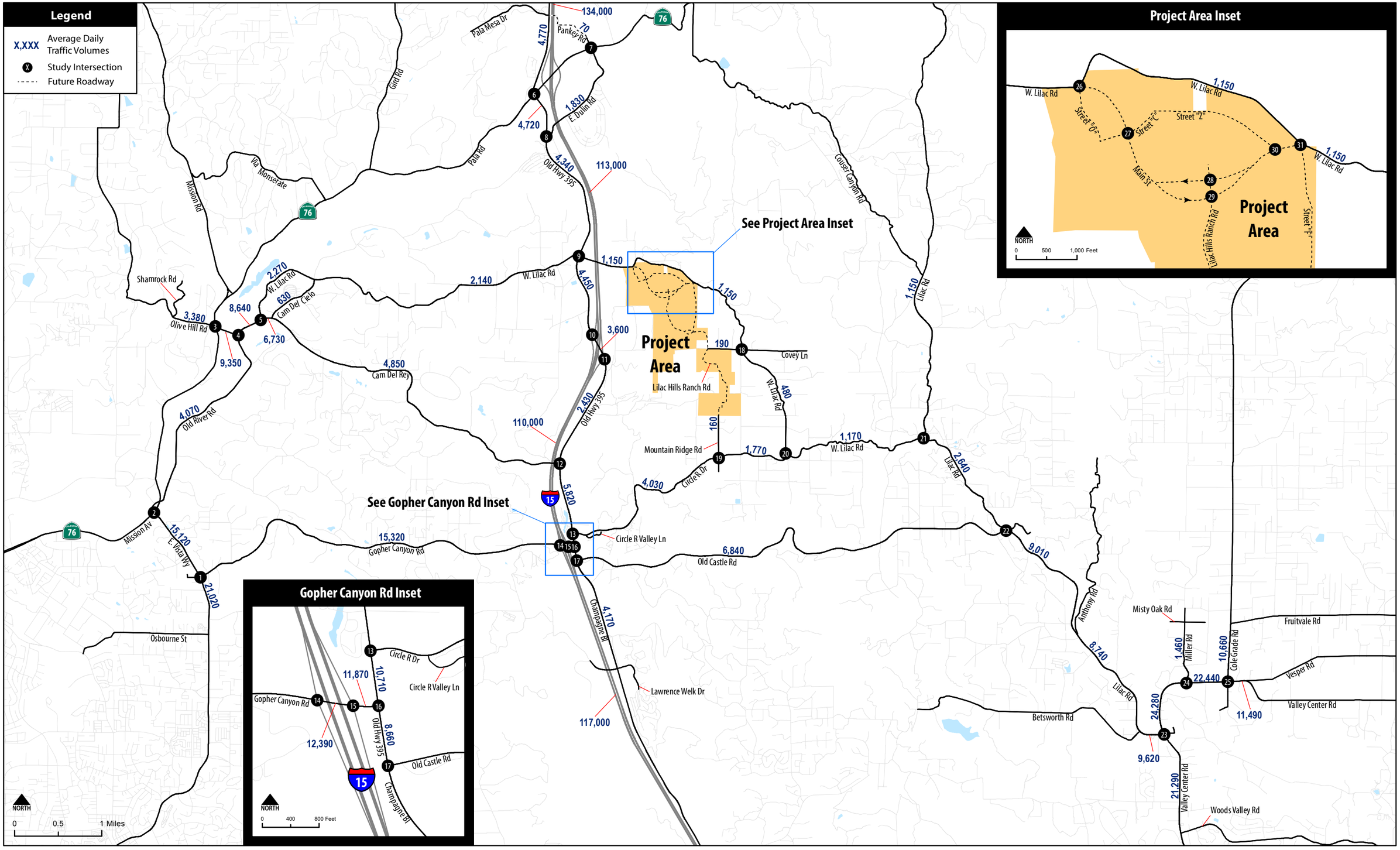
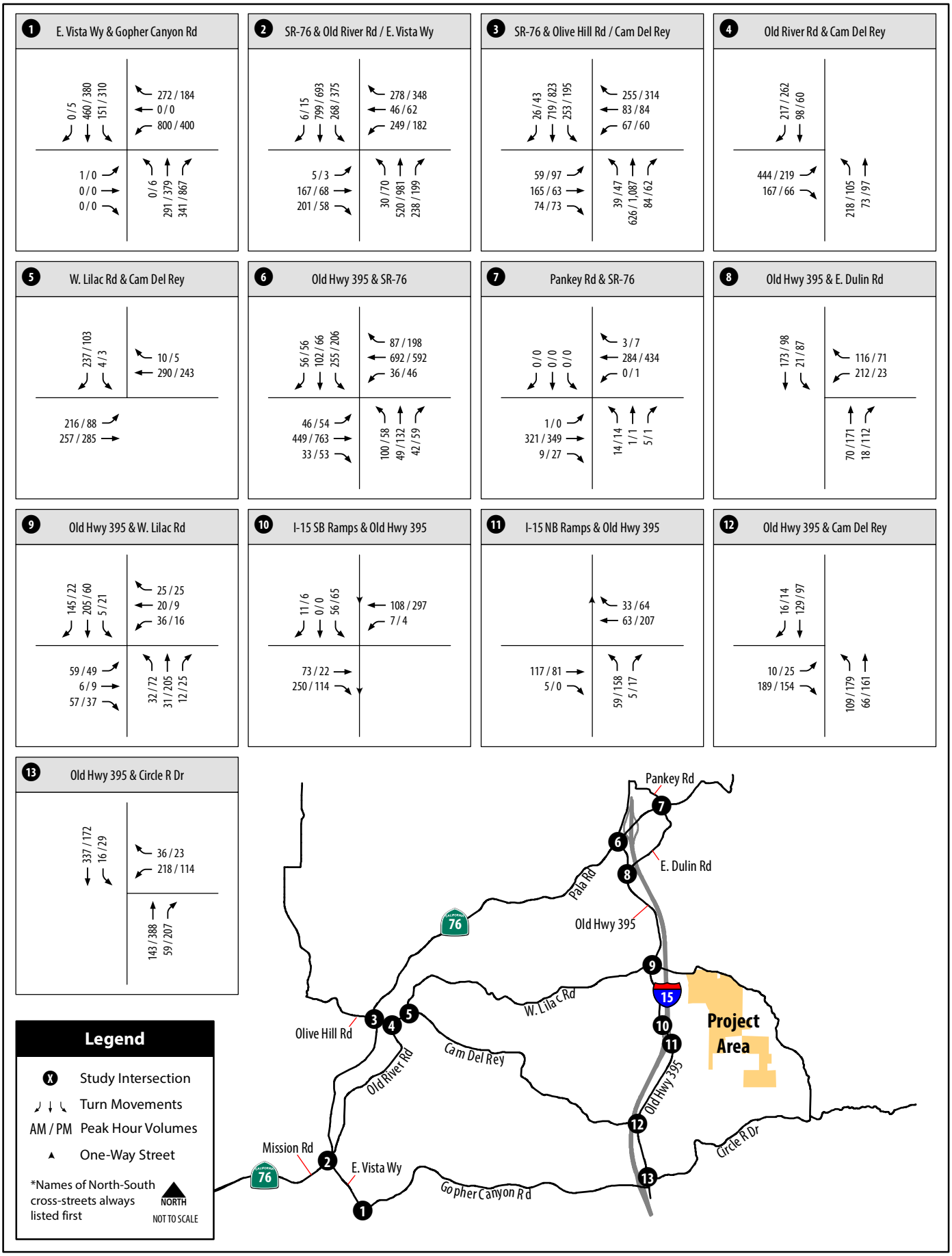


Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

CHEN RYAN

Figure 3-2A

Roadway Average Daily Traffic Volumes - Existing Conditions



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

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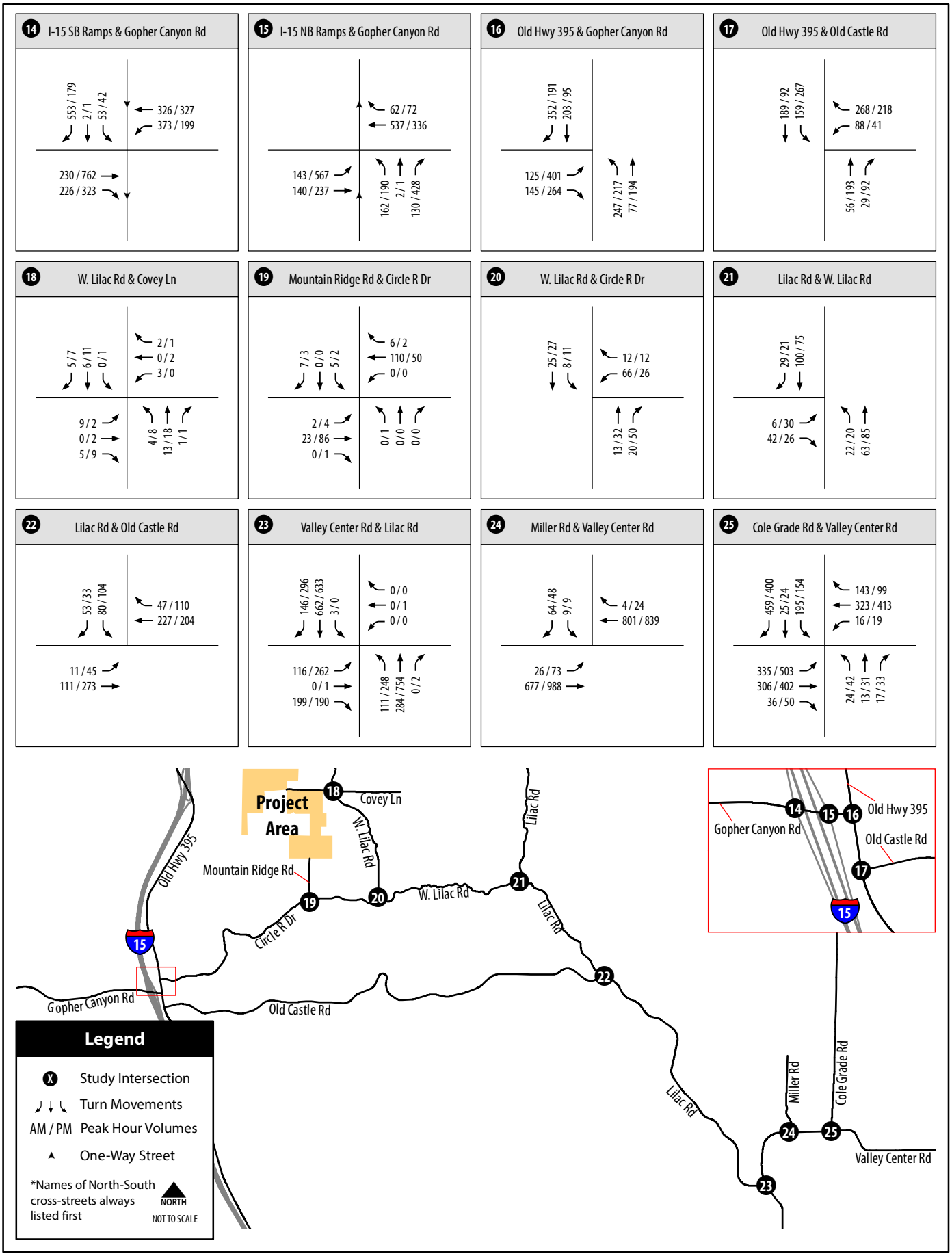
Figure 3-2B (Intersections 1-13)
Intersection Peak Hour Traffic Volumes - Existing Conditions



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

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Figure 3-2B (Intersections 14-25)
Intersection Peak Hour Traffic Volumes - Existing Conditions

As shown in Tables 1 and 2 (as shown below) of the County's Public Road Standards, the only difference in design features between 2.2E and 2.2F roads is 8' vs. 2' shoulders. The LOS D threshold for a 2.2E road is estimated to be approximately 20% higher than a 2.2F road.

MOBILITY ELEMENT ROADS			LEVELS OF SERVICE				
Road Classification		# of Travel Lanes	A	B	C	D	E
Light Collector	w/ Raised Median (2.2A)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Continuous Left Turn Lane (2.2B)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Intermittent Turn Lane (2.2C)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Passing Lane (2.2D)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.2E)	2	<1,900	<4,100	<7,100	<10,900	<16,200
	w/ Reduced Shoulder (2.2F)	2	<5,800	<6,800	<7,800	<8,700	<9,700

MOBILITY ELEMENT ROAD CLASSIFICATIONS									
ROAD CLASSIFICATION	# LANES / LANE WIDTH	MEDIAN WIDTH	ROAD SURFACING WIDTH	R.O.W. WIDTH	PAVED SHOULDERS (# / WIDTH)	PARKWAY WIDTH	MIN. CURVE RADIUS	MAX. DESIRABLE GRADE	MIN. DESIGN SPEED (MPH)
Light Collector									
With Raised Median (2.2A)	2 / 12'	14'	54'	78'	2 / 8'	12'	500'	9%	40
With Continuous Left Turn Lane (2.2B)	2 / 12'	14'	54'	78'	2 / 8'	12'	500'	9%	40
With Intermittent Turn Lanes (2.2C)	2 / 12'	-	40' - 54'	64' - 78'	2 / 8'	12'	500'	9%	40
With Improvement Options (2.2D)	2 / 12'	-	40' - 54'	88'	2 / 8'	17' - 24'	500'	9%	40
No Median (2.2E)	2 / 12'	-	40'	64'	2 / 8'	12'	500'	9%	40
With Reduced Shoulder (2.2F)	2 / 12'	-	28'	52'	2 / 2'	12'	500'	9%	40

For the reasons discussed above, a full 20% capacity reduction would be inaccurate and inappropriate. Therefore, it was determined that one-half of the reduction, 10%, would be the appropriate capacity reduction to apply.

Table 3.1 displays the reduced roadway thresholds for key study area segments. Based on field and aerial review and analysis of County roadway standards, a 10% capacity reduction was applied to the roadways listed in Table 3.1 for purposes of analysis in this TIS. Please note that reduced shoulders are also presented along Lilac Road, between Old Castle Road and Anthony Road, however, roadway capacity reduction was not applied since passing opportunities are provided along sections of this facility, which increases the capacity of a two-lane roadway.

TABLE 3.1
REDUCED ROADWAY THRESHOLDS FOR KEY SEGMENTS

Roadway	From	To	Original LOS D Thresholds	Reduced LOS D Thresholds
E. Dulin Road	Old Highway 395	SR-76	10,900	9,800
W. Lilac Road	Camino Del Rey	Camino Del Cielo	8,700	7,800
W. Lilac Road	Camino Del Cielo	Old Highway 395	8,700	7,800
W. Lilac Road	Main Street	Street "F"	8,700	7,800
W. Lilac Road	Street "F"	Covey Lane	8,700	7,800
W. Lilac Road	Covey Lane	Circle R Drive	8,700	7,800
W. Lilac Road	Circle R Drive	Lilac Road	8,700	7,800
Camino Del Rey	Old River Road	W. Lilac Road	10,900	9,800
Camino Del Rey	Camino Del Cielo	Old Highway 395	8,700	7,800
Gopher Canyon Road	E. Vista Way	I-15 SB Ramps	10,900	9,800
Circle R Drive	Old Highway 395	Mountain Ridge Road	10,900	9,800
Circle R Drive	Mountain Ridge Road	W. Lilac Road	10,900	9,800
Old Castle Road	Old Highway 395	Lilac Road	10,900	9,800
Old River Road	SR-76	Camino Del Rey	10,900	9,800
Pankey Road	Pala Mesa Drive	SR-76	10,900	4,500*
Lilac Road	Couser Canyon Road	W. Lilac Road	8,700	7,800
Lilac Road	W. Lilac Road	Old Castle Road	8,700	7,800

Source: Chen Ryan Associates; May 2014

Note:
*A section of Pankey Road is currently unpaved; hence, the LPR threshold of 4,500 ADT is utilized.

Table 3.2 displays the level of service analysis results for the key study area Mobility Element roadway segments under Existing conditions.

TABLE 3.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Roadway	From	To	Cross-Section	LOS Threshold (LOS D)	Traffic Count Date	Average Daily Traffic (ADT)	Level of Service (LOS)
E. Dulin Road	Old Highway 395	SR-76	2-Ln	9,800	Dec-12	1,830	B
W. Lilac Road	Camino Del Rey	Camino Del Cielo	2-Ln	7,800	Dec-12	2,270	A
W. Lilac Road	Camino Del Cielo	Old Highway 395	2-Ln	7,800	Mar-12	2,140	A
W. Lilac Road	Old Highway 395	Main Street	2-Ln	8,700	Oct-12	1,150	A
W. Lilac Road	Main Street	Street "F"	2-Ln	7,800	Oct-12	1,150	A

TABLE 3.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Roadway	From	To	Cross-Section	LOS Threshold (LOS D)	Traffic Count Date	Average Daily Traffic (ADT)	Level of Service (LOS)
W. Lilac Road	Street "F"	Covey Lane	2-Ln	7,800	Oct-12	1,150	A
W. Lilac Road	Covey Lane	Circle R Drive	2-Ln	7,800	Mar-11	480	A
W. Lilac Road	Circle R Drive	Lilac Road	2-Ln	7,800	Mar-11	1,170	A
Camino Del Cielo	Camino Del Rey	W. Lilac Road	2-Ln	10,900	Dec-12	630	A
Olive Hill Road	Shamrock Road	SR-76	2-Ln	8,700	Dec-12	3,380	A
Camino Del Rey	SR-76	Old River Road	2-Ln	10,900	Sep-11	9,350	D
Camino Del Rey	Old River Road	W. Lilac Road	2-Ln	9,800	Dec-12	8,640	D
Camino Del Rey	W. Lilac Road	Camino Del Cielo	2-ln w/ SM	13,500	Dec-12	6,730	C
Camino Del Rey	Camino Del Cielo	Old Highway 395	2-Ln	7,800	Dec-12	4,850	A
Gopher Canyon Road	E. Vista Way	I-15 SB Ramps	2-Ln	9,800	Dec-12	15,320	F
Gopher Canyon Road	I-15 SB Ramps	I-15 NB Ramps	4-Ln	30,800	Nov-11	12,390	A
Gopher Canyon Road	I-15 NB Ramps	Old Highway 395	4-Ln	30,800	Nov-11	11,870	A
Circle R Drive	Old Highway 395	Mountain Ridge Road	2-Ln	9,800	Aug-11	4,030	C
Circle R Drive	Mountain Ridge Road	W. Lilac Road	2-Ln	9,800	Mar-11	1,770	B
Old Castle Road	Old Highway 395	Lilac Road	2-Ln	9,800	Mar-11	6,840	D
E. Vista Way	SR-76	Gopher Canyon Road	2-Ln w/ TWLTL	13,500	Dec-12	15,120	E
E. Vista Way	Gopher Canyon Road	Osborne Street	2-Ln w/ TWLTL	13,500	Dec-12	21,020	F
Old River Road	SR-76	Camino Del Rey	2-Ln	9,800	Dec-12	4,070	C
Champagne Boulevard	Old Castle Road	Lawrence Welk Drive	2-Ln	10,900	Mar-12	4,170	C
Pankey Road	Pala Mesa Drive	SR-76	2-Ln	4,500	Dec-12	70	A

TABLE 3.2
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Roadway	From	To	Cross-Section	LOS Threshold (LOS D)	Traffic Count Date	Average Daily Traffic (ADT)	Level of Service (LOS)
Lilac Road	Couser Canyon Road	W. Lilac Road	2-Ln	7,800	Dec-12	1,150	A
Lilac Road	W. Lilac Road	Old Castle Road	2-Ln	7,800	Mar-11	2,640	A
Lilac Road	Old Castle Road	Anthony Road	2-Ln	10,900	Sep-11	9,010	D
Lilac Road	Anthony Road	Betsworth Road	2-Ln	10,900	Sep-11	8,740	D
Lilac Road	Betsworth Road	Valley Center Road	2-Ln	13,500	Sep-11	9,620	D
Valley Center Road	Woods Valley Road	Lilac Road	4/Ln w/ TWLTL/RM	27,000	Dec-12	21,290	C
Valley Center Road	Lilac Road	Miller Road	4-Ln w/ RM	33,400	Sep-11	24,280	B
Valley Center Road	Miller Road	Cole Grade Road	4-Ln w/ RM	27,000	Sep-11	22,440	C
Valley Center Road	Cole Grade Road	Vesper Road	2-Ln	13,500	Sep-11	11,490	D
Miller Road	Misty Oak Road	Valley Center Road	2-Ln	7,000	Sep-11	1,460	A
Cole Grade Road	Fruitvale Road	Valley Center Road	2-Ln w/ TWLTL	13,500	Sep-11	10,660	D

Source: Chen Ryan Associates; May 2014

Notes:
Bold letter indicates unacceptable LOS E or F.
RM = Raised Median.
SM = Striped Median.
TWLTL = Two-Way Left-Turn Lane.

As shown in the table, all study roadways are currently operating at acceptable LOS D or better under Existing conditions, with the following three (3) exceptions:

- Gopher Canyon Road, between E. Vista Way and I-15 SB Ramps – LOS F;
- E. Vista Way, between SR-76 and Gopher Canyon Road – LOS E; and
- E. Vista Way, between Gopher Canyon Road and Osborne Street – LOS F.

Intersection Analysis

Table 3.3 displays intersection level of service and average vehicle delay results for the key study area intersections under Existing conditions. Level of service calculation worksheets for Existing conditions are provided in **Appendix F**.

TABLE 3.3
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Intersection	Traffic Control	Traffic Count Date	AM Peak Hour		PM Peak Hour	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
1. E. Vista Way / Gopher Canyon Road	Signal	Nov-11	172.8	F	212.0	F
2. SR-76 / Old River Road/E. Vista Way	Signal	Nov-08	23.7	C	32.0	C
3. SR-76 / Olive Hill Road/Camino Del Rey	Signal	Sep-11	21.6	C	34.5	C
4. Old River Road / Camino Del Rey	OWSC	Nov-12	23.2	D	12.2	B
5. W. Lilac Road / Camino Del Rey	OWSC	Jan-11	15.7	C	11.0	B
6. Old Highway 395 / SR-76	Signal	Mar-11	29.0	C	39.8	D
7. Pankey Road / SR-76	TWSC	Dec-11	12.5	B	15.2	C
8. Old Highway 395 / E. Dulin Road	OWSC	Mar-11	12.8	B	11.2	B
9. Old Highway 395 / W. Lilac Road	TWSC	Mar-11	14.7	C	13.3	B
10. I-15 SB Ramps / Old Highway 395	OWSC	Mar-11	10.6	B	12.1	B
11. I-15 NB Ramps / Old Highway 395	OWSC	Mar-11	9.8	A	11.2	B
12. Old Highway 395 / Camino Del Rey	OWSC	Mar-11	10.1	B	11.0	B
13. Old Highway 395 / Circle R Drive	OWSC	Mar-11	20.4	C	22.5	C
14. I-15 SB Ramps / Gopher Canyon Road	OWSC	Nov-11	468.2	F	173.0	F
15. I-15 NB Ramps / Gopher Canyon Road	OWSC	Nov-11	30.5	D	1945.4	F
16. Old Highway 395 / Gopher Canyon Road	Signal	Mar-11	11.0	B	14.7	B
17. Old Highway 395 / Old Castle Road	Signal	Mar-11	13.9	B	15.7	B
18. W. Lilac Road / Covey Lane	TWSC	Oct-12	8.8	B	9.3	A
19. Mountain Ridge Road / Circle R Drive	TWSC	Mar-11	9.3	A	9.6	A
20. W. Lilac Road / Circle R Drive	OWSC	Mar-11	9.3	A	9.3	A
21. Lilac Road / W. Lilac Road	OWSC	Mar-11	9.6	A	9.9	A
22. Lilac Road / Old Castle Road	OWSC	Mar-11	11.8	B	17.8	C
23. Valley Center Rd / Lilac Road	Signal	Mar-11	10.5	B	22.6	C

TABLE 3.3
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Intersection	Traffic Control	Traffic Count Date	AM Peak Hour		PM Peak Hour	
			Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
24. Miller Road / Valley Center Road	OWSC	Sep-11	16.9	C	25.0	D
25. Cole Grade Road / Valley Center Road	Signal	Sep-11	31.1	C	34.9	C

Source: Chen Ryan Associates; May 2014

Notes:
Bold letter indicates unacceptable LOS E or F.
AWSC = All-Way Stop Controlled.
TWSC = Two-Way Stop Controlled.
OWSC = One-Way Stop Controlled.
For OWSC and TWSC intersections, the delay shown is the worst delay experienced by any of the approaches.

As shown in the table, all of the study area intersections are currently operating at acceptable LOS D or better, with the following three (3))exceptions:

- E. Vista Way / Gopher Canyon Road – LOS F during both the AM and PM peak hours;
- I-15 SB Ramps / Gopher Canyon Road (Caltrans) – LOS F during both the AM and PM peak hours; and
- I-15 NB Ramps / Gopher Canyon Road (Caltrans) – LOS F during the PM peak hour.

Two-Lane Highway Analysis

Table 3.4 displays two-lane highway level of service analysis results for Old Highway 395 under Existing conditions. The two-lane highway level of service analysis was performed utilizing the methodology presented in Chapter 2.0.

TABLE 3.4
TWO-LANE HIGHWAY LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

2-Ln Highway	From	To	LOS Threshold (LOS D)	Traffic Count Date	Average Daily Traffic (ADT)	Level of Service (LOS)
Old Highway 395	Pala Mesa Drive	SR-76	16,200	Mar-12	4,770	D or better
Old Highway 395	SR-76	E. Dulin Road	16,200	Mar-11	4,720	D or better
Old Highway 395	E. Dulin Road	W. Lilac Road	16,200	Mar-11	4,340	D or better

TABLE 3.4
TWO-LANE HIGHWAY LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

2-Ln Highway	From	To	LOS Threshold (LOS D)	Traffic Count Date	Average Daily Traffic (ADT)	Level of Service (LOS)
Old Highway 395	W. Lilac Road	I-15 SB Ramps	16,200	Mar-11	4,450	D or better
Old Highway 395	I-15 SB Ramps	I-15 NB Ramps	16,200	Mar-11	3,600	D or better
Old Highway 395	I-15 NB Ramps	Camino Del Rey	16,200	Mar-11	2,430	D or better
Old Highway 395	Camino Del Rey	Circle R Drive	16,200	Mar-11	5,820	D or better
Old Highway 395	Circle R Drive	Gopher Canyon Road	16,200	Mar-11	10,710	D or better
Old Highway 395	Gopher Canyon Road	Old Castle Road	16,200	Mar-11	8,660	D or better

Source: Chen Ryan Associates; May 2014

As shown, all of the study area segments along Old Highway 395 are currently operating at acceptable LOS D or better.

Freeway Segment Analysis

Table 3.5 displays freeway level of service analysis results for I-15 under Existing conditions. The freeway segment level of service analysis was performed utilizing the methodology presented in Chapter 2.0.

As shown in Table 3.5, all study area segments along I-15 currently operate at acceptable LOS D or better under Existing conditions.

Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the signalized intersections along SR-76 within the study area were analyzed under Existing conditions using the ILV procedures as described in Chapter 2.0. Note that ramp intersections along I-15 are stop-controlled and were therefore not analyzed in this study. ILV analysis results are displayed in **Table 3.6** and analysis worksheets for the Existing conditions are provided in **Appendix G**.

TABLE 3.5
FREEWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Freeway	Segment	ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	Peak Hour Factor (PHF)	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS
I-15	Riverside County Boundary to Old Highway 395	134,000	8.4%	11,321	0.64	4	0.95	6.75%	1,957	0.833	D
I-15	Old Highway 395 to SR-76	134,000	7.4%	9,969	0.73	4	0.95	6.75%	1,984	0.844	D
I-15	SR-76 to Old Highway 395	113,000	7.8%	8,839	0.69	4	0.95	8.40%	1,661	0.707	C
I-15	Old Highway 395 to Gopher Canyon Road	110,000	8.1%	8,884	0.67	4	0.95	8.40%	1,627	0.692	C
I-15	Gopher Canyon Road to Deer Springs Road	117,000	8.1%	9,449	0.67	4	0.95	13.20%	1,770	0.753	C
I-15	Deer Springs Road to Centre City Parkway	117,000	8.0%	9,400	0.66	4	0.95	13.20%	1,752	0.745	C
I-15	Centre City Parkway to El Norte Parkway	111,000	8.0%	8,918	0.66	4	0.95	13.20%	1,662	0.707	C
I-15	El Norte Parkway to SR-78	127,000	7.9%	9,996	0.66	4	0.95	10.00%	1,836	0.781	C
I-15	SR-78 to W Valley Parkway	192,000	8.1%	15,626	0.60	5+2ML	0.95	10.00%	1,480	0.630	B
I-15	W Valley Parkway to Auto Parkway	179,000	8.1%	14,568	0.60	5+2ML	0.95	10.00%	1,380	0.587	B
I-15	Auto Parkway to W Citracado Parkway	172,000	7.8%	13,340	0.60	5+2ML	0.95	10.00%	1,256	0.534	B
I-15	W Citracado Parkway to Via Rancho Parkway	196,000	7.8%	15,201	0.60	5+2ML	0.95	7.00%	1,411	0.600	B
I-15	Via Rancho Parkway to Bernardo Drive	198,000	7.4%	14,572	0.58	5+2ML	0.95	7.00%	1,312	0.558	B
I-15	Bernardo Drive to Rancho Bernardo Road	201,000	7.4%	14,793	0.58	5+2ML	0.95	7.00%	1,332	0.567	B

TABLE 3.5
FREEWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Freeway	Segment	ADT	Peak Hour %	Peak Hour Volume	Directional Split	# of Lanes Per Direction	Peak Hour Factor (PHF)	% of Heavy Vehicle	Volume (pc/h/ln)	V/C	LOS
I-15	Rancho Bernardo Road to Bernardo Center Drive	209,000	7.3%	15,345	0.54	5+2ML	0.95	7.00%	1,280	0.545	B
I-15	Bernardo Center Drive to Camino Del Norte	214,000	7.3%	15,712	0.54	5+2ML	0.95	7.00%	1,311	0.558	B

Source: Caltrans, Chen Ryan Associates; May 2014

Notes:
Bold letter indicates unacceptable LOS E or F.
ML = Managed Lane.

TABLE 3.6
RAMP INTERSECTION CAPACITY ANALYSIS
EXISTING CONDITIONS

Intersection	Peak Hour	ILV / Hour	Description
SR-76 / Old River Road/E. Vista Way	AM	1,503	*>1500: (Over Capacity)*
	PM	1,255	*1200-1500: (At Capacity)*
SR-76 / Olive Hill Road/Camino Del Rey	AM	1,202	*1200-1500: (At Capacity)*
	PM	1,370	*1200-1500: (At Capacity)*
SR-76 / Old Highway 395	AM	1,001	*<1200: (Under Capacity)*
	PM	1,035	*<1200: (Under Capacity)*

Source: Chen Ryan Associates; May 2014

As shown in the table, all three (3) intersections along SR-76 currently operate at "Under Capacity" and/or "At Capacity", with the exception of SR-76 / Old River Road/E. Vista Way intersection which operates at "Over Capacity" during the AM peak hour.

3.4 Existing Parking, Transit, and On-Site Circulation

The current site for the project generally consists of agricultural uses. Based upon field reviews, parking and on-site circulation are adequately provided. Transit services are not currently provided on or within a ¼ mile of the project site.

4.0 Project Traffic

This section describes the project, including land uses and estimated trip generation, trip distribution, and trip assignment.

4.1 Project Description

The Mountain Ridge Road Fire Station Alternative was developed based on input from the DSFPD and their interest in a potential permanent fire station within Phase 5 of the project site. At the DSFPD request, this alternative also includes access changes to accommodate the placement of a fire station within Phase 5. This alternative is analyzed such that it can be used in the decision making process to provide the option of approving a permanent fire station in Phase 5 and the associated changes as described herein.

This alternative would encompass the same 608-acre project site and would consist of the same mix of residential, commercial, and institutional uses, along with parks, open space and other project amenities, as the project. Like the project, the residential component of this alternative would contain a maximum of 1,746 units. The project includes a fire station in Phase 3 at the site designated as Community Purpose Facility. Under this Alternative, instead of a fire station in Phase 3, a permanent new DSFPD fire station within a two-acre site would be located in Phase 5. To accommodate the fire station in the Phase 5 location, this alternative includes improving Mountain Ridge Road to a County public road and eliminating the gates the project includes along Mountain Ridge Road and Lilac Hills Ranch Road in the southern area of the site (i.e., in Phases 4 and 5). All other aspects of this alternative would be the same as the project and would require a GPA, a Specific Plan, Rezone, Master Tentative Map, subsequent implementing Tentative Maps, MUPs for the WRF and the public park (P-7), and Site Plan for all private parks.

Birdsong Drive, between Street "Z" and W. Lilac Road will serve as an interim secondary access route for the initial phase of Phase A (SFD-1 and SFD-2 as shown in Figure 1-3) during construction of Main street. After the construction of Main Street has been completed, between Street "Z" and W. Lilac Road, Birdsong Drive will revert to a private driveway for use by the owner of APN 128-280-56.

The project consists of a mix of residential, commercial and institutional uses, along with parks and open space. The following list outlines the specific trip generating land uses:

<u>Residential – a total of 1,746 units</u>

- 903 traditional single-family detached homes;
- 375 multi-family homes (for-rent and for-sale at 20 or more dwelling units per acre);
- 468 age-restricted, single family homes (senior community); and
- Necessary facilities and amenities to serve the senior population, including a senior community center, an assisted living facility (consists of 200 beds).

Commercial – a total of 15.3 acres

- 61,500 square feet of retail uses which may include a 25,000-square foot general store – local serving and small scale specialty retail, restaurants and cafes, a veterinary clinic, and a day care facility;
- 28,500 square feet of office uses; and
- A 50-room country inn.

Institutional facilities

- A 10.0-acre church site; and
- A 12.0-acre K-8 school.

Parks and CPF area facilities

- A 40,000 square-foot CPF area comprised of a private recreational center; and
- 23.6 acres of public and private parks.

A Water Reclamation Facility (WRF)

- 2.4 acres

An on-site Recycling and Green Waste Drop-off Facility (RF)

- 0.6 acres

Interim Fire Station

An interim fire station with up to 3-staff could be located anywhere within the project site. However, this fire station would be built in place of two equivalent dwelling units and would not result in additional traffic to the overall project. A fire station trip generation survey was conducted and discussed in detail later in this chapter.

Permanent Fire Station

Instead of a fire station in Phase 3, a permanent new DSFPD fire station within a two-acre site would be located in Phase 5. The fire station is estimated to be 4,500 square feet and staffed with maximum 3-person crews. Since a fire station trip generation rate is not available in both *SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, April 2002)* and *ITE Trip Generation Manual (8th Edition)*, a trip generation survey was conducted at existing fire stations in the area of the project. A total of nine fire stations participated in the survey and it was determined that the average daily trip per personnel is 4.34 trips, while the highest is 5.33. The 5.33 trips/personnel rate was chosen to utilize the most conservative trip generation rate. As a result, the 4,500 square-foot Lilac Hills Ranch Fire Station Alternative fire station is estimated to generate 16 trips per day. The detailed fire station trip generation survey data is included **Appendix H**. The Mountain Ridge Road Fire Station Alternative proposes to convert Mountain Ridge Road from a 2-lane private road with restricted access, to a Rural Residential Collector (Local Public Road) at the beginning of Phase D (construction of Phase 5 of the project), as well as removing all access restriction (gates) along Lilac Hills Ranch Road.

Mountain Ridge Road would remain as a 2-lane private road during Phases A through C, therefore the project trip distribution, assignment, as well as associated impact remain the same as those discussed in the TIS for the project. However, project trips distribution for Phase D and beyond were changed to reflect the removal of all gates along Lilac Hills Ranch Road. Unrestricted project access is provided at W. Lilac Road via Main Street, Circle R Drive via Mountain Ridge Road, and Covey Lane.

4.2 Project Phasing

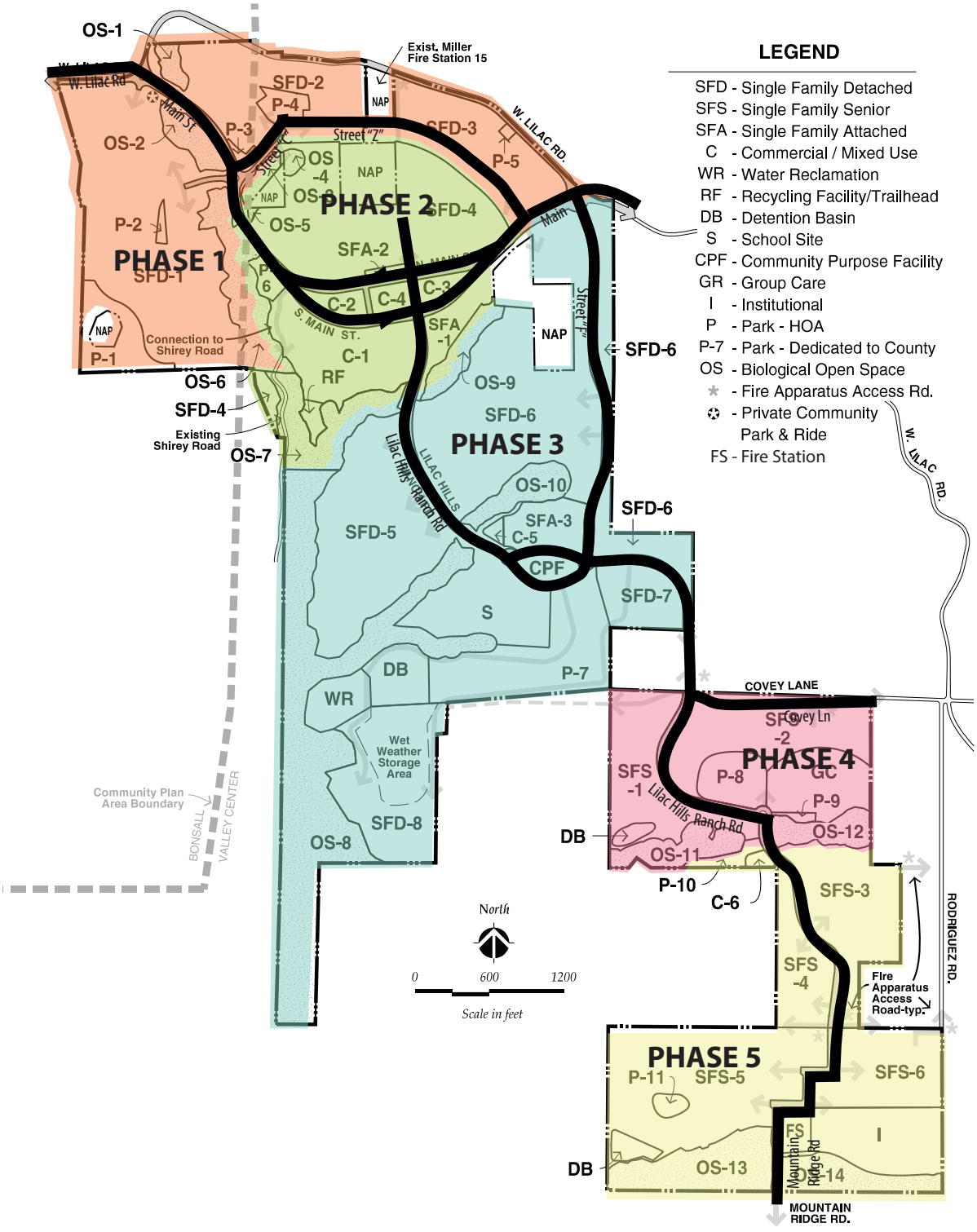
A project site plan by "Specific Plan" phasing is displayed in **Figure 4-1** with associated land use breakdowns listed in **Table 4.1** below. Note that each phase could potentially include sub-phases, however, impact and mitigation are determined based on EDUs and ADTs.

TABLE 4.2
TRAFFIC ANALYSIS PHASING AND ACCESS REQUIREMENTS

Phasing	Specific Plan					Access / Spine Road
	1	2	3	4	5	
Traffic Analysis Phase A	●					- Main St, between West Lilac Rd and St "C"; - Main St, between St "Z" and W. Lilac Rd; - St "C" and St "Z"; and - Birdsong Dr (Interim Access during initial phase of Phase A), between St "Z and W. Lilac Rd.
Traffic Analysis Phase B	●			●		- All roads listed in Phase A, with the exception of Birdsong Drive; and - Covey Ln.
Traffic Analysis Phase C	●	●		●		- All roads listed in Phase B; and - Main St, between St "C" and St "Z".
Traffic Analysis Phase D	●	●		●	●	- All roads listed in Phase C; and - Lilac Hills Ranch Rd, between Covey Ln and Mountain Ridge Rd.
Traffic Analysis Phase E (Buildout)	●	●	●	●	●	- All roads listed in Phase D; - Lilac Hills Ranch Rd, north of Covey Ln to Main St; and - St "F", between W. Lilac Rd and Lilac Hills Ranch Rd.

Source: Chen Ryan Associates; May 2014

As displayed in the table, TA **Phase A** includes Phase 1 of the "Specific Plan"; TA **Phase B** includes Phases 1 and 4; TA **Phase C** includes Phases 1, 2, and 4; TA **Phase D** includes Phases 1, 2, 4, and 5; and **Phase E** incudes all five Specific Plan phases.



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

CHEN RYAN

Figure 4-1

Project Site Plan by Specific Plan Phasing

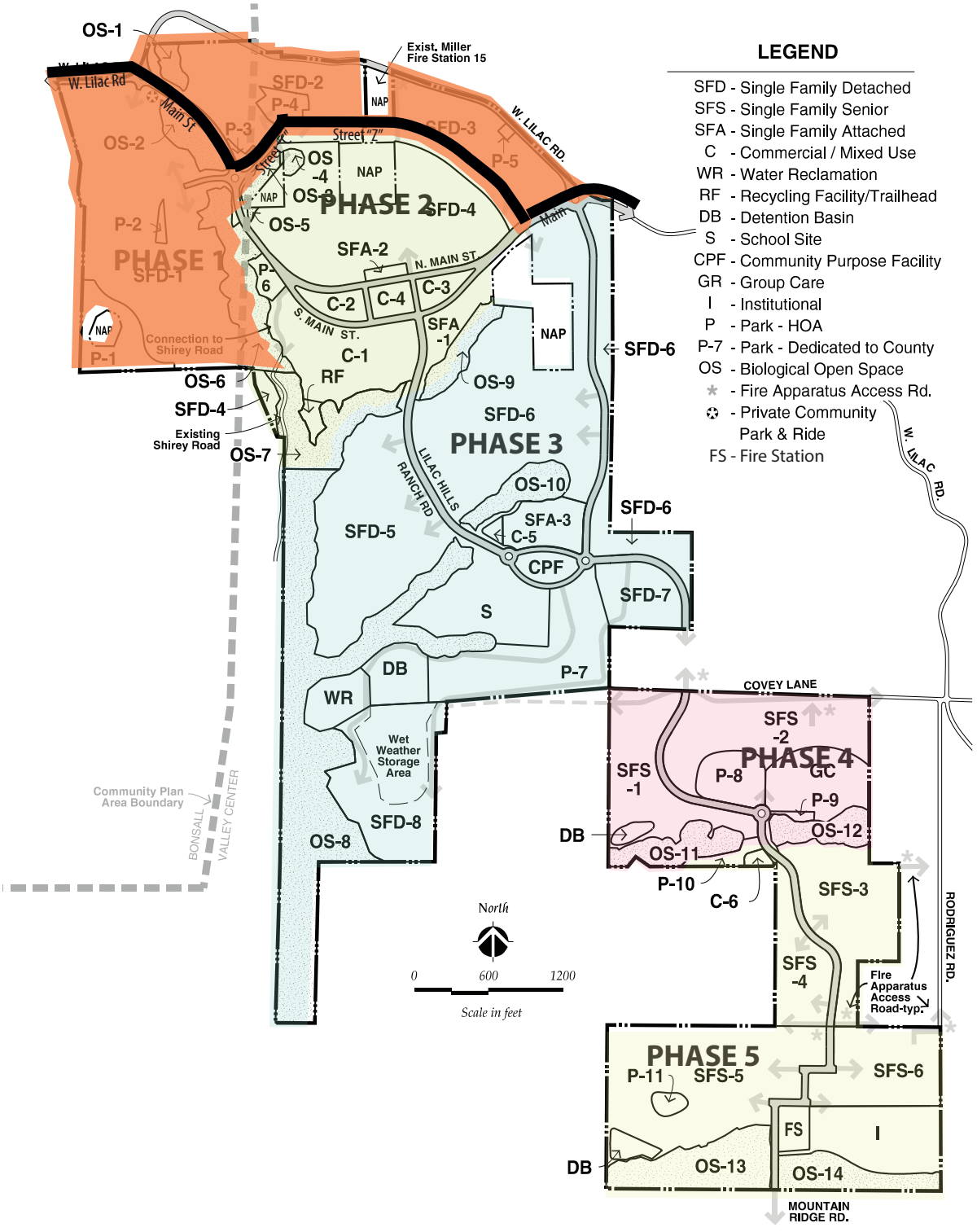
TABLE 4.1
PROJECT LAND USE BY SPECIFIC PLAN PHASING
BY SANDAG LAND USE CATEGORY

SANDAG Equivalent Land Use	Unit	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Single Family	DU	352	196	355	-	-
Multi-Family	DU	-	270	105	-	-
Senior Community	DU	-	-	-	171	297
Assisted Living	Bed	-	-	-	200	-
Specialty Retail / Strip Commercial	KSF	-	55.0	4.0	-	2.5
Office	KSF	-	25.0	3.5	-	-
Country Inn / B&B	Room	-	50	-	-	-
Church	AC	-	-	-	-	10.0
Elementary School (K-5)	Student	-	-	568	-	-
Middle School (6-8)	Student	-	-	132	-	-
CPF (Recreation Center)	KSF	-	-	40.0	-	-
Neighborhood/County Park	AC	4.5	0.8	13.5	3.7	1.1
Water Reclamation	AC	-	-	2.4	-	-
Recycling Center	AC	-	0.6	-	-	-
Fire Station	Personnel	-	-	-	-	3

Source: Specific Plan Table 3, Chen Ryan Associates; May 2014

For traffic impact evaluation purposes, a set of "Traffic Analysis (TA)" phases (A–E) were developed to best represent the anticipated construction phasing, as shown in **Table 4.2**. These phases are carried forward and served as the basis for traffic analysis and impact/mitigation identifications in this study. Table 4.2 also discusses the access/spine roads needed for each of the traffic analysis phases. **Figures 4-2.A** through **4-2.E** display the site plans and access requirements for each of the traffic analysis phases A though E, respectively.

Traffic Analysis Phase A = Specific Phase 1



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

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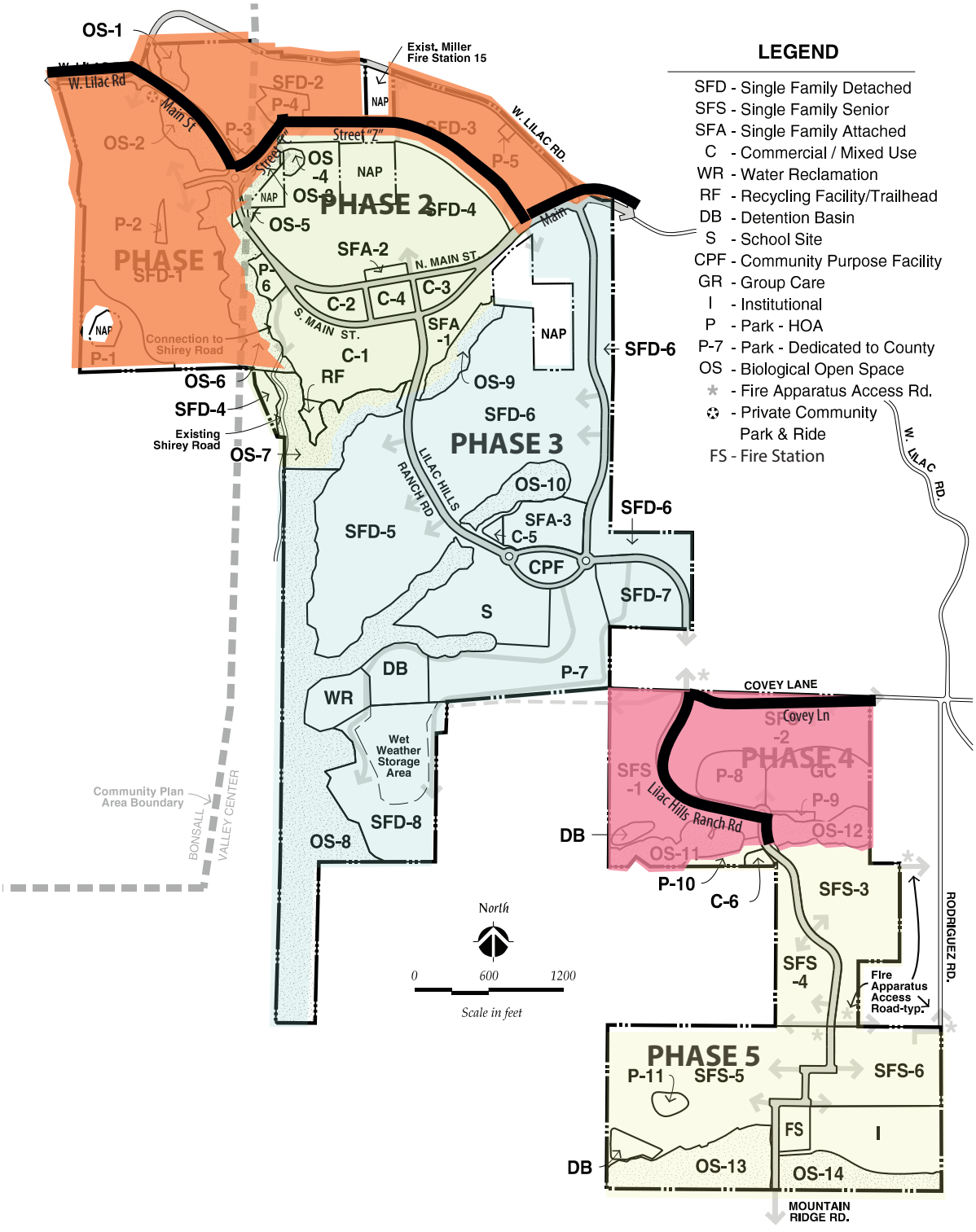
Figure 4-2.A
Project Site Plan and Access - Traffic Analysis Phase A

Traffic Analysis Phase B = Specific Phases 1 and 4



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

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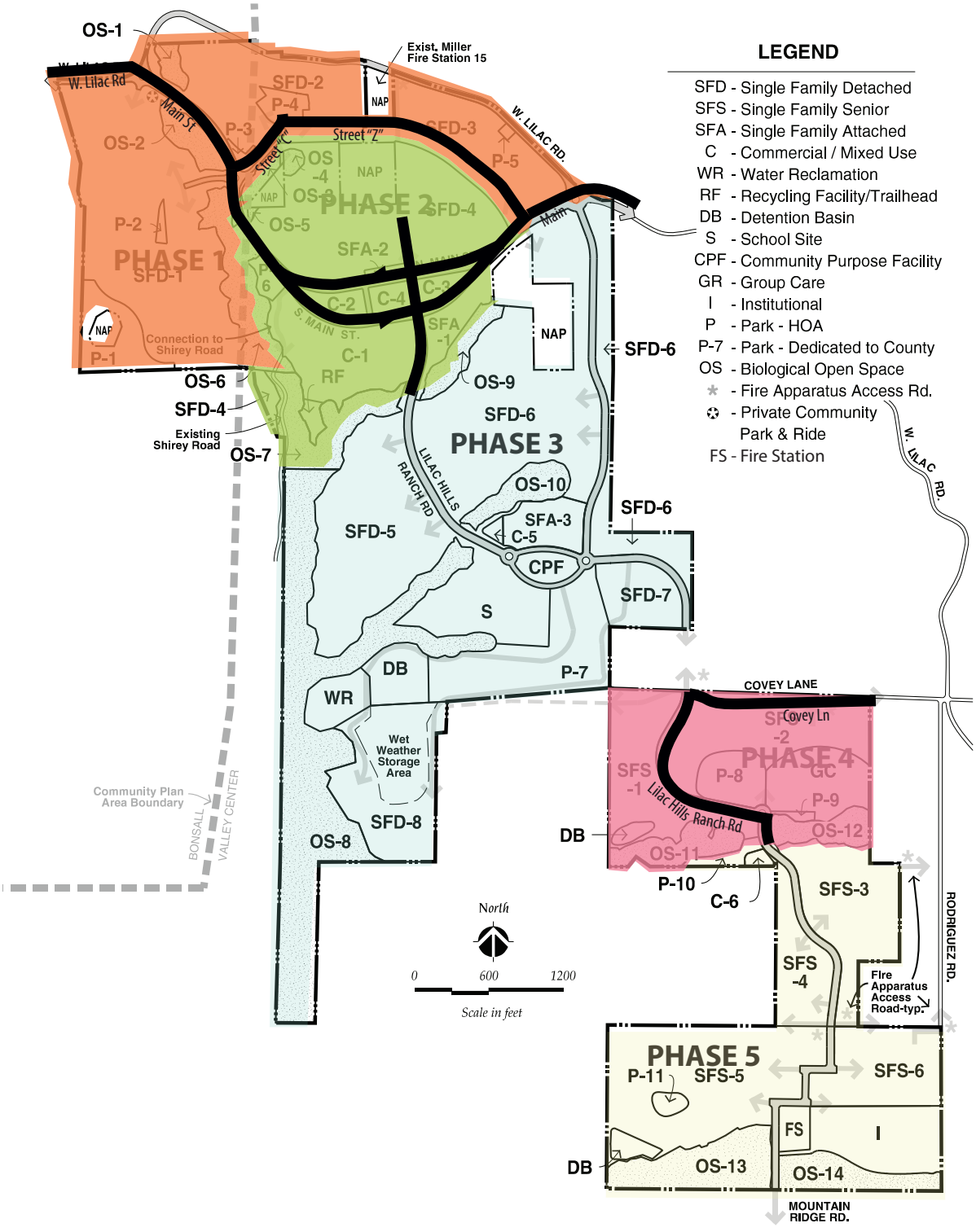
Figure 4-2.B

Project Site Plan and Access - Traffic Analysis Phase B

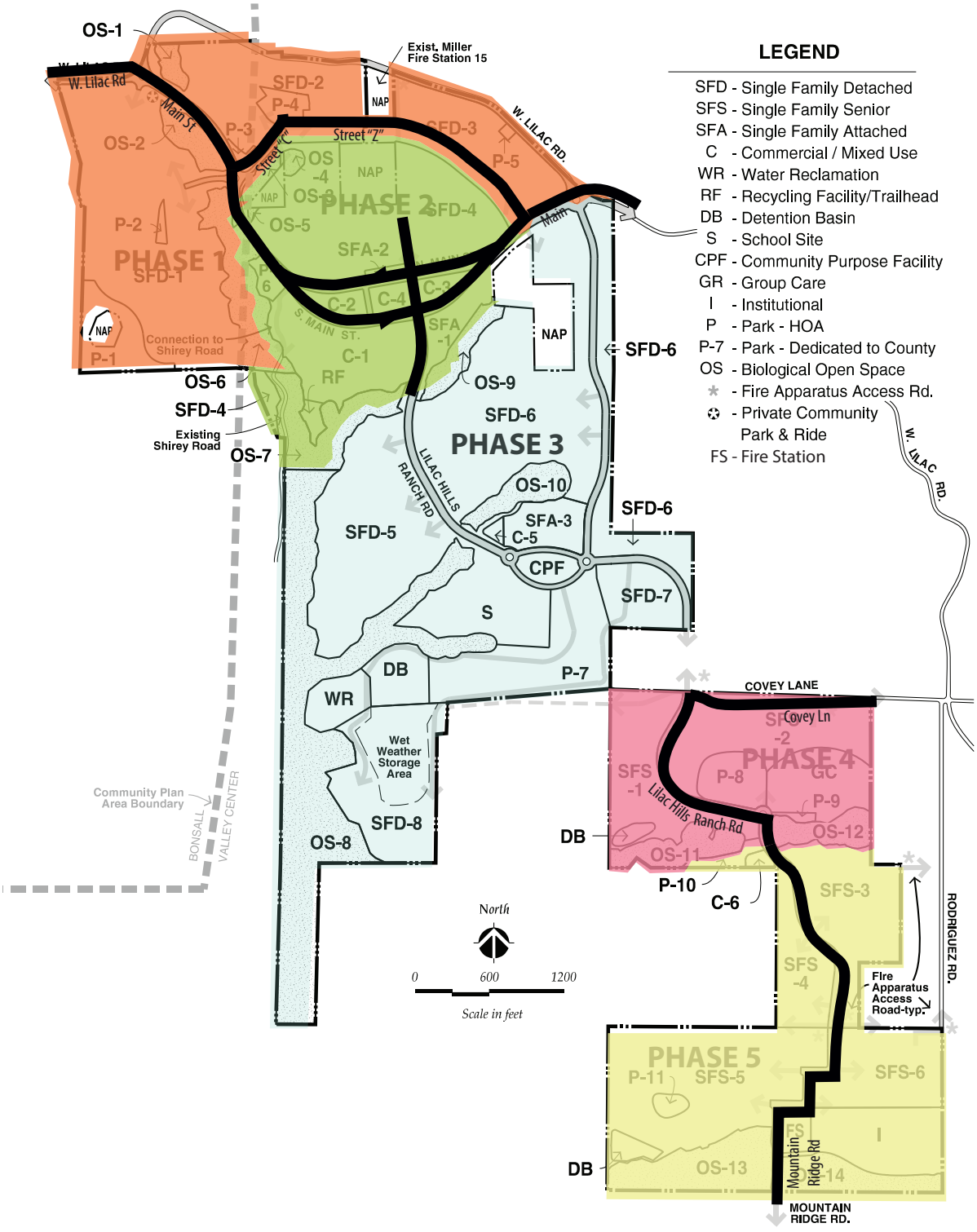
Traffic Analysis Phase C = Specific Phases 1, 2 and 4



Lilac Hills Ranch - Mountain Ridge Road
Fire Station Alternative
CHEN RYAN

Figure 4-2.C
Project Site Plan and Access -
Traffic Analysis Phase C

Traffic Analysis Phase D = Specific Phases 1, 2, 4 and 5



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

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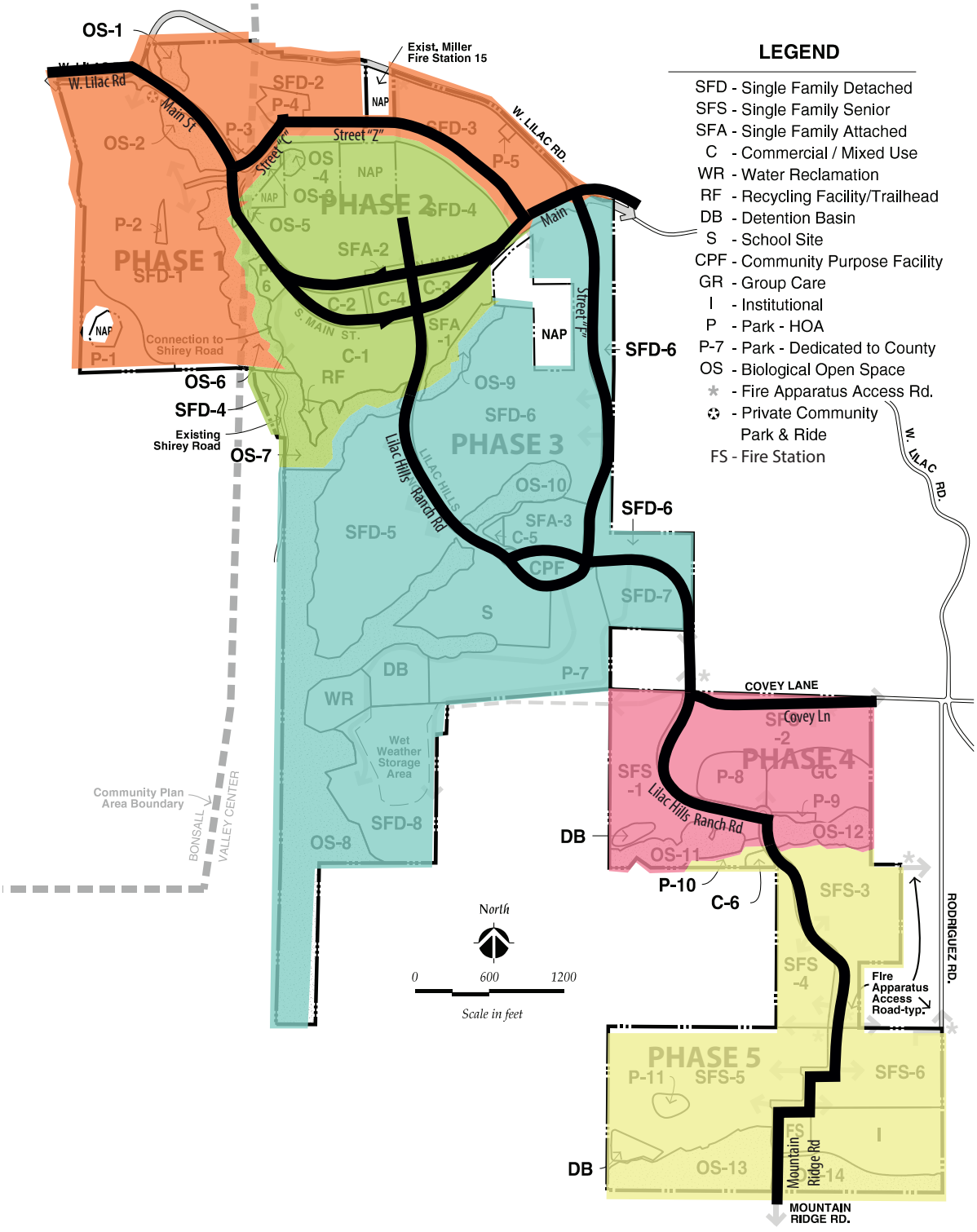
Figure 4-2.D

Project Site Plan and Access - Traffic Analysis Phase D



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

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Figure 4-2.E

Project Site Plan and Access - Traffic Analysis Phase E (Buildout)

Table 4.3 shows the project land use assumptions by traffic analysis phasing which represents the anticipated construction phasing. Phase E indicates project buildout. A number of statistical refinements were made to be consistent with the specific plan.

TABLE 4.3
PROJECT LAND USES BY TRAFFIC ANALYSIS PHASING
BY SANDAG LAND USE CATEGORY

SANDAG Equivalent Land Use	Unit	Phase A	Phase B	Phase C	Phase D	Phase E
Single Family	DU	352	352	548	548	903
Multi-Family	DU	-	-	270	270	375
Senior Community	DU	-	171	171	468	468
Assisted Living	Bed	-	200	200	200	200
Specialty Retail / Strip Commercial	KSF	-	-	55.0	57.5	61.5
Office	KSF	-	-	25.0	25.0	28.5
Country Inn / B&B	Room	-	-	50	50	50
Church	AC	-	-	-	10.0	10.0
Elementary School (K-5)	Student	-	-	-	-	568
Middle School (6-8)	Student	-	-	-	-	132
CPF (Recreation Center)	KSF	-	-	-	-	40.0
Neighborhood/County Park	AC	4.5	8.2	9.0	10.1	23.6
Water Reclamation	AC	-	-	-	-	2.4
Recycling Center	AC	-	-	0.6	0.6	0.6
Fire Station	Personnel	-	-	-	3	3

Source: Specific Plan Table 3, Chen Ryan Associates; May 2014

4.3 Project Trip Generation, Distribution, and Assignment

4.3.1 Project Trip Generation

Trip generation rates for the proposed Lilac Hills Ranch project were developed utilizing SANDAG's *Guide to Vehicular Traffic Generation Rates for the San Diego Region* (SANDAG, April 2002). **Tables 4.4** through **4.8** display daily, as well as AM and PM peak hour project trip generation for the five TA phases (A-E), respectively.

TABLE 4.4
LILAC HILLS RANCH PROJECT TRIP GENERATION - PHASE A
BY SANDAG LAND USE CATEGORY

SANDAG Equivalent Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	352	10 / DU	3,520	8%	282 (85-in / 197-out)	10%	352 (246-in / 106-out)
Neighborhood/County Park	4.5	5 / AC	23	4%	1 (1-in / 0-out)	8%	2 (1-in / 1-out)
Total by Phase A			3,543		283 (86-in / 197-out)		354 (247-in / 107-out)

Source: Chen Ryan Associates; May 2014

As shown in Table 4.4, Phase A of the proposed Lilac Hills Ranch project would generate a total of 3,543 daily trips, including 282 AM peak hour trips and 353 PM peak hour trips. Minor statistical refinements were made to be consistent with the specific plan under Phase A which resulted in an additional 27 daily trips including 2 AM peak hour trips and 3 PM peak hour trips. However, based upon a review of Section 5.1 (Existing Plus Project Phase A Conditions), this minor increase in trip generation would not result in additional deficient facilities or significant traffic impacts. Hence, the traffic impact analysis in Chapter 5 was not modified.

TABLE 4.5
LILAC HILLS RANCH PROJECT TRIP GENERATION - PHASE B
BY SANDAG LAND USE CATEGORY

SANDAG Equivalent Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	352	10 / DU	3,520	8%	282 (85-in / 197-out)	10%	352 (246-in / 106-out)
Senior Community	171	4 / DU	684	5%	34 (14-in / 21-out)	7%	48 (29-in / 19-out)
Assisted Living	200	2.5 / Bed	500	4%	20 (12-in / 8-out)	8%	40 (20-in / 20-out)
Neighborhood/County Park	8.2	5 / AC	41	4%	2 (1-in / 1-out)	8%	3 (1-in / 2-out)
Total by Phase B			4,745		338 (112-in / 226-out)		443 (296-in / 147-out)

Source: Chen Ryan Associates; May 2014

As shown in Table 4.5, the proposed Lilac Hills Ranch project would generate a total of 4,745 daily trips by the end of Phase B, including 338 AM peak hour trips and 443 PM peak hour trips. Minor statistical refinements were made to be consistent with the specific plan under Phase B which resulted in an additional 26 daily trips including 2 AM peak hour trip and 2 PM peak hour trips. However, based upon a review of Section 5.2 (Existing Plus Project Phase B Conditions), this minor increase in trip generation would not result in additional deficient facilities or significant traffic impacts. Hence, the traffic impact analysis in Chapter 5 was not modified.

TABLE 4.6
LILAC HILLS RANCH PROJECT TRIP GENERATION - PHASE C
BY SANDAG LAND USE CATEGORY

SANDAG Equivalent Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	548	10 / DU	5,480	8%	438 (131-in / 307-out)	10%	548 (384-in / 164-out)
Multi-Family	270	6 / DU	1,620	8%	130 (26-in / 104-out)	9%	146 (102-in / 44-out)
Senior Community	171	4 / DU	684	5%	34 (14-in / 21-out)	7%	48 (29-in / 19-out)
Assisted Living	200	2.5 / Bed	500	4%	20 (12-in / 8-out)	8%	40 (20-in / 20-out)
Specialty Retail / Strip Commercial	55.0	40 / KSF	2,200	3%	66 (40-in / 26-out)	9%	198 (99-in / 99-out)
Office	25.0	14 / KSF	350	15%	53 (47-in / 5-out)	15%	53 (11-in / 42-out)
Country Inn / B&B	50	9 / Room	450	8%	36 (14-in / 22-out)	9%	41 (24-in / 16-out)
Neighborhood/County Park	9.0	5 / AC	45	4%	2 (1-in / 1-out)	8%	4 (2-in / 2-out)
Recycling Center	0.6	6 / AC	4	11%	0 (0-in / 0-out)	10%	0 (0-in / 0-out)
Total by Phase C			11,333		779 (285-in / 493-out)		1,077 (671-in / 406-out)

Source: Chen Ryan Associates; May 2014

As shown in Table 4.6, the proposed Lilac Hills Ranch project would generate a total of 11,333 daily trips by the end of Phase C, including 779 AM peak hour trips and 1,077 PM peak hour trips. Minor statistical refinements were made to be consistent with the specific plan under Phase C which resulted in an additional 16 daily trips including 1 AM peak hour trip and 2 PM peak hour trips. However, based upon a review of Section 5.3 (Existing Plus Project Phase C Conditions), this minor increase in trip generation would not result in additional deficient facilities or significant traffic impacts. Hence, the traffic impact analysis in Chapter 5 was not modified.

TABLE 4.7
LILAC HILLS RANCH PROJECT TRIP GENERATION - PHASE D
BY SANDAG LAND USE CATEGORY

SANDAG Equivalent Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	548	10 / DU	5,480	8%	438 (131-in / 307-out)	10%	548 (384-in / 164-out)
Multi-Family	270	6 / DU	1,620	8%	130 (26-in / 104-out)	9%	146 (102-in / 44-out)
Senior Community	468	4 / DU	1,872	5%	94 (37-in / 56-out)	7%	131 (79-in / 52-out)
Assisted Living	200	2.5 / Bed	500	4%	20 (12-in / 8-out)	8%	40 (20-in / 20-out)
Specialty Retail / Strip Commercial	57.5	40 / KSF	2,300	3%	69 (41-in / 28-out)	9%	207 (104-in / 104-out)
Office	25.0	14 / KSF	350	15%	53 (47-in / 5-out)	15%	53 (11-in / 42-out)
Country Inn / B&B	50	9 / Room	450	8%	36 (14-in / 22-out)	9%	41 (24-in / 16-out)
Church	10.0	30 / AC	300	5%	15 (9-in / 6-out)	8%	24 (12-in / 12-out)
Neighborhood/County Park	10.1	5 / AC	51	4%	2 (1-in / 1-out)	8%	4 (2-in / 2-out)
Recycling Center	0.6	6 / AC	4	11%	0 (0-in / 0-out)	10%	0 (0-in / 0-out)
Fire Station*	3	5.33 / Personnel	16	2 / Personnel	6 (3-in / 3-out)	0 / Personnel	0 (0-in / 0-out)
Total by Phase D			12,943		861 (323-in / 539-out)		1,194 (738-in / 457-out)

Source: Chen Ryan Associates; May 2014

Note:
* The fire station is estimated to be 4,500 square feet and staffed with maximum 3-person crews. Since a fire station trip generation rate is not available in both SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, April 2002) and ITE Trip Generation Manual (8th Edition), a trip generation survey was conducted at existing fire stations in the area of the project. A total of nine fire stations participated in the survey and it was determined that the average daily trip per personnel is 4.34 trips, while the highest is 5.33. The 5.33 trips/personnel rate was chosen to utilize the most conservative trip generation rate. As a result, the 4,500 square-foot Lilac Hills Ranch project fire station is estimated to generate 16 trips per day. The detailed fire station trip generation survey data is included Appendix H.

As shown in Table 4.7, the proposed Lilac Hills Ranch project would generate a total of 12,943 daily trips by the end of Phase D, including 861 AM peak hour trips and 1,194 PM peak hour trips. Minor statistical refinements were made to be consistent with the specific plan under Phase D which resulted in a reduction of 9 daily trips. Since this decrease in trip generation would not

change the findings in deficient facilities or significant traffic impacts in Section 5.4 (Existing Plus Phase D Conditions), the traffic impact analysis in Chapter 5 was not modified.

TABLE 4.8
LILAC HILLS RANCH PROJECT TRIP GENERATION - PHASE E (BUILDOUT)
BY SANDAG LAND USE CATEGORY

SANDAG Equivalent Land Use	Units	Trip Rate	Daily Trips	AM Peak Hour		PM Peak Hour	
				%	Trips	%	Trips
Single Family	903	10 / DU	9,030	8%	722 (217-in / 506-out)	10%	903 (632-in / 271-out)
Multi-Family	375	6 / DU	2,250	8%	180 (36-in / 144-out)	9%	203 (142-in / 61-out)
Senior Community	468	4 / DU	1,872	5%	94 (37-in / 56-out)	7%	131 (79-in / 52-out)
Assisted Living	200	2.5 / Bed	500	4%	20 (12-in / 8-out)	8%	40 (20-in / 20-out)
Specialty Retail / Strip Commercial	61.5	40 / KSF	2,460	3%	74 (44-in / 30-out)	9%	221 (111-in / 111-out)
Office	28.5	14 / KSF	399	15%	60 (54-in / 6-out)	15%	60 (12-in / 48-out)
Country Inn / B&B	50	9 / Room	450	8%	36 (14-in / 22-out)	9%	41 (24-in / 16-out)
Church	10.0	30 / AC	300	5%	15 (9-in / 6-out)	8%	24 (12-in / 12-out)
Elementary School (K-5)	568	1.6 / Student	909	32%	291 (175-in / 116-out)	9%	82 (33-in / 49-out)
Middle School (6-8)	132	1.4 / Student	185	30%	56 (33-in / 22-out)	9%	17 (7-in / 10-out)
CPF (Recreation Center[1])	40.0	22.88 / KSF	915	12%	108 (57-in / 51-out)	10%	95 (38-in / 57-out)
Neighborhood/County Park	23.6	5 / AC	118	4%	5 (2-in / 2-out)	8%	10 (5-in / 5-out)
Water Reclamation	2.4	6 / AC	14	11%	2 (1-in / 1-out)	10%	1 (1-in / 1-out)
Recycling Center	0.6	6 / AC	4	11%	0 (0-in / 0-out)	10%	0 (0-in / 0-out)
Fire Station*	3	5.33 / Personnel	16	2 / Personnel	6 (3-in / 3-out)	0	0 (0-in / 0-out)
Total by Phase E - Buildout			19,422		1,669 (695-in / 973-out)		1,829 (1,115-in / 714-out)
Internal Capture			22%		30%		22%
Total External Trips			15,167		1,177 (434-in / 742-out)		1,433 (908-in / 525-out)

Source: Specific Plan Table 3, Chen Ryan Associates; May 2014

Note:
[1] Trip generation rate is based on ITE Trip Generation Manual 8th Edition.

As shown in Table 4.8, the proposed Lilac Hills Ranch project would generate a total of 19,422 daily trips by the end of Phase E (project buildout), including 1,669 AM peak hour trips and 1,829 PM peak hour trips. Minor statistical refinements were made to be consistent with the specific plan under Phase E which resulted in a reduction of 22 daily trips. Since this decrease in trip generation would not change the findings in deficient facilities or significant traffic impacts in Section 5.5 (Existing Plus Phase E Conditions), the traffic impact analysis in Chapter 5 was not modified.

An interim fire station with up to three (3) staff could be located anywhere within the project site. However, this fire station (approximately 16 ADT) would be built in place of two equivalent dwelling units (20 ADT) and would not result in additional traffic to the overall project based on the fire station trip generation survey.

Each trip generation rate includes a number of trip purposes, generally categorized as home based work (HBW), home based other (HBO, consists of shopping, school, recreation, etc.) and non-home based (NHB) trips. For developments with mixed land uses, many of the trips generated would have been served on-site. For example, shopping trips (a part of HBO) would be satisfied by the commercial uses within the project site, as would school trips and recreational trips. The same logic would apply to the trip production/attraction interactions between office and commercial uses. It is a common practice, both nationwide and in the San Diego region, to allow for trip reductions reflecting the internal capture of trips associated with mixed-use developments resulting from the fact that complementary land uses (i.e. residential and commercial) help to serve each other's needs on-site.

The proposed Lilac Hills Ranch project includes residential, commercial, office, school, and recreational uses and not all trips generated would leave the project site given the nature of the project land uses. Estimates for internal versus external trip generation percentages were developed based upon likely origins/destinations of each land use type. Project trips were disaggregated into those that would remain within the project site (internally captured), and those that would leave the project site (external trips). Only external trips were distributed and assigned to the study area roadways at project buildout (Phase E).

As shown in Table 4.8, 22% of daily trips, 30% of AM peak hour trips, and 22% of PM peak hour trips were considered as internal trip capture rates for this TIS. The proposed on-site K-8 school is intended to serve the Lilac Hills Ranch project. A majority of the traffic generated by this school would be internal trips which would not leave the project site. Based on the SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, April 2002), approximately one-third of school trip generation occurs during the AM peak hour. Therefore, a higher AM peak hour internal capture rate of 30% (vs. 22% for daily and for the PM peak hour) is utilized for the overall project.

For comparison purposes, a SANDAG Select Zone Assignment was conducted with the entire project land uses modeled in one Traffic Analysis Zone (TAZ) and the model output indicated a 28.8% daily internal capture rate for this project. The ITE Multi-Use Trip Generation Calculation was also performed and it resulted in internal capture rates of 22.2% (daily), 35.8% (AM peak),

and 22.3% (PM peak). Both the SANDAG model output and ITE Multi-Use Trip Generation Calculation worksheets are included in **Appendix I**.

Specialty Retail and Single Tenant Office Discussion

The project could include the following commercial/retail uses as listed in the Project's Specific Plan document. The specific commercial retail tenants are not known at this time.

Lilac Hills Ranch will include an 80,000 square foot mixed-use pedestrian oriented town center. The town center is designed to feature specialty retail stores, such as a butcher shop, bakery, deli, general merchandise store (general store), hardware store, drug store and produce vendors. By using a number of specialty retailers, residents within the community would be able to visit a variety of different businesses without generating additional vehicle trips to travel to different locations to meet their needs. The town center will be centered along a main street with individual merchant storefronts contributing to the pedestrian orientation, contrary to large commercial grocery centers which combine all of these uses under one big-box structure. Other allowable uses within the Town Center include single-family attached residential; commercial and residential mixed-use; restaurants, cafes; a Farmer's Market; a 50-room Country Inn; single tenant offices and flex-office space such as co-merge; veterinary clinic with boarding of small animals; public uses, religious institutional; post office, library; quasi-public uses such as a day care facility; transit node; utilities necessary to serve the Specific Plan area and other uses as authorized by the C34 Use Regulation.

As part of the specialty retail, the town center will include a general store of up to 25,000 square feet of leasable area, which is designed as a rural general merchandise store that carries a broad selection of merchandise, staple food items, household goods and specialty items. The store is intended as the place where people from the town and surrounding rural areas come to purchase all their general goods. This differs from a convenience store or grocery store in that it will be the main shop for the community rather than a regional grocery store that typically exceed 50,000 square feet of leasable area. The concept of the general store originated in many historic towns and villages when it was an important feature of a pedestrian-oriented place.

Lilac Hills Ranch will also include two neighborhood centers, supporting up to 2,500 square feet and 7,500 square feet of leasable area respectively. Allowable uses within the Neighborhood Centers include single-family attached residential, neighborhood-serving commercial; schools; retail shops and services; restaurants and cafes; private recreation facilities; veterinary clinic with boarding of small animals; public uses; religious and institutional uses; quasi-public uses such as a day care facility; transit node; post office and library; utilities necessary to serve the Specific Plan area and other uses as authorized by the C34 Use Regulations.

A. SANDAG TRIP RATES

Specialty Retail

In analyzing the potential impacts associated with the project, the Lilac Hills Ranch traffic study (TIS) utilized a trip generation rate referred to as "Specialty Retail/Strip Commercial" ("SR/SC") for the future commercial/retail uses. The SR/SC rate is 40 vehicle trips per thousand square feet. This rate was derived utilizing SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region (April 2002).

SANDAG describes the SR/SC type of commercial use in its 9/18/07 land use definitions (See **Appendix J**) as "tourist or specialty commercial shopping areas such as Seaport Village, Marina Village, Ferry Landing at Coronado, Bazaar del Mundo, Flower Hill, Glasshouse Square, The Lumberyard, Park Plaza at the Village, Promenade, Belmont Park, Del Mar Plaza." (http://www.sandag.org/resources/maps_and_gis/gis_downloads/downloads/codes/Land_Use_Definitions.html). Importantly, however, although some of the illustrative examples include "tourist" areas, which differ from the uses proposed as part of the Lilac Hills Ranch project, the majority of the shopping areas listed by SANDAG include high traffic generating land uses including sit down high turnover restaurants that would generate 160 ADT/1,000 SF, fast food restaurants that would generate 700 ADT/1,000 SF, and convenience market (7-Eleven) that would generate 700 ADT/1,000 SF, as well as a variety of other different businesses such as a small general market. The following table describes some of the land uses included in the SANDAG listed example sites:

SANDAG Selected Site	Example Land Uses
Seaport Village	• Restaurants (Edgewater Grill, Greek Islands Café, Harbor House, etc.) • Banks (ATM Direct, Chase, Wells Fargo, etc.) • Shops (The Candy Shack, Wetzel's Pretzels, Crazy Shirts, Destination Travel, Paradise Bakery, etc.)
Coronado Ferry Landing	• Restaurants (Burger King, Village Pizzeria Bayside, Little Piggy's BBQ, Peohe's Restaurant, etc.) • Shops (Art for Wildlife Galleries, Coronado Cupcakery, Bikes & Beyond, Men's Inland Sportswear, Cold Stone Creamery, etc.)
Flower Hill	• Restaurants (Milton's Restaurant, Chipotle Mexican Grill, Burger Lounge, Pannikin Coffee & Tea, etc.) • Shops (Yogurt-Land, Geppeto's Toys, Spa Gregories, Corepower Yoga, The Wine Connection, etc.) • convenience market with gas pumps (Mobil/Circle K)
GlassHouse Square	• Restaurants (Del Taco, In-N-Out Burger, Chuck E Cheese, Panda Express, etc.) • Shops (T Mobile, Sleep Train, etc.) • convenience market (7-Eleven)
Del Mar Plaza	• Restaurants (Del Mar Rendezvous, Smashburger, Pacifica Breeze Cafe, Pacifica Del Mar, etc.) • Shops (White House/Black Market, Haim Salon, Del Mar Chocolate Bar, Sunglass Hut, etc.) • Supermarket (Harvest Ranch - since closed)

Despite a number of high traffic generating land uses, SANDAG has assigned a trip rate of 40 ADT/1,000 SF for these types of commercial uses, as opposed to rates of over 100 ADT/1,000 SF

that otherwise would apply. However, while the SR/SC rate appears low relative to restaurant or grocery store trip rates, the lower rate accounts for the fact that each use is located within walking distance of the other uses. That is the essence of each of the specialty commercial shopping areas SANDAG listed as examples in describing the rate – one vehicle trip to Seaport Village or Flower Hill, for example, would potentially enable the driver to visit a half dozen different businesses without generating additional vehicle trips, thereby substantially reducing the number of trips that otherwise would be generated if these uses were situated in different locations requiring a separate trip to each location.

Similarly, Lilac Hills Ranch is to be developed into a pedestrian oriented self-sustainable community in which all of the residential units would be located within one-half-mile of the community serving commercial areas, and the commercial areas would include multiple businesses. This plan would similarly promote walking and cycling, and the related reduction of vehicular travel.

Overall, because the project does not propose the type of high traffic generating, high turnover type land uses that in part characterize the commercial uses utilized by SANDAG in calculating the 40/1,000 SF SC/SR rate, the project land uses are expected to generate **less** traffic than what the SANDAG defined commercial uses would generate (as described above) and therefore the SR/SC rate is the most appropriate for this analysis.

Single Tenant Office

In analyzing the potential impacts associated with the project, the Lilac Hills Ranch traffic study (TIS) utilized a trip generation rate referred to as "Single Tenant Office" for the proposed office uses. The single tenant office rate is 14 vehicle trips per thousand square feet. This rate was derived utilizing SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region (April 2002).

As identified previously, the project proposes single tenant offices and flex-office space such as co-merge. Co-merge/co-working office spaces provide an official work space for tele-commuters, start-ups, consultants, small businesses, and non-profits. These spaces offer a variety of amenities, including but not limited to official mailing addresses and mail boxes, phone routing and event spaces.

Phone interviews were conducted on 3/3/2014 with seven (7) co-merge/co-working office spaces in the San Diego region and the table below displays the location of the office space, the average people that use the office per day, the square feet of the office space, and the average people per thousand square feet (KSF).

Company Name	Location	Average People Per Day	Sq. Ft	People Per KSF
Hive-Haus	East Village	25	5,500	5
PBC Carlsbad	2173 Salk Ave.	40	18,469	3
Ansir Innovations	4685 Convoy St. #210	35	13,000	3
Co-Merge SD	330 A Street	50	10,000	5
Hera-Hub	Serrento Valley	15	4,800	4
	Mission Valley	15	4,000	4
	Carlsbad	15	3,700	5

Source: Chen Ryan Associates; May 2014

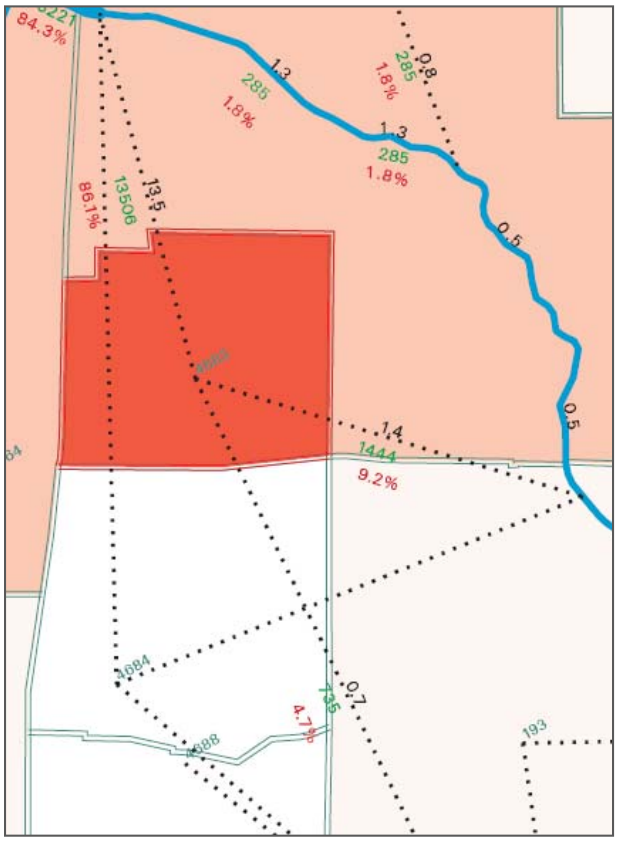
As shown above, there are roughly 4 people per thousand square foot of office space in the respondent locations. *ITE Trip Generation Manual, 9th Edition* includes a trip generation rate per employee for general office uses (see Appendix J), and this rate is 3.32 per employee. With an average of 4 people per 1KSF as determined based on other similar uses, a trip generation rate of 13.3 trips per 1KSF was derived for co-merge/co-working office. This rate of 13.3 is **less** than the rate of 14 which is utilized in the TIS for impact assessment.

B. VALIDATION EXERCISE

To illustrate the propriety of use of the 40/1,000 SF trip generation rate for the Lilac Hills Ranch commercial/retail uses, the traffic engineer worked with SANDAG to conduct a new select zone assignment that replaced 25,000 SF of space analyzed in the TIS at the SR/SC rate of 40/1,000 SF with a "supermarket" trip rate of 150/1,000 SF, which is the rate typically applied to high traffic, large-scale grocery stores such as Von's or Ralphs. The new select zone assignment also replaced 28,500 SF of single-tenant office space analyzed in the TIS at a rate of 14/1,000 SF with 28,500 SF of space analyzed at the "standard commercial office" trip rate of 20/1,000 SF. All other land uses, amounts, and trip rates utilized were unchanged from those in the TIS. The purpose of the analysis was to determine whether use of these higher trip generation rates for these two use types would alter the results of the analysis presented in the TIS.

Below is a screenshot showing the specific land uses that were coded into the model by SANDAG. As shown, the uses included the “LH Supermarket” and “Standard Commercial Office.” Based on the land use mix coded into the model for this exercise, SANDAG forecasts an internal capture rate of 30.5%, which reflects the higher attraction rate attributable to a "supermarket" use than "specialty retail/strip commercial" uses.

Zone	Code	Name	Type	Amount	Person Trips	Vehicle Trips
4683	112	LH SENIOR SINGLE FAMILY	du	468.0	2902.	2025.
4683	121	SINGLE FAMILY	du	903.0	13003.	9076.
4683	122	MULTI-FAMILY	du	375.0	3225.	2264.
4683	1410	CONGREGATE CARE	other	200.0	720.	506.
4683	1512	LH BED & BREAKFAST	room	50.0	815.	502.
4683	2302	RECYCLING CENTER	site	0.6	4.	4.
4683	5014	LH SUPERMARKET	ksf	25.0	5297.	3749.
4683	5030	STRIP COMMERCIAL	ksf	36.5	1832.	1331.
4683	6032	STANDARD COMMERCIAL OFFICE	ksf	28.5	744.	573.
4683	6119	WATER RECLAMATION	site	2.4	20.	14.
4683	6132	CHURCH	acre	10.0	391.	301.
4683	6806	ELEMENTARY SCHOOL	site	1.0	2117.	1183.
4683	7230	LH YMCA	ksf	40.0	1344.	917.
4683	7613	LH ACTIVE PARK II	site	23.6	182.	120.
4683		TOTAL			32597.	22564.



External trips
= 13,506 + 1444 + 735
= 15,685 daily trips

Internal Capture %
= (22,564 - 15,685) / 22,564
= 30.5%

As shown, the internal capture rate would increase to 30.5% with supermarket and standard commercial office uses.

Once the information was coded into the SANDAG model, the next step was to calculate the number of external trips that would be generated under this scenario, i.e., the number of external trips that would be generated under a scenario assuming a 25,000 SF supermarket and 28,500 SF of standard commercial office space. **Table 4.9** illustrates the calculations undertaken and the results of that process.

TABLE 4.9
TRIP GENERATION COMPARISON

Scenario	Total Trip Generation			External Trip Generation		
	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Studied in this TIS (22% internal capture)	19,406	1,663	1,828	15,141	1,171	1,432
w/ 25 KSF Supermarket & 28.5 KSF Standard Office (30.5% internal capture)	22,327	1,802	2,126	15,517	1,252	1,478
25 KSF Supermarket (30.5% internal capture)	*3,750*	*150*	*375*	*2,606*	*104*	*261*
Pass-by Reduction (15% daily/AM & 40% PM)				-391	-16	-104
Transit Reduction[1] (5% AM and PM)				-131	-62	-69
Final Trip Generation w/ 25 KSF Supermarket & 28.5 KSF Standard Office				14,995	1,174	1,305
Change in Trip Generation				-146	+3	-127

Source: Chen Ryan Associates; May 2014

Note:
[1]As indicated in Chapter 15 (Transportation Demand Management Program) of this TIS, an interim transit connections would be provided between Lilac Hills Ranch and the planned regional transit system, until such transit system is extended to the community.

As shown in Table 4.9, the number of external trips that would be generated by the project assuming a 25,000 square-foot supermarket and 28,500 square feet of standard commercial office uses (14,995 ADT) would be almost identical to the number of external trips that would be generated under the land uses and trip rates utilized in the TIS (15,141 ADT). Therefore, it can be concluded that the trip rates used in the TIS are reasonable and accurate, and the conclusions reached in the TIS would not change even if different trip rates had been utilized for the commercial retail and office spaces proposed under the project.

Plan-to-Plan Trip Generation

Table 4.10 displays the amount of traffic generated by the project which exceeds the amount generated by the General Plan approved land uses.

4.3.2 Project Trip Distribution

The distribution of the external project trips was based upon three (3) computer generated "Select Zone" assignments utilizing the Series 12 Year 2050 SANDAG Transportation Model, including 2008 base year, 2050 with Road 3, and without Road 3. The "Select Zone" assignments are included in **Appendix K**. It is important to note that manual adjustments were made to reflect the removal of all gates along Lilac Hills Ranch Road for Phase D and beyond. Separate trip

distributions were developed in conjunction with the varying roadway networks assumed under each of the analysis scenarios, as discussed below:

- Existing + Project (phased) – based upon the "2008 base year" assignments with minor adjustments reflecting project access and frontage assumptions for each of the traffic analysis phases. **Appendix L** includes project trip distribution by phase along project frontage and access roads. The Mountain Ridge Road Fire Station Alternative proposed to convert Mountain Ridge Road from a private road to a public road in conjunction with the construction of Phase D of the project. Since Mountain Ridge Road remained as a private road under Phases A-C of the project (no direct access from the project site), project trips distribution for Phases A-C of the Mountain Ridge Road Fire Station Alternative are the same as the project trips distribution of the project.

- Existing + Cumulative Projects + Project (buildout) – based on the "Existing Plus Project (Phase E – Buildout)" assignments due to transportation network similarities. Pankey Road, north of SR-76 would be constructed with cumulative projects such as Campus Park, Campus Park West, and Meadowood.

- Horizon Year with Road 3 Base + Project (buildout) – based on the "2050 with Road 3" assignments with minor adjustments reflecting project access and frontage assumptions for each of the traffic analysis phases. Appendix L includes project trip distribution by phase along project frontage and access roads. Trip generation shown in Table 4.10 above was utilized for this scenario.

- Horizon Year without Road 3 Base + Project (buildout) – based on the "2050 without Road 3" assignments with minor adjustments reflecting project access and frontage assumptions for each of the traffic analysis phases. Appendix L includes project trip distribution by phase along the project frontage and access roads. Trip generation shown in Table 4.10 above was utilized for this scenario.

TABLE 4.10
LILAC HILLS RANCH INTERNAL AND EXTERNAL PROJECT TRIPS
HORIZON YEAR – GP CONSISTENCY ANALYSIS

Land Use	Quantity	Total Trips			Internal Trips				External Trips			
		Daily	AM Peak Hour	PM Peak Hour	% Internal	Daily	AM Peak Hour	PM Peak Hour	% External	Daily	AM Peak Hour	PM Peak Hour
Lilac Hills Ranch Project		19,406	1,663 (692-in / 970-out)	1,828 (1,115-in / 713-out)	22%	4,266	492 (261-in / 231-out)	395 (206-in / 189-out)	78%	15,141	1,171 (431-in / 739-out)	1,432 (908-in / 525-out)
Rural Residential (General Plan Approved)	-110 DU	-1,320	-106 (-32-in / -74-out)	-132 (-92-in /- 40-out)	0%	0	0 (0-in / 0-out)	0 (0-in / 0-out)	100%	-1,320	-106 (-32-in / -74-out)	-132 (-92-in / -40-out)
Traffic Added to the GP Network		18,086	1,557 (660-in / 896-out)	1,696 (1,023-in / 673-out)	22%	4,266	492 (261-in / 231-out)	395 (206-in / 189-out)	78%	13,821	1,065 (399-in / 665-out)	1,300 (816-in / 485-out)

Source: Chen Ryan Associates; May 2014

Figures 4-3 through **4-7** display the project trip distribution patterns associated with the existing network for the various traffic analysis phases, respectively. **Figures 4-8** and **4-9** display the project trip distribution patterns associated with the Horizon Year mobility element network with and without Road 3, respectively.

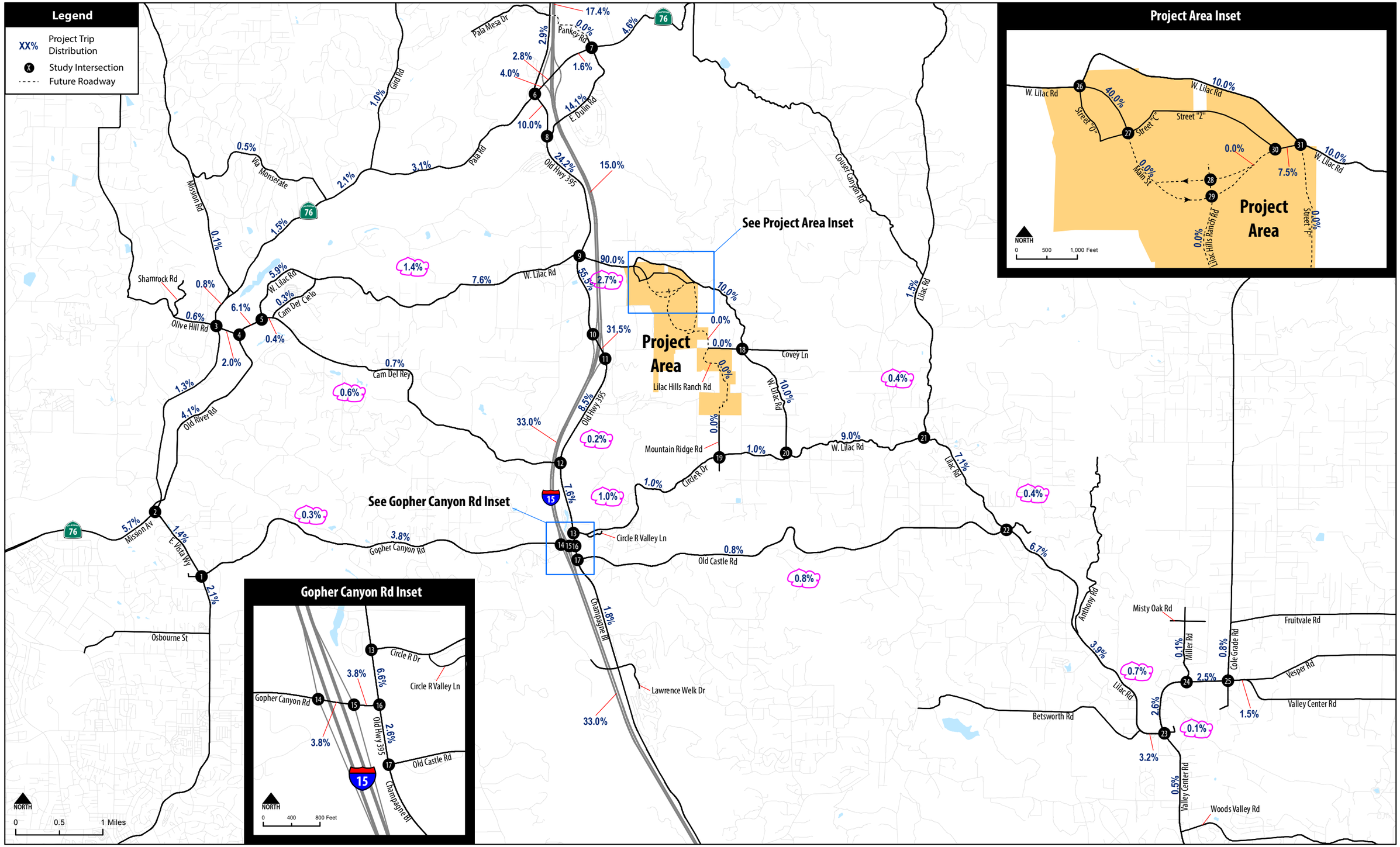
4.3.3 Project Trip Assignment

Based upon the project trip distributions, the external daily and AM/PM peak hour project trips were assigned to the various roadway networks. Seven (7) separate sets of trip assignments were developed including the following:

- Project Phase A land uses on the existing network
- Project Phase B land uses on the existing network
- Project Phase C land uses on the existing network
- Project Phase D land uses on the existing network
- Project Buildout land uses on the existing network
- Project Buildout land uses on the Horizon Year mobility element network with Road 3
- Project Buildout land uses on the Horizon Year mobility element network without Road 3

Figures 4-10A through **4-14B** display the assignment of project trips to the Existing roadway networks and key study area intersections under the various traffic analysis phases.

Similarly, **Figures 4-15A** and **4-16A** display the assignment of project trips to the respective Horizon Year (with and without Road 3) roadway networks.



Lilac Hills Ranch - Mountain Ridge Road Fire Station Alternative

CHEN RYAN

Figure 4-3
Project Trip Distribution (Phase A) - Existing Network