65591-65599
[9] CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.
[10] CCR Tit. 23, Div. 2, Ch. 27, Secs. 492.3(a)(2)(A) and 492.7(a)(2).

lots. Table 2-1 provides a summary of the baseline demand factor for each residential land-use category, the anticipated savings from the conservation mandates, and the resulting unit demand factor used to estimate the Proposed Project's water use.

**Table 2-1 – Summary of Residential Baseline and Proposed Project Demand Factors**

| EID Water Demand Category (Relates to Table 1-1 Land Use) | Density Range | Current Factor (af/du) | Conservation Applied | Factor Used (af/du) |
|---|---|---|---|---|
| 1/2 to 1 Acre Custom Lots | 1-2 DU/Ac | 0.87 | 8% | 0.80 |
| 5,000-7,000 sf Lots | 5 - 8 DU/Ac | 0.50 | 5% | 0.48 |
| Condominiums/Town Homes | 9 - 14 DU/Ac | 0.40 | 5% | 0.38 |
| Multi-Family Housing[1] | 15 - 24 DU/Ac | 0.16 | 2% | 0.16 |

1. The Multi-family Housing values remain constant due to rounding. The "current factor" was determined to be 0.165 af/du.

## 2.6 Baseline Non-Residential Water Use Demand Factors

Similar to the residential water demand factors, non-residential factors are based upon recent water use trends for similar types of land classifications.

For purposes of this WSA, the per-lot demand for non-residential lots is described as "the acre-feet of water use annually per acre of land" – or simply put, acre-feet/acre (af/ac). This value reflects indoor and outdoor water needs expected for a typical non-residential use for each of the following classifications:

- Neighborhood commercial
- Public and neighborhood parks
- Other miscellaneous uses, including street medians and environmental mitigation

The method and basis for determining the baseline unit water demand factor for each of these classifications is detailed in the following subsections.

### Civic/Limited Commercial

The proposed civic/limited commercial facilities are anticipated to be "office space" in nature, rather than retail. However, analysis of recent meter data for both the La Borgata retail facility on El Dorado Hills Boulevard and the Village Green office/public facility at the corner of Silva Valley and Serrano Parkways indicates that water use on a per-acre basis is nearly consistent, with the retail space using about 2.15 af/ac and the office facility using 1.95 af/ac. Although the Village Green indoor facilities have lower use, the area has more turf landscaped area (not including Village Green park), which matches, on a gross acre-by-acre comparison with the higher indoor retail demands and limited landscaping of the restaurants at La Borgata.

Based on the available historic meter data for similar facilities served by EID, the unit water demand factor is 2.0 af/ac.

### Public and Neighborhood Parks

The Proposed Project includes both a "Village" park and a neighborhood park that will include expansive turf areas, playfields and other park amenities. Based upon recent water meter data for similar park facilities in the El Dorado Hills area – namely Bella Terra Park, Allan Lindsey Park, and the Village A, C, L3, and L4 parks – a representative water demand factor was identified. A "smart meter" controls the irrigation system at each existing park. These devices adjust water use to actual climate data, including precipitation events. Thus, the recent meter data is very indicative of expected demands for the new parks, which will also be outfitted with similar technology.

Based on the available historic meter data for similar facilities served by EID, the unit water demand factor is 2.77 af/ac.

### Other Miscellaneous Uses

The Proposed Project has additional miscellaneous uses including environmental mitigation requirements and construction water. These uses have minimal impacts to the overall per-project total water use due to their limited size and water needs and are temporary in nature.

*Oak Woodlands Management*

As of the preparation of this WSA, the mitigation requirements for impacts to oak woodlands resulting from the Proposed Project are as detailed in the County's Policy 7.4.4.4.[11] For purposes of estimating the water demands of this Proposed Project element, the WSA assumes mitigation will include establishing new trees, likely with associated irrigation water to assure seedlings are established. As defined in the County's Oak Woodland Management Plan Monitoring Program:

> *"Replacement of removed tree canopy . . . is subject to intensive to moderate management and 10 to 15 years of monitoring, respectively. The survival rate shall be 90 percent as specified in the approved monitoring plan for the project, prepared by a qualified professional. Acorns may be used instead of saplings or one gallon trees."*

[11] The County Board of Supervisors has an Oak Woodland Management Plan (OWMP) codified as Chapter 17.73 of the County Code (Ord. 4771. May 6, 2008.). The primary purpose of this plan is to implement the Option B provisions of Policy 7.4.4.4. On September 24, 2012, the Board of Supervisors directed the Development Services Department to prepare a General Plan amendment to amend Policies 7.4.2.8, 7.4.2.9, 7.4.4.4, 7.4.4.5, 7.4.5.1, and 7.4.5.2 and their related implementation measures to clarify and refine the County's policies regarding oak tree protection and habitat preservation. (This excerpt was copied from the following El Dorado County web site: http://www.edcgov.us/Government/Planning/General_Plan_Oak_Woodlands.aspx on May 4, 2013.)

> *"Management intensity assumes that 10 years after planting 1 year old saplings that trees that have been nurtured with high management intensity will be on average 2 inches DBH with 90 percent survival; moderate management intensity will result in trees that are on average 1.5 inches DBH with 85 percent survival."*

More precisely, an intensive management program is required to obtain 90 percent survival. The management includes10 years of monitoring for one-gallon/one year old saplings and 15 years of monitoring if acorns are planted. Any trees/acorns that do not survive within the monitoring periods are to be replaced within that time, so that 90 percent survival is achieved at the end of the monitoring period.

Because establishment of new trees is highly dependent on site conditions (soil depth and composition, depth to water table, slope, aspect, existing vegetation), planting conditions (water year, starting from acorns or saplings, weed mats, mulch, density of plantings and other adjacent veg, etc.), establishment and maintenance practices (manual or installed irrigation systems, and irrigation intervals), and the required success criteria (target % survival), the estimated water demands are difficult to predict.[12] However, in order to be reasonably conservative, this WSA assumes that each acre of habitat mitigation will require 1 acre-foot per acre of annual irrigation for a period of 15 years.[13] For instance, if the Proposed Project must mitigate with 10 acres of woodland, the demand would be 10 acre-feet annually. All oak woodland will be established prior to build-out and require no on-going irrigation.

*Construction Water*

As stated in Section 1, early phases of the Proposed Project will include site grading and infrastructure installation. These and other construction elements will require dust suppression and other incidental water uses. These are estimated to be nominal, and do not continue beyond the construction phases of the Proposed Project. For purposes of identifying incremental water demands, construction water is assumed within this WSA to be 2 af per year (this is well over 600,000 gallons – or over 150 fill-ups of a 4,000 gallon water truck).

### Modifications to Reflect Additional Water Use Reductions

Similar to the residential demand factors, the above-developed water demand factors for the non-residential classifications are based on similar existing developments in the El Dorado Hills area. Considerations to reduce these baseline values for conservation factors, however, are not required, since demand factors for many of the landscaped features, such as parks, will not change from the existing values – with the exception of commercial land-uses. The landscape-

[12] A qualified professional will likely develop the project specific oak management plan. More detailed water use will be available in this plan. Review of information from oak mitigation projects in the area revealed a range of planting types, irrigation methods, and management time frames. Overall, irrigation demands were all low as would be expected for a native species.

[13] A conservative water demand number and a long management window were assumed to provide the Proposed Project applicants flexibility in meeting the oak woodland mitigation requirements.

dominant demand factors are affected primarily by climatic conditions that drive plant evapotranspiration. In other words, an acre of turf at a park will still use the same amount of water in the new parks as the existing parks. Commercial land-uses, however, are adjusted downward slightly to reflect the CAL Green Code and likely modifications to landscape designs (compared to existing establishments) to limit outdoor water use. **Table 2-2** provides a summary of the non-residential demand factors used to estimate the Proposed Project's future demands.

**Table 2-2 – Summary of Non-Residential Demand Factors**

| Land Use | Current Factor (af/ac) | Conservation % Applied | Factor Used (af/ac) |
|---|---|---|---|
| Commercial | 2.00 | 3% | 1.94 |
| Parks | 2.77 | 0% | 2.77 |
| ROW Landscaping | 3.30 | 0% | 3.30 |
| Open Space | 0.00 | 0% | 0.00 |

## 2.7 PROPOSED PROJECT WATER DEMAND PROJECTION

Combining the Proposed Project's land-use details and phasing as summarized in **Table 1-1** and **Table 1-2** with the demand factors presented in **Table 2-1** and **Table 2-2**, the water demands for the project from initiation to build-out are estimated. At completion, the Proposed Project is estimated to need 398 acre-feet of water annually (prior to considerations of non-revenue water, described in the next subsection) as shown in **Table 2-3**.

### 2.7.1 Non-Revenue Water Demands

The demand factors presented earlier in this section represent the demand for water at the customer's meter for each category. To fully represent the demand on EID's water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to the customer accounts and reflects distribution system leaks, water demands from potentially un-metered uses such as fire protection, hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[14] In most instances, the predominant source of non-revenue water is from system leaks – the loss from fittings and connections from EID's water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems. Because a significant portion of the delivery system used to bring water to the Proposed Project already exists, the benefits of new piping within the Proposed Project has limited effect on the overall percentage of non-revenue water necessary to operate the system

[14] The American Water Works Association and the California Urban Water Conservation Council recognize the inherent non-revenue water that is either lost or mis-accounted in urban treated water distribution systems and suggest purveyors strive for a value of 10% of all delivered water. Obtaining this value is dependent on numerous factors including the age and extent of distribution system infrastructure, meter rehabilitation programs, and how a purveyor accounts for actions such as fire flows and hydrant flushing.

Although EID has an established program for identifying and accounting for most unbilled and other system losses, there are still pipeline leaks, unmetered uses, unauthorized connections, meter inaccuracies, and other losses that are difficult to specifically quantify. Consistent with the District's methodology for calculating future water meter availability, as defined in the *2012 Water Resources and Service Reliability Report*, non-revenue water is projected at a fixed rate of 13 percent. Non-revenue demand is estimated to add 52 acre-feet per year at build-out to the Proposed Project's land-use demands, bringing the estimated build-out water demand attributed to the Proposed Project to 450 acre-feet annually (see **Table 2-3**).

### 2.7.2 Recycled Water Demand

A portion of the Proposed Project's demands (Serrano Westside Planning Area, see **Figure 1-1**) could partially be met with recycled water provided by EID (see Section 4.3). As previously noted, other than the high-density multi-family units, residential potable demands require about 0.18 acre-feet annually per household. The remaining portion of the unit demand factor for each type of residential lot could be met with recycled water (see **Table 2.1** for unit demand factors). For the high-density residential units, the potable water requirement is lower due to fewer customers per unit on average when compared to other housing types. Using these unit water demand assumptions, coupled with the number of residential units, the Proposed Project could meet approximately 140 acre-feet of the 314 acre-feet of residential water demand with recycled water – prior to consideration of non-revenue water demands.

Non-residential components of the Proposed Project could also be met with recycled water, especially the parks. Removing the small potable demands for parks and the limited commercial properties, the Proposed Project could meet 79 acre-feet of the 84 acre-feet of total demand with recycled water – prior to the consideration of non-revenue water demands. Combined, recycled water could serve about 219 acre-feet of the Proposed Project's demand (see **Table 2-4**).

**Table 2-4 – Estimated Demand Met with Recycled Water**

| | Demand (af/yr) | | |
|---|---|---|---|
| | Residential | Non-Res | Total |
| Potable | 174 | 5 | 179 |
| Recycled | 140 | 79 | 219 |
| **Total Demand** | **314** | **84** | **398** |

## Table 2-3 – Estimated Proposed Project Water Demands from Start-up to Build-out

| | Unit Count or Acreage | | | | | | Demand Factor (af/du or af/ac) | | | | | | Demand (af/yr) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | Current | 2015 | 2020 | 2025 | 2030 | 2035 | Current | 2015 | 2020 | 2025 | 2030 | 2035 | Current | 2015 | 2020 | 2025 | 2030 | 2035 |
| **Residential** | | | | | | | | | | | | | | | | | | |
| 1/2 to 1 Acre Custom Lots | 0 | 0 | 5 | 65 | 65 | 65 | 0.87 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0 | 0 | 4 | 52 | 52 | 52 |
| 5,000-7,000 sf Lots | 0 | 0 | 60 | 123 | 123 | 123 | 0.50 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0 | 0 | 29 | 58 | 58 | 58 |
| Condominiums/Town Homes | 0 | 0 | 104 | 310 | 310 | 310 | 0.40 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0 | 0 | 40 | 118 | 118 | 118 |
| Multi-Family Housing | 0 | 0 | 230 | 230 | 530 | 530 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0 | 0 | 37 | 37 | 86 | 86 |
| | | | | | | | | | | | | Subtotal | | 0 | 109 | 266 | 314 | 314 |
| **Commercial** | | | | | | | | | | | | | | | | | | |
| Limited Commercial | 0 | 0 | 0 | 0 | 12 | 12 | 2.00 | 1.94 | 1.94 | 1.94 | 1.94 | 1.94 | 0 | 0 | 0 | 0 | 23 | 23 |
| Park Alternative | 0 | 0 | 0 | 5 | 5 | 5 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 0 | 0 | 0 | 14 | 14 | 14 |
| | | | | | | | | | | | | Subtotal | | 0 | 0 | 14 | 37 | 37 |
| **Public** | | | | | | | | | | | | | | | | | | |
| Village Park | 0 | 0 | 0 | 15 | 15 | 15 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 0 | 0 | 0 | 41 | 41 | 41 |
| Neighborhood Park | 0 | 0 | 2 | 2 | 2 | 2 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 0 | 0 | 6 | 6 | 6 | 6 |
| Open Space | 0 | 85 | 85 | 85 | 85 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | Subtotal | | 0 | 6 | 47 | 47 | 47 |
| **Other** | | | | | | | | | | | | | | | | | | |
| Mitigation | 0 | 10 | 25 | 25 | 15 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 10 | 25 | 25 | 15 | 0 |
| Construction Water | 0 | 2 | 2 | 2 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 2 | 2 | 2 | 0 | 0 |
| | | | | | | | | | | | | Subtotal | | 12 | 27 | 27 | 15 | 0 |
| | | | | | | | | | | | | **Total Water Demand** | **0** | **12** | **142** | **354** | **413** | **398** |
| | | | | | | | | | | | | Non-Revenue Demand at 13% | 0 | 2 | 18 | 46 | 54 | 52 |
| | | | | | | | | | | | | **Total Proposed Project Demand** | **0** | **14** | **160** | **400** | **466** | **450** |

# SECTION 3 – OTHER ESTIMATED WATER DEMANDS

## 3.1 INTRODUCTION

As stated in this excerpt from Water Code Section 10910(b)(3): *"[T]he water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available…will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses…"* This section details EID's other "existing and planned future uses." For purposes of this WSA, existing and planned future uses are subdivided into the following:

- **Other Currently Proposed Projects –** in addition to the Proposed Project, El Dorado County (County) is the Lead Agency (pursuant to CEQA) for four additional proposed development projects. As Lead Agency, the County has requested separate WSAs from EID for each of these other projects. Because detailed land-use information is available for three of the four projects and separate WSAs are being developed for these three in parallel to this WSA, each of these three projects have unique water demand estimates that are included in this WSA.[15]

- **All Other Existing and Planned Future Uses –** in addition to the Proposed Project and the Other Currently Proposed Projects, existing customers and anticipated growth in the County must be quantified. The subdivisions of this category are:

    - **Current Customers and Uses –** using 2012 as a baseline condition, this category reflects the current range of EID's potable and recycled water customers. Because these customers and uses already exist, keeping them separate from planned future uses allows an analysis to reflect anticipated reductions in use over time as EID continues to implement its urban water conservation programs targeted at many of the existing customers.[16]

    - **Adjusted General Plan Update Land Use Growth –** in addition to the identified development projects currently undergoing County CEQA review, the County's 2004 General Plan Update (GPU) anticipates continued urban growth throughout the EID service area. This growth is accounted for in the EID *Integrated Water*

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[15] EID understands the fourth project, San Stino, to be undergoing changes to its land-use plans at the time of drafting this WSA. Lacking the details needed to determine water demands similar to the other WSAs currently being completed, the San Stino project is reflected in the next subgroup of demands (see Section 3.3).

[16] New customers added to EID's system will have lower demand factors, as discussed in Section 2, and will be less likely to implement additional conservation or see much reduction when changes are made. For instance, many existing customers may still have 3 gallon per flush toilets or even 1.6 gallon per flush toilets, which when replaced, will likely only use 1.28 gallons. New houses will be constructed, per the CAL Green Code, with 1.28 gallon per flush toilets. EID has had conservation and incentives programs for more than 20 years.

*Resources Master Plan* (IWRMP) and serves as the primary water demand driver into the future. Adjustments to anticipated GPU growth to reflect the "Other Currently Proposed Projects" and other proposed land-use changes, however, must be made. The adjustments discussed under this category include: (1) potential changes in the 2004 General Plan land use designations as identified in Facility Improvement Letters received and analyzed by EID; and (2) the removal of the Proposed Project and other proposed project uses being developed under concurrent WSAs.

  - **Other Authorized Uses –** EID does not anticipate increases above 2012 levels in other authorized potable water uses such as fire flows, meter testing, water quality flushing, and ditch system operations. Demands for this category of water use is removed from the general plan growth and included separately.

- **Non-Revenue Water –** As discussed in Section 2.7.1, an additional demand is seen by EID to treat and deliver water to all customers. Referred to as non-revenue water, this water demand represents a 13 percent increase added to estimated customer demands. This value represents a long-term average experienced by EID.

## 3.2 Other Currently Proposed Projects

As mentioned in the previous section, El Dorado County is the Lead CEQA Agency for four additional proposed development projects and has requested EID to prepare WSA's for each development concurrent with this Proposed Project WSA. EID is currently drafting three of these four WSAs.[17] The estimate of water demand for each WSA follows the same methods used in Section 2 of this WSA, with specific unit demand factors applied to each unique land use element. The other projects are:

- The Village of Marble Valley Specific Plan – located southeast of the Proposed Project, this development features many additional water use elements such as vineyards, schools, parks, a large lake, and a diverse range of housing types and lot sizes.
- Lime Rock Valley Specific Plan – located adjacent to the Village of Marble Valley, this development is a planned residential community with a variety of lot sizes and housing types.
- Dixon Ranch Residential Project – located northeast of the Proposed Project, this development is a planned residential community with a range of lot sizes and housing types, including a number of "age-restricted" units, accompanied by a community club house, parks, ponds, and trails.

[17] EID understands that the San Stino development project is undergoing changes to the land-use plans previously submitted to the County. Therefore, EID has not begun the WSA for that project.

Based on the detailed analysis completed in the other WSAs, these "Other Currently Proposed Projects" represent approximately 2,900 acre-feet per year of new demand by 2035. **Table 3-1**, presented later in this section, summarizes the estimated water demands as determined and detailed in the concurrent WSAs for each unique project. The values shown are the estimated customer and use demands and do not include the additional water associated with non-revenue percentages attributable to the treatment and distribution for each project (see Section 3.5).

## 3.3 ALL OTHER EXISTING AND PLANNED FUTURE USES

In simple terms, this category of use would typically reflect all the other water demands anticipated by EID that are in addition to the Proposed Project. However, because of the unique circumstance that other WSAs are concurrently being drafted by EID, this category must be adjusted to remove those other well-defined water demands. Furthermore, because other potential changes to the 2004 GPU have been brought to EID's attention, and EID anticipates changes to current customer uses, a more detailed assessment of future demands is warranted. This subsection describes:

- Current Customers and Uses
- Adjusted GPU Land Use Growth
- Other Authorized Uses

### 3.3.1 Current Customers and Uses

Current customers and uses in the contiguous EID service area provide a baseline from which to assess additional demand from the Proposed Project and other potential planned uses. For purposes of the WSA, the deliveries to current customers in 2012 were used to define this baseline. Based on the 2012 EID *Water Diversion Report*, EID diverted 36,580 acre-feet into its potable water system. In addition to the potable water, EID served 2,404 acre-feet of recycled water to meet customer demands.[18] Combined, the current water demand is represented as 38,984 acre-feet. This value includes the non-revenue water (see Section 2.7.1), including system losses, necessary to deliver these supplies from their respective treatment plants to the customer meter. This value also includes 1,269 acre-feet sold to the City of Placerville.[19]

Since the WSA uses 2012 as a baseline, the "current" demand varies from that used in the recently adopted IWRMP, which used the year 2008 for its baseline.[20] Given on-going conservation efforts, adoption of new rate structures, and other drivers, EID has seen an overall decrease in the annual customer use since the IWRMP selected its baseline. Therefore the 2012

[18] See EID 2013 Water Resources and Reliability Report (Table 14)
[19] See EID Consumption Report: Reporting Year 2012 (Table on p. 7)
[20] The IWRMP, adopted by the EID Board in March 2013, began several years ago and at the time used 2008 as a baseline. Since that time, EID's annual diversions have dropped from a high in 2008 of about 45,000 acre-feet to 35,678, 33,453, and 36,580 in 2010, 2011, and 2012, respectively. Combined with recycled water deliveries, the 2012 demand is lower than that used for the 2013 IWRMP, but greater than 2010 and 2011.

baseline used for this WSA is more representative of the baseline use expected into the future from these existing customers and uses.

A slight adjustment to this baseline is necessary, however, to project it into the future. Although this demand will remain relatively constant since it does not add any new uses (additional uses are discussed in the next subsections), a slight decrease is assumed that reflects on-going implementation of conservation and instillation of new water-using fixtures by existing customers. EID's continued leadership in conservation will enable existing customers to retrofit toilets, receive appliance rebates for new household items such as dishwashers, water heaters and clothes washers, and implement irrigation efficiency improvements through various incentives. Additional reductions in existing customer demands will also occur simply as a result of the natural replacement of old fixtures and appliances with lower water-use devices. For purposes of the WSA, EID estimates the reduction in current customer demand will be approximately 2% by 2020 and an additional 1% by 2035. This is consistent with EID's expectations necessary to meet its per-capita water use targets as detailed in the 2010 Urban Water Management Plan.[21]

### 3.3.2 Adjusted GPU Land Use Growth

In the 2004 GPU, the County made growth projections using land-use zoning throughout the County. Within the contiguous EID water service area, the GPU land-use zoning correlates to EID defined unit water demand factors. During preparation of the recently adopted 2013 IWRMP, EID used GIS-based land-use designations, combined with the water demand factors, to develop estimated growth in water demand. Absent any changes to the 2004 GPU land-use designations, the 2013 IWRMP demand projections would provide a valid representation of future water needs. However, because several proposed changes to the GPU land-use designations have been submitted – both through the County's formal process, such as is the situation with the Proposed Project and Other Planned Projects, and through an EID process explained below – the 2013 IWRMP demand projections require refinement. The steps to adjust these demands included:

- Removal of Proposed Project and Other Planned Projects water demands
- Modifying land-use zoning based on Facility Improvement Letters
- Determining Growth to Year 2035

Once these steps were completed, the analysis reassessed the water demand using the water demand factors applied in the 2013 IWRMP.

*Step 1: Removal of Proposed Project and Other Planned Project Water Demands*

The first step in adjusting the water demands was to remove the detailed water demands estimated in this WSA for the Proposed Project and for the Other Planned Projects (see

[21] See Section 3 of the 2010 UWMP available here: http://www.eid.org/modules/showdocument.aspx?documentid=338

Section 2 and Section 3.2). This step involved removing the specific acreage and water demand factors from the 2013 IWRMP analysis. The 2004 GPU included land-use zoning for the lands underlying the Proposed Project as well as the Other Planned Projects. In the 2013 IWRMP, water demands were estimated using the existing zoning. Removing these land uses eliminates the potential to double-count the associated acreage when assessing the remaining GPU expected growth.

*Step 2: Modifying Land-use Zoning based on FILs*

When investigating water service from EID for development projects (e.g. lot splits, land use changes, and new service to existing parcels), existing landowners submit a Facilities Improvement Letter (FIL). This document allows EID to assess whether infrastructure or supplies are available to serve the proposed project. In some instances, the FILs include proposed land-use zoning changes not previously incorporated into EID water demand projections. By using GIS to map the locations of the FILs requesting a change in land-use zoning, EID was able to identify where changes to the 2013 IWRMP demand estimates would occur. About 25 specific FILs were identified as having land-use designation changes. These identified parcels were removed from the prior analysis to eliminate potential double counting of demands.

In a separate analysis, the water demand for this subset of parcels was recalculated using the appropriate water demand factor for the new proposed land-use classification (e.g. water needs for these parcels may have previously been calculated based on very-low density housing, but is requesting a change to higher density housing). Through the analysis, an increased demand of approximately 3,000 acre-feet over the 2013 IWRMP projections was identified.

*Step 3: Determining Growth to 2035*

The GPU identifies anticipated build-out conditions for the County and, as a subset, for the EID contiguous water service area. Since this WSA assesses water demands in 5-year increments only to 2035 – well short of the anticipated timing of the County's build-out – the amount of build-out growth occurring by 2035 must be determined. This was done for both the parcels identified with new land-use zoning through the FIL analysis, and for the remaining parcels with original GPU land-use designations.

Because there is little detail about planned development rates for the FIL-related parcels, this WSA assumed that these parcels would have full water demand usage by 2035.[22] This is a conservative estimate, since some of these lands may not develop by 2035 or may never

[22] This assumption also considers that a landowner would likely only submit a FIL to EID if they are seriously contemplating the development activity. Thus, there is a higher likelihood that these parcels will develop at a faster rate than other generally anticipated growth for the remaining parcels in the GPU.

develop. Thus, the estimated increase in demand of approximately 3,000 acre-feet was assumed to occur by 2035 with the 2013 IWRMP growth rate applied.

For the remaining parcels, growth rates used to determine the degree of development were based on EID's 2013 IWRMP. In the 2013 IWRMP, growth rates for the El Dorado Hills, and Western/Eastern water service areas were identified for specific year-ranges.[23] This WSA uses those growth rates for the remaining parcels. Using the 2013 IWRMP growth rates, the analysis determined build-out for the El Dorado and Western/Eastern service areas occurs after 2035.

During this adjustment, special attention was provided to the City of Placerville. The City purchases potable water from EID for distribution to its residents. The 2013 IWRMP projected future water demands for the City based on the City's existing General Plan. This WSA assumes the same rate of growth and build-out demand as the 2013 IWRMP for the City.

Upon completion of these steps, the adjusted demand for the GPU land uses was determined. **Table 3-1** summarizes the anticipated increase in water demand during each 5-year increment as a result of these adjustments to the GPU land-uses.

### 3.3.3 Other Authorized Uses

In addition to the sale of water to metered customers, EID has a set of water demands it refers to as "Other Authorized Uses." This designation is for the following existing uses:

- Knolls Reservoir Assessment District
- Private Fire Services
- Temporary Water Use Permit
- Bulk Water Stations - Permanent
- Bulk Water Stations - Temporary
- Lift Stations
- Collection System Flushing
- Spills, Overflows, and Flushing
- Clear Creek Aesthetics Flow Maintenance District

Of these, the Clear Creek aesthetic flows comprise over 80 percent of the annual authorized uses. Lift stations and temporary use permits comprise another 10 percent. The current demand of approximately 2,200 acre-feet is already reflected in the "Current Customers and Uses." EID anticipates no growth in these authorized water uses, with the total demand to remain constant at 2,200 acre-feet through 2035.

[23] EID Integrated Water Resources Master Plan, adopted March 2013 (Table 9-2).

## 3.4 NON-REVENUE WATER DEMANDS

The subtotal values in **Table 3-1** represent the demand for water at the customer's meter for each category. To fully represent the demand placed on EID's water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to the meter and reflects distribution system leaks, water demands from potentially un-metered uses of fire protection, fire hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[24] In most instances, the predominant source of non-revenue water is from system losses – the loss from fittings and connections from the District's water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems.

Although the District has an established program for identifying and accounting for most unbilled and other system losses, there are still pipeline leaks, unmetered uses, unauthorized connections, meter inaccuracies, and other losses that are difficult to specifically quantify. Consistent with the District's methodology for calculating future water meter availability, as defined in the *2012 Water Resources and Service Reliability Report*, non-revenue water is projected at a fixed rate of 13 percent.

As shown in **Table 3-1**, non-revenue demand for Existing and Planned Future Uses is estimated to be about 7,700 acre-feet per year by 2035.

## 3.5 ESTIMATED EXISTING AND PLANNED FUTURE USES

Combining the estimated water demand for Other Currently Planned Projects (see Section 3.2 with the All Other Existing and Planned Future Uses demand (Current Customers and Uses plus the Adjusted GPU Land Use values), the total estimated demand during each 5-year increment to 2035 is derived (see subtotal water demand in **Table 3-1)**.

[24] See footnote 14

### Table 3-1 – All Other Existing and Planned Future Uses

| Category | Estimated Demand (af/yr) | | | | | |
|---|---|---|---|---|---|---|
| | Current | 2015 | 2020 | 2025 | 2030 | 2035 |
| Other Currently Proposed Projects | 0 | 275 | 1,193 | 1,836 | 2,505 | 2,861 |
| Current Customers and Uses [1] | 38,984 | 34,154 | 33,809 | 33,694 | 33,579 | 33,464 |
| Adjusted GPU Land Use [2] | 0 | 514 | 2,853 | 7,975 | 14,718 | 22,830 |
| **Subtotal Water Demand** | **38,984** | **34,944** | **37,855** | **43,505** | **50,803** | **59,156** |
| | Current | 2015 | 2020 | 2025 | 2030 | 2035 |
| Non-Revenue Water at 13% | -- | 4,543 | 4,921 | 5,656 | 6,604 | 7,690 |
| **Total Water Demand** | **38,984** | **39,486** | **42,777** | **49,161** | **57,407** | **66,845** |

1. The "Current Customers and Uses" demand value includes the "Other Authorized Uses." The Value is greater under the "Current" condition because "Non-Revenue Water" is included in the current year. All other years will have "non-revenue water" added on a separate line. A 3% conservation decrease occurs by 2035.
2. "Adjusted GPU Land Use" reflects changes to the 2004 GPU as determined by FILs submitted to EID. This value also does NOT include the other proposed projects currently undergoing County CEQA review.

## 3.6 TOTAL ESTIMATED DEMAND

The other existing and planned future water demands described in this section represent the total demands anticipated *in addition to* the water demands of the Proposed Project. Combining the estimated Proposed Project water demands of 450 acre-feet annually (see **Table 2-3**) with the estimated Existing and Planned Future water demands of approximately 66,850 acre-feet annually (see **Table 3-1**), a total estimated demand for EID water supplies by 2035 is determined. Estimated existing and planned future water demands, inclusive of non-revenue water needs, for each 5-year increment to 2035 are presented in **Table 3-2**. The estimated demand for EID Water supplies is 67,295 acre-feet annually.

### Table 3-2 – Total Estimated Water Demands

| Category | Estimated Demand (af/yr) | | | | | |
|---|---|---|---|---|---|---|
| | Current | 2015 | 2020 | 2025 | 2030 | 2035 |
| Proposed Project | 0 | 14 | 160 | 400 | 466 | 450 |
| Existing and Planned Future Uses | 38,984 | 39,486 | 42,777 | 49,161 | 57,407 | 66,845 |
| **Total Water Demand** | **38,984** | **39,500** | **42,937** | **49,560** | **57,874** | **67,295** |

Of note is that the estimated water demand for 2035 presented in **Table 3-2** fits within the range of total demands presented in Table 9-1 of the 2013 IWRMP (estimated to be between 61,262 acre-feet and 77,315 acre-feet). The primary differences is that the 2013 IWRMP used 2008 as a baseline demand, which is substantially higher than EID has seen in the last several years. This WSA uses 2012 as a baseline. The 2008 value was approximately 45,000 acre-feet, while the 2012 value is 38,984 – or about 39,000 acre-feet. This represents a difference of about 6,000 acre-feet. Starting from a different baseline quantity and year, and then applying the 2013 IWRMP growth rates, results in a different estimated total demand when reaching 2035.

# SECTION 4 – WATER SUPPLY CHARACTERIZATION

## 4.1 INTRODUCTION

This section explains the intended water supply that EID will use to serve the Proposed Project.[25] EID will meet the Proposed Project's water demands by utilizing water assets derived from its existing sources as well as through future asset acquisition efforts with El Dorado County Water Agency. This section details the Proposed Project's available water supplies and entitlements as well as its planned water supplies and entitlements in both normal water years and dry water years. The Proposed Project exists completely in El Dorado Irrigation District's contiguous water service area (see **Figure 4-1**) and may be served with both treated water and recycled water.[26]

El Dorado Irrigation District maintains two primary interconnected water systems in its contiguous service area: the El Dorado Hills system and the Western/Eastern system, along with a separate recycled water system. The El Dorado Hills water system obtains its primary supplies under rights and entitlements from Folsom Reservoir. The Western/Eastern system derives its supplies from sources under rights and entitlements emanating from further up the American River watershed and the Cosumnes River watershed. The recycled water system serves treated wastewater from the El Dorado Hills wastewater treatment plant and the Deer Creek wastewater treatment plant.

The water assets can be further categorized by the service area they primarily serve and the treatment plant they flow through. Water derived from Folsom Reservoir is delivered to the El Dorado Hills water treatment plant and serves the El Dorado Hills area. Water derived from upstream American River watershed diversions and storage reservoirs generally use the Reservoir 1 Water Treatment Plant while the Cosumnes River diversions use Reservoir A Water Treatment Plant to serve the Western/Eastern area. Water assets from these upstream diversions can be delivered by gravity feed to the El Dorado Hills area, but assets from Folsom Reservoir are not delivered outside the El Dorado Hills area due to infrastructure limitations. The following subsections describe these water supplies and delivery mechanics in more detail.

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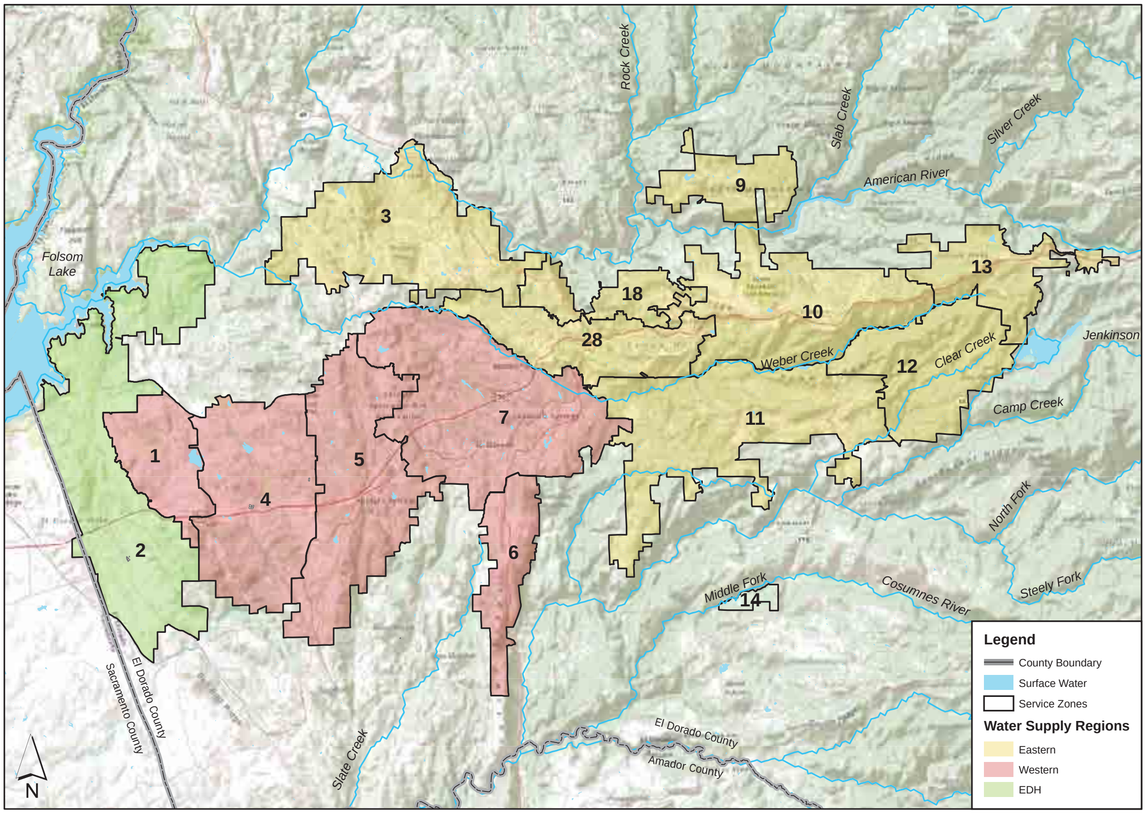
[25] CWC § 10910(d)(1) requires that "The assessment… include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system…under existing water supply entitlements, water rights, or water service contracts. (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system…shall be demonstrated by providing information related to all of the following: (A) Written contracts or other proof of entitlement to an identified water supply. (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system. (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply. (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply."

[26] EID also has surface water assets that it serves to two non-contiguous areas as well as raw water assets that are used for agricultural purposes. These water assets are irrelevant to the Proposed Project contemplated in this Water Supply Assessment and are, therefore, not analyzed.

**Figure 4-1 – El Dorado Irrigation District Service Area**
(from Figure 8-7, Integrated Water Resources Master Plan, EID, March 2013)




## 4.2 Treated Water Supplies

EID's treated water supplies identified for the Proposed Project are derived from a number of water rights and entitlements as detailed in **Table 4-1**. The maximum available water assets column in **Table 4-1** does not account for other hydrological, technical, regulatory, and contractual limitations that apply to the water assets for normal year and dry year deliveries. These issues are addressed in the other two columns in the table. EID's water assets available for the Proposed Project include water rights and entitlements that EID currently has in its possession and planned water rights and entitlements that it will control in the future.

### 4.2.1 Water Rights and Entitlements Description

Generally, EID's water assets are derived from pre-1914 appropriative water rights, licensed and permitted appropriative water rights, Central Valley Project (CVP) contracts, Warren Act contracts (that allow non-federal water assets to be wheeled through the federal storage and conveyance facilities), and recycled water generated from the effluent treated at the District's two wastewater treatment plants. The District's counsel has recently confirmed all of these water rights and entitlements. Pertinent information regarding these water assets is included in **Appendix A** of this document as required by Water Code section 10910(d).

Water for the Proposed Project will be derived from both Folsom Reservoir and upstream American River and Cosumnes River diversions. As shown in **Table 4-1**, the primary water assets for diversion at Folsom Reservoir are: CVP Contract 14-06-200-1375A-LTR1, and License 2184 and several pre-1914 water rights incorporated into Warren Act contract 06-WC-20-3315. EID is seeking to finalize its Warren Act contract for diversions of Permit 21112 at Folsom Reservoir. EID also has additional water assets under the El Dorado – SMUD Cooperation Agreement and a Central Valley Project water entitlement derived from El Dorado County Water Agency's Fazio water supply. These water assets will be described in **Section 4.2.2**.

**Table 4-1 – Water Rights, Entitlements, and Supply Availability**

| Water Right or Entitlement | Maximum Water Assets Available (Ac-ft) | Normal Year Planned Supply Availability (Ac-ft) | Dry-Year Planned Supply Availability (Ac-ft) |
|---|---|---|---|
| License 2184 and pre-1914 ditch rights including Warren Act Contract 06-WC-20-3315 | 4,560 | 4,560 | 3,000 |
| Licenses 11835 and 11836 | 33,400 | 23,000 | 20,920[A] |
| CVP Contract 14-06-200-1375A-LTR1 | 7,550 | 7,550 | 5,660 |
| Pre-1914 American River diversion and storage rights | 15,080 | 15,080 | 15,080 |
| Permit 21112 | 17,000 | 17,000 | 17,000 |
| **Subtotal Existing** | **77,590** | **67,190** | **61,660** |
| Central Valley Project Fazio water entitlement (PL 101-514 (1990) Fazio) [D] | 7,500 | 7,500 | 5,625 |
| Applications 5645X12, 5644X02 and partial assignment of Applications 5645, 5644 with El Dorado-SMUD Cooperation Agreement [E] | 40,000[B] | 30,000 | 5,000[C] |
| **Subtotal Planned** | **47,500** | **37,500** | **10,625** |
| Recycled Water | 5,600 | 5,600 | 5,600 |
| **Total** | **130,690** | **110,290** | **77,885** |

[A] This is the modeled safe-yield of this water right during a single dry-year. For planning purposes, the second and third dry years of a three-year dry period are assumed to be 17,000 acre-feet, and 15,500 acre-feet, respectfully

[B] Section 5.1.1 of the El-Dorado SMUD Cooperation Agreement indicates that 40,000 acre-feet of SMUD water will be available after 2025. For conservative Normal Year planning purposes, the District uses 30,000 acre-feet of available supply.

[C] Available supply is 15,000 acre-feet in a single dry year but in preparing for multiple dry years EID anticipates using only 5,000 acre-feet per year for a three-year period.

[D] Available starting in 2015

[E] Available starting in 2025

*License 2184 and Pre-1914 Water Rights*

Water rights associated with Weber Dam, Weber Creek (Farmer's Free Ditch), Slab Creek (Summerfield Ditch), and Hangtown Creek (Gold Hill Ditch) are available to be diverted at Folsom Reservoir under a long-term Warren Act Contract, with approximately 4,560 acre-feet available each year from these sources. A Warren Act Contract allows the use of federal facilities to take non-CVP water such as these supplies. The 40-year contract commenced on

March 1, 2011 and has a maximum net contract amount of 4,560 acre-feet per year. The contract total also assumes a 15% conveyance loss between the former points of diversion and Folsom Reservoir, which can be adjusted at a later date by mutual agreement without amending the contract. The annual water diversion season is limited to April through November 15 and the water must be used for municipal and industrial purposes in the El Dorado Hills and Cameron Park areas.

*Licenses 11835 and 11836*

Licenses 11835 and 11836 allow for 33,400 acre-feet of diversion in EID's upstream system in the Cosumnes River watershed. These diversions are stored in Jenkinson Lake, the largest storage reservoir in EID, formed by two earth and rock dams across Sly Park Creek near Pollock Pines with a maximum capacity of 41,033 acre-feet. The dam was constructed as a portion of the United States Bureau of Reclamation (USBR) CVP in 1955. With the transfer of ownership from the USBR of the Sly Park dam and associated lands and facilities in 2003, EID not only operates and maintains the Jenkinson Lake and Sly Park Dam facilities, including recreational aspects, but also holds the water rights. The average annual use from this facility is approximately 23,000 acre-feet, though EID's annual water right is for 33,400 acre-feet of total beneficial use. This water supply is used entirely within EID's contiguous service area. Under average flow conditions, Jenkinson Lake is operated to maintain 14,000 to 18,000 acre-feet of carryover storage each year. The outlet works at Sly Park Dam have a maximum capacity of 125 cfs. Water is released to the Reservoir A Water Treatment Plant for subsequent treatment, transmission, and distribution.

Jenkinson Lake contributes approximately 20,920 acre-feet per year to EID's system firm yield. Over the past five years, EID's annual diversions from Jenkinson Lake have averaged approximately 22,600 acre-feet per year. EID's maximum and minimum diversions from this particular water source during this five-year period were 25,745 and 20,800 acre-feet per year, respectively.

*USBR CVP Contract 14-06-200-1375A-LTR1*

Surface water from Folsom Reservoir is provided to the El Dorado Hills area. By contract with the USBR for Folsom Reservoir water, EID is entitled to 7,550 acre-feet per year. The contract includes provisions for use in a particular area that generally encompasses the El Dorado Hills and Cameron Park areas. Folsom Reservoir is operated by the USBR as part of the CVP, a multipurpose project that provides flood control, hydroelectricity, drinking water, and water for irrigation.

The El Dorado Hills County Water District entered into a USBR Contract in 1964 for water supply from Folsom Reservoir. The contract had a not-to-exceed limit of 37,600 acre-feet per year. When EID annexed the El Dorado Hills County Water District in 1973, the contract was assigned to EID, and subsequently, in 1979, an amendatory contract replaced the original 1964 contract and reduced the maximum annual supply quantity of Folsom Reservoir water to 6,500 acre-feet per year. In 1983, the USBR increased the maximum annual supply quantity from 6,500 to 7,500 acre-feet per year. EID also annexed and succeeded to a USBR Contract for 50 acre-feet per year to supply the Lakehills area in El Dorado Hills. In 2006, these two contracts were consolidated into a single 40-year USBR Contract with a maximum quantity of 7,550 acre-feet per year.

*Pre-1914 South Fork American River and Project 184*

EID acquired Project 184 from Pacific Gas and Electric (PG&E) in 1999. Project 184 includes reservoirs and associated dams, 22 miles of canals, a 21 Mw powerhouse, and other ancillary facilities. Prior to the transfer of ownership and water rights, EID held a contract to purchase water from PG&E and its predecessor, Western States Gas and Electric Co. The original water rights claims date back to 1856, with additional claims being filed in the 1860s and 1870s. The water rights for diversions from Echo Lake were established in 1880 in a California Supreme Court decision. Then, in 1918, the California Railroad Commission (predecessor to the California Public Utilities Commission) recognized the use of water from the El Dorado Canal for irrigation and domestic purposes.

The sources of this water supply include natural flows in the South Fork American River and its tributaries, and stored water in Silver, Aloha, Echo, and Caples Lakes. The supply is diverted from the South Fork American River at Kyburz and is conveyed via the El Dorado Canal to the El Dorado Forebay. Some additional water is obtained by diversions into the El Dorado Canal from streams tributary to the South Fork American River. EID takes consumptive use of the water supply at the Main Ditch Intake, located at the El Dorado Forebay. This particular supply contributes 15,080 acre-feet per year to EID’s system firm yield.

Water diversions of up to 156 cfs can be made from the South Fork American River at the diversion dam. In addition to these direct diversion rights, EID also has pre-1914 diversion and storage rights associated with portions of the waters stored in Silver Lake, Caples Lake, and Lake Aloha and all of the waters stored in Echo Lake.

El Dorado Forebay is filled by the surface water supply from the Project 184 facilities upstream in the South Fork American River basin and at Echo Lake. EID has a consumptive water entitlement of 15,080 acre-feet per year delivery at the Forebay. The entitlement is a pre-1914 water right, and diversions are made in compliance with the 40-year Federal Energy Regulatory Commission Project 184 operating license issued to EID in October 2006. Because the full entitlement can be provided in all years including the most severe historic single dry year of 1977, this source of water is considered assured, and not subject to shortage from hydrologic droughts.

*Permit 21112 and Warren Act Contract*

The State Water Resources Control Board (SWRCB) issued EID a water right permit in 2001 for an additional 17,000 acre-feet per year of water supply associated with Project 184 facilities and power operations to be taken at Folsom Reservoir. This water supply was authorized under Permit 21112 for diversion and consumptive use anywhere within EID's contiguous service area. There are no cutback provisions on this supply.

The El Dorado County Water Agency (EDCWA) and EID applied to the SWRCB to obtain water rights for consumptive use of waters previously stored and released for power generation from Caples, Silver, and Aloha Lakes, as well as certain direct diversions from the South Fork American River, all of which have been used by Project 184 for hydroelectric power generation or instream flows. The EDCWA later assigned all of its rights under this application to EID. The SWRCB granted the right to appropriate 17,000 acre-feet per year of water. Permit 21112 allows EID to make direct diversions from the South Fork American River at Folsom Reservoir; to store in Caples, Silver, and Aloha Lakes; and to re-divert the water released from storage. The sole approved point of take for consumptive purposes is Folsom Reservoir.

A diversion from Folsom Reservoir requires acquiescence from the USBR and issuance of a Warren Act Contract. EID has diverted water under this right under a temporary urgency basis and the Warren Act Contract is pending.

*Recycled Water Supplies*

EID produces recycled water at both the El Dorado Hills and Deer Creek wastewater treatment plants which is then used by EID's customers for irrigation of residential landscape and commercial landscape. The availability of recycled water is currently limited to the El Dorado Hills and Cameron Park areas. EID anticipates a 2035 recycled water supply totaling 5,600 acre-feet per year (see Section 4.3 for further details).

### 4.2.2 Planned Water Supplies

EID has plans to acquire and use two additional water supplies from EDCWA for use within its service area to make available for the Proposed Project – water under the El Dorado-SMUD Cooperation Agreement and water under EDCWA's Fazio CVP supply. This section describes these supplies.

*El Dorado-SMUD Cooperation Agreement*

As shown in **Table 4-1**, the additional supplies include a grouping of water right applications and assignment of existing water right applications totaling approximately 40,000 acre-feet of water. This supply is being developed by the El Dorado Water and Power Authority (EDWPA). EDWPA is a Joint Powers Authority consisting of El Dorado County, El Dorado County Water Agency and El Dorado Irrigation District (collectively, El Dorado Parties). EDWPA was formed to pursue additional water supplies for the western slope of El Dorado County as determined by the El Dorado County General Plan. This need is identified in the El Dorado County Water Agency Water Resources Development and Management Plan (Water Plan).[27] The Water Plan is designed to coordinate water resource planning activities within El Dorado County and identifies water supply needs for the western slope of El Dorado County of approximately 34,000 acre-feet per year at the 2025 demand level.

In 2005, the El Dorado Parties signed the "El Dorado – SMUD Cooperation Agreement" (included within **Appendix A**), which would help meet the Water Plan's identified water supply needs. This Agreement requires SMUD to make annual deliveries of up to 30,000 acre-feet of water through 2025 and 40,000 acre-feet thereafter from SMUD's Upper American River Project (UARP) to the El Dorado Parties. In 2008, EDWPA petitioned the SWRCB for partial assignment of two applications for diversion and storage to obtain water supplies necessary to trigger SMUD's obligations. A Draft Environmental Impact Report has been prepared in support of the water rights application and was circulated in July 2010. EDWPA is currently in the protest settlement phase and the CEQA process is anticipated to be completed in 2014 with award of water rights shortly thereafter.

The El Dorado-SMUD Cooperation Agreement also obliges SMUD to provide carryover storage and delivery to EID of up to 15,000 acre-feet of drought protection water supplies to be obtained by EDWPA. Based on demand projections, EID anticipates that only 30,000 acre-feet of the 40,000 acre-feet identified in the water right applications and the El Dorado – SMUD Cooperative Agreement will be available to EID in normal years. Moreover, EID has planned that a mere 5,000 acre-feet of the water supply will be available for EID's uses in each dry year. This number is derived from Appendix H of the El Dorado – SMUD Cooperation Agreement describing deliveries available from carryover storage. Both of these conservative assumptions are shown in **Table 4-1**. EID has planned this supply to be available starting in 2025.

*Fazio CVP Supply*

EID is also in the final stages of securing 7,500 acre-feet of CVP water supplies in conjunction with EDCWA. In 1990, Congress directed the Secretary of the Interior, through the USBR, to enter into a new CVP Municipal and Industrial (M&I) water service contract with EDCWA for up to 15,000 acre-feet of water annually (Section 206 of P.L. 101-514). The CVP water service contract requires requisite compliance by EDCWA and the USBR with CEQA, NEPA, and ESA statutes.

In 2009, a draft EIS/EIR was released for public review and comment for the CVP M&I water rights contract. In 2010, USBR advised EDCWA that it would take another 5 years before the CVP-Operations Criteria and Plan (OCAP) related litigation would allow the EIS to move forward. As a result, EDCWA made the decision to detach the EIR from the EIS – essentially separating the CEQA and NEPA processes. EDCWA certified the Final EIR and approved the

[27] http://www.edcgov.us/water/final_water_resources_plan.html

project in January 2011. EDCWA then prepared and submitted to USBR a draft Biological Assessment (BA) in September 2011 and a draft Final EIS in October 2011. USBR submitted the draft Final EIS to NOAA Fisheries in December 2011. Final EIS completion and contract execution is pending completion of ESA consultation with NOAA Fisheries.

The CVP contract seeks to acquire 15,000 acre-feet of CVP project water, of which at least 7,500 acre-feet would be made available to EID by subcontracts with EDCWA.[28] Diversions by EID would occur at its existing intake in Folsom Reservoir, conveyed to the El Dorado Hills Water Treatment Plant, and delivered to a specific place of use location in El Dorado Hills and Cameron Park areas as shown in Figure ES-2 of EDCWA's EIR.

The contract negotiations and environmental compliance efforts are ongoing. These actions allow EID to use this water supply in this WSA as a planned supply that will be available to EID in the future to serve the Proposed Project. The approval of the contract terms as well as finalization of the environmental documents will allow EID to apply the water supplies under this contract entitlement to municipal and industrial beneficial uses. EID has planned this water supply to be available starting in 2015.

### 4.2.3 Normal Year Water Supply Availability

As shown in **Table 4-1**, EID's total water entitlements under its existing and planned supplies does not equate to the amount of water available in normal years in the future. The normal year water supplies will be described in this section.

Excluding recycled supplies, EID's secured water rights and entitlements available for the Proposed Project total 67,190 acre-feet. As shown in the sufficiency analysis in Section 5, this amount is insufficient to serve EID's future demand incorporating the Proposed Project and all planned future projects. Accordingly, this section assesses both EID's secured supplies and additional planned supplies. EID's water supplies associated with the entire secured and planned water assets totals 110,290 acre-feet per year.

The 67,190 acre-feet of secured supplies include appropriative water right license 2184 and pre-1914 appropriative water rights associated with Slab Creek, Hangtown Creek and Weber Creek. As described above, these rights are collectively combined for conveyance purposes in a Warren Act Contract, No. 06-WC-20-3315, that allows for storage in and diversion from Folsom Reservoir. The total volume is 4,560, net of a negotiated 15% conveyance loss under the terms of the Warren Act contract. For purposes of serving the Proposed Project, EID assumes full diversion at 4,560 in normal years under these water assets.

[28] Central Valley Project Water Supply Contracts Under Public Law 101-514 (Section 206): Proposed Contract Between the U.S. Bureau of Reclamation and the El Dorado County Water Agency, and Proposed Subcontracts Between the El Dorado County Water Agency and the El Dorado Irrigation District, and Between the El Dorado County Water Agency and the Georgetown Divide Public Utility District Final Environmental Impact Report at ES-1, January 2011.

Appropriative water right licenses 11835 and 11836 are also secured supplies. These supplies can be diverted from several creeks in the Cosumnes River watershed (Camp, Hazel, and Sly Park) and are typically stored in Jenkinson Lake. The maximum rate of diversion is 500 cfs for a total possible diversion volume of 33,400. However, due to limitations in storage availability in Jenkinson Lake assessed through OASIS hydrologic modeling, the maximum available normal year supply for the Proposed Project is 23,000 acre-feet.[29] Although EID has diverted as much as 25,745 acre-feet from this reservoir, EID does not anticipate using more than 23,000 acre-feet under this right for its normal year diversions in the future.

Central Valley Project Contract 14-06-200-1375A-LTR1 is a secured supply available for immediate use for the Proposed Project. This CVP contract entitlement requires the USBR to deliver up to 7,550 acre-feet of water from its SWRCB water right permits on the American River to EID.

As described in Section 4.2.1, EID also has a number of pre-1914 appropriative water rights on the American River with storage components in Silver Lake, Lake Aloha, Caples Lake, and Echo Lake. For purposes of this document, these are collectively called the pre-1914 American River water rights.[30] The total volume of water available under the pre-1914 American River water rights is 15,080 acre-feet in normal years.

Appropriative water right permit 21112 is a secured supply for purposes of this WSA. Permit 21112 allows EID to divert up to 17,000 acre-feet of water per year from Folsom Reservoir to be used in EID's service area. EID has diverted water under this permit as part of a temporary urgency in 2008. EID must finalize its Warren Act Contract to divert this water at Folsom Reservoir. However, based upon the availability of the supply in Permit 21112, the ability to store the water in Caples, Silver, and Aloha lakes, and the pending conveyance agreement with USBR, the normal-year availability of this supply is 17,000 acre-feet.[31]

As described in Section 4.2.2, EID's planned water supplies include the CVP Fazio supply of 7,500 acre-feet as authorized under federal law. Once secured, EID should receive normal-year deliveries of the full entitlement just as USBR promises to other CVP M&I contract holders on the American River system. There is no reason to believe that this contract entitlement will be different than other CVP contract entitlements on the American River system.

Last, as described in Section 4.2.2, EID's planned water supplies derived from the EDWPA appropriative water right applications filings and assignments, as well as the El Dorado – SMUD Cooperation Agreement, indicate that EID should receive normal-year water deliveries of 30,000

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[29] 2013 Water Resources Report

[30] California Water Code section 10910(d)(2)(A) requires "proof of entitlement" of each individual water right that is combined into this pre-1914 American River water rights grouping. These documents are contained in **Appendix A** of this Water Supply Assessment.

[31] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-7 of 22. Follow-up discussion with EID Counsel on water availability on April 23, 2013.

acre-feet per year starting in 2025 and then as much as 40,000 acre-feet of deliveries thereafter. Based on demand projections, the District uses 30,000 acre-feet of normal-year deliveries under these collective applications and the El Dorado-SMUD Cooperation Agreement.

### 4.2.4 Dry-Year Water Supply Availability

As shown in **Table 4-1**, EID anticipates less water being available in dry years than is otherwise available in normal years as described in Section 4.2.3. Dry-year supplies include supply reductions attributable to hydrologic droughts and regulatory curtailments. The dry-year water supplies are described in this section.

EID's entire normal-year secured and planned water assets total 110,290 acre-feet per year. In dry years, EID's total water assets equal 77,885 acre-feet. Of this total supply, 61,660 acre-feet are secured water assets and 16,225 acre-feet are planned water assets.

As described in Section 4.2.3, the secured water assets include License 2184 and the additional pre-1914 appropriative rights that are included in Warren Act contract 06-WC-20-3315, Licenses 11835 and 11836, CVP Contract 14-06-200-1375A-LTR1, the pre-1914 American River water rights grouping, and Permit 21112. All of these water rights are subject to different regulatory and hydrological restrictions that could result, in some instances, in reduction of the water supplies available under the right or entitlement in dry years.

The water rights contained in the Warren Act Contract 06-WC-20-3315 have some level of regulatory restrictions and hydrological uncertainty. EID's 2010 UWMP indicates that the estimated dry-year yield associated with this water asset is 3,000 acre-feet per year based upon regional hydrologic conditions.[32] Accordingly, based upon the presumed hydrologic conditions, the dry-year reliability for this supply in three consecutive dry years is 3,000 acre-feet per year.

Licenses 11835 and 11836 have a full diversion entitlement of 33,400 acre-feet per year. Of that amount, carryover storage in Jenkinson Lake and diminished inflow reduce that entitlement to a normal-year supply of 23,000 acre-feet per year. In dry years, this amount is further reduced based upon hydrologic conditions as well as carryover storage needs for future years from Jenkinson Lake. Accordingly, based upon the OASIS hydrologic modeling report, EID reduces this supply's availability to 20,920 acre-feet in a single dry year. Thus, 20,920 acre-feet per year is used in this WSA as the dry-year safe yield number for a single dry year. To be conservative, EID plans for this supply to be further reduced during year two and again in year three of and three consecutive dry years. This WSA uses 17,000 acre-feet and 15,500 acre-feet as the available supply in year two and year three of a multi-year drought, respectfully.

[32] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-6 of 22. Follow-up discussion with EID Counsel on water availability on April 23, 2013.

CVP Contract 14-06-200-1375A-LTR1 has a normal-year entitlement of 7,500 acre-feet per year. The USBR, however, assesses the dry-year supply availability of its CVP M&I contracts through the CVP M&I Shortage Policy. Based on inflow and storage criteria developed at the joint operations center, USBR can reduce contract water supplies under the CVP M&I Shortage Policy by up to 25% of historic use with various adjustments made for population, use of non-CVP water and extraordinary conservation actions.[33] With these adjustments in mind, USBR calculates the reduced CVP M&I delivery essentially based upon the average of the three previous normal years of use under the CVP contract. Under the strictest interpretation of this policy, if the water under the CVP contract was not used, then the dry year water is not available. But, USBR has considered that use of non-CVP supplies in lieu of CVP water use may be used to calculate use under this shortage policy. For purposes of this analysis, however, we have determined that based upon normal growth in demand in EID's service area, EID's customers would utilize the entire contract entitlement in normal years in the future. As such, EID calculates its dry-year reduction for this Proposed Project based upon three years of full use of its contract allocation. Accordingly, the dry year supply under this water contract entitlement is 5,660 acre-feet per year.

EID's pre-1914 American River water rights-grouping has a normal-year reliability of 15,080 acre-feet per year. Based upon the early priority date of these water assets and the storage capability within EID's system associated with these water assets, they are not reduced at all in a single dry year or three consecutive dry years.

Permit 21112 is another secure dry-year water asset. EID's 2010 UWMP states "there are no cutback provisions on this supply."[34] As such, the dry year reliability of Permit 21112 is 17,000 acre-feet per year.

As described in Section 4.2.2, EID's planned supplies include the CVP Fazio supply, and the several rights and contract that make up the UARP SMUD water. All of these assets combined have a three consecutive dry year supply reliability of 10,625 acre-feet per year.

The CVP Fazio supply is another CVP M&I contract supply that is subject to the same Municipal and Industrial shortage provisions described above for EID's other CVP contract entitlement. EID's expected portion of the Fazio supply has a normal-year contract allocation of 7,500 acre-feet per year. Assuming under the rules described above that EID is able to use its entire contract entitlement in the future, a 25% reduction from the contract entitlement reduces the delivery by 1,875 acre-feet per year. As such, the single dry year reliability and three consecutive dry year reliability under this contract is 5,625 acre-feet per year.

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[33] Reclamation has the authority to reduce the supply volumes even further under extreme conditions – Health and Safety criteria – but this sort of supply reduction would only occur in extreme drought and would be offset by reductions in demand in EID's service area, as needed, to maintain basic Health and Safety conditions. The District's drought contingency plans address these situations.

[34] This assertion was confirmed in a telephone conversation with the District's Counsel on April 23, 2013.

Last, the UARP SMUD water that is derived from the numerous water right applications and assignments as well as the El Dorado-SMUD Cooperative Agreement indicates that the water available under these components in dry years could be severely curtailed. Appendix H of the Agreement states that annual deliveries can be superseded and deliveries from carryover drought storage can be reduced to as little as 5,000 acre-feet in a declared Critically Dry year if SMUD reservoir storage drops below 100,000 acre-feet (approximately 25%). Out of an abundance of caution, EID anticipates only 5,000 acre-feet of carryover drought-supply water would be available each year over the course of a three-year drought.

## 4.3 RECYCLED WATER SUPPLIES

EID uses recycled water to meet some current non-potable demands within its service area. EID may expand its development and use of recycled water in the future to meet a portion of the non-potable demands associated with the Proposed Project and other anticipated new demands. EID's current recycled water use is about 2,200 acre-feet per year. This use will expand incrementally over time. By 2035, EID anticipates a supply of 5,600 acre-feet of recycled water per year within its service area.[35]

EID's recycled water system consists of supply from the El Dorado Hills wastewater treatment plant and the Deer Creek wastewater treatment plant. These treatment plants have an interconnected network of transmission and distribution pipelines, pump stations, storage tanks, pressure reducing stations, and appurtenant facilities located within the communities of El Dorado Hills and Cameron Park.[36] EID mandates the use of recycled water through Board Policy 7010, wherever economically and physically feasible as determined by the Board, for non-domestic purposes.[37] At this time, non-domestic use includes commercial landscape irrigation, residential or multi-family dual-plumbed landscape irrigation, construction water, and recreational impoundments.

Recycled water availability is an outcome of increased municipal and domestic demand and wastewater production as a byproduct of this demand. In other words, annual recycled water production capabilities are based on the total wastewater flows to the treatment plants. With the population and industrial demands growing in this region, as described in Section 3, the availability of recycled water will increase. EID is taking a conservative view of the growth in recycled water based upon its current production levels, estimated regional population growth, facility expansion identified in its 2013 IWRMP and WWFMP, treated water discharge requirements, and its ability to capture and store recycled water supplies in the future. The total recycled water available for use in 2035 is estimated to be 5,600 acre-feet per year.[38]

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[35] EID Integrated Water Resources Master Plan, March 31, 2013
[36] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-10 of 22.
[37] EID Urban Water Management Plan 2010 Update, July 2011 at page 4-6 of 22.
[38] EID Integrated Water Resources Master Plan, March 31, 2013 at page 221.

Accordingly, Table 4-2 shows the incremental recycled water assets that would be available over time for the District's non-potable water uses.

**Table 4-2 –** Timing of Recycled Water and Quantities

| Year | Recycled Water Supply (acre-feet) |
|---|---|
| Current | 2,200 |
| 2015 | 2,400 |
| 2020 | 2,600 |
| 2025 | 3,100 |
| 2030 | 4,200 |
| 2035 | 5,600 |

## 4.4 Facility Costs and Financing

EID's recently completed 2013 IWRMP and WWFMP identify and allocate the future costs of capital expansion and replacement needs, and addresses financing mechanisms for EID's water assets. These costs and financing mechanisms are hereby incorporated by reference.

The District establishes and periodically updates its Facility Capacity Charges (FCCs) to recover the cost of those portions of existing District facilities that will be used by future customers and to fund needed expansion, or additional capacity, of District facilities to serve new users. The District periodically reviews its FCCs to ensure they accurately reflect the costs of providing service to new customers. Currently the District is updating the FCCs to incorporate projects identified in the adopted 2013 IWRMP. The FCC update is currently under review by the Board and a developer committee, and the District anticipates adoption of the updated FCCs in August 2013.

## 4.5 Regulatory Approvals and Permits

As described in Section 4.2.2, EID has water assets that require further regulatory approvals, permit compliance, and contract approvals. Each water asset has its own set of regulatory requirements that are assessed in this section.

Appropriative water right Permit 21112 issued by the SWRCB has not been perfected. In order to perfect an appropriative water right, EID must put all of the water assets under that permit to beneficial use. Upon putting the water to beneficial uses and meeting all of the other conditions in the water right permit, EID will be eligible to obtain a water right license for this appropriative water right. Attaining a water right license further fortifies the legitimacy of the water right for EID's continual use in the future. There is no indication that EID will have difficulty in obtaining a water right license for Permit 21112.

Permit 21112 also requires a Warren Act Contract to be negotiated and approved by the USBR. The Warren Act Contract will allow EID to divert water from Folsom Reservoir for delivery to the El Dorado Hills Water Treatment Plant. Although the District may choose to divert some of the water upstream of Folsom Reservoir through other SWRCB regulatory processes, a Warren Act Contract is essential for any diversions emanating from Folsom Reservoir. EID is currently in negotiations with USBR to obtain a long-term contract. While those negotiations continue, short-term Warren Act Contracts are also obtainable, if needed. There are no foreseeable reasons that these negotiations will not succeed. Both EID's Board of Directors and USBR officials will need to execute the contract once the terms have been drafted, and EID will need to obtain judgment in a judicial action to validate the contract.

The Fazio water supply also has additional regulatory approvals and permits pending. This CVP contract entitlement is authorized by Public Law 101-514. The 15,000 acre-feet of water supply is contemplated to be split equally between Georgetown Divide Public Utilities District and EID. As described in Section 4.2.2, EDCWA is negotiating with USBR on behalf of EID to secure the CVP contract entitlement authorized by this federal statute and finalize the EIS. Accordingly, EID will continue to work with EDCWA and USBR to finalize acquisition of this water supply. Upon completion of the EIS, the EDCWA's designee and USBR officials will need to execute the CVP water supply contract, and EDCWA may need to obtain judgment in a judicial action validating the contract.

The pending water right applications and application assignments before the SWRCB as well as the El Dorado – SMUD Cooperation Agreement constitute the last water supply that is pending further regulatory approvals. As described in Section 4.2.2, EDWPA is awaiting approvals from SWRCB for these water assets. Upon SWRCB approval, EID will obtain 30,000 acre-feet of water under the El Dorado – SMUD Cooperation Agreement.

The SWRCB water right process requires the SWRCB to conduct an internal project review of the applicable technical and hydrological information as well as consider the broader effects on other legal users of water throughout the watershed before issuing a permit. This regulatory process may eventually necessitate a SWRCB hearing where testimony from proponents and opponents of the water right permit is heard and weighed by the SWRCB Board Members before issuing the conditioned permits. Once permits have been issued, then the District must comply with the permit terms and perfect application of the water supplies to beneficial use in order to acquire water right licenses associated with the appropriative water rights.

The El Dorado – SMUD Cooperation Agreement is an agreement among the various parties to cooperate in facilitating the storage and delivery of these water assets to the identified purveyors. As such, through the processing of the water right applications and the furtherance of compliance with the terms of those agreements, the water assets considered there are likely to be available to

EID.  The regulatory approvals and permits needed to finalize EID's control over these water assets are moving forward.

## 4.6 SUPPLY SUMMARY

EID has two broad categories of water assets that are available for the Proposed Project – the secured water assets and planned water assets.  Collectively, these supplies total 110,290 acre-feet in normal water years and 77,885 acre-feet in a single dry water year.  In year two and year three of a multi-year drought, supplies are further reduced to 73,965 acre-feet and 72,465 acre-feet, respectfully.

As described above, the secured water assets include appropriative water right License 2184 and the accompanying pre-1914 appropriative water rights held under Warren Act Contract 06-WC-20-3315, appropriative water right Licenses 11835 and 11836, CVP Contract 14-060200-1375A-LTR1, the pre-1914 American River storage and diversion appropriative water rights, and Permit 21112.  The normal year water supplies available to EID under the secured assets total 67,190 acre-feet per year.  In dry years, the water supplies available to EID under the secured assets totals 61,660 acre-feet per year.

The planned water assets, although partially secured, are not yet fully available for EID's use to serve the Proposed Project contemplated in this WSA.  As described above, these assets are sufficiently secure to be considered planned supplies for the Proposed Project in 2035.  In normal years, the water supplies under these assets total 37,500 acre-feet.  In dry years, the water supplies under these assets total 10,625 acre-feet.

Finally, the recycled water assets in both normal and dry years, derived from planned growth and continual indoor water usage regardless of year type, total 5,600 acre-feet in 2035.

# SECTION 5 – SUFFICIENCY ANALYSIS

## 5.1 INTRODUCTION

The analysis detailed in this section provides a basis for determining whether sufficient water supplies exist to meet the estimated water demand of the Proposed Project.[39]

This section includes:

- Analysis of sufficiency, considering variations in supply and demand characteristics under normal, single-dry and multi-dry hydrologic conditions,
- Analysis conclusions

## 5.2 SUFFICIENCY ANALYSIS

The sufficiency analysis integrates the water demands detailed in Section 2 and Section 3 with the water supplies characterized in Section 4. The results are presented in **Table 5-1** beginning with "current" conditions (recognized as 2012) and continuing with 5-year increments from 2015 through 2035. While the analysis at various intervals before build-out is important, the most critical projection for the sufficiency analysis occurs in 2035. This analysis assumes that the Proposed Project, along with the other projects simultaneously undergoing a WSA analysis (see Section 3.3), are fully constructed by 2035, and other anticipated growth continues as described in Section 3.4.

**Table 5-1** incorporates the Proposed Project water demand projection in **Table 2-3**, assuming the Proposed Project develops as detailed in Section 1, and the estimated water demands for all other existing and planned future uses through 2035 as detailed in **Table 3-2**. **Table 5-1** also presents the available water supplies for the contiguous EID service area during normal, single-dry and multiple-dry years, as detailed in Section 4. The water demands and available supplies in a single dry-year and multiple dry-year condition are discussed in the following subsections.

[39] CWC § 10910 (c)(4) provides that "If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

**Table 5-1 –** Comparable Analysis of Supply and Demand

| Year | Project Water Demand (af/yr) | All Other EID Water Demands (af/yr) | Total Water Demands (af/yr) | Non-Revenue Water @ 13% | Demands with Loss | EID Water Supplies – Surface Water – Hydrologic Year Type | | EID Water Supplies – Surface Water – EDH Service Area (af/yr) | EID Water Supplies – Surface Water – West/East Service Area (af/yr) | EID Water Supplies – Surface Water – Total (af/yr) | EID Water Supplies – Recycled Water (af/yr) | EID Water Supplies – Total Available Water Supply (af/yr) | Projected Surplus/ (Shortfall) (af/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Current | 0 | 38,984 | 38,984 | N/A | 38,984 | **Normal** | | 29,110 | 38,080 | 67,190 | 2,200 | 69,390 | 30,406 |
| | 0 | 40,933 | 40,933 | N/A | 40,933 | **Single Dry** | | 25,660 | 36,000 | 61,660 | | 63,860 | 22,927 |
| | 0 | 40,933 | 40,933 | N/A | 40,933 | **Multiple Dry** | Year 1 | 25,660 | 36,000 | 61,660 | | 63,860 | 22,927 |
| | 0 | 38,068 | 38,068 | N/A | 38,068 | | Year 2 | 25,660 | 32,080 | 57,740 | | 59,940 | 21,872 |
| | 0 | 34,793 | 34,793 | N/A | 34,793 | | Year 3 | 25,660 | 30,580 | 56,240 | | 58,440 | 23,647 |
| 2015 | 12 | 34,944 | 34,956 | 4,544 | 39,500 | **Normal** | | 36,610 | 38,080 | 74,690 | 2,400 | 77,090 | 37,590 |
| | 13 | 36,691 | 36,704 | 4,771 | 41,475 | **Single Dry** | | 31,285 | 36,000 | 67,285 | | 69,685 | 28,210 |
| | 13 | 36,691 | 36,704 | 4,771 | 41,475 | **Multiple Dry** | Year 1 | 31,285 | 36,000 | 67,285 | | 69,685 | 28,210 |
| | 12 | 34,123 | 34,134 | 4,437 | 38,572 | | Year 2 | 31,285 | 32,080 | 63,365 | | 65,765 | 27,193 |
| | 11 | 31,187 | 31,198 | 4,056 | 35,254 | | Year 3 | 31,285 | 30,580 | 61,865 | | 64,265 | 29,011 |
| 2020 | 142 | 37,855 | 37,997 | 4,940 | 42,937 | **Normal** | | 36,610 | 38,080 | 74,690 | 2,600 | 77,290 | 34,353 |
| | 149 | 39,748 | 39,897 | 5,187 | 45,084 | **Single Dry** | | 31,285 | 36,000 | 67,285 | | 69,885 | 24,801 |
| | 149 | 39,748 | 39,897 | 5,187 | 45,084 | **Multiple Dry** | Year 1 | 31,285 | 36,000 | 67,285 | | 69,885 | 24,801 |
| | 139 | 36,966 | 37,104 | 4,824 | 41,928 | | Year 2 | 31,285 | 32,080 | 63,365 | | 65,965 | 24,037 |
| | 127 | 33,786 | 33,912 | 4,409 | 38,321 | | Year 3 | 31,285 | 30,580 | 61,865 | | 64,465 | 26,144 |
| 2025 | 354 | 43,505 | 43,859 | 5,702 | 49,561 | **Normal** | | 19,610 | 85,080 | 104,690 | 3,200 | 107,890 | 58,329 |
| | 371 | 45,681 | 46,052 | 5,987 | 52,039 | **Single Dry** | | 14,285 | 58,000 | 72,285 | | 75,485 | 23,446 |
| | 371 | 45,681 | 46,052 | 5,987 | 52,039 | **Multiple Dry** | Year 1 | 14,285 | 58,000 | 72,285 | | 75,485 | 23,446 |
| | 345 | 42,483 | 42,828 | 5,568 | 48,396 | | Year 2 | 14,285 | 54,080 | 68,365 | | 71,565 | 23,169 |
| | 316 | 38,828 | 39,144 | 5,089 | 44,233 | | Year 3 | 14,285 | 52,580 | 66,865 | | 70,065 | 25,832 |
| 2030 | 413 | 50,803 | 51,216 | 6,658 | 57,874 | **Normal** | | 19,610 | 85,080 | 104,690 | 4,100 | 108,790 | 50,916 |
| | 433 | 53,343 | 53,777 | 6,991 | 60,768 | **Single Dry** | | 14,285 | 58,000 | 72,285 | | 76,385 | 15,617 |
| | 433 | 53,343 | 53,777 | 6,991 | 60,768 | **Multiple Dry** | Year 1 | 14,285 | 58,000 | 72,285 | | 76,385 | 15,617 |
| | 403 | 49,609 | 50,012 | 6,502 | 56,514 | | Year 2 | 14,285 | 54,080 | 68,365 | | 72,465 | 15,951 |
| | 368 | 45,342 | 45,710 | 5,942 | 51,652 | | Year 3 | 14,285 | 52,580 | 66,865 | | 70,965 | 19,313 |
| 2035 | 398 | 59,156 | 59,554 | 7,742 | 67,295 | **Normal** | | 19,610 | 85,080 | 104,690 | 5,600 | 110,290 | 42,995 |
| | 418 | 62,113 | 62,531 | 8,129 | 70,660 | **Single Dry** | | 14,285 | 58,000 | 72,285 | | 77,885 | 7,225 |
| | 418 | 62,113 | 62,531 | 8,129 | 70,660 | **Multiple Dry** | Year 1 | 14,285 | 58,000 | 72,285 | | 77,885 | 7,225 |
| | 389 | 57,765 | 58,154 | 7,560 | 65,714 | | Year 2 | 14,285 | 54,080 | 68,365 | | 73,965 | 8,251 |
| | 355 | 52,796 | 53,152 | 6,910 | 60,061 | | Year 3 | 14,285 | 52,580 | 66,865 | | 72,465 | 12,404 |

### 5.2.1 Single Dry Year Supply and Demand Conditions

Under this condition, EID would anticipate a variance from the normal-year analysis, including: (1) shortage in full availability of supplies as detailed in **Section 4**, and (2) an increase in water demand. The increase in demand is based on the following:

- Landscape irrigation demands will increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer's demand, an adjustment factor of 5 percent is applied to the total normal-year water demand values.
- Historically, during single dry year circumstances, EID does not implement its shortage contingency plan,[40] since the extent of the dry conditions into future years is unknown. EID follows adopted policies and its 2008 *Drought Preparedness Plan* when implementing any voluntary or mandatory demand reduction measures.

As a result of these factors, the Proposed Project water demand and those of the other existing and planned uses is expected to increase in a single dry year above the demand expected under normal hydrologic circumstances. Additionally, as detailed in Section 4, EID anticipates a decrease in available water supplies. These changes are shown in **Table 5-1**.

### 5.2.2 Multi-Dry Year Supply and Demand Conditions

When a single dry year expands into a series of dry years, water supply and demand conditions will continue to evolve. Under such a multi-dry year, EID would anticipate many similar conditions that were assumed for the single-dry year, including: (1) shortage in full availability of supplies as detailed in Section 4, and (2) increases in projected demands. However, when entering the second and third year of a sequence of dry-years, EID would implement necessary policies to manage limited water supplies.[41] Demands over a series of three dry years are adjusted as follows:

- Year 1 – the first year mimics a "single-dry year" condition, where demands increase approximately 5 percent and EID shortage policies are not yet invoked (see Section 5.2.1).
- Year 2 – The demands again mimic a "single-dry year" and would be expected to increase by 5 percent above normal year conditions. However, when recognizing a second dry-year, EID would invoke the first stage of the Drought Preparedness Plan. This stage states: "*The objective of Stage 1 is to initiate public awareness of predicted water shortage conditions, and encourage voluntary water conservation to decrease*

[40] See EID Board Policy AR 5011-Water Supply Management Conditions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).
[41] See EID Board Policy AR 5011-Water Supply Management Conditions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).

*normal demand up to 15%*."[42] As part of this stage, EID implements drought water rates among other specified activities to encourage conservation. For purposes of this WSA, the demand reduction achieved under Stage 1 is estimated to be 7 percent of the already higher single dry-year demand.

- Year 3 – Upon entering the third dry year, EID would invoke the second stage of the Drought Preparedness Plan. This stage states: "*The objective of Stage 2 is to increase public understanding of worsening water supply conditions, encourage voluntary water conservation measures, and then if necessary, enforce mandatory conservation measures in order to decrease normal demand up to 30%*."[43] Under this Stage, EID increases efforts to reduce demand. For purposes of this WSA, the savings achieved under Stage 2 is estimated to be 15 percent of the already higher single dry-year demand.

As a result of these factors, the Proposed Project water demand and those of the Other Existing and Planned Uses is expected to increase in the first year of a multi dry-year condition above that estimated during normal hydrologic circumstances. In subsequent years, the demand will drop as elements of EID's Drought Preparedness Plan are implemented. These changes are shown in **Table 5-1**.

### 5.2.3 Analysis

As shown in **Table 5-1**, the demand and supply are compared under each hydrologic condition for each 5-year increment out to 2035. The resulting "supply surplus" or "supply shortfall" is shown in the final column. Based on the analyses, EID anticipates it will have sufficient water under all hydrologic conditions in each of the 5-year increments through 2035. Notably, the "surplus" supply is lowest during a single-dry year and the first year of a multi-dry year condition, since this is the circumstance where demand increases, while supplies are constrained. Yet, even under such circumstances, sufficient water should be available.

## 5.3 SUFFICIENCY ANALYSIS CONCLUSIONS

As detailed in **Section 2**, this WSA estimates water demands for the Proposed Project of 450 acre-feet per year at build-out (including non-revenue water demands). The annual water demand estimate for all existing and planned projects in the contiguous EID service area, as detailed in **Section 3**, is approximately 67,295 acre-feet per year by 2035. After accounting for these demand projections for the next twenty years, EID should have sufficient water to meet the demands of the Proposed Project and its other service area demands for at least the next 20 years.

[42] See EID Board Policy AR 5011.2-Water supply slightly restricted Drought Stage 1 – Voluntary reductions in use (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).
[43] See EID Board Policy AR 5011.3-Water supply slightly restricted Drought Stage 2 – Voluntary and mandatory reductions (available at http://www.eid.org/modules/showdocument.aspx?documentid=2687).

The conclusion that EID should have sufficient water available to meet the needs of the Proposed Project, in addition to the other demands in its service area through 2035, rests on the following set of assumptions:

- EID, EDCWA, and EDWPA successfully execute the contracts and obtain the water right permit approvals for currently unsecured water supplies discussed in Section 4. Absent these steps, the water supplies currently held by EID and recognized to be diverted under existing contracts and agreements would be insufficient in 2035 to meet the Proposed Project demands along with all other existing and planned future uses.
- EID will commit to implement Facility Capacity Charges in an amount sufficient to assure the financing is available as appropriate to construct the necessary infrastructure as detailed in the March 2013 EID *Integrated Water Resources Master Plan*.
- Demand in single-dry years includes an additional 5 percent of demand over the normal year demand during the same time period. This conservative assumption accounts for the likelihood that EID customers will irrigate earlier in the season to account for dry spring conditions. This hypothetical demand augmentation may or may not manifest in dry years, but this conservative assumption further tests the sufficiency of water supplies during dry conditions.
- The estimated demands include 13 percent to account for non-revenue water losses (e.g. distribution system losses).

The finding of this WSA is that EID should have sufficient water to meet the demands of Proposed Project and its other service area demands for the next 20 years.

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Comprehensive Water Planning

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# MEMORANDUM

To: Shahira Ashkar, ICF International

Date: May 30, 2014

From: Greg Young, Tully & Young

Subject: Water Supply Options to El Dorado Irrigation District's Long-Term Planned Water Supplies for use in the Central El Dorado Hills CEQA Compliance Document

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The purpose of this memorandum is to document the water supply options to El Dorado Irrigation District's (hereafter the "EID") long-term planned water supplies as detailed in the Central El Dorado Hills Specific Plans Water Supply Assessment (hereafter "Central EDH WSA") adopted by EID on August 26, 2013. The information and text included in this memorandum can be directly inserted, as best determined by ICF, into the body of the CEQA document that ICF is preparing for the subject project.[1]

In *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal 4th 412 (hereafter *Vineyard*), the California Supreme Court identified specific requirements for an adequate analysis of water supply issues in an Environmental Impact Report (EIR). The court explained that future water supplies identified and analyzed in an EIR must be reasonably likely to prove available. Speculative water sources and unrealistic water allocations do not provide an adequate basis for a public agency's decision-making. The Supreme Court said that when a full analysis of future water supplies for a project leaves some uncertainty regarding the availability of the identified future supplies, the EIR must discuss possible replacement or alternative supply sources. In addition, the EIR must discuss the environmental effects of resorting to those alternative supply sources. The court held that it is not sufficient to address issues relating to future water supplies by simply stating that future development will not go forward in the absence of a sufficient water supply. (*Vineyard* at 431).

[1] Tully & Young must have an opportunity for review and approval of any changes to the information and/or text presented in this memo that may be recommended by ICF in its adaptation of information into the Central El Dorado Hills Specific Plan's CEQA documentation.

The court also recognized that the ultimate question under CEQA "is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable impacts of supplying water to the project." (*Vineyard* at 450). Accordingly, if uncertainties inherent in long-term planning make it impossible to identify the future water sources with certainty, an EIR may satisfy CEQA if it acknowledges the degree of uncertainty involved, discusses the reasonably foreseeable water supply alternatives, and discloses the significant foreseeable environmental effects of each alternative, as well as mitigation measures to minimize each adverse impact. (*Vineyard* at 434).

Accordingly, the *Vineyard* opinion outlined the following general principles governing an EIR's analysis of water supply issues:

- An adequate environmental impact analysis for a long-range development plan cannot be limited to the water supply for the first stage of development. It must consider supplies necessary for the entire development.
- Future water supplies identified and analyzed in an EIR must be reasonably likely to prove available. Speculative sources and unrealistic paper allocation do not provide an adequate basis for decision making under CEQA.
- When, despite a full analysis, "it is impossible to confidently determine that anticipated future water sources will be available," CEQA requires some discussion of possible replacement or alternative supply sources, and of the environmental consequences of resorting to those sources. (*Vineyard* at 432)
- An EIR for a land use plan need not demonstrate that the water supply for the project is assured through enforceable agreements with a provider and built or approved treatment and delivery facilities. To interpret CEQA as requiring firm assurances of future water supplies at early stages of the planning process would be inconsistent with the water supply statutes, which call for an assured supply only at the end of the approval process. (*Vineyard* at 432).
- The "ultimate question under CEQA is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable impacts of supplying water to the project." (*Vineyard* at 434)

For the El Dorado County development that is the subject of this analysis, the Central EDH WSA identified a potential water shortfall in very dry years absent planned water supplies (as detailed below). Accordingly, under the guidance of the *Vineyard* decision, the information that follows characterizes alternative water sources for the identified development.

As detailed in Section 4 of the Central EDH WSA and summarized in the Central EDH WSA's Table 4-1 (included below), the EID water supplies are separated into two classifications: existing and planned. Combined, the Central EDH WSA concluded that these supplies provide sufficient water for the proposed project (see **Figure 1**).

While there is reasonable certainty that all of the existing EID water supplies are available, there is a degree of uncertainty whether the planned Central Valley Project Fazio water entitlement (hereafter the "Fazio supply"), or the supplies anticipated under the El Dorado-SMUD Cooperation Agreement (hereafter the "UARP supply") will manifest in the quantities or on the schedule currently planned as EID proceeds through regulatory approval and contracting processes.

Therefore, as directed by the *Vineyard* principles outlined previously, an analysis of options that would provide sufficient water for the proposed project is necessary. The following discussion characterizes three water supply options (hereafter "Water Supply Options") that are viable alternative sources that could reasonably be available to serve the project.

*Figure 1 – Project Water Supplies from the Central EDH WSA*

**Table 4-1 – Water Rights, Entitlements, and Supply Availability**

| Water Right or Entitlement | Maximum Water Assets Available (Ac-ft) | Normal Year Planned Supply Availability (Ac-ft) | Dry-Year Planned Supply Availability (Ac-ft) |
|---|---|---|---|
| License 2184 and pre-1914 ditch rights including Warren Act Contract 06-WC-20-3315 | 4,560 | 4,560 | 3,000 |
| Licenses 11835 and 11836 | 33,400 | 23,000 | 20920[A] |
| CVP Contract 14-06-200-1375A-LTR1 | 7,550 | 7,550 | 5,660 |
| Pre-1914 American River diversion and storage rights | 15,080 | 15,080 | 15,080 |
| Permit 21112 | 17,000 | 17,000 | 17,000 |
| **Subtotal Existing** | **77,590** | **67,190** | **61,660** |
| Central Valley Project Fazio water entitlement (PL 101-514 (1990) Fazio) [D] | 7,500 | 7,500 | 5,625 |
| Applications 5645X12, 5644X02 and partial assignment of Applications 5645, 5644 with El Dorado-SMUD Cooperation Agreement [E] | 40,000[B] | 30,000 | 5,000[C] |
| **Subtotal Planned** | **47,500** | **37,500** | **10,625** |
| Recycled Water | 5,600 | 5,600 | 5,600 |
| **Total** | **130,690** | **110,290** | **77,885** |

[A] This is the modeled safe-yield of this water right during a single dry-year. For planning purposes, the second and third dry years of a three-year dry period are assumed to be 17,000 acre-feet, and 15,500 acre-feet, respectfully

[B] Section 5.1.1 of the El-Dorado SMUD Cooperation Agreement indicates that 40,000 acre-feet of SMUD water will be available after 2025. For conservative Normal Year planning purposes, the District uses 30,000 acre-feet of available supply.

[C] Available supply is 15,000 acre-feet in a single dry year but in preparing for multiple dry years EID anticipates using only 5,000 acre-feet per year for a three year period.

[D] Available starting in 2015

[E] Available starting in 2025

## Quantity of Water to Replace

To understand the quantity each Water Supply Option must provide, an evaluation of the Central EDH WSA's conclusions about surplus water is necessary. Table 5-1 of the Central EDH WSA summarizes the assessment of supply and demand for the year 2035. As demonstrated in that table, surplus water exists under all hydrologic conditions: normal, single-dry, and multi-dry years. Absent the Fazio and the UARP water supplies, however, the surpluses shown in the Central EDH WSA Table 5-1 are reduced or even become shortfalls under some conditions. **Table 1** presents the surplus as analyzed in the Central EDH WSA and the resulting change when the Fazio and UARP planned water supplies are removed.

*Table 1 – Comparison of Surplus/Shortfall Conditions with and without Planned Supplies at Build-out Conditions (2035)*

| Hydrologic Year Type | Surplus Water (T. 5-1 of WSA) acre-feet/year | Quantity of "Planned Supplies" acre-feet/year | | Surplus/(Shortfall) Water w/o "Planned Supplies" acre-feet/year |
|---|---|---|---|---|
| | | Fazio | UARP | |
| Normal | 42,995 | 7,500 | 30,000 | 5,495 |
| Single Dry | 7,225 | 5,625 | 5,000 | (3,400) |
| Multi dry (Year 1) | 7,225 | | | (3,400) |
| Multi dry (Year 2) | 8,251 | | | (2,374) |
| Multi dry (Year 3) | 12,404 | | | 1,779 |

As demonstrated in **Table 1**, at build-out conditions (2035) during a normal year there is still surplus water even absent the planned supplies, and thus no alternative supply is necessary.

However, during single-dry and multi-dry hydrologic conditions, the absence of the "planned supplies" causes a shortfall under several circumstances. The worst-case shortfall occurs during a single-dry hydrologic year – when supplies are curtailed, demands are elevated due to limited rainfall, and temporary demand management efforts are yet to be triggered by EID. Under these hypothetical shortfall conditions, EID would not have sufficient water to serve the proposed project and other existing and planned uses. Thus, as directed by the *Vineyard* decision, an alternative water supply that would provide up to 3,400 acre-feet during a single dry-year must be identified and its impacts assessed.

## Water Supply Options

To enable an assessment in the EIR of Water Supply Options, this memorandum characterizes three Water Supply Options that have been developed to meet the 3,400 ac-ft shortfall:

- Option 1 – Construct Alder Reservoir
- Option 2 – Construct recycled water seasonal storage and implement additional conservation

- Option 3 – Participate in regional groundwater banking and exchange programs

## Option 1 – Construct Alder Reservoir

Water Supply Option 1 (Option 1) envisions the construction of a new dam and storage reservoir in the Alder Creek watershed. Option 1 would provide more than ample dry-year water supplies to meet the targeted shortfall identified in **Table 1**. A storage facility on Alder Creek has been studied for many years, with the most recent analysis included in EID's 2013 *Integrated Water Resources Master Plan* (IWRMP). In the IWRMP, construction of the Alder Reservoir is an integral part of the EID recommended water resources plan. The IWRMP is included in this memo by reference.[2]

As described in the IWRMP:

> *"[T] he Alder Dam would be a rock-fill dam approximately 143 feet high with a crest length of 800 feet and width of 30 feet at elevation 5,333 feet. The Alder Reservoir would have a capacity of 31,700 ac-ft and capture approximately 23,100 ac-ft of water in an average runoff year from the Alder Creek drainage basin of 18.6 square miles. A new penstock and 10 MW powerhouse would be located near the existing El Dorado Canal allowing water withdrawn from Alder Reservoir to be used for hydroelectric generation and released into the El Dorado Canal downstream of the Alder Creek inverted siphon."*(IWRMP, p. 201)

**Figure 2** represents the proposed location of Alder Dam and the resulting footprint of Alder Reservoir. The new reservoir is projected to provide a dry-year safe yield of 11,250 acre-feet.

Water captured and stored during the spring snowmelt runoff period would be released throughout the remaining months at either (1) Jenkinson Lake via the Hazel Creek Tunnel, (2) the Forebay Reservoir, (3) Folsom Reservoir, or (4) a new point of diversion such as the proposed White Rock diversion.

While the estimated safe yield of 11,250 acre-feet is more than three times the quantity necessary for a Water Supply Option, the Alder Reservoir project as currently planned by EID provides a well-documented alternative that has already undergone assessment and is included in the EID Board-adopted IWMRP.

### Water Supply Certainty

As detailed in the IWRMP, Alder reservoir would have a capacity of 31,700 acre-feet, capturing about 23,000 acre-feet in an average runoff year from the Alder Creek watershed. The safe yield of the reservoir is estimated to be about 11,250 acre-feet per year. This option provides significantly more water than is necessary to replace the WSA's planned water supplies. Thus,

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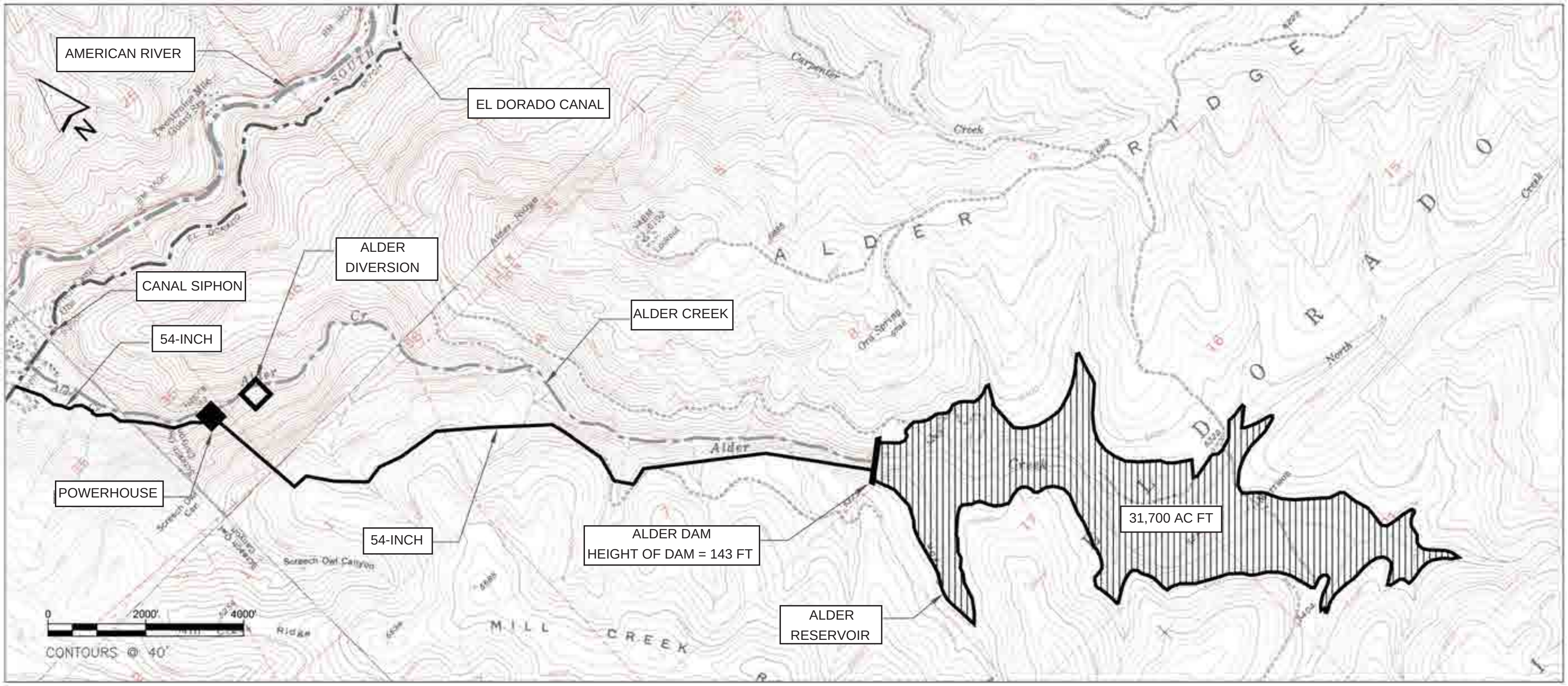
[2] Integrated Water Resource Master Plan, March 2013, accessed on EID's website via http://www.eid.org/modules/showdocument.aspx?documentid=3554

even if the hydrology estimates produced lower runoff quantities, there would still be significantly more water than is required for replacement of the Central EDH WSA's "planned supplies," resulting in a high level of certainty of availability during dry-years.

*Figure 2 – Location of Alder Dam and resulting Alder Reservoir*
*(source: EID IWRMP, Figure 8-4, p 203)*




Source: EID Water Supply Optimization Study, Conceptual Designs and Cost Analyses TM (Domenichelli & Assoc., Inc., 2011)

HDR ONE COMPANY | Many Solutions

**Alder Reservoir Facilities**
Figure 8-4

## Option 2 – Construct Recycled Water Seasonal Storage and Implement Additional Conservation

Water Supply Option 2 (Option 2) includes two components: (1) a recycled water seasonal storage reservoir to capture treated wastewater produced by EID that is otherwise in excess of the daily demand for recycled water, and (2) additional water conservation actions implemented by EID and its customers to reduce customer demand and/or reduce delivery system losses.

### Seasonal Storage Reservoir

The first component, seasonal storage for recycled water, has been analyzed by EID. In a report published in May of 2011, EID detailed an assessment of potential seasonal storage locations (see *Basis of Design Report - EID Recycled Water Seasonal Storage Reservoir*, May 2011 [hereafter referred to as the "Design Report"]), included as **Attachment 1**.

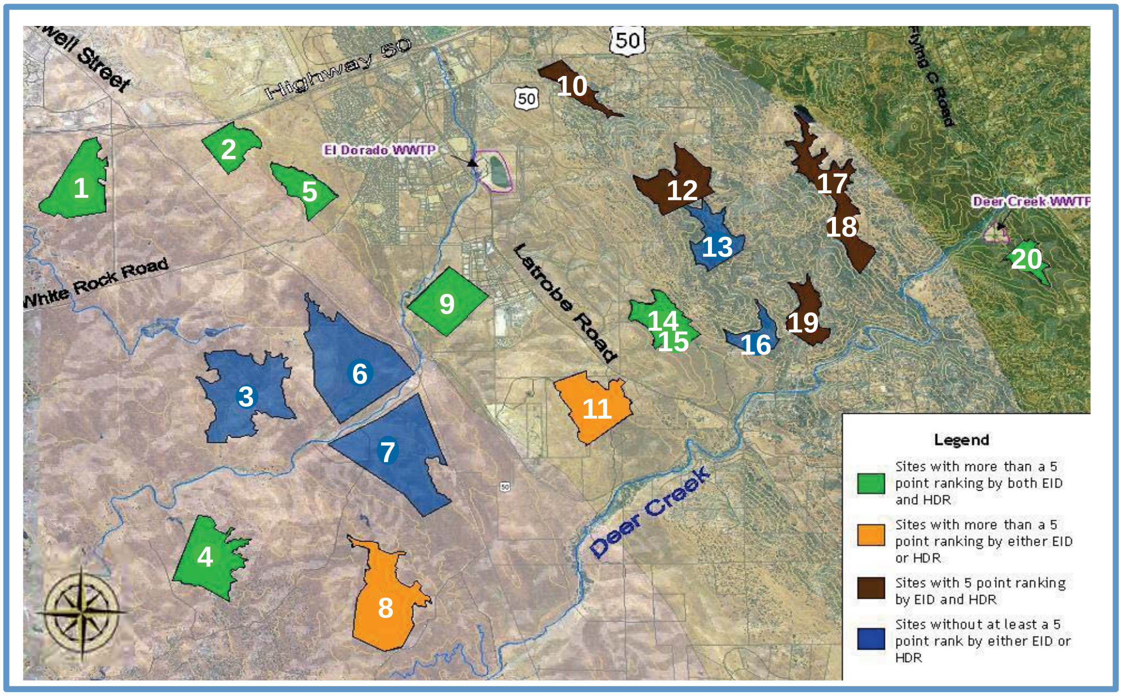
Of the twenty locations assessed in the Design Report, two locations were determined most suitable for additional analysis (see **Figure 3**). These were:

- El Dorado Hills Reservoir - Site 15 located south of the El Dorado Hills Wastewater Treatment Plant
- Deer Creek Reservoir – Site 20 located just south of the Deer Creek Wastewater Treatment Plant

These sites were thoroughly investigated to determine each location's ability to store 2,500 acre-feet of annual recycled water supply, allowing the supply to shift in time for use during peak summer months when demand otherwise exceeds recycled water production quantities. With the ability to store up to 2,500 acre-feet of recycled water produced during the off-season, EID can expand its water supplies. Currently, and as documented in the Central EDH WSA, EID must augment recycled water supplies with treated water supplies during the year due to the lack of storage. With storage, more recycled water can be used to meet demands, allowing other existing water supplies to be directed to other existing and planned future uses.

Section 4 of the Design Report provides detailed information regarding site location, geology, embankment design, pipeline routing, and other relevant information.

*Figure 3 – Sites investigated in the EID Design Report*
*(source: EID's Basis of Design Report - EID Recycled Water Seasonal Storage Reservoir, May 2011, Figure 3-5, p. 22)*




## Water Conservation

With availability of 2,500 acre-feet from a recycled water storage reservoir to help meet the 3,400 acre-foot shortfall in dry years, the water conservation component of Option 2 would need to provide an additional 900 acre-feet. This supply may manifest either as additional reduction in EID customer demands, or as a reduction in distribution system losses.

Currently, EID implements a variety of water conservation practices consistent with the best management practices (BMPs) identified in the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding. These programs are part of EID's on-going operations, and include, but are not limited to: tiered pricing, water meters, leak audits, and public education. EID's Water Efficiency Programs offer numerous options directed towards conserving customer's water uses for commercial, residential, and landscaping purposes.

As demonstrated in Section 3.3 of the Central EDH WSA and summarized in the Central EDH WSA's Table 3-1, the existing EID customers are anticipated to reduce their demands through implementing conservation actions over the analysis period. Specifically, EID anticipates current customer demands will reduce by 2% by 2020 and an additional 1% by 2035. As shown in the Central EDH WSA Table 3-1, these savings are estimated to reduce current customer demands by 690 acre-feet annually.

Under this portion of Option 2, additional conservation actions will target generating an additional 900 acre-feet, slightly more than the conservative estimates of conservation identified in the Central EDH WSA.

Though there may begin to be limits for additional conservation opportunities from existing EID customers, EID also recognizes opportunities to conserve water through improvements to its existing water delivery infrastructure. As detailed in Section 3.4 of the Central EDH WSA, a "non-revenue" component of total water demands represents the system losses, meter inaccuracies, illegal connections, and other factors that help explain the differences between metered customer use and water entering EID's distribution system. For purposes of the Central EDH WSA, and as a conservative planning tool in other EID water planning efforts, this non-revenue value is assumed to hold constant at 13% of the overall customer demand. The 13% reflects over 4,500 acre-feet of water essentially unaccounted-for in EID's system under current delivery conditions. With increased customer demands, this value increases to over 7,500 by 2035. By fixing system leaks and addressing other elements of non-revenue demands, water can be recaptured and made available to meet customer demands.

As a routine part of its operations, EID works to identify sources of non-revenue demand, seeking to improve delivery system efficiencies as economically feasible. Though the specific requirements and resulting water savings from addressing overall distribution system losses and inefficiencies are an evolving process, EID has been successful in the past and will continue to do so into the future. As issues are identified, EID evaluates options, assesses costs, and details savings opportunities. As these plans are developed they are assigned a project number, priority level, and moved into EID's Capital Improvement Plan (CIP) as specific projects.

One example of a water conservation project EID has assessed and included as part of its CIP is the Main Ditch piping project from Forebay Reservoir to the Reservoir 1 Water Treatment Plant. The conservation savings from piping a 3-mile long earthen canal that carries as much as 15,080 acre-feet annually are estimated as high as 1,300 acre-feet per year. In addition to the water savings from this project, public health benefits will also accrue including lower sediment levels in the raw water reaching the treatment plant and greatly reduced risk of contamination. EID has included this project in its latest Board approved CIP and is currently working to secure funding.[3] For purposes of Option 2, this particular system loss reduction project is assumed to achieve the additional 900 acre-feet of conservation supply.

In 2004 EID participated in the testing of the new American Water Works Association water audit methodology (AWWA audit) to evaluate the losses from its delivery system. From the AWWA audit, EID recognized it had significantly reduced its water losses over

[3] EID 2014-2018 CIP, Project Number 11032

the previous decade, from 28% in 1991 to 13% in 2004. With a decade passing since the AWWA audit, there have been improvements in leak detection technologies as well as growth in the number and experience of contractors specializing in leak detection and repair. As EID continues to improve its distribution system to efficiently meet customer needs, some of the opportunities identified by the 2004 AWWA audit may now be cost effective to investigate, assess and implement.

Along with continued investigation, assessment and implementation of actions to reduce non-revenue demands, EID can expand current rebate programs and other customer-focused water conservation measures. An additional one percent reduction in the demands of current customers, beyond the savings already anticipated in the Central EDH WSA, could reduce demand by another 350 acre-feet annually.

As a conservative assumption, an additional one percent reduction in customer demands through conservation measures and a one percent reduction in the non-revenue demands could produce over 900 acre-feet of water annually. Greater reduction in either category and/or piping the Main Ditch would only increase the savings further.

## Water Supply Certainty

Combined, the recycled water seasonal storage reservoir and additional conservation measures could generate at least 3,400 acre-feet needed in dry years. Because the seasonal storage facility would capture and regulate the consistent outflows of EID's wastewater treatment plants, the identified yield is considered to be highly reliable under all hydrologic conditions. Long-term reductions in customer demand and fixes to distribution system inefficiencies also provide a consistent savings regardless of hydrologic conditions. Thus, this Water Supply Option provides a high level of certainty of availability during dry years.

## Option 3 – Participate in Regional Groundwater Banking and Exchange Program

Under Water Supply Option 3, EID would coordinate with other regional water purveyors to exchange wet and normal year EID surface water supplies for use of non-EID water supplies in critical dry years. Option 3 could be achieved in partnership with one or more of many water purveyors that share access to the American River. Any opportunity, however, is premised on an agreement among the parties and regulatory approvals to allow EID surface water supplies to be used or stored outside of EID's existing place of use during normal and wet conditions, and EID's use of a partner's American River-related water supplies during dry conditions.

Like the other two options, this Option 3 needs to assure a minimum of 3,400 acre-feet of water is available to EID during a single dry year.

As presented in the Central EDH WSA and summarized in **Table 1**, at build-out during normal and wet years, EID has a surplus of secured ("existing") water supplies totaling about 5,500 acre-feet annually. All or a portion of this supply is assumed available for delivery to another regional water purveyor to enable the conjunctive use exchange opportunities envisioned under this option. **Table 2** includes a sample 13-year condition illustrating a potential exchange of water among the parties.[4]

Several water purveyors with surface water rights and entitlements on the American River could participate with EID to develop this water supply option.

As envisioned, EID would exchange normal year water for use of a portion of the partner's surface supplies (e.g., if Sacramento County Water Agency was the partner, the supply exchanged to EID could be SCWA's dry year CVP contract water supply or other SCWA water rights). In wetter and normal water years, EID would deliver its 5,500 acre-feet surplus to its conjunctive use partner for use in the partner's service area (e.g. SCWA would deliver the surface water to its customers). In taking EID's surplus surface water, the partnering agency would forego groundwater use and thus "bank" groundwater supplies as stored water in the underground aquifer. During critical dry years, the partnering agency would rely upon this banked groundwater to meet local needs and allow EID to divert up to 3,400 acre-feet of its surface rights or entitlements at an existing EID facility in Folsom Reservoir or another existing EID diversion and treatment facility.

[4] The sample period reflects the CA Department of Water Resources' Sacramento Valley water year index for 2000 through 2012 from Bulletin 120.

*Table 2 – Sample exchange of water among parties to facilitate dry-year water supplies for EID*

| Year | Sample Hydrology (2000-2012) | EID supply "banked" (af/yr) | Other water to EID (af/yr) | Balance |
|---|---|---|---|---|
| 0 | above normal | 5,500 | 0 | 5,500 |
| 1 | dry | 0 | 3,400 | 2,100 |
| 2 | dry | 0 | 2,374 | -274 |
| 3 | above normal | 5,500 | 0 | 5,226 |
| 4 | below normal | 0 | 3,400 | 1,826 |
| 5 | above normal | 5,500 | 0 | 7,326 |
| 6 | wet | 5,500 | 0 | 12,826 |
| 7 | dry | 0 | 3,400 | 9,426 |
| 8 | critical | 0 | 2,374 | 7,052 |
| 9 | dry | 0 | 2,374 | 4,678 |
| 10 | below normal | 0 | 2,374 | 2,304 |
| 11 | wet | 5500 | 0 | 7,804 |
| 12 | below normal | 0 | 3,400 | 4,404 |

Notes:
(1) Sample series of water year types is derived from the CA Department of Water Resources Bulletin 120 series for the Sacramento Valley.
(2) In a second dry year, the EID demand for supplemental water is reduced as shown in Table 1

## Water Supply Certainty

This Water Supply Option could generate up to 3,400 acre feet of water for diversion by EID in dry years on a reasonably certain basis – given that any conjunctive use partnership would only be established with a purveyor(s) able to reliably provide adequate dry year surface supplies to EID.

Water Supply Option 3, which would exchange groundwater supplies and surface supplies in the Sacramento region, entails concerns related to the long-term reliability of groundwater supplies. In addition, there are also concerns related to the migration of existing groundwater contamination in eastern Sacramento County as a result of additional pumping under this water supply option. However, these and other water banking considerations are actively being investigated as part of regional conjunctive use opportunities.[5]

[5] For instance, the Sacramento Groundwater Authority has a defined water accounting framework to track groundwater resource that could be available for exchange via "banking" operations. The Sacramento Central Groundwater Authority is also actively investigating conjunctive use opportunities.

Appendix L

# Transportation Impact Analysis

# Central El Dorado Hills Specific Plan Transportation Impact Analysis

March 2015

Prepared for:
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.

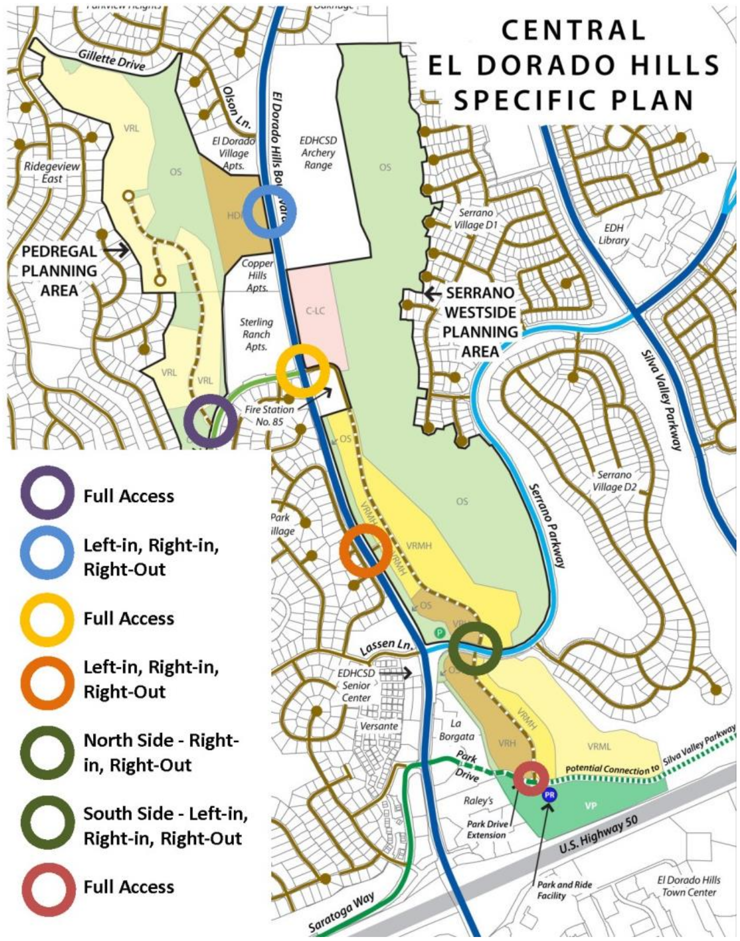
The remaining sections of this report document the proposed project, analysis methodolgies, impacts and mitigations.

## 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.*

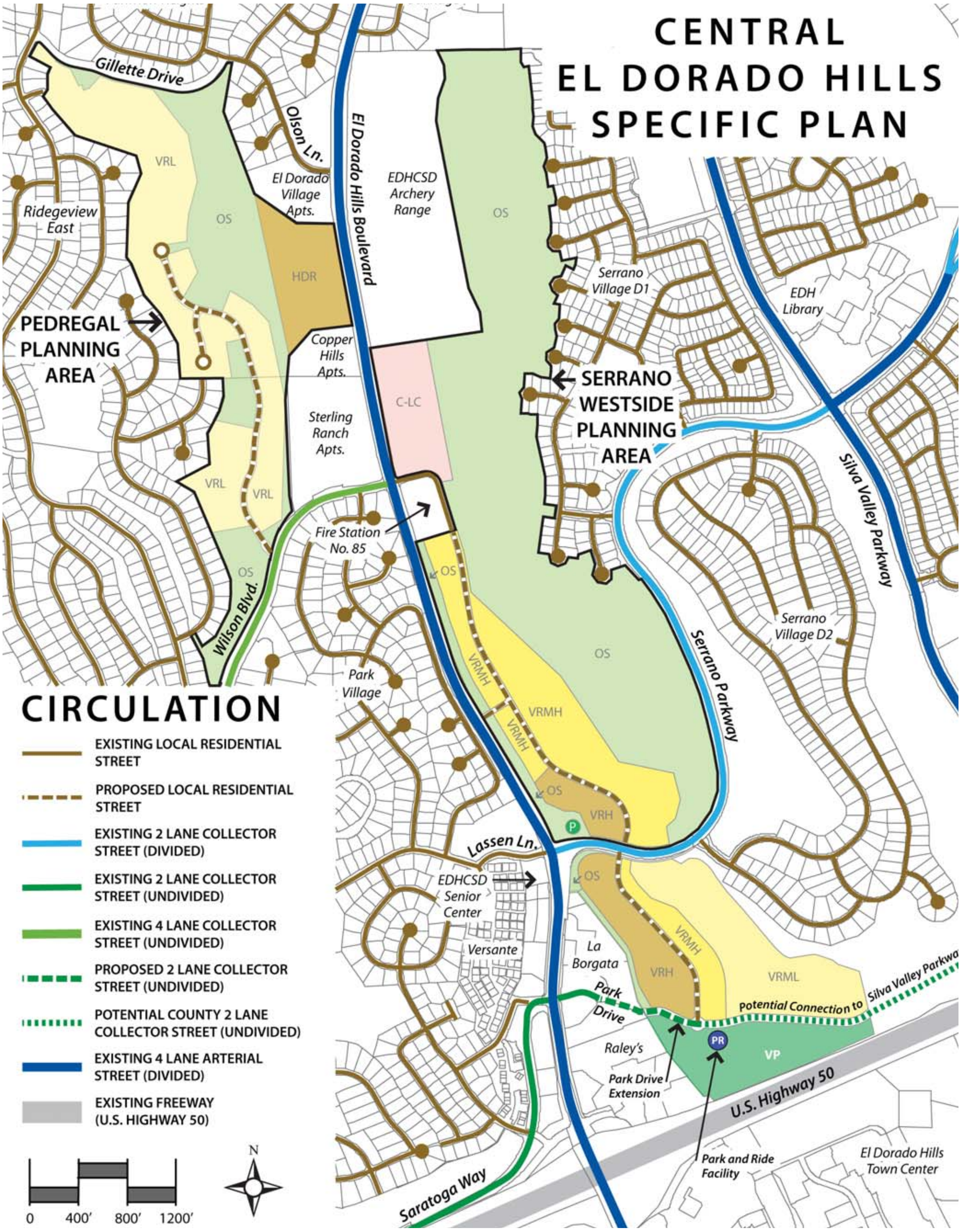



Figure 1.

**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 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 Community Development Agency, Long Range Planning staff and Caltrans, and based on the expected distribution of project trips and review of the El Dorado County Community Development Agency'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 Community Development Agency, 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 Community Development Agency'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 Community Development Agency'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 F 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 Community Development Agency (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.

The US 50/El Dorado Hills Boulevard/Latrobe Road interchange is currently under construction to improve the westbound on- and off-ramps, add 1,000 feet of auxiliary lane to westbound US 50, and provide 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 6,000 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 26,000 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 9,300 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 10,000 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.

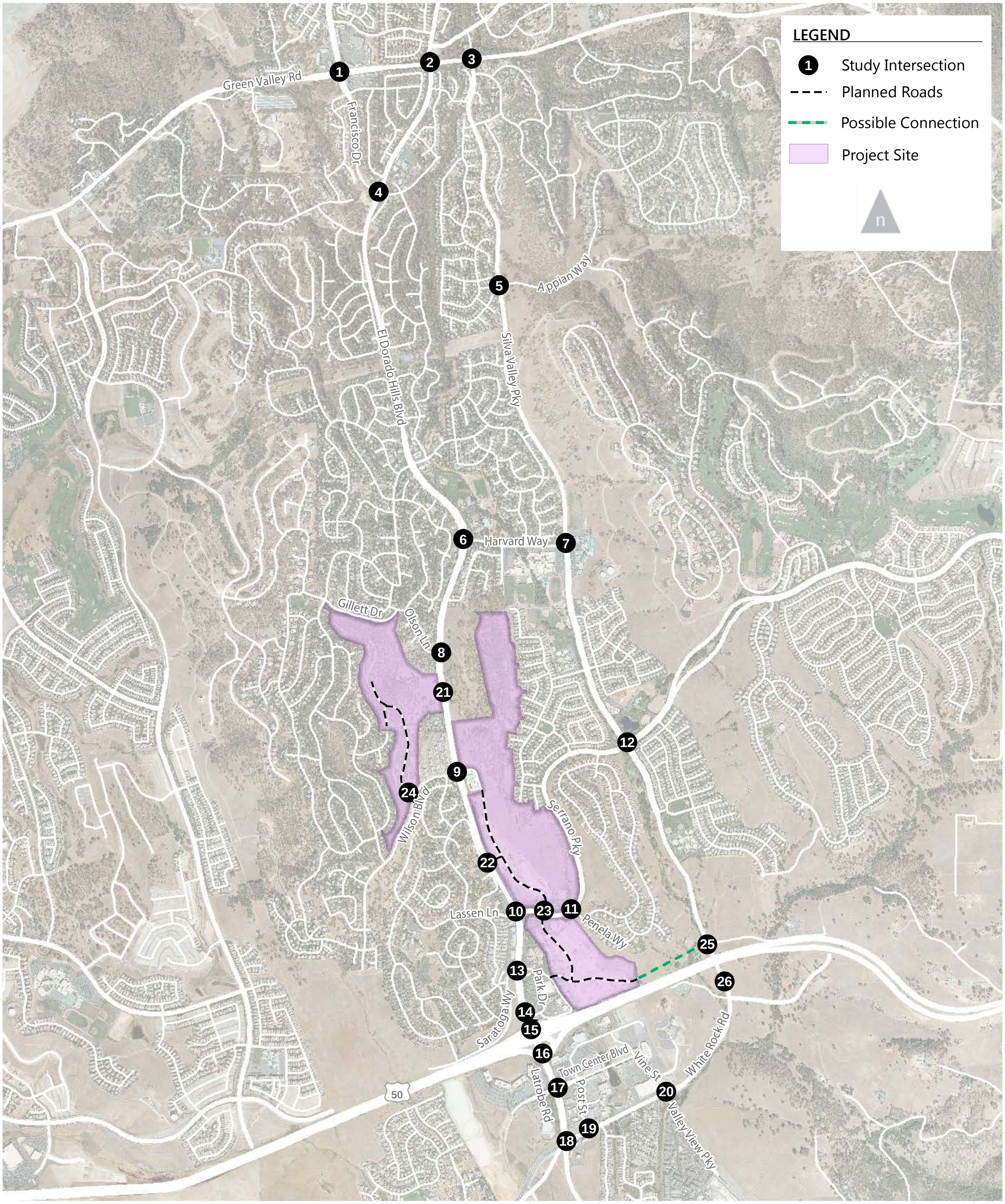



Figure 2.

## Study Area

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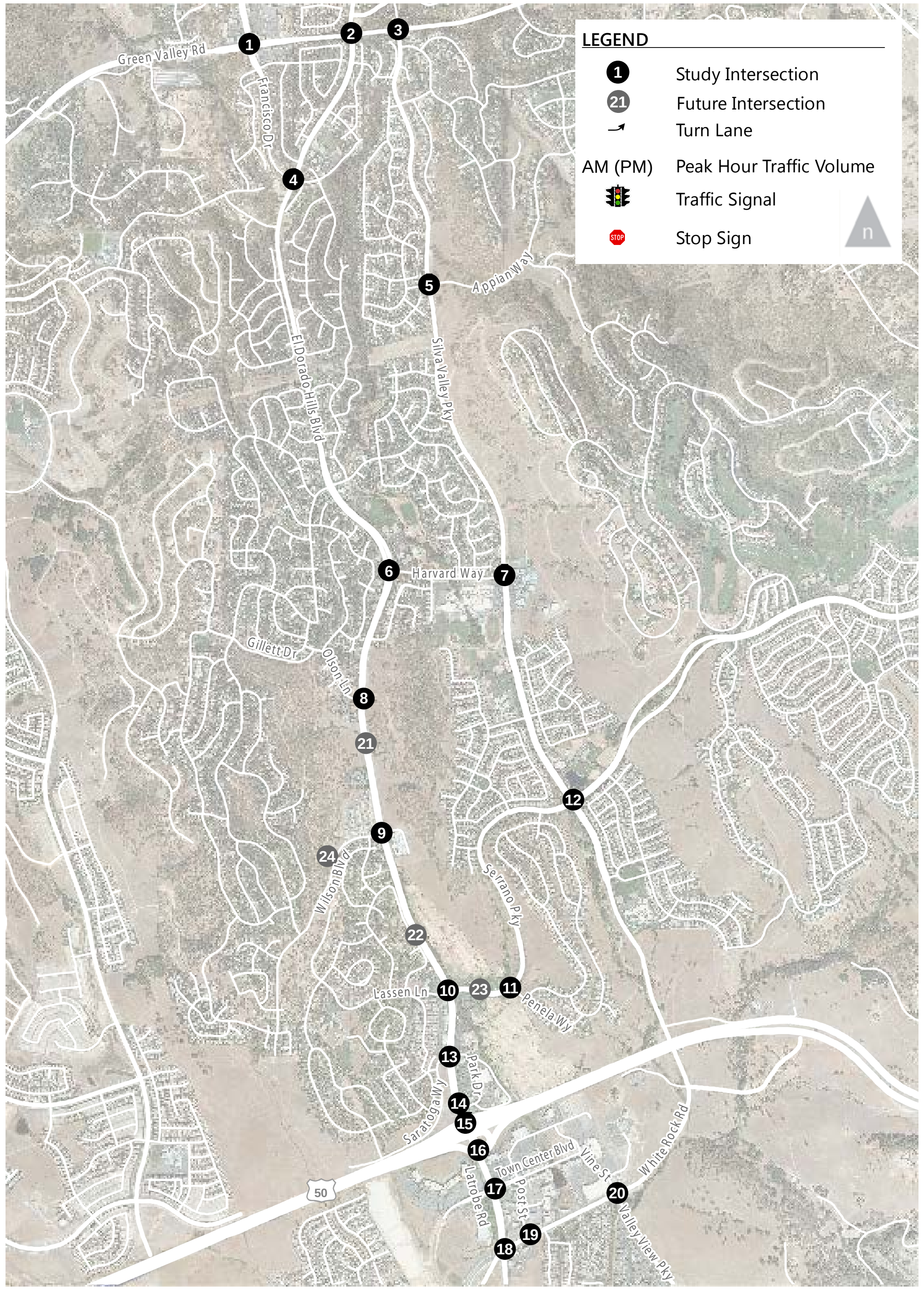


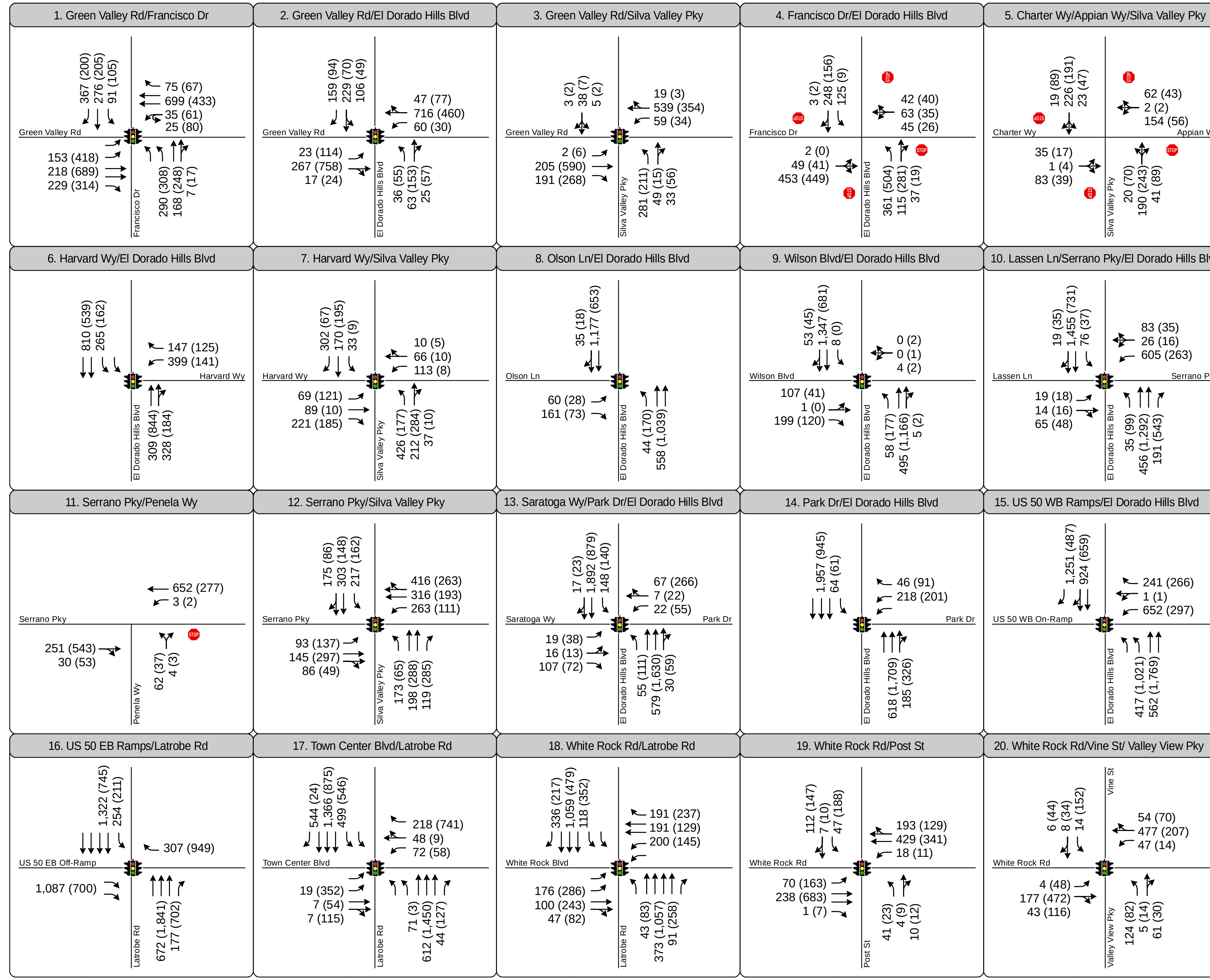


Figure 3.

**Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions**

Fehr & Peers

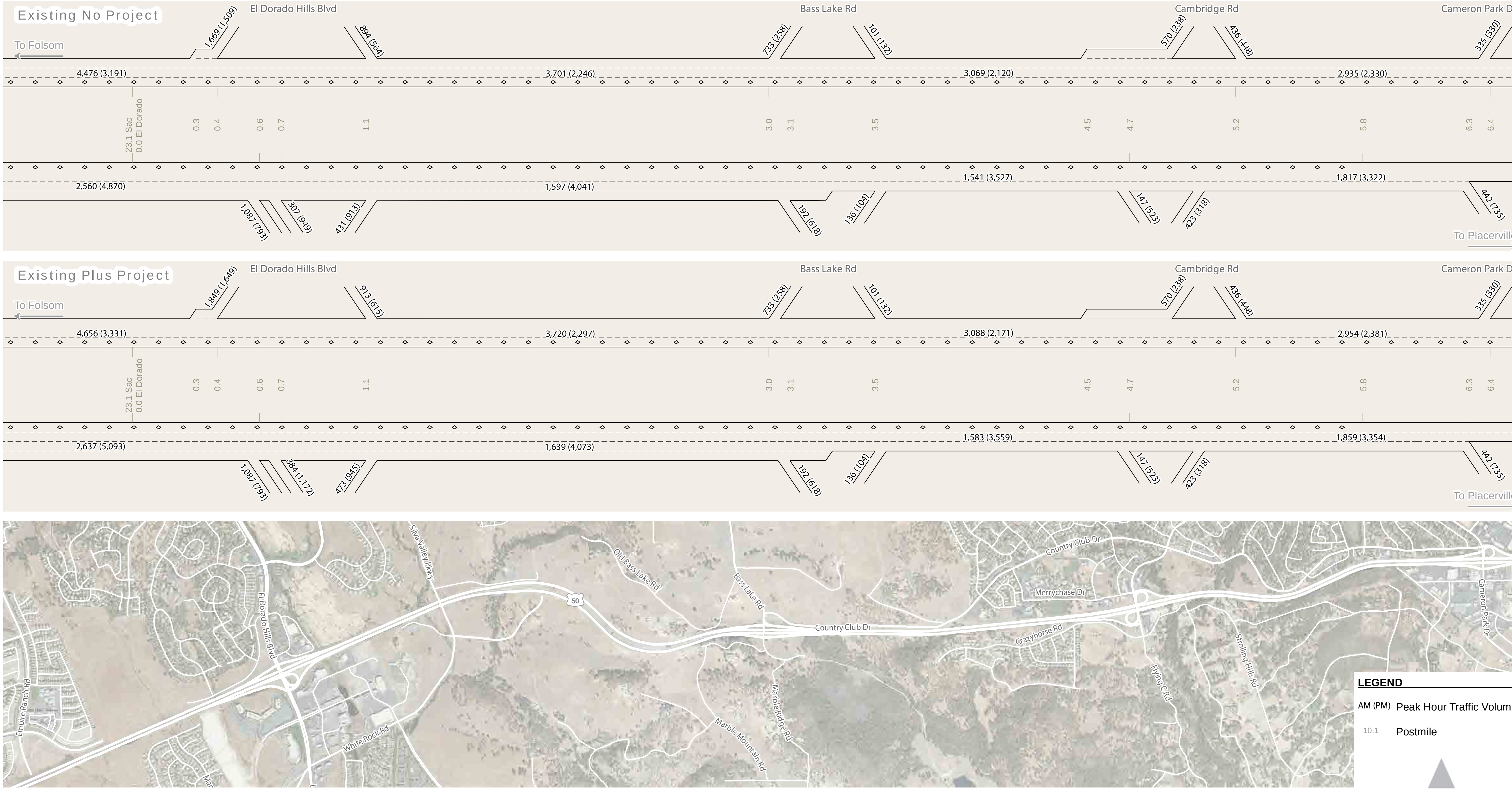


Figure 4.

**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 will be improved by the county to provide an eastbound to southbound free right-turn pocket. Construction is anticipated in early 2015. Future roadway improvements (i.e., roadway realignment, signalization, etc.) are proposed as described in Section 6.1, Table 14.

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 | 1,259 / 0.76 / D | 1,435 / 0.87 / 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 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 (currently under construction). 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 | Existing Density[1] / LOS 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.*

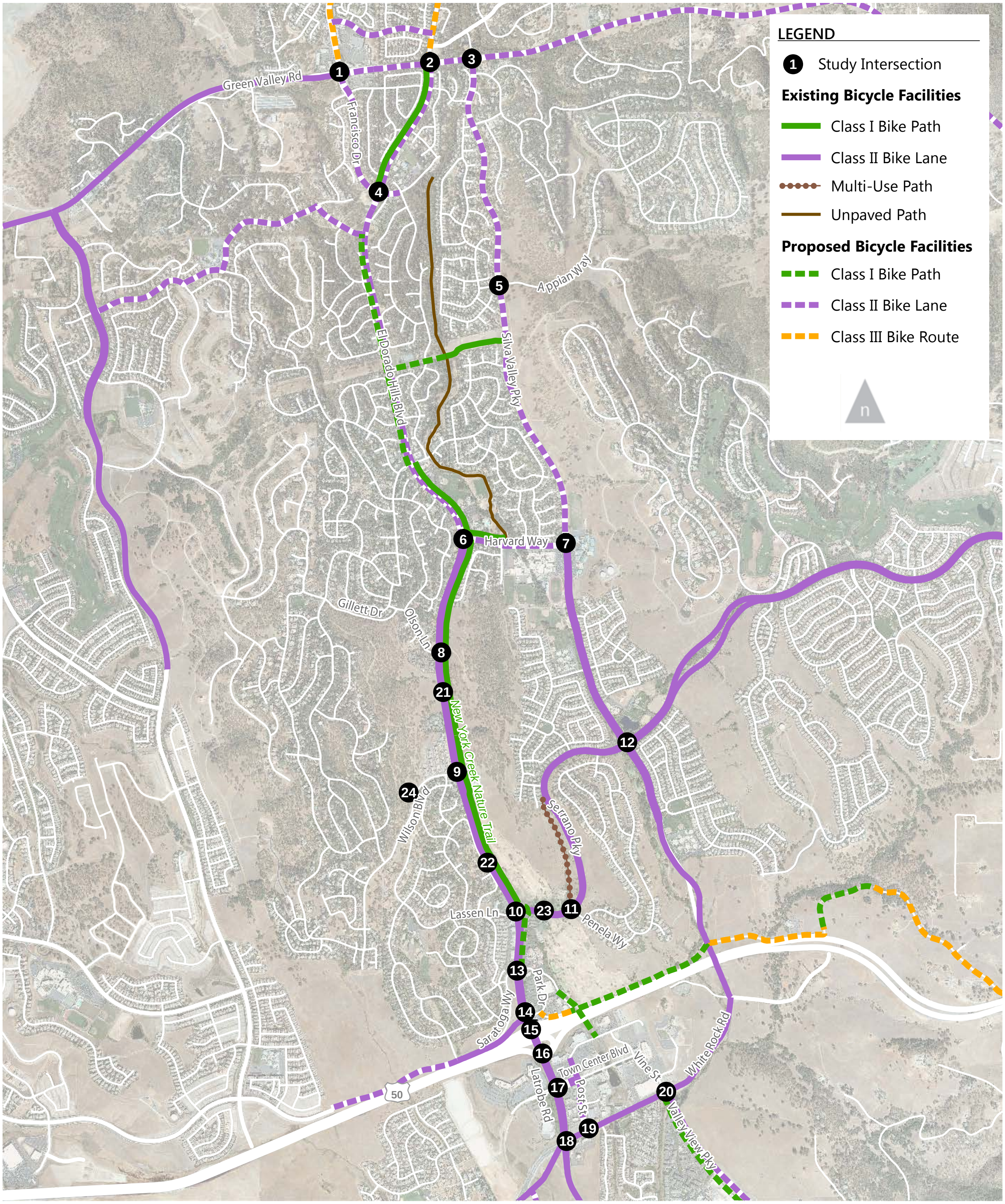


Figure 5.

## Bicycle Facilities

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FEHR PEERS

# 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.

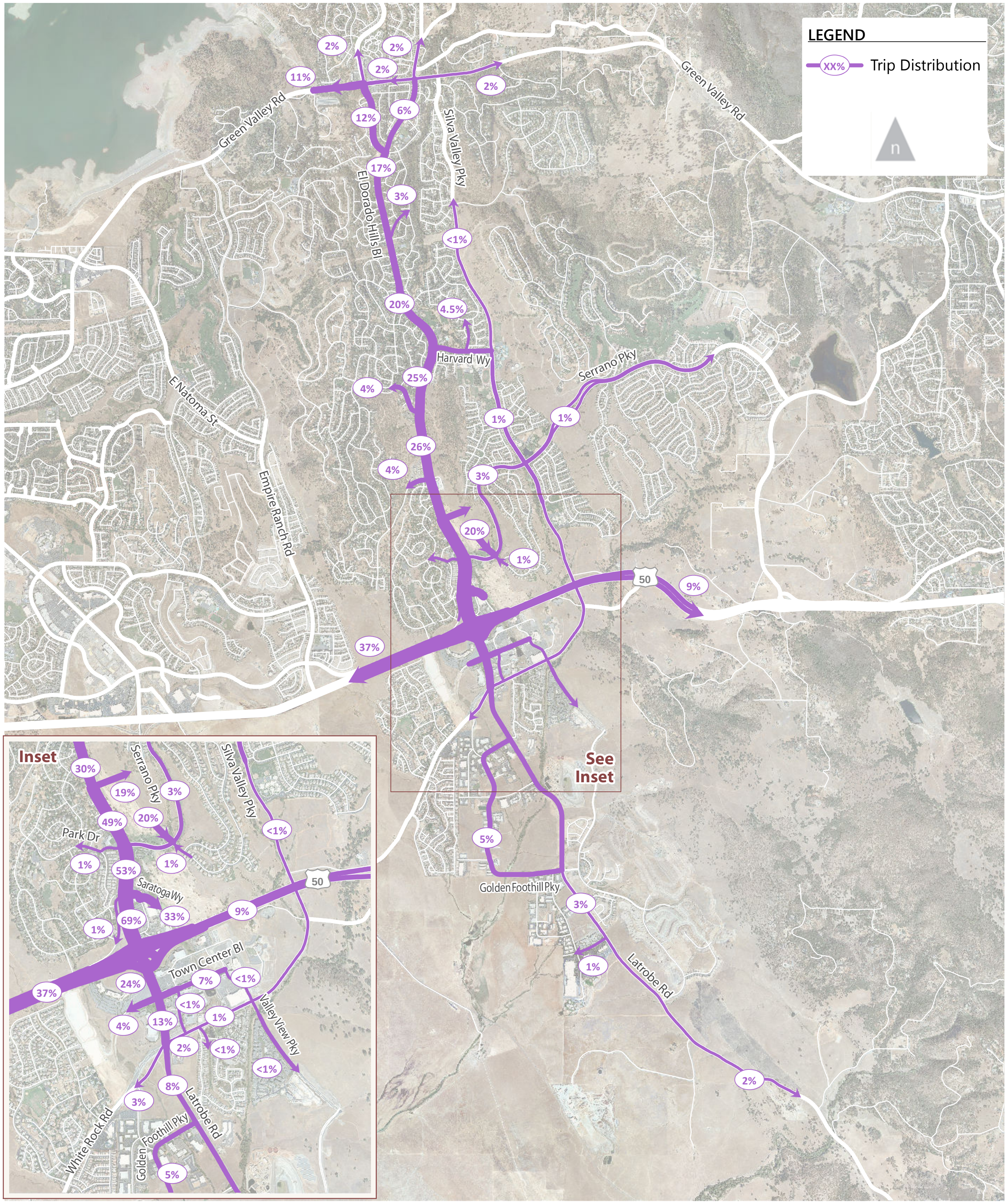


Figure 6.

## Trip Distribution - Existing Conditions

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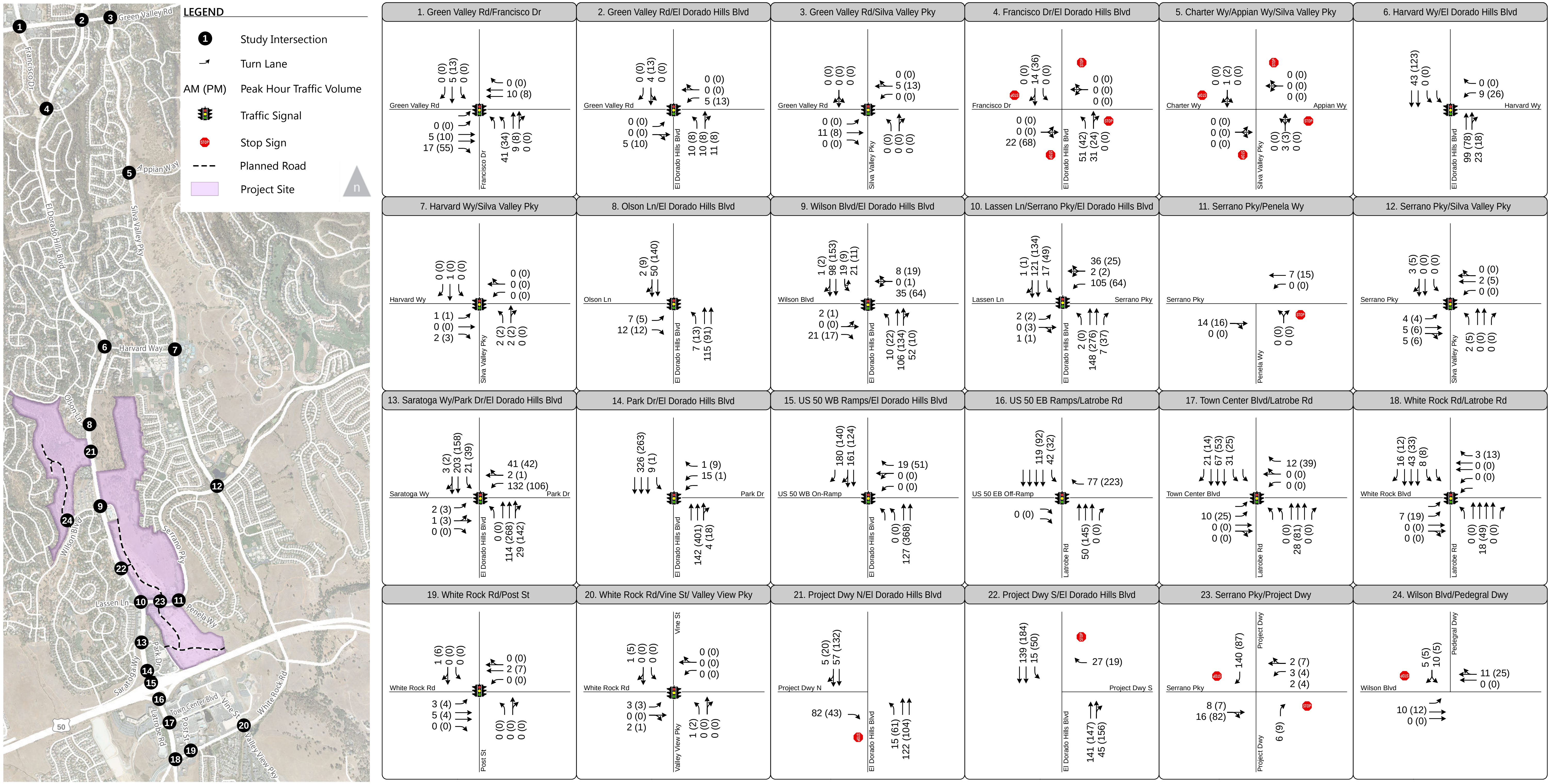


Figure 7.

**Project Only Trip Assignment - Existing Conditions**

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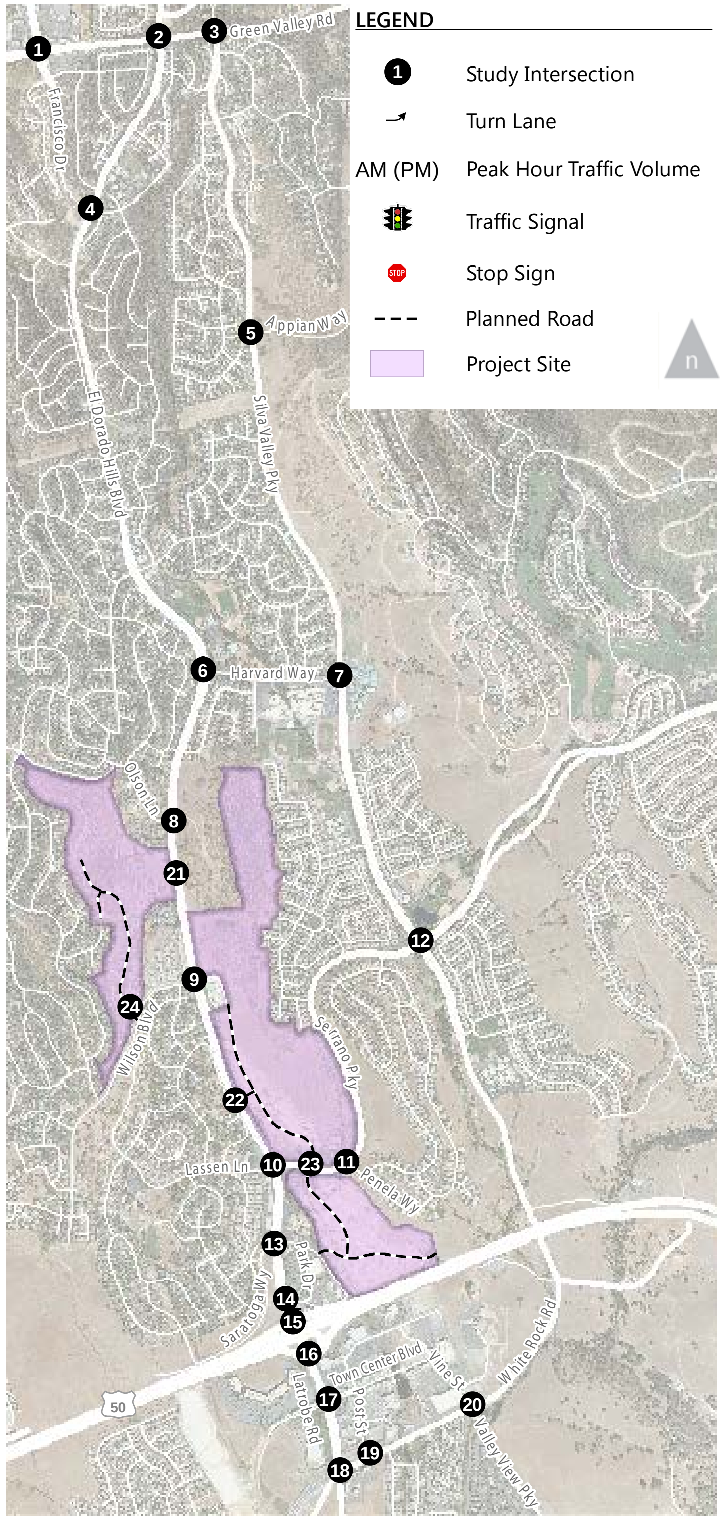


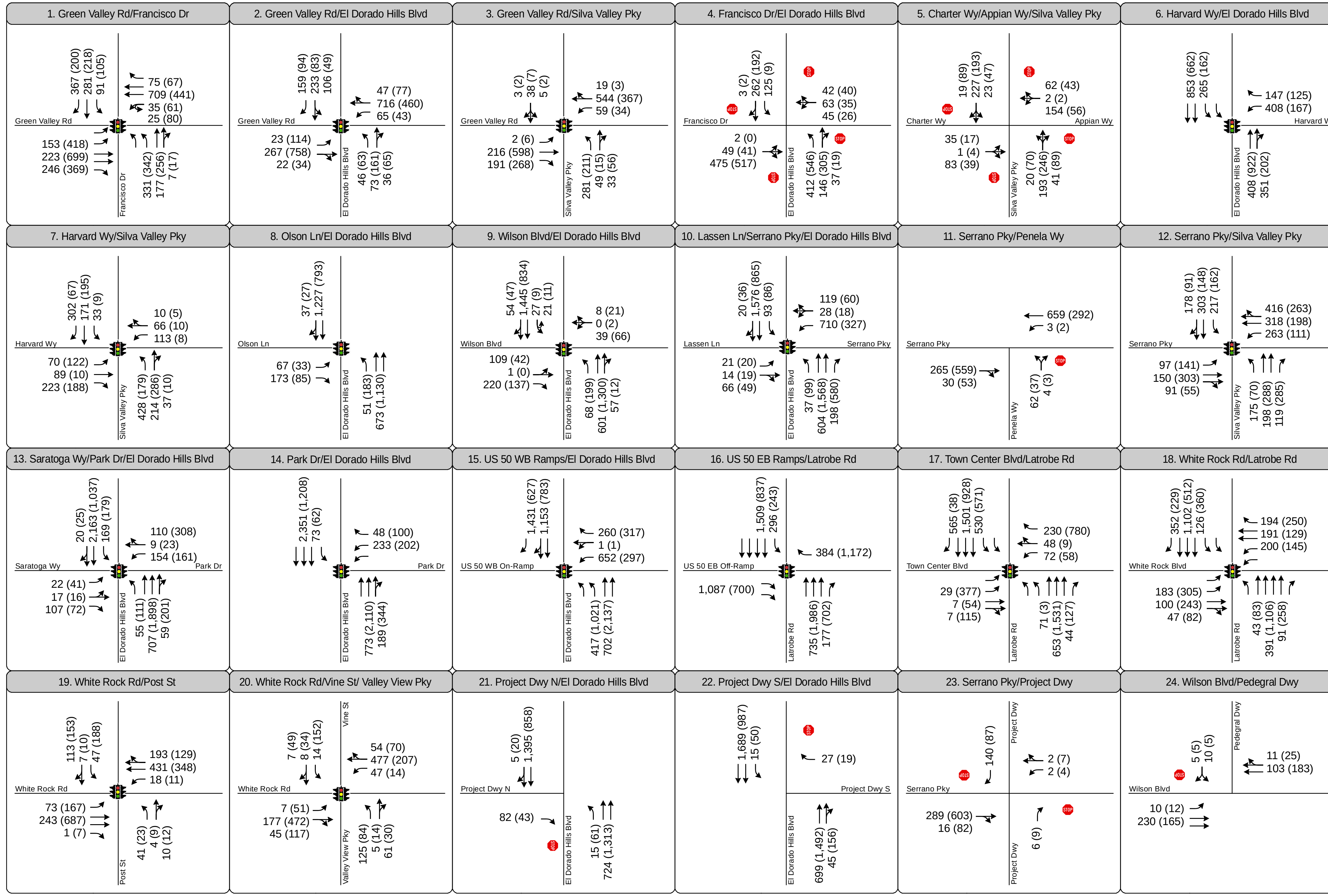


Figure 8.

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

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## 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 | 1,259 / 0.76 / D | 1,435 / 0.87 / D | 1,391 / 0.84 / D | 1,621 / 0.98 / E |
| | 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. *<u>Italic and underlined</u>* 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 |

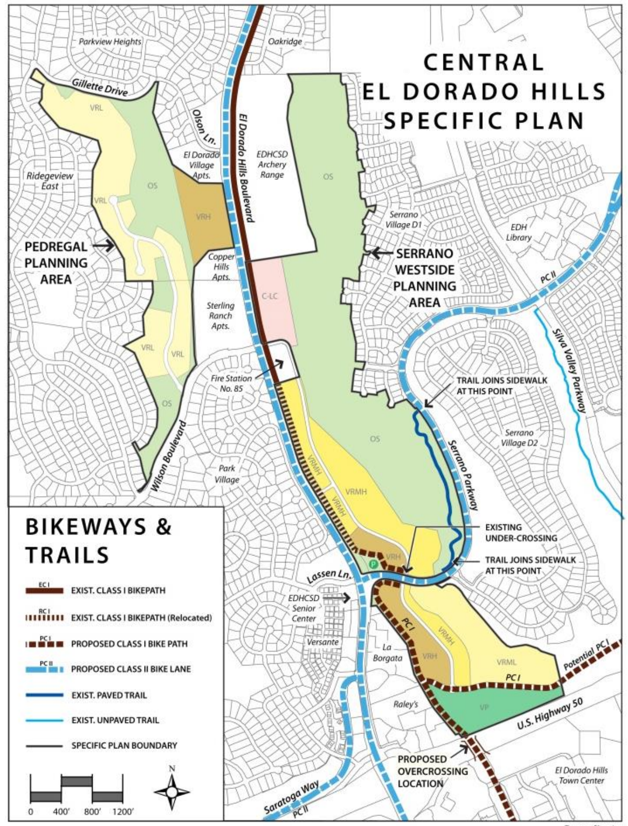
Notes: [1] Density reported as passenger cars per mile per lane. Density is not reported for LOS F operations.

**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 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 that would complete a connection to the planned Country Club Drive extension

## 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 (2013 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 2013 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 2013 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 (and funded) 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. | By 2020 |
| 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) | By 2035 |
| Country Club Drive – Silva Valley Parkway to "Old Lincoln Highway" | Construct new 2-lane road north of existing Tong Rd from Silva Valley Pkwy to the "Old Lincoln Hwy". This project is the first half of the ultimate project to connect Silva Valley Pkwy to Bass Lake Rd and provide parallel capacity to US 50. CIP#71335 | By 2020 |
| 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 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 | Widen: 4-lanes from Salmon Falls Rd. east to Deer Valley Rd. | 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 | Widen: 6 lanes (divided with 4-foot shoulders) from White Rock Rd. to Carson Creek (Suncast Ln.). | By 2035 |
| Latrobe Rd / White Rock Rd Connector (New Road) | 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. CIP71324 (Phase 2 CIP#GP147 - See ELD19234 in MTP.) | By 2035 |

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

| Project Name | Project Description | Estimated Completion |
|---|---|---|
| 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) | By 2035 |
| Silva Valley Pkwy Widening from Entrada | Widen Silva Valley Pkwy (2 to 4 lanes) from Entrada Dr to 1000 feet south of Oak Meadow Elem School; includes sidewalk, bike lanes and left-turn storage for school entrance.CIP#72370 | By 2020 |
| 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 | It is anticipated that Silver Springs Parkway will be built as a two-lane standard divided roadway with shoulders. It is planned to 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. There is a portion of the new alignment that falls to the south of the Silver Springs development that must also be built to connect the new road to the existing Bass Lake Road to the south. | By 2020 |
| Silver Springs Parkway to Green Valley Road | 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. Connect to realigned Bass Lake Road north of Bass Lake. | By 2020 |
| Sophia Parkway | Widen: 4 lanes (divided) from Alexandria Rd. to Empire Rancho Rd. at the County Line. | By 2035 |
| US 50 / Bass Lake Road (Phase 2) | Add Auxiliary Lane: WB on US 50 between Bass Lake Rd. and Cambridge Rd. interchanges. Includes: additional ramp, road widening (Phase 2) (See ELD19182 for Phase 1). | By 2035 |
| US 50 / Cambridge Road (Phase 2) | Add Auxiliary Lane: on US 50 EB between Cambridge Rd. and Cameron Park Dr. interchanges and WB between Cameron Park Dr. and Bass Lake Rd. interchanges. Includes bridge widening to add two lanes and ramp widening (Phase 2) (See Eld19181 for Phase 1). | 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 |

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

| Project Name | Project Description | Estimated Completion |
|---|---|---|
| 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 Bus / Carpool Lanes | Bus/Carpool Lanes – Phase 3: Us 50-Ponderosa Road to Greenstone Road. | 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). Emission Benefits in kg/day: ROG 27, NOx: 28, PM10 15, CO 303. CIP#53110 | Completed |
| US 50 HOV Lanes – Phase 2A | Phase 2A (Bass Lake Rd to Cameron Park Dr) - Add HOV lanes in median of US 50 between Bass Lake Rd and Cameron Park Dr Interchanges. PA&ED completed by Caltrans. Caltrans advancing project design through Cooperative Agreement with the County. Intergovernmental<br>Agreement between County and Shingle Springs Band of Miwok Indians for funding (coded as Local Agency Funds). (Emission Benefits in kg/day: 19 ROG, 20 NOx, 12 PM10.) (See ELD19211/CIP53113 for Phase 1, ELD19290/CIP53122 for Phase 2B and ELD19289/CIP#53116 for future unfunded Phase 3 in the MTP). CIP#53113 | Completed |
| US 50 HOV Lanes – Phase 2B | Phase 2B (Cameron Park Dr to Ponderosa Rd.) - Add HOV lanes in median of US 50 between Cameron Park Dr. and Ponderosa Rd. interchanges. PA&ED completed by Caltrans. Caltrans advancing project design through Cooperative Agreement with the County. Intergovernmental<br>Agreement between County and Shingle Springs Band of Miwok Indians for funding (coded as Local Agency Funds). (See ELD19211/CIP53113 for Phase 1, ELD19290/CIP53122 for Phase 2B and ELD19289/CIP53116 for future unfunded Phase 3 in the MTP). CIP53113 | By 2035 |
| 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 |

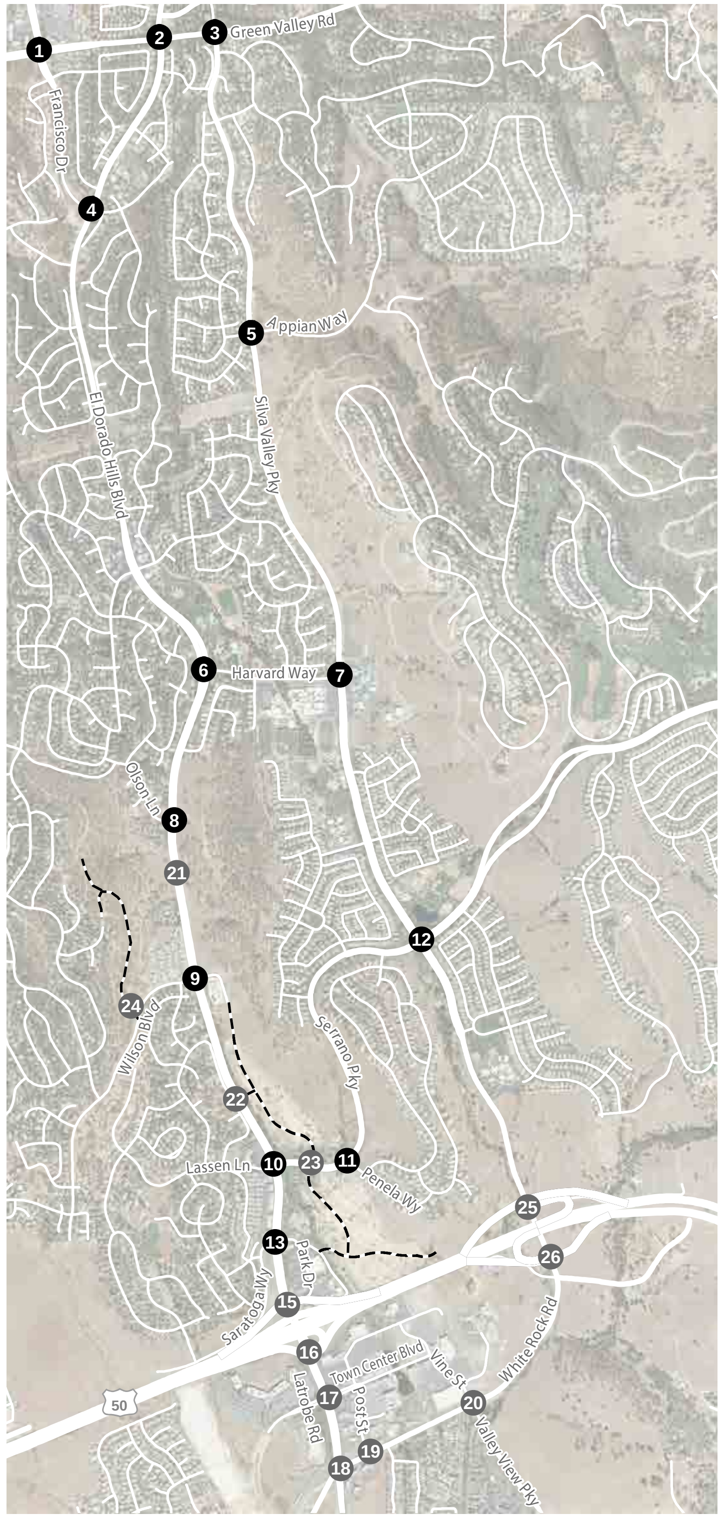
**TABLE 14: CAPACITY–ENHANCING ROADWAY IMPROVEMENTS (ASSUMED COMPLETION BY 2035)**

| Project Name | Project Description | Estimated Completion |
|---|---|---|
| US 50 / Bass Lake Rd Interchange - Phase 1 | Interchange Improvements: this phase includes detailed study to determine complete improvements needed; Phase 1 may include ramp widening, road widening, signals, and WB auxiliary lane between Bass Lake and Silva Valley interchanges; Phase 1 assumes bridge replacement. (See ELD19217 for Phase 2). CIP#71330 | By 2035 |
| US 50 / Cambridge Rd. Interchange – Phase 1 | Interchange Improvements: this phase includes widening existing EB and WB on-/off-ramps; addition of new WB on-ramp; reconstruction of local intersections; and installation of traffic signals at EB and WB ramp terminal intersections; preliminary engineering for Phase 2 to be performed under Phase 1. (See ELD19218 for Phase 2) 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. CIP72361 | By 2035 |
| US 50 / El Dorado Hills Blvd Interchange Eastbound Ramps | 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 2020 |
| US 50 / El Dorado Rd Interchange - Phase 1 | Interchange Improvements: includes signalization and widening of existing ramps. (See ELD19272 for Phase 2). CIP#71347 | By 2035 |
| US 50 / El Dorado Rd Interchange - Phase 2 | Interchange Improvements: this phase involves construction of left and right turn lanes and additional through traffic lanes in all approaches to the interchange. (See ELD19178/CIP#71347 for Phase 1). CIP#71376 | By 2035 |
| US 50 / El Dorado Hills Blvd Interchange – Final Phase | Interchange Improvements: this final phase constructs new WB off-ramp undercrossing, improves WB on-/off-ramps and widens El Dorado Hills Blvd. (Coordinates with ELD19215/CIP#53120, ELD19273/CIP#53115, ELD19173/CIP71340, and ELD19345). CIP#71323 | Ongoing |
| 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). CIP71340. | By 2035 |

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

| Project Name | Project Description | Estimated Completion |
|---|---|---|
| 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 |
| US 50 / Silva Valley Pkwy Interchange - Phase 2 (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 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 (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 | By 2020 |
| White Rock Rd (Connector Segment) | Widen: 6 lanes (divided) from Latrobe Rd. to U.S. 50 / Silva Valley Pkwy. Interchange. | 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).



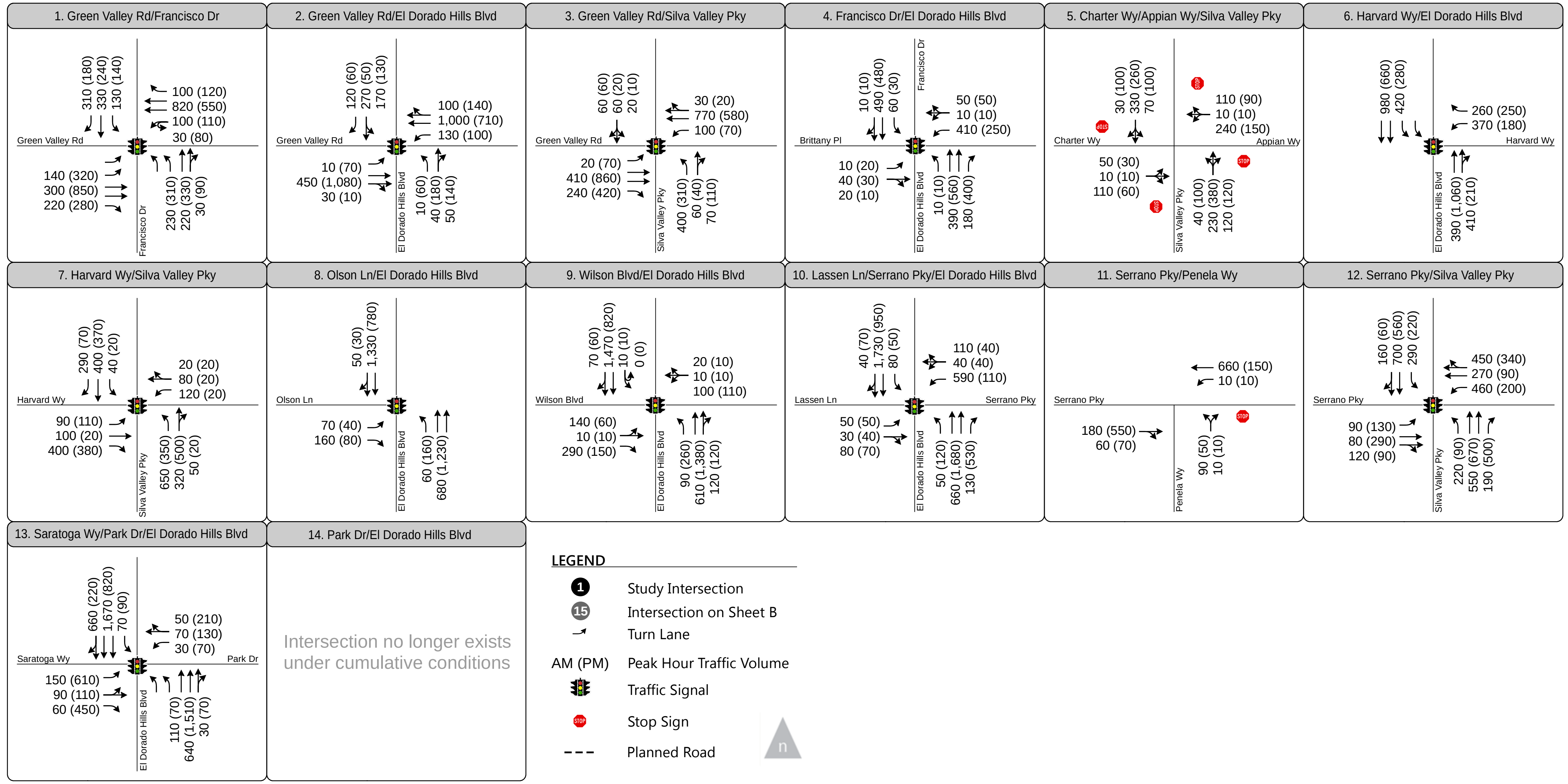




Figure 9A.

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

FEHR & PEERS

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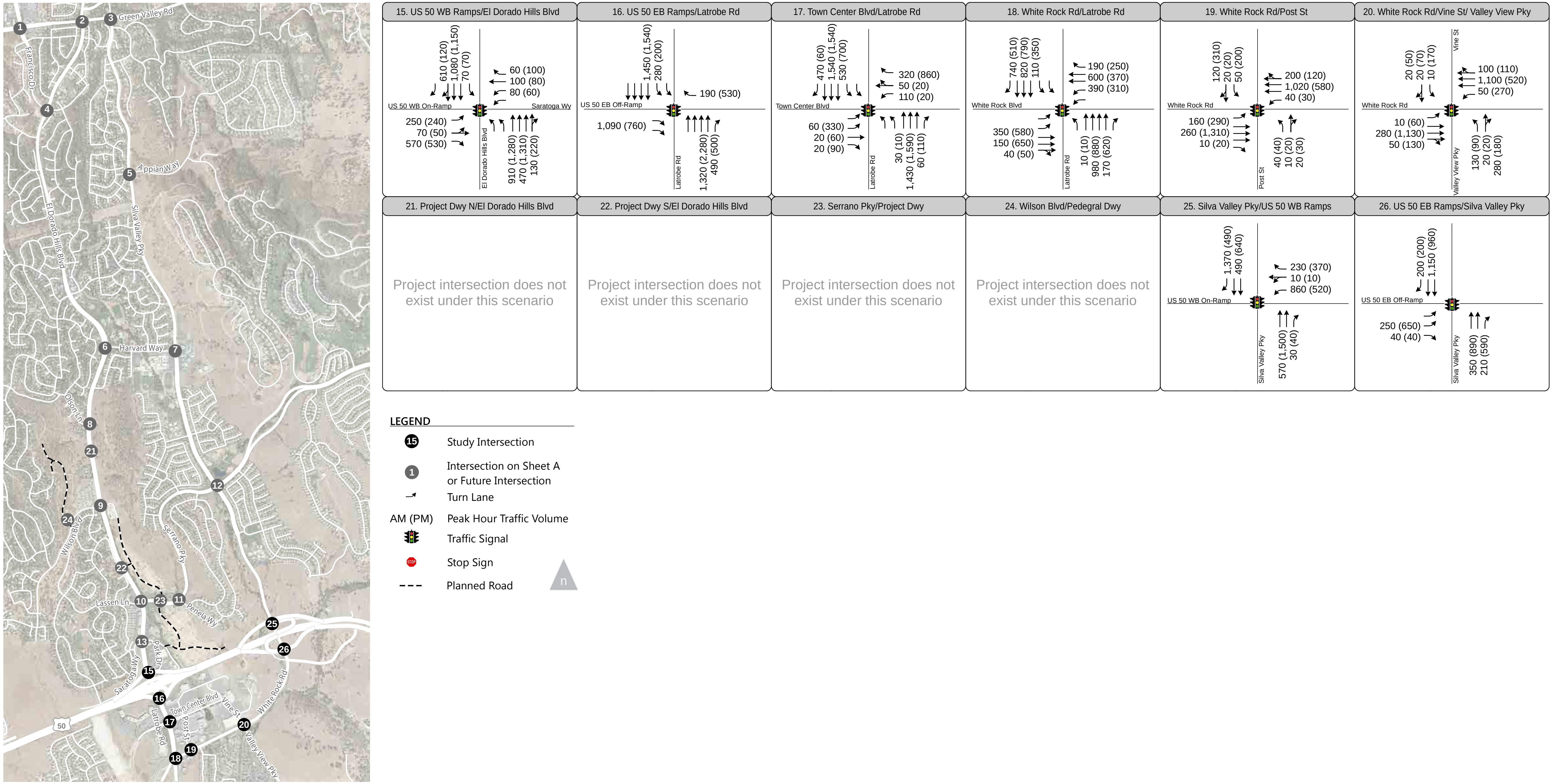


Figure 9B.

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

FEHR & PEERS

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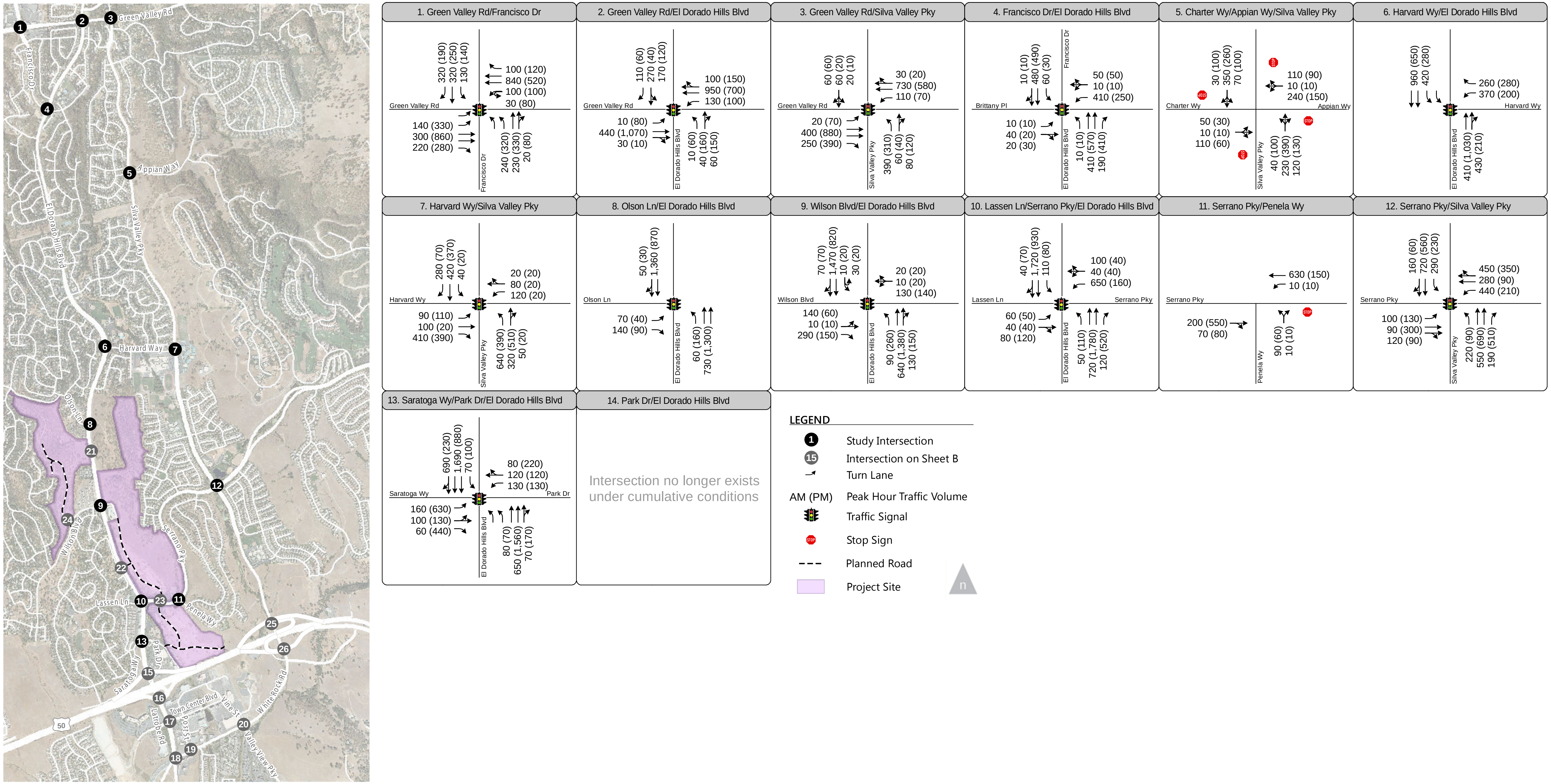


Figure 10A.

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

FEHR & PEERS

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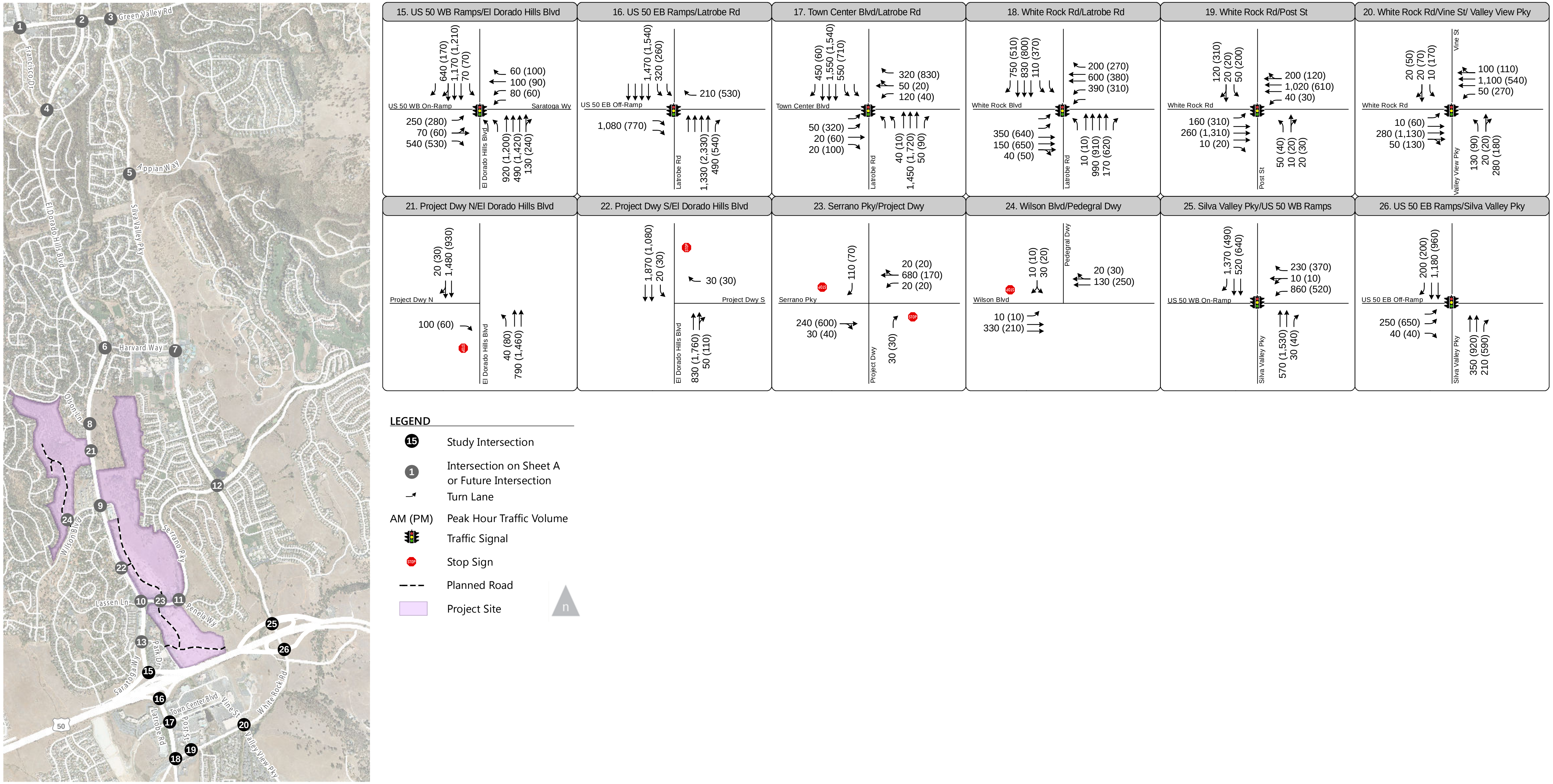


Figure 10B.

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

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## 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.
- 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 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.

**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 / 46 | D / 47 | D / 45 | D / 44 |
| 3. Green Valley Rd / Silva Valley Pkwy | Signal | D / 39 | C / 27 | D / 37 | C / 27 |
| 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 | E / 72 | E / 56 | E / 73 | E / 60 |
| 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 | D / 48 | C / 21 | D / 52 | C / 21 |
| 26. Silva Valley Pkwy/US 50 EB Ramps | Signal | A / 9 | B / 10 | A / 9 | A / 10 |

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

**Bold and underlined** 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 but one study roadway segments will operate acceptably under cumulative conditions, due primarily to the capacity increasing roadway project included in the County's 2013 CIP, which are documented in Table 14. The two-lane segment of El Dorado Hills Boulevard would operate at LOS F during the PM peak hour under cumulative conditions without the proposed project. 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 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 | 440 / 0.27 / C[1] | 440 / 0.27 / C[1] | 440 / 0.27 / C[1] | 420 / 0.25 / C[1] |
| | Francisco Dr to Governor Dr | 2 lane arterial | 1,450 / 0.88 / D | **1,680 / 1.02 / F** | 1,450 / 0.88 / D | ***1,670 / 1.01 / F*** |
| | Governor Dr to Wilson Blvd | 4 lane divided arterial | 2,270 / 0.69 / D | 2,300 / 0.70 / D | 2,280 / 0.69 / D | 2,280 / 0.69 / D |
| | Wilson Blvd to Serrano Pkwy | 4 lane divided arterial | 2,640 / 0.80 / D | 2,800 / 0.85 / D | 2,720 / 0.83 / D | 2,850 / 0.87 / D |
| | Serrano Pkwy to Saratoga Way | 5 lane divided arterial | 3,210 / 0.78 / D | 3,400 / 0.83 / D | 3,330 / 0.81 / D | 3,580 / 0.87 / D |
| | Saratoga Way to US 50 | 7 lane divided arterial | 2,700 / 0.50 / C[1] | 2,930 / 0.54 / C[1] | 2,700 / 0.50 / C[1] | 3,200 / 0.59 / C[1] |
| Latrobe Rd | US 50 to Town Center Blvd | 7 lane arterial | 4,290 / 0.79 / D | 5,040 / 0.93 / D | 4,330 / 0.80 / D | 5,150 / 0.95 / D |
| | Town Center Blvd to White Rock Rd | 6 lane divided arterial | 3,130 / 0.66 / D | 3,310 / 0.70 / D | 3,180 / 0.68 / D | 3,480 / 0.74 / D |
| | White Rock Rd to Golden Foothill Pkwy | 6 lane divided arterial | 2,300 / 0.49 / C[1] | 2,680 / 0.57 / C[1] | 2,310 / 0.49 / C[1] | 2,660 / 0.56 / 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] | 600 / 0.36 / 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 | 1,530 / 0.47 / C[1] | 2,030 / 0.62 / D | 1,550 / 0.47 / C[1] | 2,180 / 0.66 / D |
| | Four Seasons Dr to Latrobe Rd | 4 lane divided arterial | 1,610 / 0.49 / C[1] | 2,000 / 0.61 / D | 1,630 / 0.5 / C[1] | 2,130 / 0.65 / D |
| | Latrobe Rd to Vine St | 6 lane divided arterial | 1,430 / 0.30 / C[1] | 1,840 / 0.39 / C[1] | 1,430 / 0.3 / C[1] | 1,830 / 0.39 / C[1] |
| | Vine St to US 50 | 6 lane divided arterial | 1,760 / 0.37 / C[1] | 2,350 / 0.50 / C[1] | 1,750 / 0.37 / C[1] | 2,340 / 0.5 / C[1] |
| Silva Valley Pkwy | Green Valley Rd to Glenwood Wy | 2 lane arterial | 920 / 0.56 / D | 930 / 0.56 / D | 920 / 0.56 / D | 910 / 0.55 / D |
| | Glenwood Wy to Appian Wy | 2 lane arterial | 770 / 0.47 / C[1] | 930 / 0.56 / D | 770 / 0.47 / C[1] | 900 / 0.55 / D |
| | Appian Wy to Harvard Wy | 2 lane arterial | 1,100 / 0.67 / D | 1,030 / 0.62 / D | 1,110 / 0.67 / D | 1,030 / 0.62 / D |
| | Harvard Wy to Serrano Pkwy | 4 lane divided arterial | 2,150 / 0.65 / D | 1,880 / 0.57 / D | 2,170 / 0.66 / D | 1,920 / 0.58 / D |
| | Serrano Pkwy to US 50 | 4 lane divided arterial | 2,500 / 0.76 / D | 2,500 / 0.76 / D | 2,500 / 0.76 / D | 2,520 / 0.77 / D |
| Serrano Pkwy | EDH Blvd to Silva Valley Pkwy | 2 lane arterial | 1,010 / 0.61 / D | 920 / 0.56 / D | 1,010 / 0.61 / D | 920 / 0.56 / D |
| | Silva Valley Pkwy to Villagio Dr | 4 lane divided arterial | 1,680 / 0.51 / C[1] | 1,590 / 0.48 / C[1] | 1,670 / 0.51 / C[1] | 1,630 / 0.5 / C[1] |
| | Villagio Dr to Bass Lake Rd | 2 lane arterial | 880 / 0.53 / D | 960 / 0.58 / D | 870 / 0.53 / D | 980 / 0.59 / D |
| Saratoga Wy | EDH Blvd to Arrowhead Dr | 2 lane arterial | 1,100 / 0.67 / D | 1,530 / 0.93 / D | 1,150 / 0.70 / D | 1,560 / 0.95 / E |

**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 | |
|---|---|---|---|---|---|---|
| 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] | 520 / 0.17 / 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 | 1,410 / 0.45 / C[1] | 880 / 0.28 / C[1] | 1,430 / 0.46 / C[1] | 930 / 0.3 / 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. *<u>Italic and underlined</u>* text identifies a potential impact.
Source: Fehr & Peers, 2014

### 6.2.3 FREEWAY FACILITIES

Analysis results, which are presented in Table 16, indicate that all study freeway facilities will operate acceptably at LOS E or better under cumulative conditions without the proposed project. The capacity increasing projects from the County's 2013 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**

- Country Club Drive Extension from Bass Lake Road to Silva Valley Parkway
- 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.

The westbound weaving sections between El Dorado Hills Boulevard and Empire Ranch Road will operate at LOS F during the AM peak hour with the proposed project, based on the HCM weave analysis method. About 11 percent of project trips will have an origin/destination in Rancho Cordova or other areas to the west.

However, analysis of the weaving section based on the Leisch Method (preferred by Caltrans District 3) indicates that these weave sections would operate at LOS D during the same period.


Figure 11.

**Programmed Freeway Improvements**

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FEHR PEERS


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 | 34 / D | |
| | El Dorado Hills Blvd off-ramp | Diverge | 20 / C | 31 / D | 21 / C | 31 / D | |
| | El Dorado Hills Blvd on-ramp to Silva Valley Pkwy off-ramp | Weave (HCM) | 22 / C | 38 / E | 23 / C | 38 / E | |
| | | Weave (Leisch) | - / B | - / D | - / B | - / D | |
| | Silva Valley Pkwy loop on-ramp | Merge | 18 / B | 25 / C | 18 / B | 26 / C | |
| | Silva Valley Pkwy slip on-ramp | Merge | 17 / B | 25 / C | 17 / B | 26 / C | |
| | Silva Valley Pkwy on-ramp to Bass Lake Rd off-ramp | Basic | 20 / C | 29 / D | 21 / C | 30 / D | |
| | Bass Lake Rd off-ramp | Diverge | 25 / C | 34 / D | 25 / C | 34 / D | |
| | Bass Lake Rd on-ramp to Cambridge Rd off-ramp | Weave (HCM) | 30 / D | | 31 / D | | |
| | | Weave (Leisch) | Outside the realm of weaving | | | | |
| | | Basic | B / 16 | 21 / C | B / 16 | 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 | |
| US 50 WB | Cambridge Rd on-ramp to Cameron Park Dr off-ramp | Basic | 21 / C | 25 / C | 21 / C | 25 / C | 2 |
| | Cameron Park Dr on-ramp to Cambridge Rd off-ramp | Weave (HCM) | 42 / E | | 42 / E | | |
| | | Basic | 21 / C | 24 / 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 | 25 / C | 23 / C | 26 / C | 23 / C | 2 |
| | Silva Valley Pkwy Loop on-ramp | Merge | 15 / B | 14 / B | 15 / B | 14 / B | |
| | Silva Valley Slip on-ramp to El Dorado Hills Blvd off-ramp | Weave (HCM) | 39 / E | 27 / C | 39 / E | 27 / C | |
| | | Weave (Leisch) | - / C | | - / C | | |
| | | Basic | | 15 / B | | 16 / B | 2 |
| | El Dorado Hills on-ramp to Empire Ranch off-ramp | Weave (HCM) | 44 / E | 35 / D | ***- / F*** | 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 | |
| | | 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.
Source: Fehr & Peers, 2014

## 6.3 PEDESTRIAN AND BICYCLE CIRCULATION

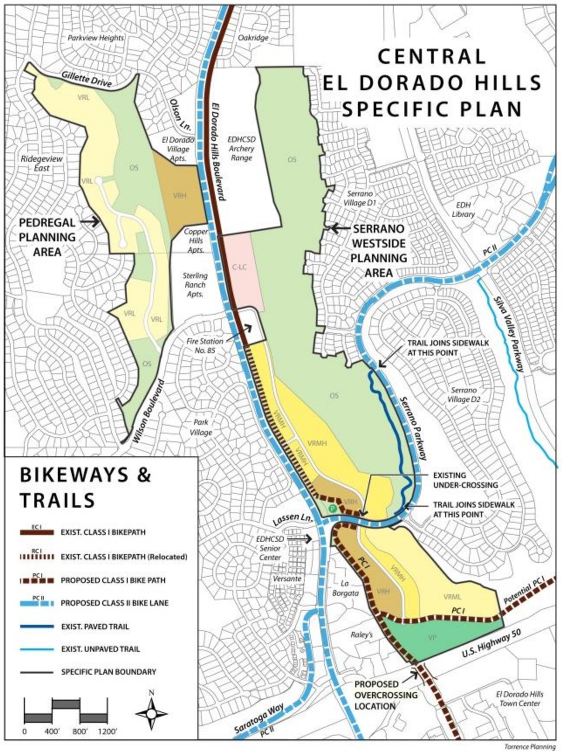
Bicycle network improvements are planned within the study area. Figure 5 identifies planned bikeways presented in the *El Dorado Bicycle Transportation Plan, 2010 Update* and the *Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 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 that would complete a connection to the planned Country Club Drive extension




*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 lanes
- Add a second southbound through lane on El Dorado Hills Boulevard between Francisco Drive and Brittany Place
- Lengthen the northbound left-turn pocket

El Dorado County is in the process of designing this improvement with construction in 2015. Implementation of this improvement would result in acceptable LOS C operation during the AM and PM peak hours. With this improvement, this impact would be **less than significant**.

If this improvement is not constructed prior to development in the project site, then the applicant would be responsible for implementing the improvement and would be subject to fee credit or reimbursement through the County's traffic impact mitigation fee program. If constructed prior to development in the project site, payment of traffic impact mitigation fees would 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, 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 are 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** | ***<u>F / 108</u>*** | ***<u>F / 98</u>*** | C / 21 | C / 25 |
| 17. Latrobe Rd/Town Center Blvd | Signal | C / 29 | E / 75 | C / 30 | ***<u>F / 128</u>*** | 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. *<u>Italic and underlined</u>* 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.

*<u>Impacts</u>*

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.**

*<u>Mitigation</u>*

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 will add ramp metering to the westbound on-ramp, which will control 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 four 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 - 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. **This is a significant impact.**

Impact 7 - 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 planned development and due to changes in travel patterns associated with the planned US 50/Silva Valley Parkway interchange. This improvement is not in the County's 2013 CIP. Since the intersection would operate unacceptably at LOS F under cumulative conditions without the project, the project is responsible for a portion of the improvement to restore operations to an acceptable level of service, relative to the traffic that the project will contribute to the intersection under cumulative conditions. The County's traffic impact mitigation fee program provides a mechanism for collecting fair share contributions for improvements in the 2013 CIP. The 2013 CIP is evaluated annually in response to planned growth. However, this improvement is not in the 2013 CIP.

The Cumulative analysis includes planned and funded 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, but with other unapproved projects. The project proponent shall work with the County, during the development agreement phase, or development of the public financing plan or like process, to evaluate and determine the appropriate mitigation measures. Appropriate mitigation measures can include construction of project, fair share payments, etc.

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**.

Mitigation 6 - However, this improvement is not in the 2013 CIP. The Cumulative analysis includes planned and funded 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, but with other unapproved projects. The project proponent shall work with the County, during the development agreement phase, or development of the public financing plan or like process, to evaluate and determine the appropriate mitigation measures. Appropriate mitigation measures can include construction of project, fair share payments, etc.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**.

The County's 2013 CIP includes widening of El Dorado Hills Boulevard as part of the ultimate improvements to the US 50 interchange, which are under construction and as a separate project between Saratoga Way/Park Drive and Serrano Parkway/Lassen Lane that will add a third southbound through lane, which is in the 2013 10-year CIP. In addition, the Saratoga Way extension (as a four-lane roadway) to Iron Point Road in the City of Folsom will improve the eastbound approach to this intersection.

Improvements to the west leg of the intersection (i.e., Saratoga Way) are needed to accommodate traffic volume increases associated primarily with the extension of Saratoga Way to Iron Point Road and not directly a result of the proposed project. The Saratoga Way Extension project will increase southbound-to-westbound traffic demand in the AM peak hour and traffic demand for the reverse movement (eastbound-to-northbound) in the PM peak hour. Consequently, most of improvements to Saratoga Way (i.e., the west leg) will not be necessary until the Saratoga Way Extension is constructed, except restriping to accommodate protected east/west left-turn phasing. However, improvements to Park Drive (i.e., east leg of the intersection) are needed to accommodate traffic from the proposed project.

Payment of traffic impact mitigation fees will satisfy the project's fair share obligation towards this improvement to the west side of the intersection related to the Saratoga Way Extension.

Mitigation 7 - 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**.

The County's 2013 CIP includes widening of El Dorado Hills Boulevard as part of the ultimate improvements to the US 50 interchange. These planned improvements will accommodate the intersection lane configurations outlined above. Payment of traffic impact mitigation fees will satisfy the project's fair share obligation towards improvements at this intersection.

**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 |
| 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 24 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 21, indicate that the addition of the project would exacerbate unacceptable operations on one study roadway segment. The following discusses this impact and associated mitigation:

Impact 8 - El Dorado Hills Boulevard (Francisco Drive to Governor Drive) – This roadway segment would 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 roadway segment during the PM peak hours. **This is a significant impact.**

Mitigation 8 - El Dorado Hills Boulevard (Francisco Drive to Governor Drive) – Implementation of the following improvements to this segment of El Dorado Hills Boulevard would result in acceptable LOS C operations during the AM and PM peak hours:

- Widen the segment of El Dorado Hills Boulevard from a two-lane arterial to a four-lane (undivided or divided) arterial.

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

Unacceptable operations on this roadway segment are due to increased traffic from planned development. This improvement is not in the County's 2013 CIP. Since the roadway segment would operate unacceptably at LOS F under cumulative conditions without the project, the project is responsible for a portion of the improvement to restore operations to an acceptable level of service, relative to the traffic that the project will contribute to the roadway under cumulative conditions.

The County's traffic impact mitigation fee program provides a mechanism for collecting fair share contributions for improvements in the 2013 CIP. The CIP is evaluated annually in response to planned growth. However, this improvement is not in the 2013 CIP. The Cumulative analysis includes planned and funded 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, but with other unapproved projects. The project proponent shall work with the County, during the development agreement phase, or development of the public financing plan or like process, to evaluate and determine the appropriate mitigation measures. Appropriate mitigation measures can include construction of project, fair share payments, etc.

**TABLE 21: ROADWAY SEGMENT PEAK HOUR LEVEL OF SERVICE – CUMULATIVE PLUS PROJECT CONDITIONS MITIGATIONS**

| Roadway | Segment | Facility Type | Cumulative Volume / Volume – Capacity (V/C) Ratio / LOS | | Cumulative + Project Volume / Volume – Capacity (V/C) Ratio / LOS | | Cumulative + Project Mitigation Volume / Volume – Capacity (V/C) Ratio / LOS | |
|---|---|---|---|---|---|---|---|---|
| | | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| El Dorado Hills Blvd | Francisco Dr to Governor Dr | 2 lane arterial | 1,450 / 0.88 / D | **1,680 / 1.02 / F** | 1,450 / 0.88 / D | ***1,670 / 1.01 / F*** | | |
| | | 4 lane arterial (Undivided) | | | | | 1,450 / 0.46 / C | 1,670 / 0.53 / C |
| | | 2 lane arterial (Divided) | | | | | 1,450 / 0.44 / C | 1,670 / 0.51 / C |

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

### 7.2.3 FREEWAY FACILITIES

Analysis results, which are presented in Table 22, indicate that the addition of the project would result in unacceptable operations on one study freeway facility. The following discusses this impact and associated mitigation:

Impact 9 - US 50 Westbound Weave Section (El Dorado Hills Boulevard to Empire Ranch Road) – The addition of project traffic will result in LOS F conditions at the US 50 westbound weave section between El Dorado Hills Boulevard and Empire Ranch Road. **This is a significant impact.**

Mitigation 9 - US 50 Westbound Weave Section (El Dorado Hills Boulevard to Empire Ranch Road) – Implement the Latrobe Road Connection (CIP Project Number 66166) as a four-lane roadway. With this improvement, this impact would be **less than significant**.

The Latrobe Road connection is in the County's 2013 CIP; however, specific design characteristics are not known at this time, so for the purposes of the transportation analysis, the Latrobe Road Connection was conservatively assumed as a two-lane connection.. The connection will improve accessibility for planned development south of US 50 and provide an alternative to the US 50/El Dorado Hills Boulevard Interchange and US 50 between El Dorado Hills Boulevard and Empire Ranch Road. For

Since the Latrobe Road Connection is in the County's 2013 CIP, payment of traffic impact mitigation fees will satisfy the project's fair share obligation towards improvements at this intersection.

**TABLE 22: 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 WB | El Dorado Hills Blvd to Empire Ranch Rd | Weave | 44 / E | 34 / D | ***<u>- / F</u>*** | 34 / D | 43 / E | 33 / D |

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. *<u>Italic and underlined</u>* 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

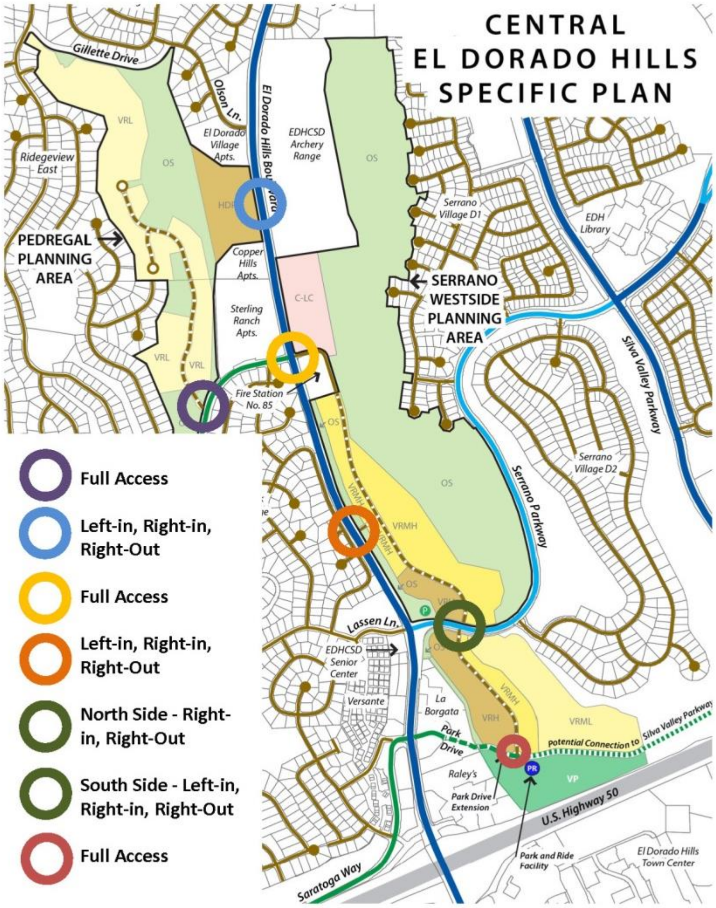
Mitigation 12 - The portion of the Serrano Westside Planning Area north of Serrano Parkway and east of El Dorado Hills Boulevard will connect to the east leg of Wilson Boulevard for access at the El Dorado Hills Boulevard/Wilson Boulevard intersection, which is also used by the El Dorado Hills Fire Department. 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 2013 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 23 compares peak hour roadway segment operation with the two connections. In Table 23, 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 23: 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 23: 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 23: 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 24 and 25 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 24: 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 25: 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 26 and 27 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 26: 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 | 125 | 225 | 125 | 200 |
| US 50 WB off-ramp at Silva Valley Parkway | 1,350 ft | 875 | 400 | 975 | 400 |

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 27: EL DORADO HILLS BLVD PROJECT DRIVEWAY'S 95$^{th}$ PERCENTILE QUEUE**

| Intersection | Movement | Available Storage | 95$^{th}$ 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] 95$^{th}$ percentile vehicle queue based on output from SimTraffic model. Values rounded to the nearest 25 feet.

Source: Fehr & Peers, 2014