

Traffic Impact Analysis

**Dixon Ranch (WO#41)
El Dorado Hills, California**

FINAL
May 9, 2012

Prepared for:

El Dorado County, California

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EXECUTIVE SUMMARY

This report documents the results of a traffic impact analysis completed for Dixon Ranch, an approximately 280-acre project which is proposed to be developed with up to 720 single-family detached units and a 3.5-acre soccer park. The project site is located south of Green Valley Road, east of Silva Valley Parkway in El Dorado Hills, California (the “proposed project” or “project”). The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA). This study was performed in accordance with the El Dorado County Department of Transportation’s *Traffic Impact Study Protocols and Procedures*, and the scope of work provided by a representative of the County.

The project site is proposed to be developed with up to 720 single-family detached dwelling units (up to 225-units in the near-term) and a 3.5-acre soccer park (included in the near-term project). Primary access to the site will be provided from Green Valley Road with secondary access to Silva Valley Parkway via Aberdeen Lane and Appian Way. The following intersections are included in this evaluation:

1. Green Valley Road @ Francisco Drive
2. Green Valley Road @ El Dorado Hills Boulevard
3. Green Valley Road @ Silva Valley Parkway
4. El Dorado Hills Boulevard @ Francisco Drive
5. El Dorado Hills Boulevard @ Serrano Parkway
6. El Dorado Hills Boulevard @ Saratoga Way (North)
7. El Dorado Hills Boulevard @ Saratoga Way (South)
8. El Dorado Hills Boulevard @ US-50 Westbound Ramps
9. Latrobe Road @ US-50 Eastbound Ramps
10. Silva Valley parkway @ US-50 Eastbound Ramps
11. Silva Valley parkway @ US-50 Westbound Ramps
12. Silva Valley Parkway @ Country Club Drive
13. Silva Valley Parkway @ Serrano Parkway
14. Silva Valley Parkway @ Harvard Way
15. Silva Valley Parkway @ Appian Way
16. Appian Way @ Aberdeen Lane
17. Green Valley Road @ Deer Valley Road
18. Green Valley Road @ Bass Lake Road
19. Green Valley Road @ Cambridge Road
20. Green Valley Road @ Cameron Park Drive
21. Green Valley Road @ Site Access Driveway

Based on the County’s requirements, this LOS analysis was conducted for the study facilities for the following scenarios:

- A. Existing (2011) Conditions
- B. Existing (2011) plus Proposed Project Conditions (225-units + soccer complex)
- C. Existing plus Approved Projects (2016) Conditions
- D. Existing plus Approved Projects (2016) plus Proposed Project Conditions (225-units + soccer complex)
- E. Cumulative (2025) Conditions
- F. Cumulative (2025) plus Proposed Project Conditions (full project)

Significant findings of this study include:

- The initial phase of the proposed project is estimated to generate 2,226 total new daily trips, with 170 trips occurring during the AM peak-hour, and 248 new trips occurring during the PM peak-hour. At full build-out, the project is anticipated to result in 6,964 total new daily trips, 541 new AM peak-hour trips, and 748 new PM peak-hour trips.
- The proposed project is not consistent with the 2004 General Plan land use designation and zoning density for the site (Low Density Residential). Therefore, the proposed project does not satisfy the first criterion for determining if a new cumulative 2025 analysis is required in addition to the analysis already completed for the County's General Plan. Additionally, according to information provided by a representative of the County, "The proposed project is located in TAZ 335 and is anticipated to exceed the growth assumed under the General Plan Build-out. Therefore, a full cumulative analysis is required. Re-run the travel demand model by adding additional 490 single family dwelling units to TAZ 335. Use the updated model runs for developing future forecasts."
- As defined by the County, the addition of the proposed project to the Existing (2011), Existing plus Approved Projects (2016), and Cumulative (2025) scenarios significantly worsens conditions at multiple study intersections. However, these impacts can be mitigated to be *less than significant*. The following is a summary of the required mitigation measures which are *presumed to be the project's sole responsibility*:

Existing (2011) plus Proposed Project

- Mitigation (M2) addition of an eastbound right-turn lane at Intersection #21 (Green Valley Road @ Site Access Driveway)

Cumulative (2025) plus Proposed Project

- Mitigation (M9) addition of a northbound right-turn lane at Intersection #15 (Silva Valley Parkway @ Appian Way)
- Mitigation (M10) addition of a northbound right-turn flare (25-feet) at Intersection #17 (Green Valley Road @ Deer Valley Road)
- Mitigation (M11) addition of traffic signal control at Intersection #21 (Green Valley Road @ Site Access Driveway)

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INTRODUCTION

This report documents the results of a traffic impact analysis completed for Dixon Ranch, an approximately 280-acre project which is proposed to be developed with up to 720 single-family detached units and a 3.5-acre soccer park. The project site is located south of Green Valley Road, east of Silva Valley Parkway in El Dorado Hills, California (the “proposed project” or “project”). The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA). This study was performed in accordance with the El Dorado County Department of Transportation’s *Traffic Impact Study Protocols and Procedures*, and the scope of work provided by a representative of the County¹.

The remaining sections of this report document the proposed project, analysis methodologies, impacts and mitigation, and general study conclusions.

PROJECT DESCRIPTION

The project site is proposed to be developed with up to 720 single-family detached dwelling units (up to 225-units in the near-term) and a 3.5-acre soccer park (included in the near-term project). Primary access to the site will be provided from Green Valley Road with secondary access to Silva Valley Parkway via Aberdeen Lane and Appian Way. The project location is shown in Figure 1, and the proposed project site plan is shown in Figure 2. The following intersections are included in this evaluation:

1. Green Valley Road @ Francisco Drive
2. Green Valley Road @ El Dorado Hills Boulevard
3. Green Valley Road @ Silva Valley Parkway
4. El Dorado Hills Boulevard @ Francisco Drive
5. El Dorado Hills Boulevard @ Serrano Parkway
6. El Dorado Hills Boulevard @ Saratoga Way (North)
7. El Dorado Hills Boulevard @ Saratoga Way (South)
8. El Dorado Hills Boulevard @ US-50 Westbound Ramps
9. Latrobe Road @ US-50 Eastbound Ramps
10. Silva Valley parkway @ US-50 Eastbound Ramps
11. Silva Valley parkway @ US-50 Westbound Ramps
12. Silva Valley Parkway @ Country Club Drive
13. Silva Valley Parkway @ Serrano Parkway
14. Silva Valley Parkway @ Harvard Way
15. Silva Valley Parkway @ Appian Way
16. Appian Way @ Aberdeen Lane
17. Green Valley Road @ Deer Valley Road
18. Green Valley Road @ Bass Lake Road
19. Green Valley Road @ Cambridge Road
20. Green Valley Road @ Cameron Park Drive
21. Green Valley Road @ Site Access Driveway

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

¹ Memorandum from Abhi Parikh, Dowling Associates, Inc., to Eileen Crawford, El Dorado County DOT, September 23, 2011.

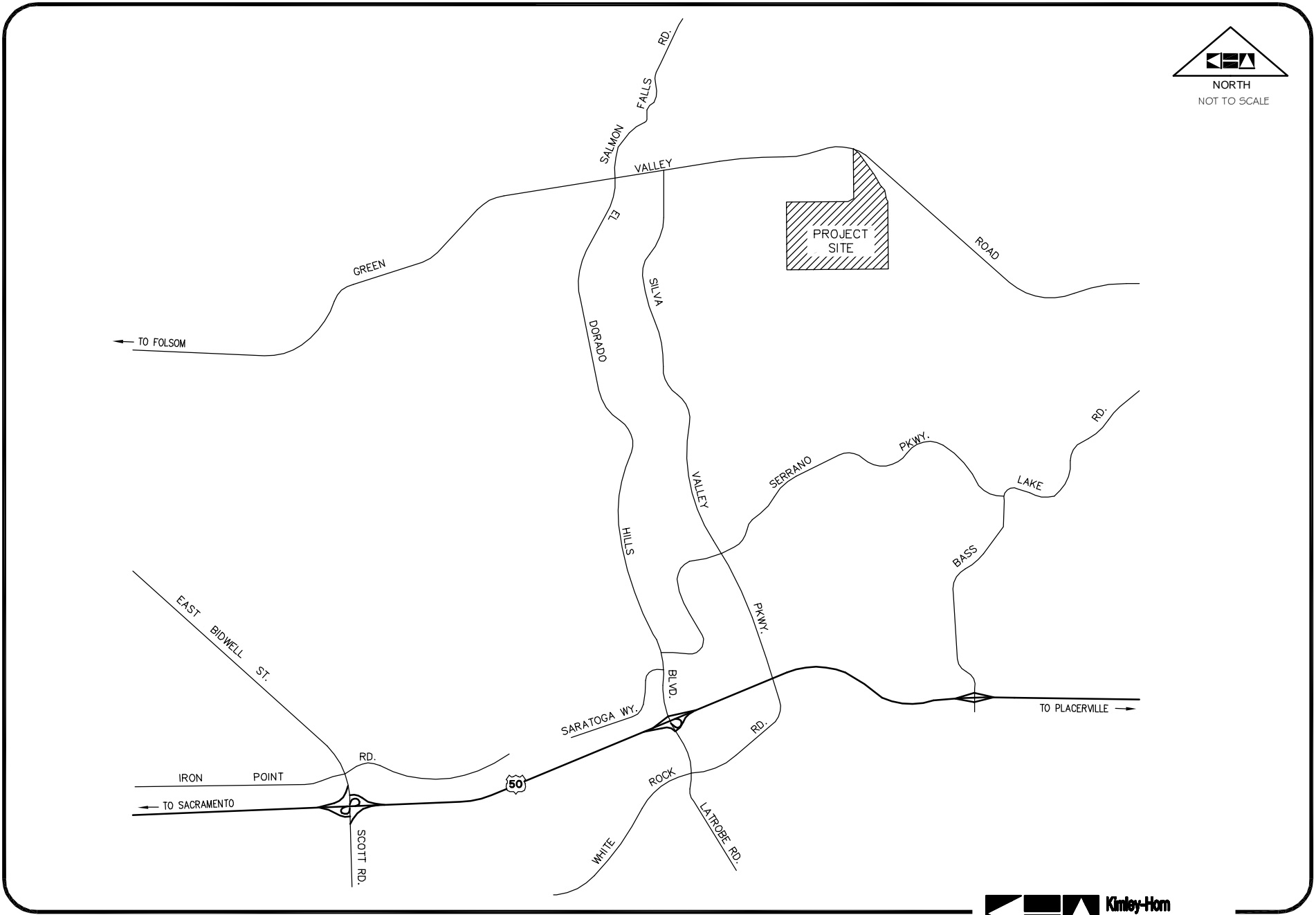


FIGURE 1
PROJECT VICINITY MAP

DIXON RANCH
EL DORADO HILLS, CA

LAND USE EXHIBIT DIXON RANCH

COUNTY OF EL DORADO

AUGUST, 2011

STATE OF CALIFORNIA

LEGEND	
	PROJECT BOUNDARY
	PLANNED DEVELOPMENT BOUNDARY
	HIGH DENSITY RESIDENTIAL 700 UNITS & 1 LIFT STATION LOT (≤ 5 UNITS PER AC)
	MEDIUM DENSITY RESIDENTIAL 4 UNITS (≥ 5 AC EA)
	LOW DENSITY RESIDENTIAL 1 UNIT (≥ 5 AC EA)
	OPEN SPACE
	PARKS
	ACTIVE VILLAGE PARK
	LANDSCAPE LOTS



SCALE: 1" = 200'



FIGURE 2 - SITE PLAN

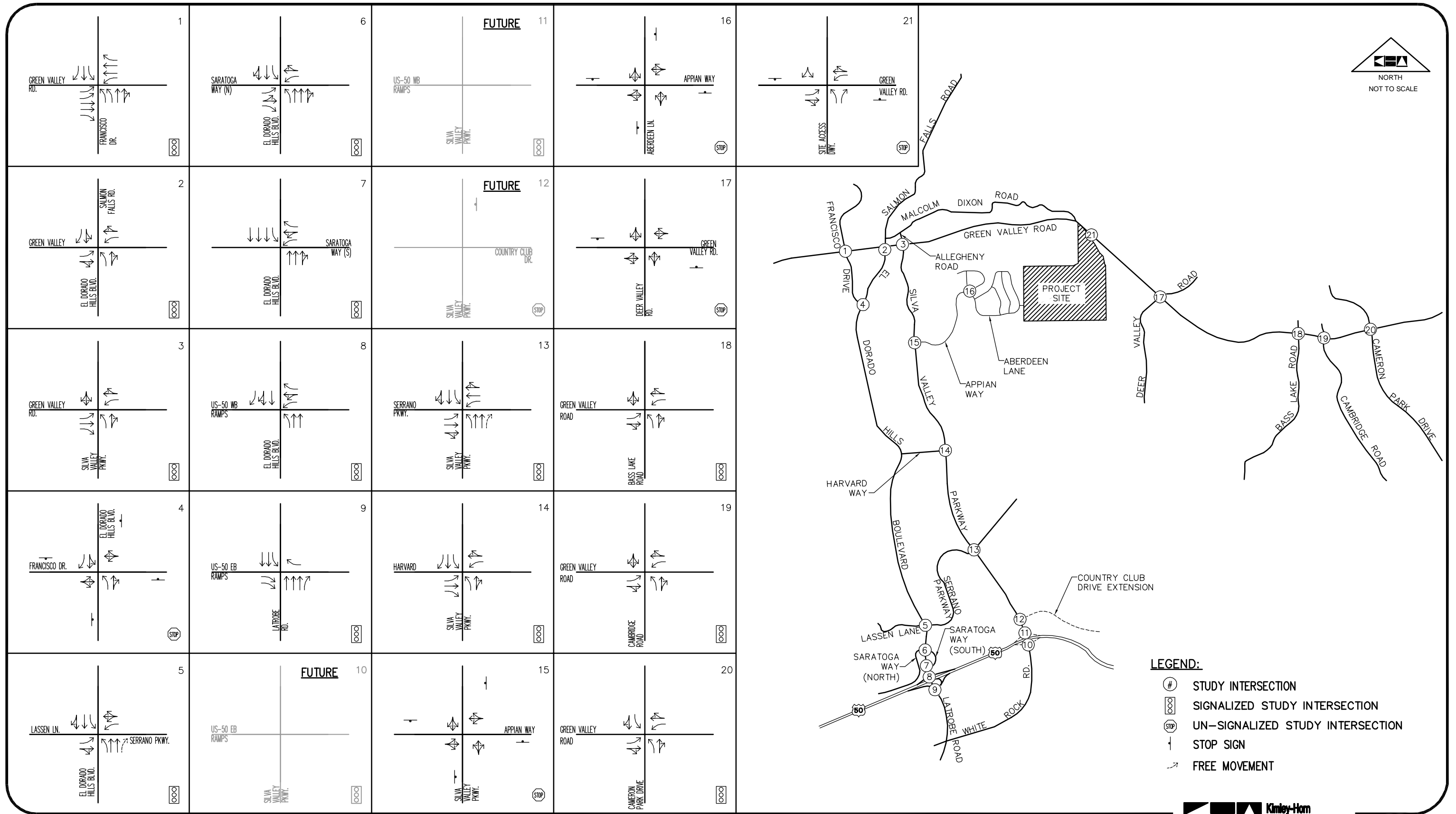


FIGURE 3
STUDY INTERSECTIONS, TRAFFIC CONTROL, AND LANE GEOMETRIES

PROJECT AREA ROADWAYS

The following are descriptions of the primary roadways in the vicinity of the project.

US Route 50 (US-50) is an east-west freeway located south of the project site. Generally, US-50 serves all of El Dorado County’s major population centers and provides connections to Sacramento County to the west and the State of Nevada to the east. Primary access to the project site from US-50 is provided at the El Dorado Hills Boulevard/Latrobe Road interchange with supplemental access via the Silva Valley Parkway interchange beginning with the year 2016 analysis scenarios. Within the general project area, US-50 currently serves approximately 93,000 vehicles per day² (vpd) with three travel lanes in each direction, west of El Dorado Hills Boulevard/Latrobe Road.

Green Valley Road is an east-west arterial 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 and serves approximately 15,000 vehicles per day³.

El Dorado Hills Boulevard is a north-south arterial roadway that provides a primary connection to US-50 for western El Dorado County. Just north of US-50 this roadway carries approximately 31,000 vpd³ with three travel lanes in each direction. North of Green Valley Road, El Dorado Hills Boulevard becomes Salmon Falls Road. At the time of this study, the US-50 interchange with El Dorado Hills Boulevard/Latrobe Road was under construction. Recently, these improvements were completed, and this configuration is assumed for year 2016 and 2025 analysis scenarios.

Silva Valley Parkway is a north-south collector roadway that connects Green Valley Road with Serrano Parkway and eventually US-50. Silva Valley Parkway provides one travel lane in each direction and serves approximately 6,000 vpd³ just south of Green Valley Road. The initial phase of a new US-50 interchange with Silva Valley Parkway was assumed to be constructed prior to the year 2016 analysis scenarios, with the ultimate configuration operational prior to the year 2025 analysis scenarios.

Appian Way and **Aberdeen Lane** are local roadways that connect the project site with Silva Valley Parkway. These are low-speed, two-lane roadways that primarily provide local residential access.

ASSESSMENT OF PROPOSED PROJECT

Proposed Project Trip Generation

The number of trips anticipated to be generated by the proposed project were derived using data included in *Trip Generation, 8th Edition*, published by the Institute of Transportation Engineers (ITE). Two scenarios were evaluated to establish near-term and long-term trip characteristics of the proposed project. The initial project development (Near-Term) is depicted in Table 1, while Table 2 reflects full build-out conditions. For the purposes of this study, the “Near-Term” project is assumed to apply to year 2011 and 2016 analysis scenarios, while the “Full Build-Out” project is assumed to apply only to year 2025 conditions.

Table 1 – Proposed Project Trip Generation (Near-Term)

Land Use (ITE Code)	Size (units/# fields)	Daily Trips	AM Peak-Hour				PM Peak-Hour					
			Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips
Single-Family Detached Housing (210)	225	2,154	169	25%	42	75%	127	227	63%	143	37%	84
Soccer Complex (488)	1	72	1	50%	1	50%	1	21	69%	14	31%	7
Total New External Trips:		2,226	170		43		127	248		158		91

Source: *Trip Generation, 8th Edition*, ITE.

² Caltrans Traffic and Vehicle Data Systems Unit, <http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2010all/index.html>

³ El Dorado County Department of Transportation, 2010.

Table 2 – Proposed Project Trip Generation (Full Build-Out)

Land Use (ITE Code)	Size (units/# fields)	Daily Trips	AM Peak-Hour				PM Peak-Hour					
			Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips
Single-Family Detached Housing (210)	720	6,892	540	25%	135	75%	405	727	63%	458	37%	269
Soccer Complex (488)	1	72	1	50%	1	50%	1	21	69%	14	31%	7
Net New External Trips:		6,964	541		136		406	748		473		276

Source: Trip Generation, 8th Edition, ITE.

As shown in Table 1, the initial phase of the proposed project is estimated to generate 2,226 total new daily trips, with 170 new trips occurring during the AM peak-hour, and 248 new trips occurring during the PM peak-hour. The full build-out of the proposed project (Table 2) is anticipated to result in 6,964 total new daily trips, 541 new AM peak-hour trips, and 748 new PM peak-hour trips.

Proposed Project Trip Distribution

The distribution of project traffic was based on information approved and provided by a representative of the County¹. The project trip distribution percentages for all analysis scenarios are illustrated in Figure 4. The resulting AM and PM peak-hour traffic volumes attributed to the proposed project are illustrated in Figure 5 and Figure 6.

TRAFFIC IMPACT ANALYSIS METHODOLOGY

Analysis of transportation facility significant environmental impacts is based on the concept of Level of Service (LOS). The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual, 2000* (HCM) and appropriate traffic analysis software.

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

Table 3 – Intersection Level of Service Criteria

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

Source: Highway Capacity Manual, 2000
* Applied to the worst lane/lane group(s) for TWSC

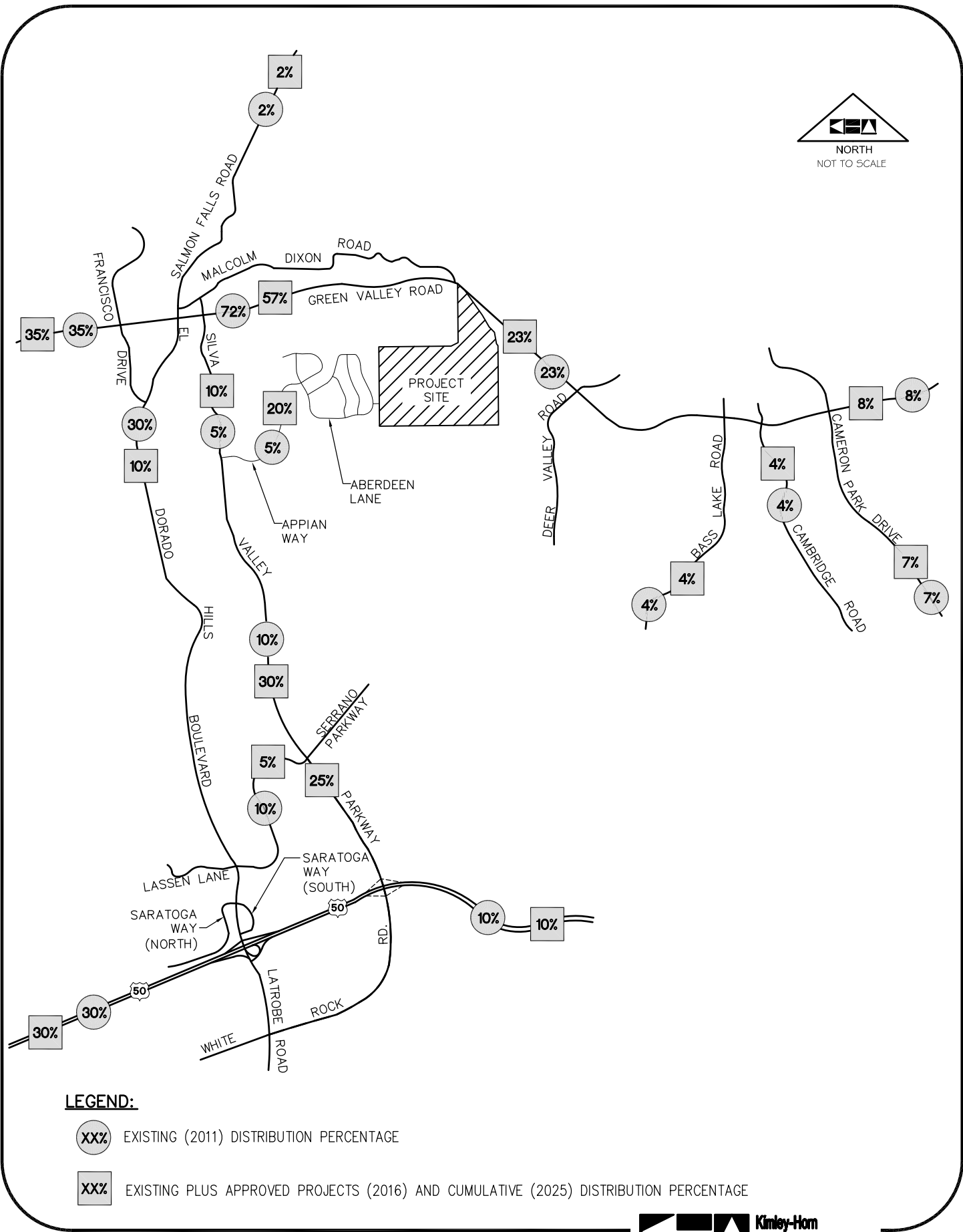


FIGURE 4
 PROPOSED PROJECT TRIP DISTRIBUTION

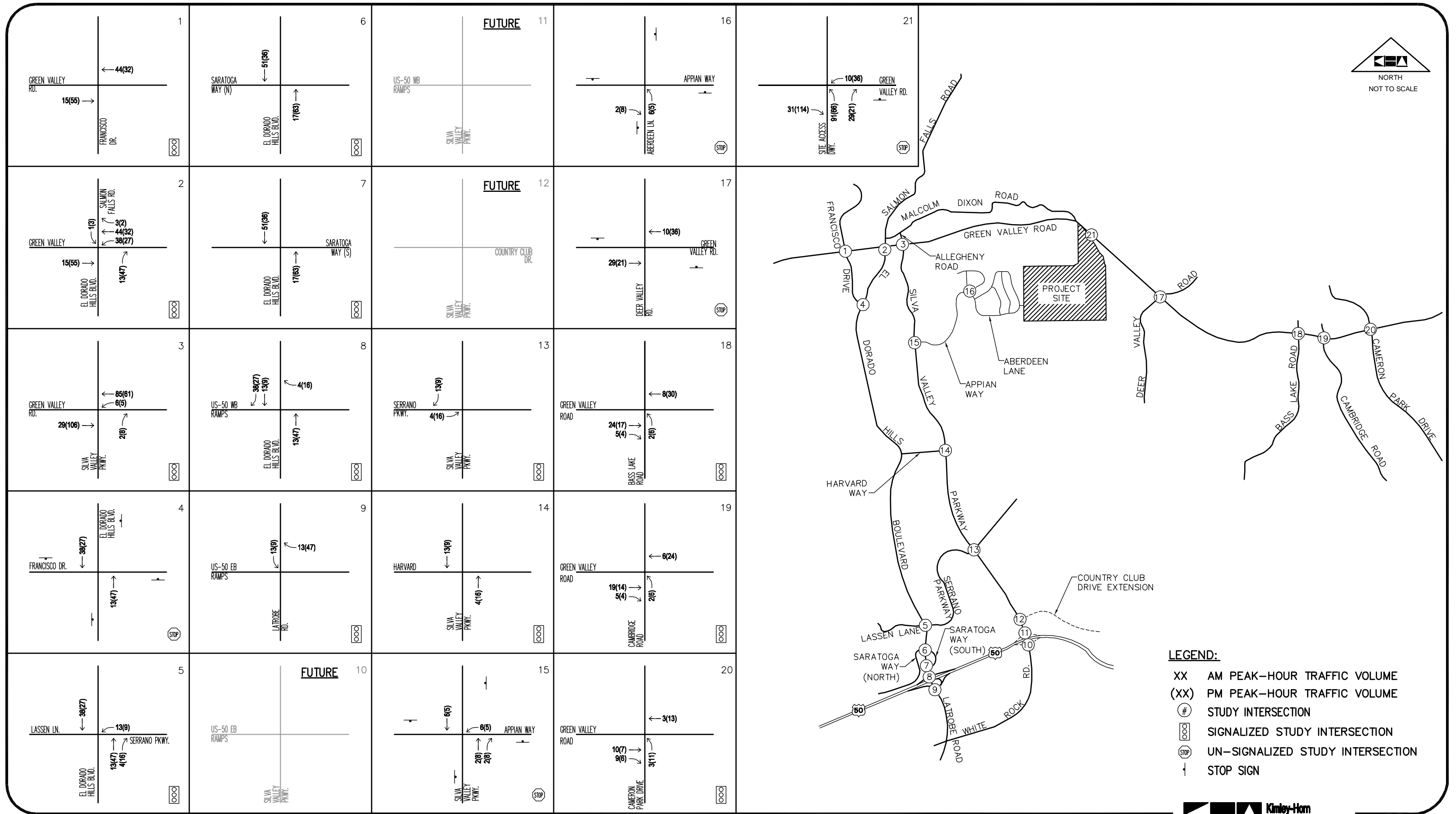


FIGURE 5
 PROPOSED PROJECT TRIP ASSIGNMENT (EXISTING (2011))

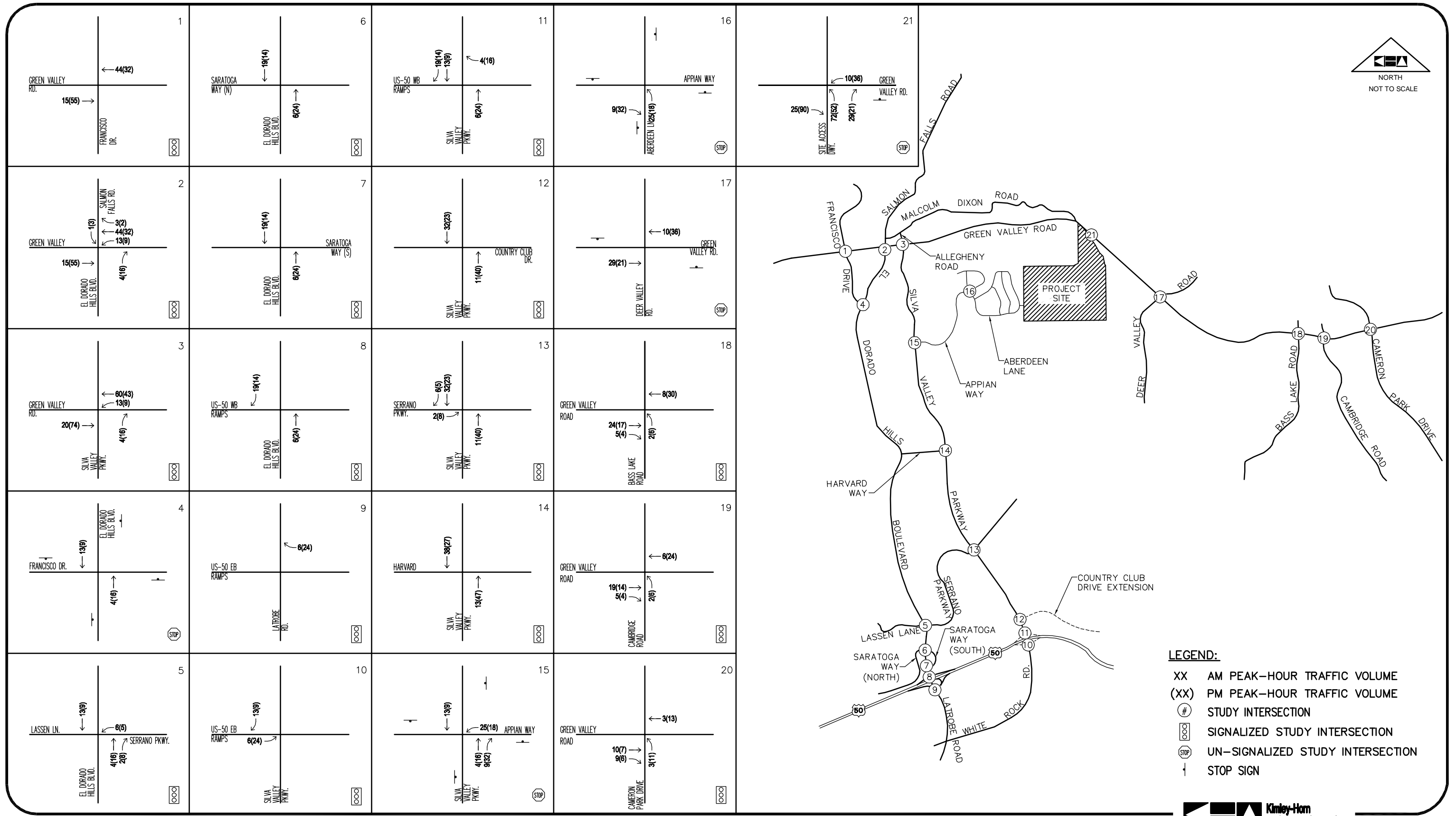


FIGURE 6
 PROPOSED PROJECT TRIP ASSIGNMENT (EXISTING PLUS APPROVED PROJECTS (2016))

Consistency with General Plan Land Use Designation

According to the County's *Protocols*:

"[A] Each traffic impact study must provide a review of a proposed project's consistency with the land use designations and zoning densities of the 2004 County General Plan to determine if the project is consistent with such designation(s) as applicable within the proposed project area...[B] If a proposed project is of a magnitude that is clearly within the amount of development which was anticipated in the traffic study conducted for the General Plan, then the General Plan's traffic analysis will serve as the basis for the cumulative traffic analysis of the project."

The proposed project is not consistent with the *2004 General Plan* land use designation and zoning density for the site (Low Density Residential)⁴. Therefore, the proposed project does satisfy the first criterion [A] for determining if a new cumulative 2025 analysis is required in addition to the analysis already completed for the County's *General Plan*. Additionally, regarding the second criterion [B], according to information provided by a representative of the County¹, "The proposed project is located in TAZ 335 and is anticipated to exceed the growth assumed under the *General Plan* Build-out. Therefore, a full cumulative analysis is required. Re-run the travel demand model by adding additional 490 single family dwelling units to TAZ 335. Use the updated model runs for developing future forecasts."

Based on the above criteria and the County's requirements, this LOS analysis was conducted for the study facilities for the following scenarios:

- A. Existing (2011) Conditions
- B. Existing (2011) plus Proposed Project Conditions (225-units + soccer complex)
- C. Existing plus Approved Projects (2016) Conditions
- D. Existing plus Approved Projects (2016) plus Proposed Project Conditions (225-units + soccer complex)
- E. Cumulative (2025) Conditions
- F. Cumulative (2025) plus Proposed Project Conditions (full project)

The following is a discussion of the analyses for these scenarios.

EXISTING (2011) CONDITIONS

Sixteen (16) new weekday AM and PM peak-period intersection turning movement traffic counts were conducted in October and November 2011. These counts were conducted between the hours of 6:30 a.m. and 9:30 a.m., and 3:30 p.m. and 6:30 p.m. Counts for the El Dorado Hills Boulevard intersection with Francisco Drive were obtained from a recently completed traffic study⁵. For this intersection, existing count data were increased to represent current year (2011) conditions using a straight line growth rate from existing (1998) model conditions to year 2025 projected volumes. The other four (4) study intersections either do not exist today, or were determined to not require analysis due to near-term project trip distribution (fewer than 10 project trips). Therefore, these four (4) locations are not contemplated in this analysis scenario.

Existing (2011) peak-hour turn movement volumes are presented in Figure 7, and the traffic count data sheets are provided in Appendix A. Table 4 presents the peak-hour intersection operating conditions for this analysis scenario.

⁴ *2004 General Plan Land Use Diagram*, El Dorado County Planning Department.

⁵ *Wilson Estates (WO#38) Final Traffic Impact Analysis*, Kimley-Horn and Associates, Inc., March 3, 2011.

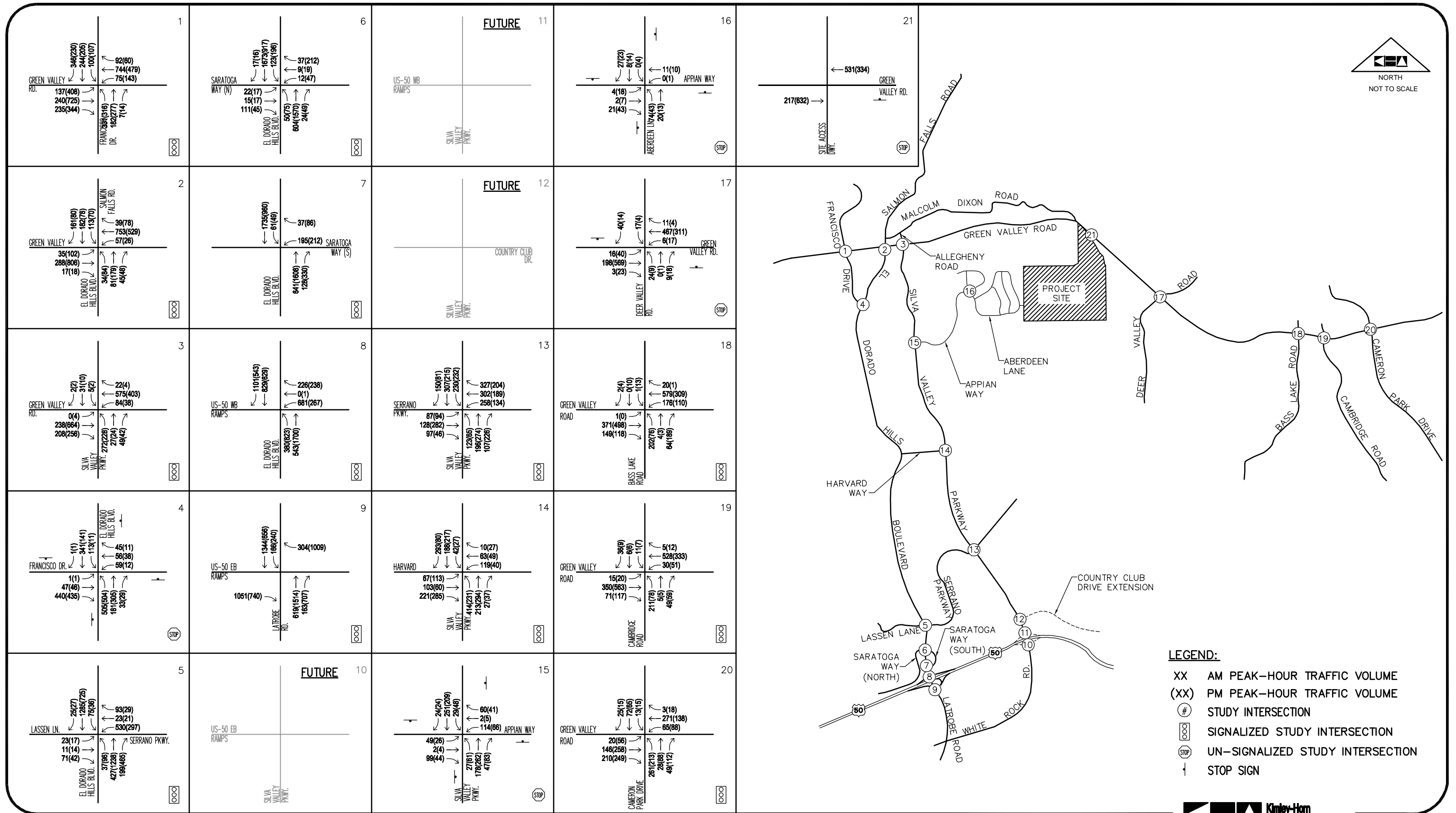


FIGURE 7
EXISTING (2011) PEAK-HOUR TRAFFIC VOLUMES

Table 4 – Existing (2011) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Green Valley Road @ Francisco Drive	Signal	31.9	C	56.2	E
2	Green Valley Road @ El Dorado Hills Boulevard	Signal	62.2	E	53.3	D
3	Green Valley Road @ Silva Valley Parkway	Signal	24.8	C	22.5	C
4	El Dorado Hills Boulevard @ Francisco Drive	AWSC	94.3	F	51.1	F
5	El Dorado Hills Boulevard @ Serrano Parkway	Signal	34.0	C	16.5	B
6	El Dorado Hills Boulevard @ Saratoga Way (North)	Signal	12.2	B	17.6	B
7	El Dorado Hills Boulevard @ Saratoga Way (South)	Signal	6.3	A	9.2	A
8	El Dorado Hills Boulevard @ US-50 WB Ramps	Signal	72.7	E	30.0	C
9	Latrobe Road @ US-50 EB Ramps	Signal	13.0	B	11.0	B
10	Silva Valley Parkway @ US-50 EB Ramps	<i>Not Studied in this Analysis Scenario</i>				
11	Silva Valley Parkway @ US-50 WB Ramps					
12	Silva Valley Parkway @ Country Club Drive					
13	Silva Valley Parkway @ Serrano Parkway	Signal	36.0	D	25.3	C
14	Silva Valley Parkway @ Harvard Way	Signal	31.8	C	21.8	C
15	Silva Valley Parkway @ Appian Way	AWSC	16.1	C	14.4	B
16	Appian Way @ Aberdeen Lane	AWSC	7.6	A	7.4	A
17	Green Valley Road @ Deer Valley Road	TWSC*	20.1 (NB)	C	19.9 (NB)	C
18	Green Valley Road @ Bass Lake Road	Signal	33.8	C	30.9	C
19	Green Valley Road @ Cambridge Road	Signal	30.2	C	23.1	C
20	Green Valley Road @ Cameron Park Drive	Signal	44.6	D	49.9	D
21	Green Valley Road @ Site Access Driveway	<i>Plus Project Scenarios Only</i>				

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**

As indicated in Table 4, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in Appendix B.

EXISTING (2011) PLUS PROPOSED PROJECT CONDITIONS

Peak-hour traffic associated with Phase 1 of the proposed project (225-units plus soccer complex) was added to the existing traffic volumes and levels of service were determined at the study intersections. Table 5 provides a summary of the intersection analysis and Figure 8 provides the AM and PM peak-hour traffic volumes at the study intersections for this analysis scenario.

As indicated in Table 5, the study intersections operate from LOS A to LOS F with the addition of project traffic during the AM and PM peak-hours. The analysis worksheets for this scenario are provided in Appendix C.

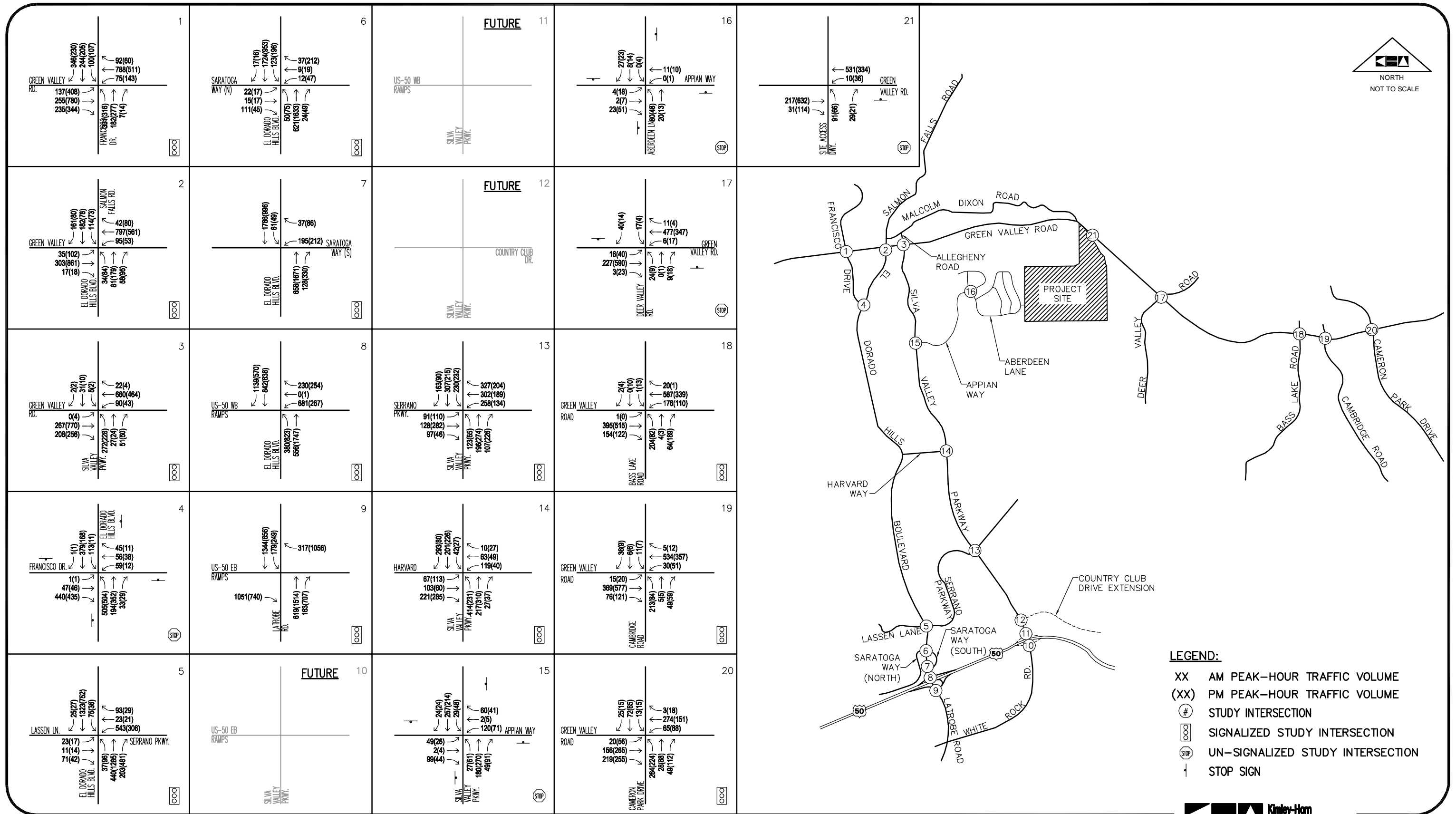


FIGURE 8
EXISTING (2011) PLUS PROPOSED PROJECT PEAK-HOUR TRAFFIC VOLUMES

Table 5 – Existing (2011) and Existing (2011) plus Proposed Project Intersection Levels of Service

#	Intersection	Analysis Scenario ⁺	Traffic Control	AM Peak-Hour		PM Peak-Hour		
				Delay (sec)	LOS	Delay (sec)	LOS	
1	Green Valley Road @ Francisco Drive	Exist.	Signal	31.9	C	56.2	E	
		Exist.+PP		32.3	C	57.3	E	
2	Green Valley Road @ El Dorado Hills Boulevard	Exist.	Signal	62.2	E	53.3	D	
		Exist.+PP		72.9	E	78.3	E	
3	Green Valley Road @ Silva Valley Parkway	Exist.	Signal	24.8	C	22.5	C	
		Exist.+PP		26.7	C	25.9	C	
4	El Dorado Hills Boulevard @ Francisco Drive	Exist.	AWSC	94.3	F	51.1	F	
		Exist.+PP		101.5	F	54.5	F	
5	El Dorado Hills Boulevard @ Serrano Parkway	Exist.	Signal	34.0	C	16.5	B	
		Exist.+PP		34.9	C	16.5	B	
6	El Dorado Hills Boulevard @ Saratoga Way (North)	Exist.	Signal	12.2	B	17.6	B	
		Exist.+PP		12.1	B	17.2	B	
7	El Dorado Hills Boulevard @ Saratoga Way (South)	Exist.	Signal	6.3	A	9.2	A	
		Exist.+PP		6.1	A	9.5	A	
8	El Dorado Hills Boulevard @ US-50 WB Ramps	Exist.	Signal	72.7	E	30.0	C	
		Exist.+PP		79.3	E	32.1	C	
9	Latrobe Road @ US-50 EB Ramps	Exist.	Signal	13.0	B	11.0	B	
		Exist.+PP		13.1	B	11.1	B	
10	Silva Valley Parkway @ US-50 EB Ramps	Exist. Exist.+PP	<i>Not Studied in these Analysis Scenarios</i>					
11	Silva Valley Parkway @ US-50 WB Ramps	Exist. Exist.+PP						
12	Silva Valley Parkway @ Country Club Drive	Exist. Exist.+PP						
13	Silva Valley Parkway @ Serrano Parkway	Exist. Exist.+PP		Signal	36.0 36.5	D D	25.3 26.0	C C
14	Silva Valley Parkway @ Harvard Way	Exist. Exist.+PP		Signal	31.8 32.1	C C	21.8 21.8	C C
15	Silva Valley Parkway @ Appian Way	Exist.	AWSC	16.1	C	14.4	B	
		Exist.+PP		16.7	C	15.2	C	
16	Appian Way @ Aberdeen Lane	Exist.	AWSC	7.6	A	7.4	A	
		Exist.+PP		7.7	A	7.5	A	
17	Green Valley Road @ Deer Valley Road	Exist.	TWSC*	20.1 (NB)	C	19.9 (NB)	C	
		Exist.+PP		21.5 (NB)	C	21.3 (NB)	C	
18	Green Valley Road @ Bass Lake Road	Exist.	Signal	33.8	C	30.9	C	
		Exist.+PP		36.6	D	33.3	C	
19	Green Valley Road @ Cambridge Road	Exist.	Signal	30.2	C	23.1	C	
		Exist.+PP		30.8	C	23.8	C	
20	Green Valley Road @ Cameron Park Drive	Exist.	Signal	44.6	D	49.9	D	
		Exist.+PP		49.0	D	54.0	D	
21	Green Valley Road @ Site Access Driveway	Exist.	TWSC*	<i>Plus Project Scenarios Only</i>				
		Exist.+PP		21.3 (NB)	C	37.8 (NB)	E	

⁺ Exist. = Existing (2011), Exist. + PP = Existing (2011) plus Proposed Project (225-Units plus soccer complex)
^{*} Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**

EXISTING PLUS APPROVED PROJECTS (2016) CONDITIONS

Two approaches were used in the development of background traffic volumes for this analysis scenario.

First, for the fifteen (15) study intersections that are not common with the study facilities found in the traffic study for the US-50 interchange with Silva Valley Parkway⁶, as required by the County, two conditions were evaluated to determine the worst case approximation of near-term study area roadway traffic volumes. Traffic associated with approved projects in the vicinity of the proposed project as documented in a previous study⁷, as well as project traffic associated with four additional projects (Parkes Property - WO#101, Diamante Estates - WO #16, Wilson Estates – WO#38, and Green Valley Center – WO#39) were combined and added to the Existing (2011) traffic conditions. Next, five years of projected growth as derived from the County’s travel demand model output was applied to the Existing (2011) traffic conditions. For this second condition, peak-hour traffic volumes for the study area roadway segments were obtained from a representative of the County for the years 1998 and 2025⁸. Using the 1998 and 2025 model data, percent annual peak growth rates were determined for each roadway segment direction and were then extended to five-year growth rates. The study intersections’ Existing (2011) peak-hour traffic volumes were then increased by these five year growth rates (by direction) to obtain forecasted (year 2016) traffic conditions. These two volume conditions were compared and for each intersection and each time period (AM peak-hour and PM peak-hour) the worst case traffic conditions were utilized. A list of approved projects and details regarding the comparison of year 2016 traffic conditions are presented in Appendix D.

Second, for the six (6) study intersections that are common with the study facilities found in the traffic study for the US-50 interchange with Silva Valley Parkway⁶, year 2016 traffic volumes were developed by “back-casting” 2 percent per year from 2020 conditions.

For all study intersections, traffic volumes were balanced as deemed appropriate based on the presence of intermediate driveways and/or cross-streets.

Figure 9 indicates lane configurations assumed to be constructed for Existing plus Approved Projects (2016) and Cumulative (2025) Conditions. Table 6 provides a summary of the intersection analysis and Figure 10 provides the AM and PM traffic volumes for this analysis scenario. As indicated in Table 6, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours. The analysis worksheets for this scenario are provided in Appendix E.

⁶ *Final Traffic Operations Study for: US-50 Silva Valley Interchange*, Dowling Associates, Inc., July 22, 2010.

⁷ *Parkes Property Traffic Impact Analysis (WO #101)*, Kimley-Horn and Associates, Inc., January 24, 2008.

⁸ Dowling Associates, Inc., <ftp://ftp.dowlinginc.com>.

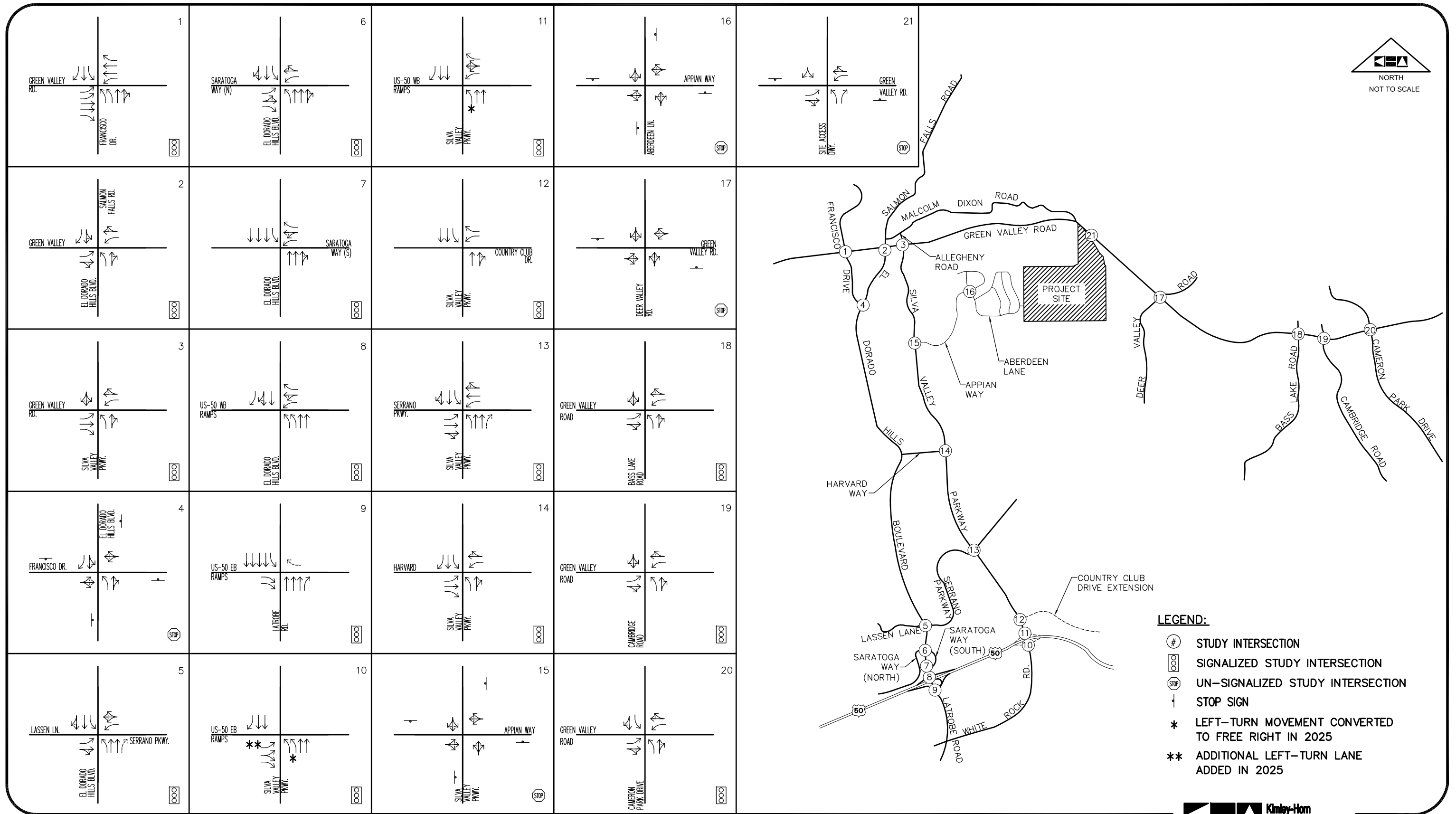


FIGURE 9
EXISTING PLUS APPROVED PROJECTS (2016) AND CUMULATIVE (2025) INTERSECTION CONFIGURATIONS

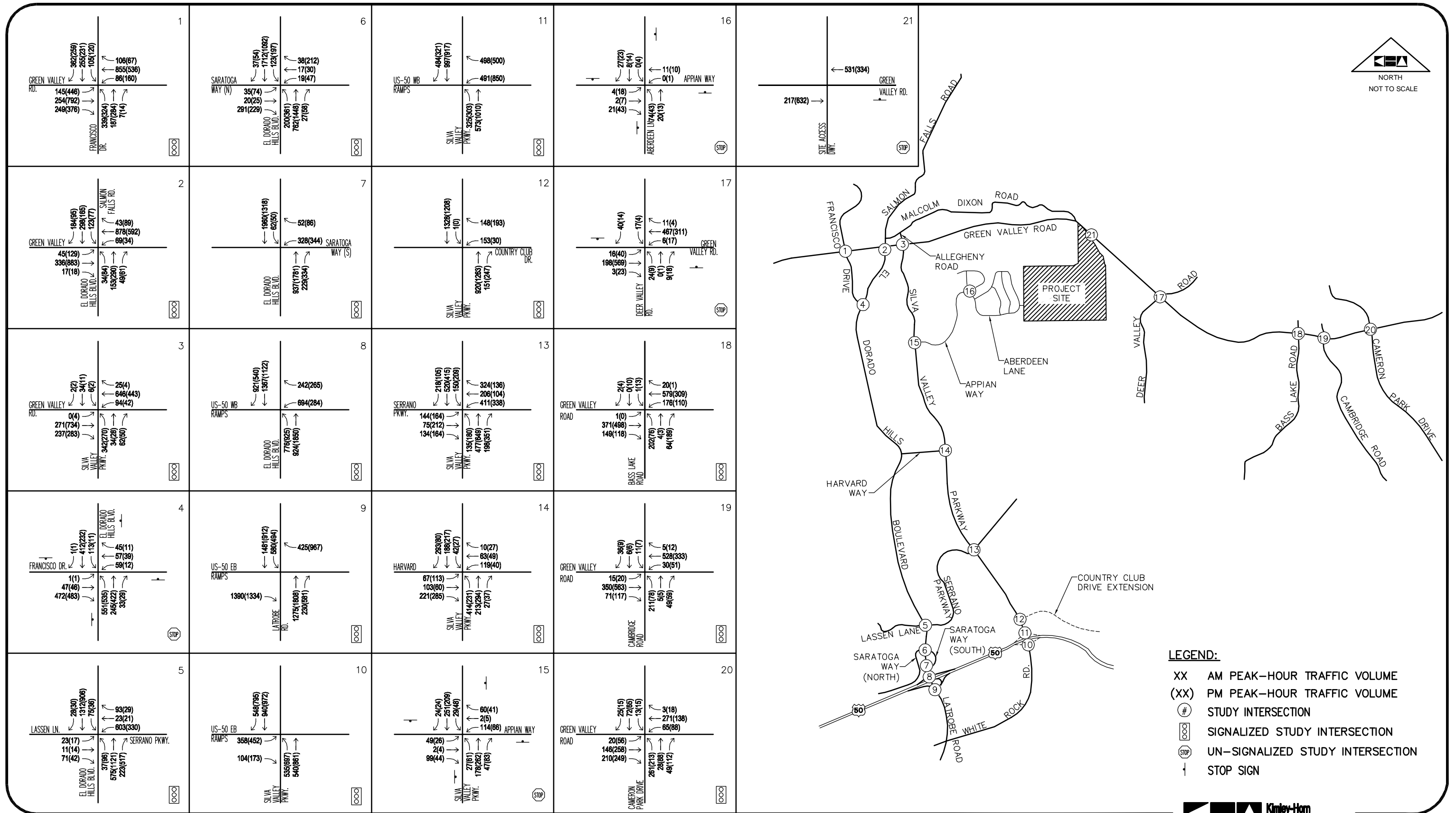


FIGURE 10
EXISTING PLUS APPROVED PROJECTS (2016) PEAK-HOUR TRAFFIC VOLUMES

Table 6 – Existing plus Approved Projects (2016) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Green Valley Road @ Francisco Drive	Signal	33.0	C	37.4	D
2	Green Valley Road @ El Dorado Hills Boulevard	Signal	90.7	F	83.7	F
3	Green Valley Road @ Silva Valley Parkway	Signal	25.4	C	23.6	C
4	El Dorado Hills Boulevard @ Francisco Drive	AWSC	130.4	F	90.0	F
5	El Dorado Hills Boulevard @ Serrano Parkway	Signal	30.9	C	16.7	B
6	El Dorado Hills Boulevard @ Saratoga Way (North)	Signal	33.6	C	42.2	D
7	El Dorado Hills Boulevard @ Saratoga Way (South)	Signal	7.9	A	10.1	B
8	El Dorado Hills Boulevard @ US-50 WB Ramps	Signal	49.7	D	27.2	C
9	Latrobe Road @ US-50 EB Ramps	Signal	10.6	B	13.3	B
10	Silva Valley Parkway @ US-50 EB Ramps	Signal	23.2	C	39.8	D
11	Silva Valley Parkway @ US-50 WB Ramps	Signal	27.3	C	34.5	C
12	Silva Valley Parkway @ Country Club Drive	Signal	9.7	A	8.1	A
13	Silva Valley Parkway @ Serrano Parkway	Signal	36.1	D	52.1	D
14	Silva Valley Parkway @ Harvard Way	Signal	27.6	C	20.1	C
15	Silva Valley Parkway @ Appian Way	AWSC	12.3	B	12.9	B
16	Appian Way @ Aberdeen Lane	AWSC	7.4	A	7.3	A
17	Green Valley Road @ Deer Valley Road	TWSC*	17.4 (NB)	C	18.4 (NB)	C
18	Green Valley Road @ Bass Lake Road	Signal	23.9	C	25.3	C
19	Green Valley Road @ Cambridge Road	Signal	25.8	C	23.0	C
20	Green Valley Road @ Cameron Park Drive	Signal	61.8	E	51.0	D
21	Green Valley Road @ Site Access Driveway	<i>Plus Project Scenarios Only</i>				

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**

EXISTING PLUS APPROVED PROJECTS (2016) PLUS PROPOSED PROJECT CONDITIONS

Peak-hour traffic associated with Phase 1 of the proposed project (225-units plus soccer complex) was added to the Existing plus Approved Projects (2016) traffic volumes and levels of service were determined at the study intersections. Table 7 provides a summary of the intersection operating conditions for this analysis scenario. Figure 11 provides the AM and PM traffic volumes for this analysis scenario.

As indicated in Table 7, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours. The analysis worksheets for this scenario are provided in Appendix F.

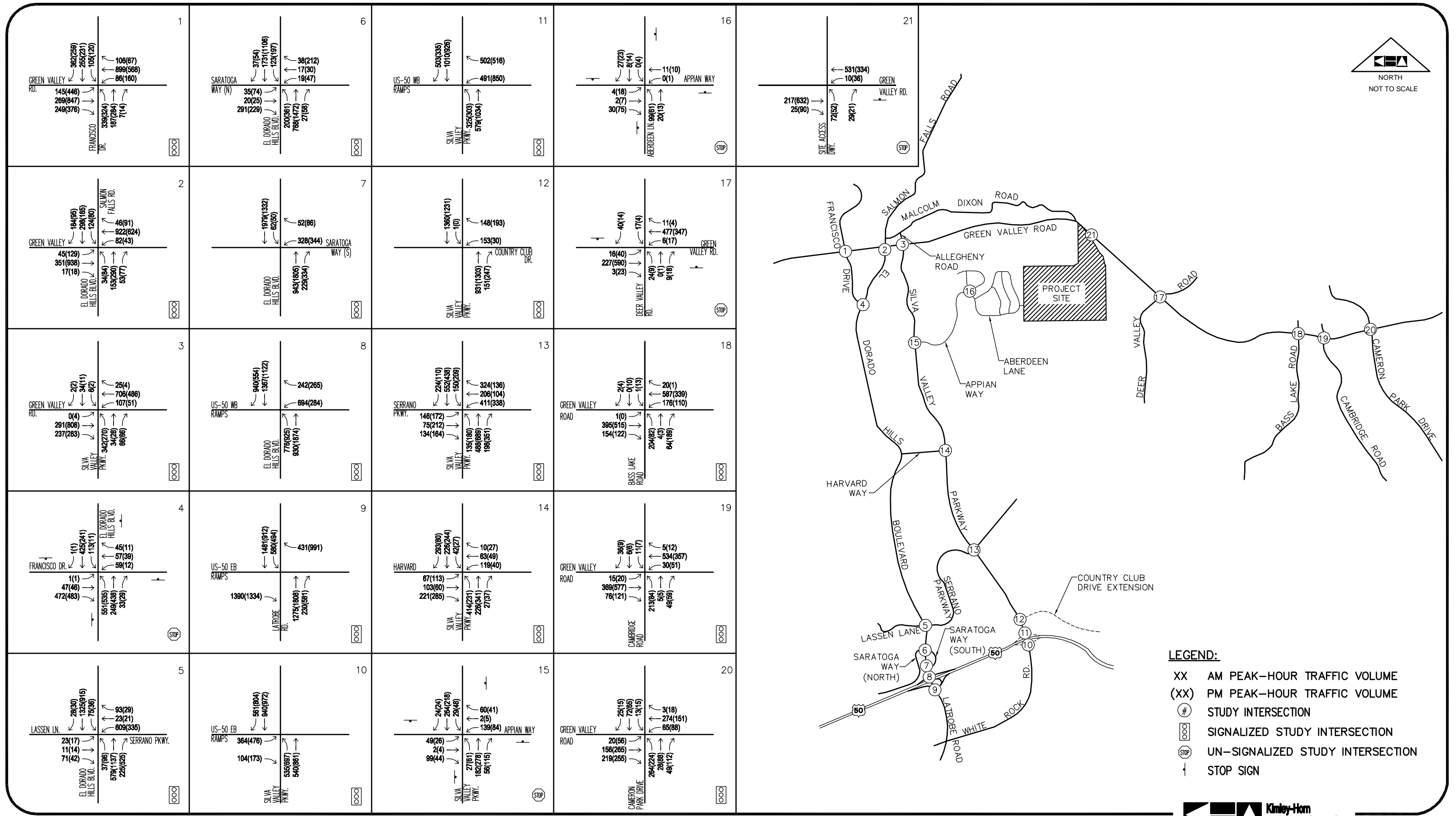


FIGURE 11
 EXISTING PLUS APPROVED PROJECTS (2016) PLUS PROPOSED PROJECT PEAK-HOUR TRAFFIC VOLUMES

Table 7 – Existing plus Approved Projects (2016) and Existing plus Approved Projects (2016) plus Proposed Project Intersection Levels of Service

#	Intersection	Analysis Scenario ⁺	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	Green Valley Road @ Francisco Drive	EPAP	Signal	33.0	C	37.4	D
		EPAP+PP		33.8	C	38.7	D
2	Green Valley Road @ El Dorado Hills Boulevard	EPAP	Signal	90.7	F	83.7	F
		EPAP+PP		100.7	F	99.3	F
3	Green Valley Road @ Silva Valley Parkway	EPAP	Signal	25.4	C	23.6	C
		EPAP+PP		27.1	C	26.5	C
4	El Dorado Hills Boulevard @ Francisco Drive	EPAP	AWSC	130.4	F	90.0	F
		EPAP+PP		132.3	F	88.0	F
5	El Dorado Hills Boulevard @ Serrano Parkway	EPAP	Signal	30.9	C	16.7	B
		EPAP+PP		31.2	C	16.7	B
6	El Dorado Hills Boulevard @ Saratoga Way (North)	EPAP	Signal	33.6	C	42.2	D
		EPAP+PP		33.5	C	41.8	D
7	El Dorado Hills Boulevard @ Saratoga Way (South)	EPAP	Signal	7.9	A	10.1	B
		EPAP+PP		7.8	A	10.0	B
8	El Dorado Hills Boulevard @ US-50 WB Ramps	EPAP	Signal	49.7	D	27.2	C
		EPAP+PP		51.2	D	27.3	C
9	Latrobe Road @ US-50 EB Ramps	EPAP	Signal	10.6	B	13.3	B
		EPAP+PP		10.6	B	13.3	B
10	Silva Valley Parkway @ US-50 EB Ramps	EPAP	Signal	23.2	C	39.8	D
		EPAP+PP		23.3	C	41.7	D
11	Silva Valley Parkway @ US-50 WB Ramps	EPAP	Signal	27.3	C	34.5	C
		EPAP+PP		27.6	C	34.8	C
12	Silva Valley Parkway @ Country Club Drive	EPAP	Signal	9.7	A	8.1	A
		EPAP+PP		9.7	A	8.3	A
13	Silva Valley Parkway @ Serrano Parkway	EPAP	Signal	36.1	D	52.1	D
		EPAP+PP		36.9	D	53.0	D
14	Silva Valley Parkway @ Harvard Way	EPAP	Signal	27.6	C	20.1	C
		EPAP+PP		28.8	C	20.2	C
15	Silva Valley Parkway @ Appian Way	EPAP	AWSC	12.3	B	12.9	B
		EPAP+PP		13.2	B	14.8	B
16	Appian Way @ Aberdeen Lane	EPAP	AWSC	7.4	A	7.3	A
		EPAP+PP		7.6	A	7.5	A
17	Green Valley Road @ Deer Valley Road	EPAP	TWSC*	17.4 (NB)	C	18.4 (NB)	C
		EPAP+PP		18.3 (NB)	C	19.6 (NB)	C
18	Green Valley Road @ Bass Lake Road	EPAP	Signal	23.9	C	25.3	C
		EPAP+PP		24.5	C	26.2	C
19	Green Valley Road @ Cambridge Road	EPAP	Signal	25.8	C	23.0	C
		EPAP+PP		26.2	C	22.9	C
20	Green Valley Road @ Cameron Park Drive	EPAP	Signal	61.8	E	51.0	D
		EPAP+PP		62.7	E	54.6	D
21	Green Valley Road @ Site Access Driveway	EPAP	TWSC*	<i>Plus Project Scenarios Only</i>			
		EPAP+PP		19.5 (NB)	C	32.7 (NB)	D

⁺ EPAP = Existing plus Approved Projects (2016), EPAP + PP = Existing plus Approved Projects plus Proposed Project (225-units plus soccer complex). * Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**

CUMULATIVE (2025) CONDITIONS

Two approaches were used in the development of background traffic volumes for this analysis scenario.

First, for the six (6) study intersections that are not common with the study facilities found in the traffic study for the US-50 interchange with Silva Valley Parkway⁶, a straight line growth rate was calculated based on existing (1998) and 2025 model volumes. This growth rate was then applied to year 2011 volumes to approximate year 2025 conditions for these intersections. Second, for the intersections that are common with the study facilities found in the traffic study for the US-50 interchange with Silva Valley Parkway⁶, year 2025 traffic volumes were developed by interpolating between year 2020 and year 2030 conditions.

For all study intersections, traffic volumes were balanced as deemed appropriate based on the presence of intermediate driveways and/or cross-streets.

Table 8 provides a summary of the intersection analysis and Figure 12 provides the AM and PM traffic volumes for this analysis scenario. As indicated in Table 8, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours. The analysis worksheets for this scenario are provided in Appendix G.

CUMULATIVE (2025) PLUS PROPOSED PROJECT CONDITIONS

As previously established, according to information provided by a representative of the County¹, “The proposed project is located in TAZ 335 and is anticipated to exceed the growth assumed under the *General Plan* Build-out. Therefore, a full cumulative analysis is required. Re-run the travel demand model by adding additional 490 single family dwelling units to TAZ 335. Use the updated model runs for developing future forecasts.” As such, the County’s travel demand model was updated to include the additional 490 single-family dwelling units within TAZ 335.

Model runs both without and with these additional units were generated, and the difference (the “delta”) between the runs was added to the Cumulative (2025) traffic volumes to establish conditions for this analysis scenario. Levels of service were then determined at the study intersections. Table 9 provides a summary of the intersection analysis and Figure 13 provides the AM and PM traffic volumes for this analysis scenario.

As indicated in Table 9, the study intersections operate from LOS A to LOS F during the AM and PM peak-hours. The analysis worksheets for this scenario are provided in Appendix H.

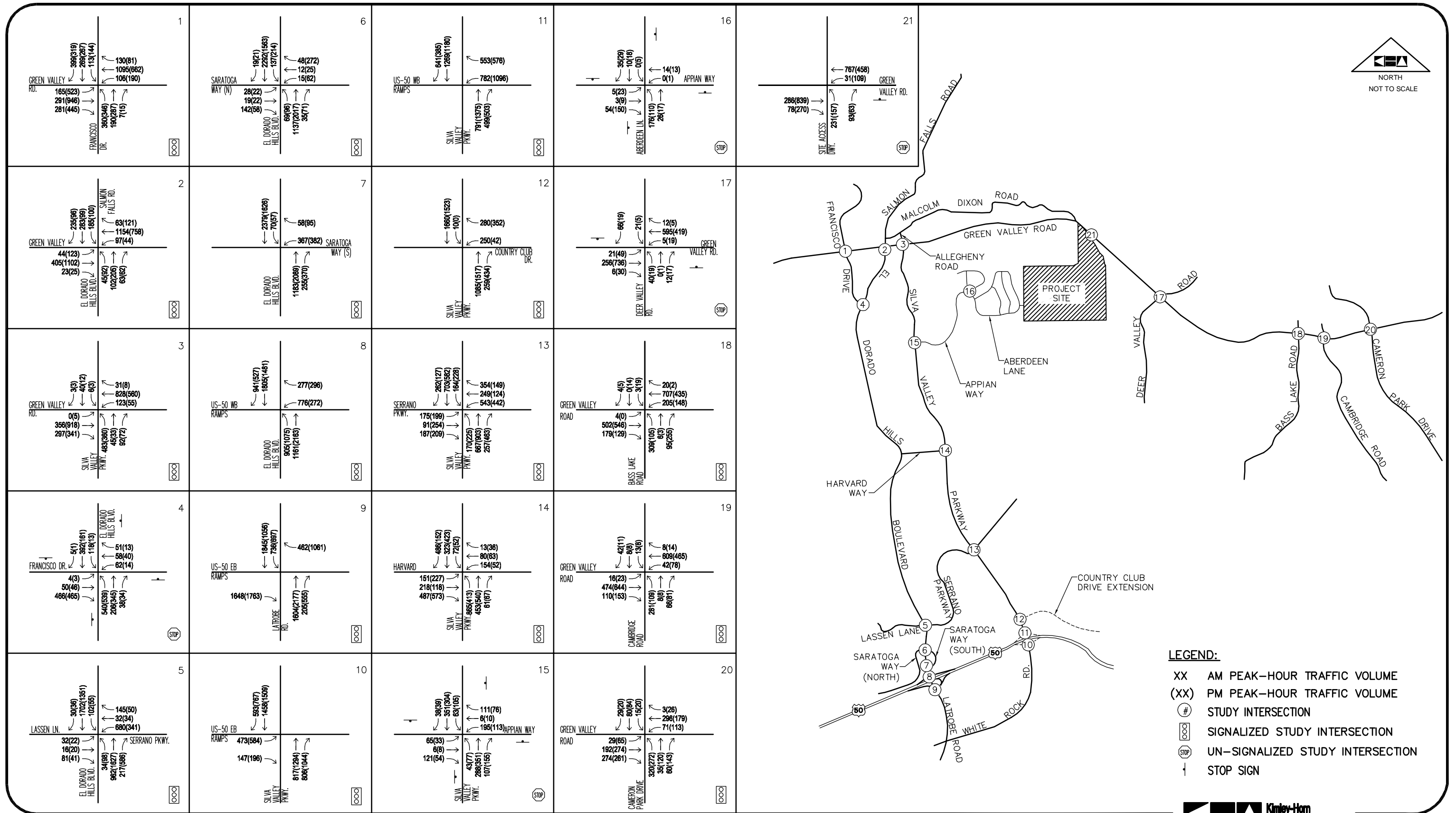


FIGURE 13
 CUMULATIVE (2025) PLUS PROPOSED PROJECT PEAK-HOUR TRAFFIC VOLUMES

Table 8 – Cumulative (2025) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Green Valley Road @ Francisco Drive	Signal	39.3	D	50.3	D
2	Green Valley Road @ El Dorado Hills Boulevard	Signal	141.8	F	87.9	F
3	Green Valley Road @ Silva Valley Parkway	Signal	43.1	D	36.5	D
4	El Dorado Hills Boulevard @ Francisco Drive	AWSC	120.6	F	69.2	F
5	El Dorado Hills Boulevard @ Serrano Parkway	Signal	46.4	D	16.6	B
6	El Dorado Hills Boulevard @ Saratoga Way (North)	Signal	16.3	B	32.6	C
7	El Dorado Hills Boulevard @ Saratoga Way (South)	Signal	10.1	B	10.0	A
8	El Dorado Hills Boulevard @ US-50 WB Ramps	Signal	95.4	F	53.3	D
9	Latrobe Road @ US-50 EB Ramps	Signal	14.7	B	16.9	B
10	Silva Valley Parkway @ US-50 EB Ramps	Signal	7.2	A	10.3	B
11	Silva Valley Parkway @ US-50 WB Ramps	Signal	10.9	B	20.7	C
12	Silva Valley Parkway @ Country Club Drive	Signal	13.1	B	13.5	B
13	Silva Valley Parkway @ Serrano Parkway	Signal	53.7	D	60.0	E
14	Silva Valley Parkway @ Harvard Way	Signal	87.6	F	37.2	D
15	Silva Valley Parkway @ Appian Way	AWSC	40.2	E	33.4	D
16	Appian Way @ Aberdeen Lane	AWSC	7.6	A	7.5	A
17	Green Valley Road @ Deer Valley Road	TWSC*	24.8 (NB)	C	25.6 (NB)	D
18	Green Valley Road @ Bass Lake Road	Signal	35.2	D	30.2	C
19	Green Valley Road @ Cambridge Road	Signal	25.3	C	27.3	C
20	Green Valley Road @ Cameron Park Drive	Signal	48.5	D	53.9	D
21	Green Valley Road @ Site Access Driveway	<i>Plus Project Scenarios Only</i>				

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**

Table 9 – Cumulative (2025) and Cumulative (2025) plus Proposed Project Intersection Levels of Service

#	Intersection	Analysis Scenario ⁺	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	Green Valley Road @ Francisco Drive	Cum.	Signal	39.3	D	50.3	D
		Cum.+PP		41.3	D	52.2	D
2	Green Valley Road @ El Dorado Hills Boulevard	Cum.	Signal	141.8	F	87.9	F
		Cum.+PP		161.1	F	105.3	F
3	Green Valley Road @ Silva Valley Parkway	Cum.	Signal	43.1	D	36.5	D
		Cum.+PP		49.5	D	40.3	D
4	El Dorado Hills Boulevard @ Francisco Drive	Cum.	AWSC	120.6	F	69.2	F
		Cum.+PP		127.1	F	71.2	F
5	El Dorado Hills Boulevard @ Serrano Parkway	Cum.	Signal	46.4	D	16.6	B
		Cum.+PP		50.1	D	17.6	B
6	El Dorado Hills Boulevard @ Saratoga Way (North)	Cum.	Signal	16.3	B	32.6	C
		Cum.+PP		16.6	B	31.5	
7	El Dorado Hills Boulevard @ Saratoga Way (South)	Cum.	Signal	10.1	B	10.0	A
		Cum.+PP		10.1	B	10.1	B
8	El Dorado Hills Boulevard @ US-50 WB Ramps	Cum.	Signal	95.4	F	53.3	D
		Cum.+PP		95.2	F	53.0	D
9	Latrobe Road @ US-50 EB Ramps	Cum.	Signal	14.7	B	16.9	B
		Cum.+PP		15.0	B	17.5	B
10	Silva Valley Parkway @ US-50 EB Ramps	Cum.	Signal	7.2	A	10.3	B
		Cum.+PP		7.6	A	10.7	B
11	Silva Valley Parkway @ US-50 WB Ramps	Cum.	Signal	10.9	B	20.7	C
		Cum.+PP		11.7	B	22.4	C
12	Silva Valley Parkway @ Country Club Drive	Cum.	Signal	13.1	B	13.5	B
		Cum.+PP		13.3	B	16.4	B
13	Silva Valley Parkway @ Serrano Parkway	Cum.	Signal	53.7	D	60.0	E
		Cum.+PP		57.6	E	63.1	E
14	Silva Valley Parkway @ Harvard Way	Cum.	Signal	87.6	F	37.2	D
		Cum.+PP		89.3	F	38.5	D
15	Silva Valley Parkway @ Appian Way	Cum.	AWSC	40.2	E	33.4	D
		Cum.+PP		61.4	F	49.1	E
16	Appian Way @ Aberdeen Lane	Cum.	AWSC	7.6	A	7.5	A
		Cum.+PP		8.3	A	8.1	A
17	Green Valley Road @ Deer Valley Road	Cum.	TWSC*	24.8 (NB)	C	25.6 (NB)	D
		Cum.+PP		29.5 (NB)	D	36.8 (NB)	E
18	Green Valley Road @ Bass Lake Road	Cum.	Signal	35.2	D	30.2	C
		Cum.+PP		36.2	D	31.9	C
19	Green Valley Road @ Cambridge Road	Cum.	Signal	25.3	C	27.3	C
		Cum.+PP		27.8	C	30.8	C
20	Green Valley Road @ Cameron Park Drive	Cum.	Signal	48.5	D	53.9	D
		Cum.+PP		49.4	D	52.6	D
21	Green Valley Road @ Site Access Driveway	Cum.	TWSC*	<i>Plus Project Scenarios Only</i>			
		Cum.+PP		343.8 (NB)	F	8094 (NB)	F

⁺ Cum. = Cumulative (2025), Cum. + PP = Cumulative (2025) plus Proposed Project (full build-out)

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**

IMPACTS AND MITIGATION

Standards of Significance

Project impacts were determined by comparing conditions with the proposed project to those without the project. Impacts for intersections are created when traffic from the proposed project forces the LOS to fall below a specific threshold.

The County's standards⁹ specify the following:

"Level of Service (LOS) for County-maintained roads and State highways within the unincorporated areas of the County *shall not be worse than **LOS E in the Community Regions** or **LOS D in the Rural Centers and Rural Regions**...*" (El Dorado County General Plan Policy TC-Xd) The majority of the study facilities are located within the El Dorado Hills Community Region.

"If a project causes the peak-hour level of service...on a County road or State highway that would otherwise meet the County standards (without the project) to exceed the [given] values, then the impact shall be considered significant."

"If any county road or state highway fails to meet the [given] standards for peak hour level of service...under existing conditions, and the project will 'significantly worsen' conditions on the road or highway, then the impact shall be considered significant." According to General Plan Policy TC-Xe¹⁰, 'significantly worsen' is defined as "a 2 percent increase in traffic during the a.m. peak hour, p.m. peak hour, or daily, or the addition of 100 or more daily trips, or the addition of 10 or more trips during the a.m. peak hour or the p.m. peak hour."

The Caltrans District 3 standard of significance was applied to intersections at the El Dorado Hills Boulevard and Silva Valley Parkway interchanges. The following LOS requirement was used for Caltrans facilities:

"The District 3 standard for average delay at signalized intersections, in most areas, is LOS D on an hourly basis, or LOS E for the peak 15 minutes. For all-way stop intersections and roundabouts, this standard should be used for each approach... For signals in high speed areas, the standard is LOS C on an hourly basis, or LOS D for the peak 15 minutes."¹¹

The freeway ramps are not located in high speed areas, therefore, the **LOS E** threshold for the peak 15 minutes should apply to Caltrans facilities.

Impacts and Mitigation

Existing (2011) plus Proposed Project Conditions

As reflected in Table 5, the addition of the proposed project results in three (3) significant impact as defined by the County. The following is a discussion of the impact and its associated mitigation.

Impacts:

II. Intersection #4, El Dorado Hills Boulevard @ Francisco Drive

As shown in Table 5, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection during both peak-hours (Figure 5). **This is a significant impact.**

⁹ *Traffic Impact Study Protocols and Procedures*, El Dorado County Department of Transportation, June 2008.

¹⁰ *El Dorado County General Plan, Transportation and Circulation Element*, July 2004.

¹¹ Email from Teresa Limon, Caltrans, to Jennifer Maxwell, El Dorado County DOT, September 3, 2008.

I2. Intersection #21, Green Valley Road @ Site Access Driveway

As shown in Table 5, this intersection operates at LOS E during the PM peak-hour with the addition of the project. Because this intersection is located within the El Dorado Hills Rural Region, the LOS threshold is LOS D. As a result, **this is a significant impact.**

Mitigations:

M1. Intersection #4, El Dorado Hills Boulevard @ Francisco Drive

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the County's planned Spring 2012 intersection improvement project. The County project will include the addition of an eastbound channelized right-turn lane and a southbound receiving lane. As shown in Table 10, this mitigation measure results in the intersection operating at LOS D and LOS C during the AM and PM peak-hours, respectively. Therefore, **this impact is less than significant.**

M2. Intersection #21, Green Valley Road @ Site Access Driveway

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of an eastbound right-turn lane. As shown in Table 10, this mitigation measure results in the intersection operating at LOS D during the PM peak-hour. Therefore, **this impact is less than significant.**

**Table 10 – Intersection Levels of Service –
Existing (2011) plus Proposed Project Mitigated Conditions**

#	Intersection	Analysis Scenario ⁺	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
4	El Dorado Hills Boulevard @ Francisco Drive	Exist.	AWSC	94.3	F	51.1	F
		Exist. + PP		101.5	F	54.5	F
		Exist. + PP (Mit)		29.1	D	17.5	C
21	Green Valley Road @ Site Access Driveway	Exist.	TWSC*	<i>Plus Project Scenarios Only</i>			
		Exist. + PP		21.3 (NB)	C	37.8 (NB)	E
		Exist. + PP (Mit)		20.7 (NB)	C	33.0 (NB)	D

⁺ Exist. = Existing (2011), Exist. + PP = Existing (2011) plus Proposed Project, Mit = Mitigated.
^{*} Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**

Analysis worksheets for this scenario are provided in Appendix I.

Existing plus Approved Projects (2016) plus Proposed Project Conditions

As reflected in Table 7, the addition of the proposed project results in two (2) significant impacts as defined by the County. The following is a discussion of the impact and its associated mitigation.

Impacts:

I3. Intersection #2, Green Valley Road @ El Dorado Hills Boulevard

As shown in Table 7, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection during a peak-hour (Figure 6). **This is a significant impact.**

I4. Intersection #4, El Dorado Hills Boulevard @ Francisco Drive

As shown in Table 7, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection during a peak-hour (Figure 6). **This is a significant impact.**

Mitigation:

M3. Intersection #2, Green Valley Road @ El Dorado Hills Boulevard

The significant impact at this intersection during the AM and PM peak-hours can be mitigated by modifying the lane configuration on the southbound approach. The modified southbound lane configuration will result in the following: one left-turn lane, one through lane, and one right-turn lane. The existing right-of-way and pavement widths along Salmon Falls Road, immediately north of Green Valley Road, appear to provide adequate space to accommodate the additional southbound approach lane. As shown in Table 11, this mitigation measure results in the intersection operating at LOS E during the AM and PM peak-hours. Therefore, **this impact is less than significant**. The proposed project should contribute its proportionate share toward these improvements.

M4. Intersection #4, El Dorado Hills Boulevard @ Francisco Drive

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the County’s planned Spring 2012 intersection improvement project. The County project will include the addition of an eastbound channelized right-turn lane and a southbound receiving lane. As shown in Table 11, this mitigation measure results in the intersection operating at LOS E and LOS C during the AM and PM peak-hours, respectively. Therefore, **this impact is less than significant**.

Table 11 – Intersection Levels of Service –
Existing plus Approved Projects (2016) plus Proposed Project Mitigated Conditions

#	Intersection	Analysis Scenario ⁺	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
2	Green Valley Road @ El Dorado Hills Boulevard	EPAP	Signal	90.7	F	83.7	F
		EPAP + PP		100.7	F	99.3	F
		EPAP + PP (Mit)		57.7	E	73.1	E
4	El Dorado Hills Boulevard @ Francisco Drive	EPAP	AWSC	130.4	F	90.0	F
		EPAP + PP		132.3	F	88.0	F
		EPAP + PP (Mit)		41.0	E	22.5	C

* Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**
⁺ EPAP = Existing plus Approved Projects (2016), EPAP + PP = Existing plus Approved Projects (2016) plus Proposed Project, Mit = Mitigated

Analysis worksheets for this scenario are provided in Appendix I.

Cumulative (2025) plus Proposed Project Conditions

As reflected in Table 9, the addition of the proposed project results in five (5) significant impacts as defined by the County. The following is a discussion of each of these impacts and their associated mitigations.

Impacts:

15. Intersection #2, Green Valley Road @ El Dorado Hills Boulevard

As shown in Table 9, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection during a peak-hour. **This is a significant impact.**

16. Intersection #4, El Dorado Hills Boulevard @ Francisco Drive

As shown in Table 9, this intersection operates at LOS F during the AM and PM peak-hours without the project, and the project contributes more than 10 peak-hour trips to the intersection during a peak-hour. **This is a significant impact.**

17. *Intersection #8, El Dorado Hills Boulevard @ US-50 WB Ramps*
As shown in Table 9, this intersection operates at LOS F during the AM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection during the peak-hour. ***This is a significant impact.***
18. *Intersection #14, Silva Valley Parkway @ Harvard Way*
As shown in Table 9, this intersection operates at LOS F during the AM peak-hour without the project, and the project contributes more than 10 peak-hour trips to the intersection during the peak-hour. ***This is a significant impact.***
19. *Intersection #15, Silva Valley Parkway @ Appian Way*
As shown in Table 9, the addition of the proposed project results in LOS F during the AM peak-hour. ***This is a significant impact.***
110. *Intersection #17, Green Valley Road @ Deer Valley Road*
As shown in Table 9, this intersection operates at LOS E during the PM peak-hour with the addition of the project. Because this intersection is located within the El Dorado Hills Rural Region, the LOS threshold is LOS D. As a result, ***this is a significant impact.***
111. *Intersection #21, Green Valley Road @ Site Access Driveway*
As shown in Table 9, the addition of the proposed project results in LOS F during the AM and PM peak-hours. Because this intersection is located within the El Dorado Hills Rural Region, the LOS threshold is LOS D. As a result, ***this is a significant impact.***

Mitigation:

- M5. *Intersection #2, Green Valley Road @ El Dorado Hills Boulevard*
The significant impact at this intersection during the AM and PM peak-hours can be mitigated by modifying the lane configuration on the southbound approach and with the addition of a westbound through lane. The modified southbound lane configuration will result in the following: one left-turn lane, one through lane, and one right-turn lane. The existing right-of-way and pavement widths along Salmon Falls Road, immediately north of Green Valley Road, appear to provide adequate space to accommodate the additional southbound approach lane. As shown in Table 12, this mitigation measure results in the intersection operating at LOS D and LOS E during the AM and PM peak-hours, respectively. Therefore, ***this impact is less than significant.*** The proposed project should contribute its proportionate share toward these improvements.
- It is important to note that the “Green Valley Road Widening from Salmon Falls Road to Deer Valley Road” project is identified in the current County Capital Improvement Program (CIP) as a “Future” project, not funded between County fiscal years 2000/20010 through 2018/2019.”
- M6. *Intersection #4, El Dorado Hills Boulevard @ Francisco Drive*
The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the County’s planned Spring 2012 intersection improvement project. The County project will include the addition of an eastbound channelized right-turn lane and a southbound receiving lane. As shown in Table 12, this mitigation measure results in the intersection operating at LOS E and LOS C during the AM and PM peak-hours, respectively. Therefore, ***this impact is less than significant.*** The proposed project should contribute its proportionate share toward these improvements.
- M7. *Intersection #8, El Dorado Hills Boulevard @ US-50 WB Ramps*
The significant impact at this intersection during the AM peak-hour can be mitigated with the addition of a southbound through lane. The addition a southbound through lane will require the

addition of a southbound receiving lane. As shown in Table 12, this mitigation measure results in the intersection operating at LOS E during the AM peak-hour. Therefore, **this impact is less than significant**. The proposed project should contribute its proportionate share toward these improvements.

M8. Intersection #14, Silva Valley Parkway @ Harvard Way

The significant impact at this intersection during the AM peak-hour can be mitigated by adding an additional northbound left-turn lane (resulting in dual northbound left-turn lanes). The existing right-of-way and pavement width along Silva Valley Parkway, immediately south of Harvard Way, appears to provide adequate space to accommodate the additional northbound left-turn lane. As shown in Table 12, this mitigation measure results in the intersection operating at LOS D during the AM peak-hour. Therefore, **this impact is less than significant**. The proposed project should contribute its proportionate share toward these improvements.

M9. Intersection #15, Silva Valley Parkway @ Appian Way

The significant impact at this intersection during the AM peak-hour can be mitigated by the addition of a northbound right-turn lane. As shown in Table 12, this mitigation measure results in the intersection operating at LOS E during the AM peak-hour. Therefore, **this impact is less than significant**.

M10. Intersection #17, Green Valley Road @ Deer Valley Road

The significant impact at this intersection during the PM peak-hour can be mitigated with the addition of a northbound right-turn flare (25 feet). The existing pavement on the south leg of this intersection appears to provide enough width to provide for this right-turn flare. As shown in Table 12, this mitigation measure results in the intersection operating at LOS D during the PM peak-hour. Therefore, **this impact is less than significant**.

M11. Intersection #21, Green Valley Road @ Site Access Driveway

The significant impact at this intersection during the AM and PM peak-hours can be mitigated with the addition of traffic signal control. As shown in Table 12, this mitigation measure results in the intersection operating at LOS B and LOS D during the AM and PM peak-hours. Therefore, **this impact is less than significant**.

Analysis worksheets for this scenario are provided in Appendix I.

**Table 12 – Intersection Levels of Service –
Cumulative (2025) plus Proposed Project Mitigated Conditions**

#	Intersection	Analysis Scenario ⁺	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (seconds)	LOS	Delay (seconds)	LOS
2	Green Valley Road @ El Dorado Hills Boulevard	Cum.	Signal	141.8	F	87.9	F
		Cum. + PP		161.1	F	105.3	F
		Cum. + PP (Mit)		38.8	D	74.0	E
4	El Dorado Hills Boulevard @ Francisco Drive	Cum.	AWSC	120.6	F	69.2	F
		Cum. + PP		127.1	F	71.2	F
		Cum. + PP (Mit)		38.3	E	20.8	C
8	El Dorado Hills Boulevard @ US-50 WB Ramps	Cum.	Signal	95.4	F	53.3	D
		Cum. + PP		95.2	F	53.0	D
		Cum. + PP (Mit)		60.1	E	29.9	C
14	Silva Valley Parkway @ Harvard Way	Cum.	Signal	87.6	F	37.2	D
		Cum. + PP		89.3	F	38.5	D
		Cum. + PP (Mit)		38.3	D	35.6	D
15	Silva Valley Parkway @ Appian Way	Cum.	AWSC	40.2	E	33.4	D
		Cum. + PP		61.4	F	49.1	E
		Cum. + PP (Mit)		44.6	E	28.2	D
17	Green Valley Road @ Deer Valley Road	Cum.	TWSC [*]	24.8 (NB)	C	25.6 (NB)	D
		Cum. + PP		29.5 (NB)	D	36.8 (NB)	E
		Cum. + PP (Mit)		33.9 (NB)	D	28.5 (NB)	D
21	Green Valley Road @ Site Access Driveway	Cum.	TWSC [*]	<i>Plus Project Scenarios Only</i>			
		Cum. + PP		343.8 (NB)	F	8094 (NB)	F
		Cum. + PP (Mit)	Signal	19.9	B	48.2	D

^{*} Control delay for worst minor approach (worst minor movement) for TWSC. **Bold = Substandard per County**
⁺ Cum. = Cumulative (2025), Cum. + PP = Cumulative (2025) plus Proposed Project, Mit = Mitigated

OTHER CONSIDERATIONS

Peak-Hour Traffic Signal Warrant Evaluation

A planning level assessment of the need for traffic signalization was performed for the un-signalized study intersections. This evaluation was performed consistently with the peak-hour warrant methodologies noted in Section 4C of the *California Manual on Uniform Traffic Control Devices (CMUTCD)*, dated January 21, 2010. A summary of the peak-hour warrant results are presented in Table 13.

As shown in Table 13, The addition of the proposed project results in the peak-hour signal warrant being satisfied at the Green Valley Road intersection with the Site Access Driveway (Intersection #21). Detailed results of this analysis are presented in Appendix J.

Table 13 – Traffic Signal Warrant Analysis Results

#	Intersection	Analysis Scenario					
		Existing (2011)	Existing (2011) plus PP	EPAP (2016)	EPAP (2016) plus PP	Cum (2025)	Cum (2025) plus PP
4	El Dorado Hills Blvd @ Francisco Dr	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
15	Silva Valley Prkwy @ Appian Way	No / No	No / No	No / No	No / No	Yes / No	Yes / Yes
16	Appian Wy @ Aberdeen Ln	No / No	No / No	No / No	No / No	No / No	No / No
17	Green Valley Rd @ Deer Valley Rd	No / No	No / No	No / No	No / No	No / No	No / No
21	Green Valley Rd @ Site Access Dwy		No / No		No / No		Yes / Yes

Results are presented in **AM / PM format**.
Note: Peak-hour warrant is satisfied if Condition A or B is satisfied.

Site Plan, Access, and On-site Circulation Evaluation

The site plan for the proposed project (Figure 2) was qualitatively reviewed for general access and on-site circulation. According to the site plan, access to the site will be provided via a total of two (2) driveways, one primary access point along Green Valley Road, and one secondary access point to Silva Valley Parkway via Appian Way, Aberdeen Lane, and Lima Way. Detailed level of service and delay data was previously reported for the Green Valley Road intersection (Intersection #21), as well as key Highland View internal intersections along Aberdeen Lane and Appian Way (Intersections #15 and #16). The combination of these access points, as well as the on-site circulation system appears to provide adequate access to/from both Green Valley Road and Silva Valley Parkway.

As shown in Table 5, Table 7, and Table 9, the primary site access point along Green Valley Road (Intersection #21) is anticipated to operate at acceptable LOS E or better for the year 2011 and 2016 analysis scenarios, and unacceptable LOS F for year 2025 conditions. The documented analyses assumed baseline intersection geometry: no westbound left-turn lane into site and side-street stop control (no traffic signal). As demonstrated in Table 13, this intersection satisfies the peak-hour traffic signal warrant under Cumulative (2025) conditions. In conjunction with consideration for the addition of traffic signal control, it is recommended that a westbound left-turn lane be provided to enhance operations and safety.

In addition, *Fire Safe Regulations*¹² state that on-site roadways shall “provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency...” All project roadways shall be designed and constructed in accordance with these requirements.

Preliminary Traffic Safety Evaluation

According to the County’s 2007 *Accident Location Study*¹³, several study area sites (i.e., intersections and roadway segments) experienced three (3) or more accidents during a three-year period between January 1, 2005, and December 31, 2007. According to the Study, these sites were selected for investigation and determination of corrective action(s). Table 14 provides a summary of the study area sites and their selected actions.

¹² *Fire Safe Regulations*, Title 14 Natural Resources, Division 1.5 Department of Forestry, Chapter 7 – Fire Protection, Subchapter 2 SRA Safe Regulations, Article 2 Emergency Access, El Dorado County Building Department.

¹³ *Annual Accident Location Study 2007*, County of El Dorado Department of Transportation, March 28, 2008.

Table 14 – Project Area Sites Selected for Investigation

Site #	Location Description	Accident Rate ⁺	Identified Action
14	El Dorado Hills Blvd, North of US-50	1.28	Pending Improvements
15	El Dorado Hills Blvd, at Lassen Ln	0.46	None Required
16	El Dorado Hills Blvd, at Olson Ln	0.36	None Required
19	Green Valley Rd, from Amy's Ln to Miller Rd	1.33	Recent Improvements
20	Green Valley Rd, at Francisco Dr	0.44	None Required
21	Green Valley Rd, at El Dorado Hills Blvd	0.49	None Required
44	Salmon Falls Rd, vicinity of Lakehills Dr	1.06	Proposed CIP

Source: *Annual Accident Location Study 2007*, County of El Dorado Department of Transportation, March 28, 2008.
⁺ # Accidents per Million Vehicles (MV) for single sites (intersections/curves), # Accidents per Million Vehicle Miles (MVM) for roadway sections.

According to the *Study*, four (4) sites “do not require further review at this time. However, these sites will continue to be monitored and any subsequent increase in the frequency of accidents may necessitate further review and analysis.” One (1) site has a pending improvement and it is anticipated that, “upon completion, [this] improvement will substantially reduce the number of accidents.” Site 44, Salmon Falls Road in the vicinity of Lakehills Drive, has been identified for inclusion in the County’s Capital Improvement Program (CIP). “The scope of these improvements would require budget consideration and subsequent inclusion within the CIP...[this project] will compete for funding and consequently may, or may not, be funded.”

Intersection Queuing Evaluation

Vehicle queuing for six (6) intersections was evaluated. For the queuing analysis, the anticipated vehicle queues for critical movements at these intersections were evaluated. The calculated vehicle queues were compared to actual or anticipated vehicle storage/segment lengths. Results of the queuing evaluation are presented in Table 15. Analysis sheets that include the anticipated vehicle queues are presented in Appendices B, C, and E-I. As presented in Table 15, the addition of the proposed project adds additional queuing to several of the study locations.

Bicycle and Pedestrian Facilities Evaluation

According to Chapter 5 of the *El Dorado County Bicycle Transportation Plan*, Class II Bike Lanes are proposed for Green Valley Road, Francisco Drive, and El Dorado Hills Boulevard in the vicinity of the project site. In addition, Class III Bike Routes are proposed for Francisco Drive and Salmon Falls Road/Lakehills Drive north of Green Valley Road. A Class I Bike Path is also proposed for El Dorado Hills Boulevard, south of Francisco Drive.

While the project will not result in removal of a bikeway/bike lane or prohibition of implementation of the facilities identified in the *Plan*, it is required to include pedestrian/bicycle paths connecting to adjacent commercial, research and development, or industrial projects and any schools, parks, or other public facilities. The proposed project will be required to construct on-site roadway and pedestrian facilities in accordance with County design guidelines. These on-site pedestrian and bicycle facilities will connect the project with the future adjacent Class II Bike Lanes along Green Valley Road (by others). Through this connection to the proposed bike lane network, the project will provide continuity with adjacent projects, schools, parks, and other public facilities.

Table 15 – Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
#2, Green Valley Rd @ El Dorado Hills Blvd		WLT			
	Existing (2011)	105	90	105	67
	Existing plus Proposed Project (2011)		158		138
	Existing plus Proposed Project (2011) (Mitigated)		130		136
	EPAP (2016)		124		106
	EPAP plus Proposed Project (2016)		143		136
	EPAP plus Proposed Project (2016) (Mitigated)		140		138
	Cumulative (2025)		139		117
	Cumulative plus Proposed Project (2025)		161		144
	Cumulative plus Proposed Project (2025) (Mitigated)		138		143
#3, Green Valley Rd @ Silva Valley Pkwy			WLT		
	Existing (2011)	350	80	350	55
	Existing plus Proposed Project (2011)		87		65
	EPAP (2016)		103		85
	EPAP plus Proposed Project (2016)		118		101
	Cumulative (2025)		167		132
	Cumulative plus Proposed Project (2025)		180		148
#8, El Dorado Hills Blvd @ US-50 WB Ramps			WRT		
	Existing (2011)	185	76	185	300
	Existing plus Proposed Project (2011)		76		338
	EPAP (2016)		142		359
	EPAP plus Proposed Project (2016)		144		362
	Cumulative (2025)		281		434
	Cumulative plus Proposed Project (2025)		283		435
	Cumulative plus Proposed Project (2025) (Mitigated)				
		SRT			
	Existing (2011)	100*	1162	100*	431
	Existing plus Proposed Project (2011)		1221		409
	EPAP (2016)		872		118
	EPAP plus Proposed Project (2016)		854		127
	Cumulative (2025)		1102		214
	Cumulative plus Proposed Project (2025)		1303		212
	Cumulative plus Proposed Project (2025) (Mitigated)				
Source: <i>Highway Capacity Manual (HCM) 2000</i> methodology per Synchro [®] v7.					
* Intersection approach with available storage length equal to segment length					

Table 15 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
#9, Latrobe Rd. @ US-50 EB Ramps		SLT			
	Existing (2011)	350	122	350	202
	Existing plus Proposed Project (2011)		135		202
	EPAP (2016)		204		352
	EPAP plus Proposed Project (2016)		204		351
	Cumulative (2025)		273		448
	Cumulative plus Proposed Project (2025)		283		506
#10, Silva Valley Pkwy @ US-50 EB Ramps			ELT		
	Existing (2011)	600**		600**	
	Existing plus Proposed Project (2011)				
	EPAP (2016)		341		567
	EPAP plus Proposed Project (2016)		350		607
	Cumulative (2025)		133		208
	Cumulative plus Proposed Project (2025)		134		208
			SRT		
	Existing (2011)	400*		400*	
	Existing plus Proposed Project (2011)				
	EPAP (2016)		43		261
	EPAP plus Proposed Project (2016)		41		269
	Cumulative (2025)		0 (free)		0 (free)
	Cumulative plus Proposed Project (2025)		0 (free)		0 (free)
#11, Silva Valley Pkwy @ US-50 WB Ramps			WRT		
	Existing (2011)	360		360	
	Existing plus Proposed Project (2011)				
	EPAP (2016)		86		412
	EPAP plus Proposed Project (2016)		91		434
	Cumulative (2025)		190		445
	Cumulative plus Proposed Project (2025)		218		485
			SRT		
	Existing (2011)	85*		85*	
	Existing plus Proposed Project (2011)				
	EPAP (2016)		19		37
	EPAP plus Proposed Project (2016)		25		40
	Cumulative (2025)		0 (free)		0 (free)
	Cumulative plus Proposed Project (2025)		0 (free)		0 (free)

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro® v7.
 * Intersection approach with available storage length equal to segment length
 ** Additional left-turn lane added under Cumulative (2025) Conditions

Table 15 – Intersection Queuing Evaluation Results for Select Locations (continued)

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95 th % Queue (ft)	Available Storage (ft)	95 th % Queue (ft)
#15, Silva Valley Prky @ Appian Way		WLT			
	Existing (2011)		159 ⁺⁺		102 ⁺⁺
	Existing plus Proposed Project (2011)		165 ⁺⁺		106 ⁺⁺
	EPAP (2016)	*	159 ⁺⁺	*	102 ⁺⁺
	EPAP plus Proposed Project (2016)		182 ⁺⁺		118 ⁺⁺
	Cumulative (2025)		205 ⁺⁺		128 ⁺⁺
	Cumulative plus Proposed Project (2025)		283 ⁺⁺		180 ⁺⁺
	Cumulative plus Proposed Project (2025)		283 ⁺⁺		180 ⁺⁺
		NRT			
	Existing (2011)		228 ⁺⁺		368 ⁺⁺
	Existing plus Proposed Project (2011)		232 ⁺⁺		383 ⁺⁺
	EPAP (2016)	*	228 ⁺⁺	*	368 ⁺⁺
	EPAP plus Proposed Project (2016)		240 ⁺⁺		411 ⁺⁺
	Cumulative (2025)		388 ⁺⁺		508 ⁺⁺
	Cumulative plus Proposed Project (2025)		397 ⁺⁺		528 ⁺⁺
	Cumulative plus Proposed Project (2025) (Mitigated)		97 ⁺⁺		140 ⁺⁺
#16, Appian Way @ Aberdeen Ln		NLT			
	Existing (2011)		85 ⁺⁺		51 ⁺⁺
	Existing plus Proposed Project (2011)		158 ⁺⁺		55 ⁺⁺
	EPAP (2016)	*	100 ⁺⁺	*	51 ⁺⁺
	EPAP plus Proposed Project (2016)		108 ⁺⁺		67 ⁺⁺
	Cumulative (2025)		110 ⁺⁺		65 ⁺⁺
	Cumulative plus Proposed Project (2025)		183 ⁺⁺		115 ⁺⁺
		ERT			
	Existing (2011)		24 ⁺⁺		62 ⁺⁺
	Existing plus Proposed Project (2011)		27 ⁺⁺		69 ⁺⁺
	EPAP (2016)	*	24 ⁺⁺	*	62 ⁺⁺
	EPAP plus Proposed Project (2016)		33 ⁺⁺		91 ⁺⁺
	Cumulative (2025)		32 ⁺⁺		79 ⁺⁺
	Cumulative plus Proposed Project (2025)		56 ⁺⁺		165 ⁺⁺
#21, Green Valley Rd @ Site Access Dwy		WLT			
	Existing (2011)				
	Existing plus Proposed Project (2011)		1		4
	EPAP (2016)				
	EPAP plus Proposed Project (2016)	250 ⁺	1	250 ⁺	4
	Cumulative (2025)				
	Cumulative plus Proposed Project (2025)		2		19
	Cumulative plus Proposed Project (2025) (Mitigated)		40		235

Source: *Highway Capacity Manual (HCM) 2000* methodology per Synchro[®] v7.
⁺⁺ Source: Per Page 714, *A Policy on Geometric Design of Highways and Streets*, AASHTO, 2004.
((Peak-Hour Volume/30 min)*25 feet). * Intersection approach with available storage length equal to segment length
⁺ Assumed initial geometry.

CONCLUSIONS

Based upon the analysis documented in this report, the following conclusions are offered:

- The initial phase of the proposed project is estimated to generate 2,226 total new daily trips, with 170 trips occurring during the AM peak-hour, and 248 new trips occurring during the PM peak-hour. At full build-out, the project is anticipated to result in 6,964 total new daily trips, 541 new AM peak-hour trips, and 748 new PM peak-hour trips.
- The proposed project is not consistent with the 2004 *General Plan* land use designation and zoning density for the site (Low Density Residential). Therefore, the proposed project does not satisfy the first criterion for determining if a new cumulative 2025 analysis is required in addition to the analysis already completed for the County's *General Plan*. Additionally, according to information provided by a representative of the County, "The proposed project is located in TAZ 335 and is anticipated to exceed the growth assumed under the *General Plan* Build-out. Therefore, a full cumulative analysis is required. Re-run the travel demand model by adding additional 490 single family dwelling units to TAZ 335. Use the updated model runs for developing future forecasts."
- As defined by the County, the addition of the proposed project to the Existing (2011), Existing plus Approved Projects (2016), and Cumulative (2025) scenarios significantly worsens conditions at multiple study intersections. However, these impacts can be mitigated to be *less than significant*. The following is a summary of the required mitigation measures which are *presumed to be the project's sole responsibility*:

Existing (2011) plus Proposed Project

- Mitigation (M2) addition of an eastbound right-turn lane at Intersection #21 (Green Valley Road @ Site Access Driveway)

Cumulative (2025) plus Proposed Project

- Mitigation (M9) addition of a northbound right-turn lane at Intersection #15 (Silva Valley Parkway @ Appian Way)
- Mitigation (M10) addition of a northbound right-turn flare (25-feet) at Intersection #17 (Green Valley Road @ Deer Valley Road)
- Mitigation (M11) addition of traffic signal control at Intersection #21 (Green Valley Road @ Site Access Driveway)