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TRAFFIC IMPACT ANALYSIS
VALIANO
County of San Diego, California
April 10, 2015

Prepared for the County of San Diego

PSD2013-SP-13-001, PDS2013-GPA-13-001, PDS2013-STP-13-003,
PDS2013-TM-5575, PDS2013-REZ-13-001, PDS2013-ER-12-08-002

LLG Ref. 3-12-2152

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has been retained to assess the traffic impacts associated with the proposed Valiano Project. The Project is located at 1091 La Moree Road west of Country Club Drive and south of Hill Valley Road in the Eden Valley area of the San Dieguito Planning Community in the County of San Diego. The study area surrounding the Project site includes roadways located in the County of San Diego, City of San Marcos, and City of Escondido jurisdictions.

Since the preparation of this traffic study, the Project site plan has been reduced from 334 residential dwelling units (DU) to 326 DU (8 less units). The description of the Project, trip generation calculations, and traffic analysis provided in this traffic study utilizes the 334 DU amount, which represents a conservative analysis.

The proposed Project requests a General Plan Amendment to develop 334 (since reduced to 326) residential DU on 339 acres. The Project also proposes to develop a maximum of 54 Second Dwelling Units (SDU) which could be attached or detached from the main unit. The property is currently zoned RS and A70 with minimum lot sizes of 1 and 2 acres. The adopted *General Plan* designations are SR-1 and SR-2, and the Regional Category is Semi-Rural. The Project would require a General Plan Amendment to change the designation to SR-0.5, a Rezone would be required to reduce minimum lot size and change the A70 areas to RS, and a Specific Plan to establish setbacks, etc. The proposed minimum lot size is 6,000 square feet (SF). Typical surrounding lot sizes are 2 to 4 acres to the west and 1 acre to the east.

The Project is calculated to generate 3,786 ADT, with a total of 304 trips during the AM peak hour (88 inbound/216 outbound trips) and 376 total trips during PM peak hour (263 inbound/ 113 outbound).

Based on the County of San Diego, City of San Marcos, and City of Escondido significance criteria, the Project would result in one (1) direct and cumulative impact in the City of Escondido and three (3) significant cumulative-only traffic impacts (two within the City of Escondido, and one within County of San Diego jurisdiction).

Based on City of San Marcos and City of Escondido guidelines, cumulative impacts are considered mitigated through the payment of a fair share amount toward future improvements. Thus, the mitigation measures of fair share payments toward future network improvements would render the Project's cumulative impacts to be less than significant. It should be noted, however, that no impacts were calculated in the City of San Marcos and cumulative impacts to Escondido roadways were mitigated through implementation of direct impact mitigation measures.

For locations within the unincorporated County of San Diego San Dieguito Planning Area, payment toward the County of San Diego Transportation Impact Fee (TIF) Program is required per County guidelines to reduce cumulative impacts to below a level of significance. In order for this GPA project to promote orderly development and comply with the County's TIF Program, the TIF Program shall be updated to include potential changes to the Land Use Element and Mobility Element. The Project shall provide a fair share contribution towards the cost of updating the County's TIF program. The amount of the fair share contribution will be determined at the time the County begins the effort to update the TIF program. The cost of the TIF update will be shared by all of the approved GPAs that are being incorporated into the TIF Program to the satisfaction of the Director of Planning & Development Services. Prior to the recordation of the First Final Map for any unit, the Project shall provide a fair share contribution towards the cost of updating the County's TIF program. The [PDS, LDR] shall review the County's TIF Program and update it to allow the use of a TIF payment to mitigate cumulative traffic impacts. The County's TIF Program update shall be approved by the Board of Supervisors.

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County of San Diego, California
April 10, 2015

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1.0 INTRODUCTION

1.1 Purpose of the Report

The following traffic study has been prepared to determine and evaluate the traffic impacts on the local circulation system due to the Valiano residential development ("Project") in the County of San Diego. This traffic study analyzes intersections, street segments, and mainline freeway segments in the Project vicinity to determine potential impacts related to the traffic generated by the proposed Project.

Included in this traffic study are the following:

- Project Description
- Existing Conditions Discussion
- Analysis Approach and Methodology
- Significance Criteria
- Analysis of Existing Conditions
- Trip Generation/Distribution/Assignment
- Cumulative Projects Discussion (Near-Term Year 2020)
- Analysis of Near-Term Conditions
- Year 2035 (Buildout) Discussion
- Access and Other Issues
- Significance of Impacts and Mitigation Measures

Figure 1–1 shows the vicinity map. ***Figure 1–2*** shows a more detailed project area map.

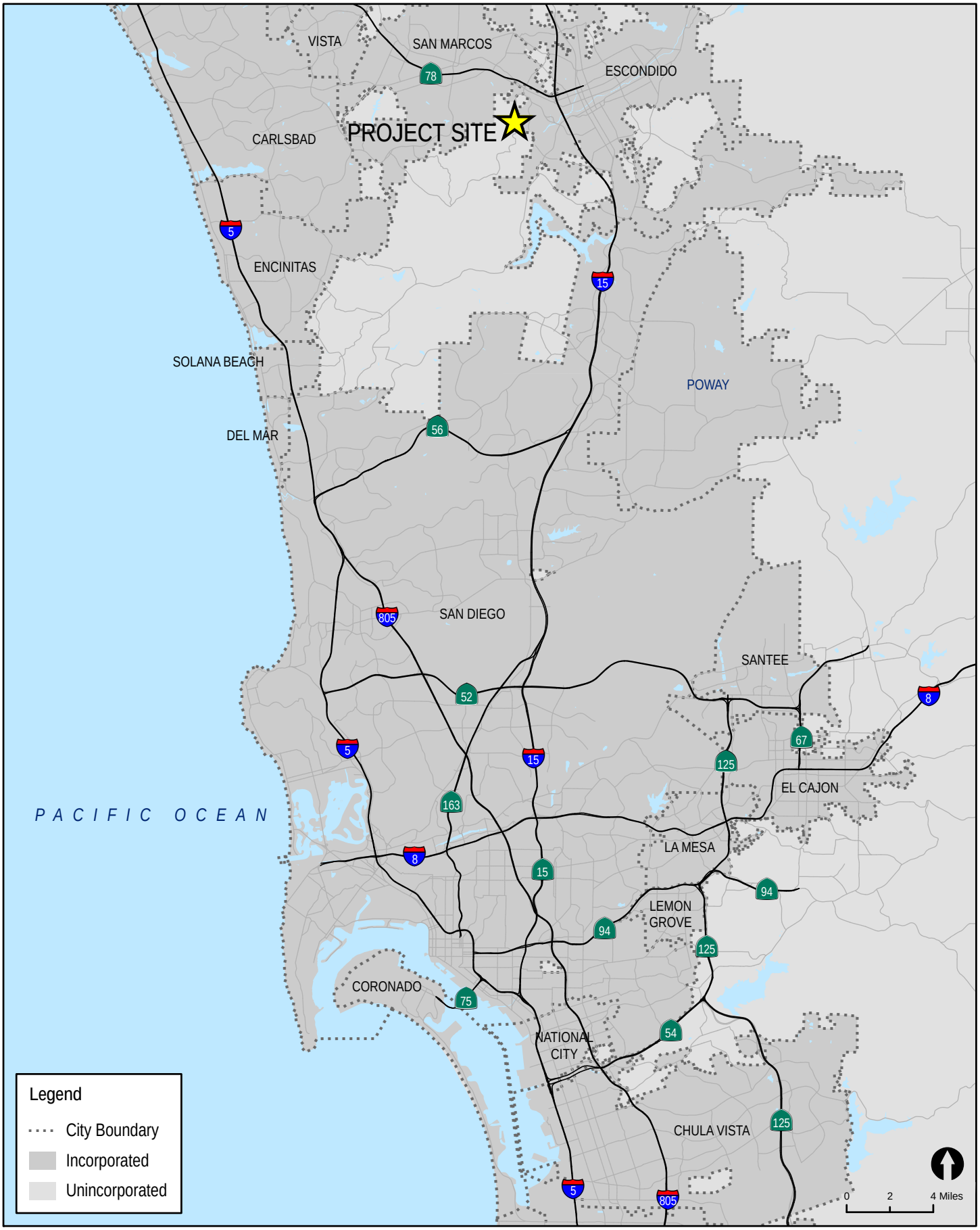

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Figure 1-1

Vicinity Map

VALIANO

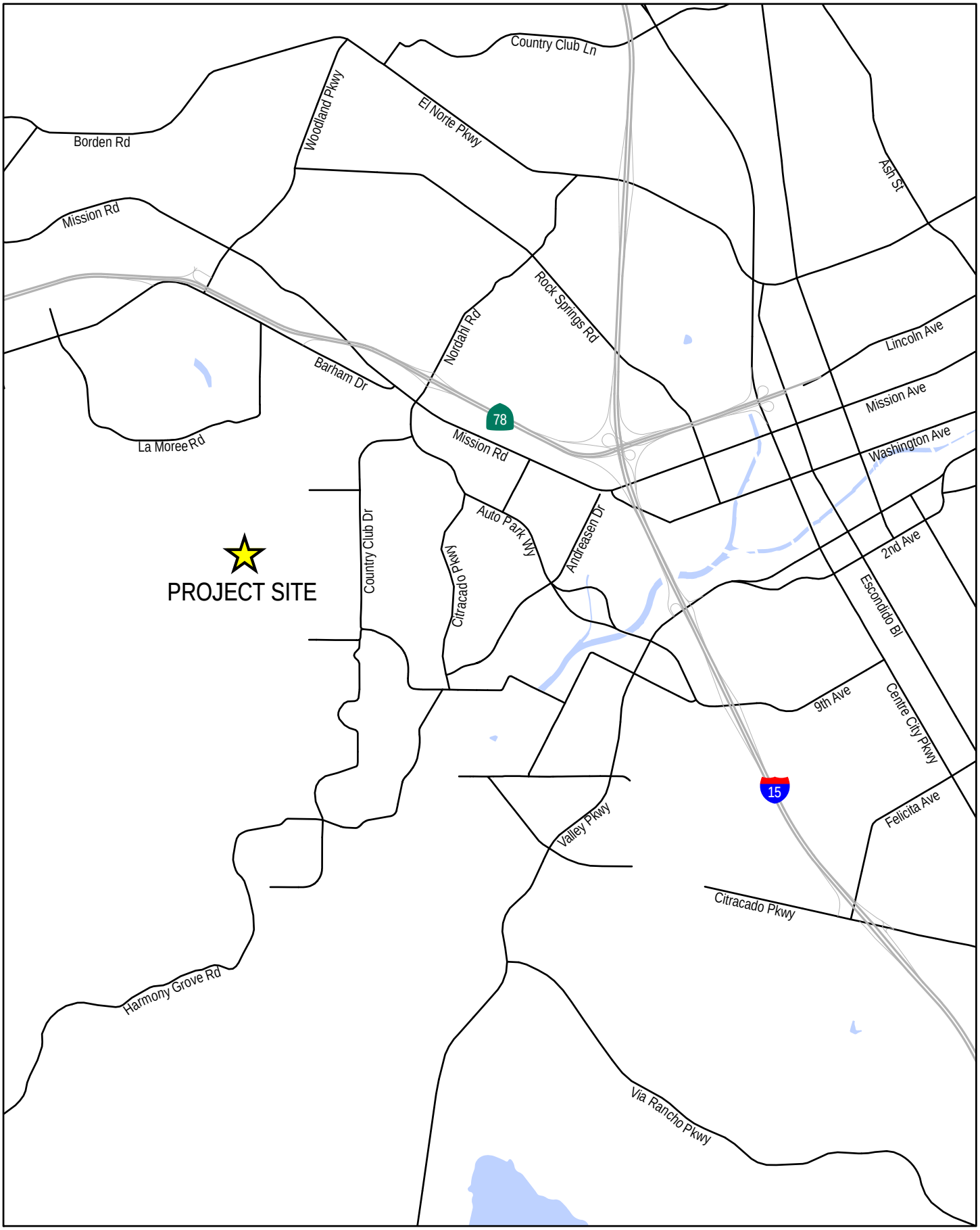

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Figure 1-2

Project Area Map

VALIANO

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The Project is located at 1091 La Moree Road west of Country Club Drive in the Eden Valley area of the San Dieguito Planning Community in the County of San Diego. The property borders the cities of San Marcos to the north and Escondido to the east/northeast. The Harmony Grove Village project boundary is located about a quarter mile south of the Project site.

2.2 Project Description

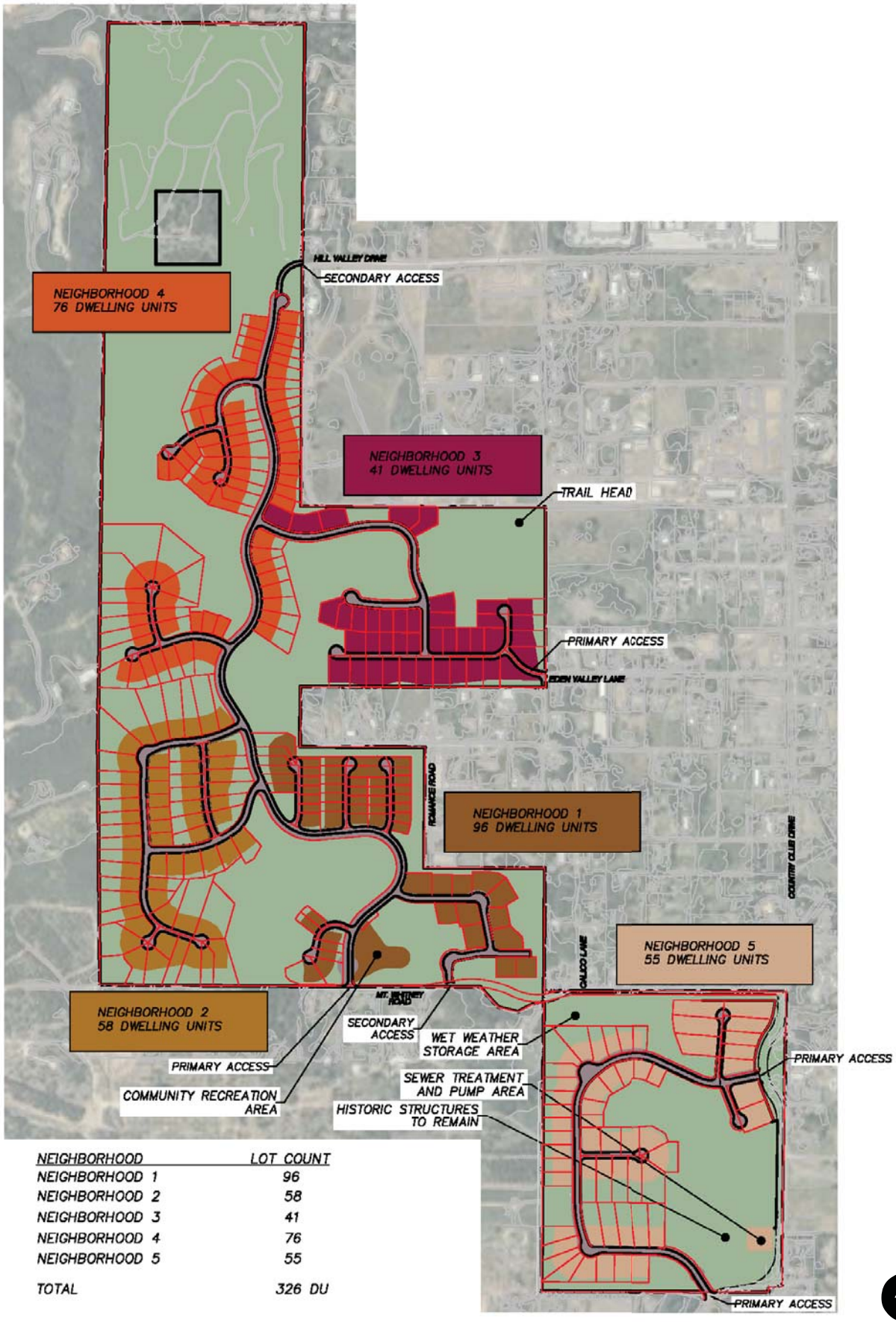
As previously mentioned, since the preparation of this traffic study, the Project site plan has been reduced from 334 residential DU to 326 DU (8 less units). The description of the Project, trip generation calculations, and traffic analysis provided in this traffic study utilizes the 334 DU amount, which represents a conservative analysis.

The Project is a proposed residential development of 334 units on 339 acres. The Project also proposes to develop a maximum of 54 small Second Dwelling Units (SDU) which could be attached or detached from the main unit. The property is currently zoned RS and A70 with minimum lot sizes of 1 and 2 acres. The current *General Plan* designations are SR-1 and SR-2, and the Regional Category is Semi-Rural. The Project would require a *General Plan* Amendment (GPA) to change the designation to SR-0.5, a Rezone would be required to reduce minimum lot size to increase the allowable *General Plan* density and change the A70 areas to RS, and a Specific Plan to establish setbacks, etc. The proposed minimum lot size is 6,000 square feet (SF). Typical surrounding lot sizes are 2 to 4 acres to the west and 1 acre to the east.

The Project area is divided into five neighborhoods. Neighborhoods using the same access roads were grouped into areas termed "Area 1", "Area 2" and "Area 3". Area 1 is approximately 255 acres and contains Neighborhoods 1, 2 and 4 with a total of 230 main residential dwelling units (DU) and a maximum of 23 SDU. Area 2 is approximately 36 acres and contains Neighborhood 3 with a total of 35 main DU and a maximum of 11 SDU. Area 3 is approximately 48 acres and contains Neighborhood 5 with a total of 69 main DU and a maximum of 20 SDU.

Areas 1 and 2 are proposed to provide access from the on-site access roads to Eden Valley Lane and Mount Whitney Road which ultimately connect to Country Club Drive. Area 3 is proposed to take access to/from Country Club Drive via two (2) new driveways along Future Street 5A. A more detailed discussion of Project access is provided in *Section 11.0* of this report.

Figure 2–1 shows the conceptual site plan for the Project for the development of the reduced 326 unit count.



NEIGHBORHOOD	LOT COUNT
NEIGHBORHOOD 1	96
NEIGHBORHOOD 2	58
NEIGHBORHOOD 3	41
NEIGHBORHOOD 4	76
NEIGHBORHOOD 5	55
TOTAL	326 DU

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Figure 2-1

Conceptual Site Plan

VALIANO

3.0 EXISTING CONDITIONS

3.1 Study Area

The study area was based on the criteria identified in the County of San Diego's *Report Format & Content Requirements: Transportation & Traffic*, August 24, 2011. Based on the County's criteria, "the scope of the full direct and cumulative traffic assessment shall include those roads and intersections that will receive 25 directional peak hour trips." In addition, the County criteria states that a full traffic impact study should include all regional arterials (including all State surface routes), intersections, and mainline freeway locations where the proposed project will add 50 or more peak-hour trips to the existing roadway traffic.

Based on these criteria, the following intersections and segments are included in the study area and are listed below.

Intersections

City of San Marcos Jurisdiction

1. E. Barham Drive / Twin Oaks Valley Road / Discovery Street
2. E. Barham Drive / Woodland Parkway
3. Barham Drive / Mission Road

City of Escondido Jurisdiction

4. Nordahl Road / State Route 78 (SR 78) Westbound Ramps
5. Nordahl Road / State Route 78 (SR 78) Eastbound Ramps
6. Auto Park Way / Mission Road
7. Auto Park Way / Country Club Drive
8. Valley Parkway / 9th Avenue
9. Valley Parkway / Auto Park Way
10. Valley Parkway / I-15 Southbound Ramps
11. Valley Parkway / I-15 Northbound Ramps

County of San Diego Jurisdiction

12. Country Club Drive / Eden Valley Lane
13. Country Club Drive / Kauana Loa Drive
14. Country Club Drive / Mount Whitney Road
15. Country Club Drive / Future Street 5A (North)
16. Country Club Drive / Future Street 5A (South)
17. Country Club Drive / Harmony Grove Road
18. Harmony Grove Rd / Kauana Loa Drive

Street Segments

City of San Marcos Jurisdiction

East Barham Drive

1. S. Twin Oaks Valley Road to Campus Way
2. Campus Way to W. La Moree Road
3. W. La Moree Road to the State Route 78 (SR 78) Eastbound Off-Ramp
4. State Route 78 (SR 78) Eastbound Off-Ramp to Woodland Parkway

Barham Drive

5. Woodland Parkway to E. La Moree Road
6. E. La Moree Road to the SR 78 Eastbound On-Ramp
7. SR 78 Eastbound On-Ramp to Mission Road

City of Escondido Jurisdiction

Mission Road

8. Auto Park Way to Enterprise Street

Auto Park Way

9. Mission Road to Country Club Drive

Country Club Drive

10. Auto Park Way to Hill Valley Drive

County of San Diego Jurisdiction

Country Club Drive

11. Hill Valley Drive to Kauana Loa Drive
12. Kauana Loa Drive to Mount Whitney Road
13. Mount Whitney Road to Future Street 5A (North)
14. Future Street 5A (North) to Future Street 5A (South)
15. Future Street 5A (South)to Harmony Grove Road

Kauana Loa Drive

16. Country Club Drive to Harmony Grove Road

Access Roads

County of San Diego Jurisdiction

Eden Valley Lane

1. Project Access to Country Club Drive

Mount Whitney Road

2. Project Access to Country Club Drive

Freeway Mainline Segments

State Route 78

1. West of Nordahl Road
2. East of Nordahl Road

3.2 Existing Transportation Conditions

The following is a description of the nearby roadway network:

Barham Drive is classified in the City of San Marcos *General Plan Mobility Element* as a Six-Lane Major Arterial from South Twin Oaks Valley Road to Woodland Parkway. From Woodland Parkway to Mission Road, it is classified as a Four-Lane Secondary Arterial.

East Barham Drive from South Twin Oaks Valley Road to La Moree Road is currently constructed as a five-lane roadway with a raised median, with three lanes in the eastbound direction and two lanes in the westbound direction. Bicycle lanes, sidewalks, and bus stops are provided with a posted speed limit of 45 mph. Curbside parking is prohibited.

From West La Moree Road to the SR 78 Eastbound Off-ramp, East Barham Drive is currently built as a three-lane undivided roadway with two lanes in the westbound direction and one in the eastbound direction and a continuous two-way left turn lane. Bicycle lanes are provided and curbside parking is not allowed. Sidewalks are generally provided on at least one side of the roadway and the posted speed limit is 45 mph.

From the SR 78 Eastbound Off-ramp to Woodland Parkway, East Barham Drive is currently constructed as a two-lane undivided roadway with a posted speed limit of 35 mph. Bicycle lanes are provided at the shoulder and no curbside parking is allowed. Sidewalks are not provided.

From Woodland Parkway to the SR 78 Eastbound On-Ramp, Barham Drive is currently constructed as a four-lane undivided roadway with a two-way left turn lane. Bicycle lanes are provided on both sides of the roadway, while sidewalks are constructed only on the south side. The speed limit along this segment is 35 mph and curbside parking is prohibited.

From the SR 78 Eastbound On-Ramp to approximately Bennett Court, Barham Drive is currently built as a two-lane undivided roadway with a two-way left turn lane with a sidewalk constructed on the south side of the roadway. East of Bennett Court to Mission Road the two-way left turn lane ends and there are generally no curbs, gutters, or sidewalks provided. The posted speed limit is 35 mph and no curbside parking is permitted.

Mission Road is classified as Four-Lane Major road on the City of Escondido *General Plan Mobility Element*. East of Auto Park Way to Enterprise Street, Mission Road is currently built as a four-lane divided roadway. A bicycle lane is provided on the north side of the roadway only, as the Inland Rail Trail bicycle path parallels the south side of this segment of Mission Road. The posted speed limit on Mission Road is 45 mph and curbside parking is prohibited.

Auto Park Way is classified as a Six-Lane Super Major road on the City of Escondido *General Plan Mobility Element*. From Mission Road to Meyer Avenue, Auto Park Way is currently constructed as a six-lane divided roadway. From Meyer Avenue to Country Club Drive, it is currently built as a four-lane divided roadway. Bicycle lanes and sidewalks are provided on both sides of the roadway. Curbside parking is not allowed and the posted speed limit is 40 mph.

In terms of Auto Park Way between Mission Road and Country Club Drive, Auto Park Way approaching Mission Avenue contains 9 lanes, 6 northbound lanes and 3 southbound lanes. This road narrows to 5 lanes and then 4 lanes for about 300 feet. Additional turn lanes are then provided approaching Country Club Drive. Based on these various cross sections, a 5-lane capacity was assumed.

Country Club Drive is classified as a Local Collector on the City of Escondido *General Plan Mobility Element* from Auto Park Way to Hill Valley Drive and is currently built as a two lane undivided roadway. Starting at the industrial development about 0.25 miles west of Auto Park Way, frontage improvements have been completed to widen the southbound lane and to provide a sidewalk on the west side of the roadway allowing for curbside parking. No curbs, gutters or sidewalks are provided and parking is not permitted on the east side of the roadway. The posted speed limit is 45 mph.

Country Club Drive is an unclassified roadway on the County of San Diego *General Plan Mobility Element* from Hill Valley Drive to Harmony Grove Road. It is currently built as a two-lane undivided roadway from Hill Valley Drive to Kauana Loa Drive with minimal shoulders and a 45 mph speed limit. Based on these roadway characteristics, it currently functions as a 2.2F Light Collector with an LOS E capacity of 9,700 ADT.

See *Section 3.3.1* below for further descriptions of Country Club Drive from Kauana Loa Drive to Harmony Grove Road.

Kauana Loa Drive is an unclassified roadway on the County of San Diego *General Plan Mobility Element*. From Country Club Drive to Harmony Grove Road, Kauana Loa Drive is currently constructed as a two-lane undivided roadway. Parking is generally not allowed along the roadway and the posted speed limit is 40 mph. No curbs, gutters, or sidewalks are provided. East of Country Club Drive, Kauana Loa Drive provides a paved shoulder with a 40 mph speed limit. Based on these roadway characteristics, it currently functions as a 2.3C Minor Collector with an LOS E capacity of 8,000 ADT.

Eden Valley Lane is a private roadway providing access to adjacent residences for its entire length extending west from Country Club Drive. It is paved for a curb-to-curb width of less than the private road standard of 24 feet.

Mount Whitney Road is a private roadway providing access to adjacent residences for its entire length extending west from Country Club Drive. It is paved for a curb-to-curb width of less than the private road standard of 24 feet.

State Route 78 (SR 78) is generally a six-lane east/west freeway. Interchanges are provided at Twin Oaks Valley Road, Woodland Parkway/Barham Drive, Nordahl Road, and Interstate 15 in the Project area. From Interstate 15 west toward Nordahl Road, SR 78 is a six-lane freeway. East of the Interstate 15 interchange SR 78 becomes a four-lane freeway. Ramp meters are provided at the Nordahl Road and Woodland Parkway/Barham Drive on-ramps.

It should be noted that the SR 78 Nordahl Road Widening Project has recently been completed. This project has provided an additional eastbound lane on SR 78 lane between Woodland Parkway and the Barham Drive on-ramp and two additional eastbound lanes (one auxiliary lane) from the Barham Drive on-ramp to the Nordahl Road off-ramp. In the westbound direction on SR 78, a fifth lane between the end of the I-15 connector ramp and Nordahl Road has recently been constructed. An auxiliary lane on westbound SR 78 from the I-15 connector ramp to the Nordahl Road off-ramp has been operational since January 2012. In addition, one lane in each direction on the Nordahl Road Bridge has recently been constructed to provide additional vehicle capacity for left-turn pockets onto the SR 78 on-ramps. Additional turn pockets have been added to the westbound and eastbound off-ramps to Nordahl Road to accommodate future SR 78 widening and HOV lanes. ***Appendix A*** contains a copy of the Improvements Fact Sheet for the SR 78 project.

3.2.1 *Harmony Grove Village Network Conditions*

The Harmony Grove Village project located north of Harmony Grove Road and bound by Country Club Drive and Wilgen Road is currently under construction. The project is developing as a rural residential community with a small community/commercial core. The project includes the development of 710 residential single-family units, 32 live/work lofts with 16,500 square-feet of retail, a 25,000-square foot village core, an equestrian park, public and private parks, an institutional site (assumed to be a tack and feed store), and a fire station. As part of the project, a new road named Harmony Grove Village Parkway is under construction to connect Country Club Drive to the southern extension of Citracado Parkway. In addition, the study area intersection of Harmony Grove Road/ Country Club Drive is being improved to install a traffic signal and provide dedicated left-turn lanes for the westbound, eastbound, and southbound approaches.

Within the study area, Country Club Drive from Kauana Loa Drive to just south of Harmony Heights Road (and Future Street 5A (S) of the Project) has recently been improved to provide a paved width of 36 feet for with a 12-foot two-way left-turn lane provided for the majority of the roadway with an LOS E capacity of 9,700 ADT. This improvement also included the realigning of Country Club Drive south of Kauana Loa Drive to increase the horizontal radii along this portion of

the roadway. From just south of Harmony Heights Road (south of Future Street 5A (S))to Harmony Grove Village Parkway it has recently been improved to a minimum graded width of 60 feet and a paved width of 40 feet with an LOS E capacity of 16,200 ADT. South of Harmony Grove Village Parkway to Harmony Grove Road, it is being constructed to a minimum graded width of 74 feet and a paved width of 54 feet with an LOS E capacity of 19,000 ADT.

These currently under construction roadway improvements are proposed to be completed by summer 2015. Therefore, they have been included in the existing street network assumptions. ***Appendix B*** contains a copy of the Harmony Grove Village Conditions of Approval (COA).

Figure 3–1 depicts the *Existing* traffic conditions and the study area intersections and segments graphically.

3.3 Existing Traffic Volumes

Weekday AM/PM peak hour intersection turning movement and 24-hour bi-directional daily traffic counts were conducted in late August, September and October of 2012 when schools were in session. The peak hour counts were conducted between the hours of 7:00-9:00 AM and 4:00-6:00 PM.

Freeway volumes were taken from both the Caltrans 2011 and 2012 Performance Measurement System (PeMS) data. The PeMS software distributes real-time peak hour and average daily traffic volumes and provides a graphical representation of volumes at each PeMS station location. Peak hour freeway volumes were from March 2011, where available. Average daily freeway volumes were taken from Caltrans 2011 ADT data. Per the recommendations of Caltrans, October and March are the preferred months for collecting freeway data since schools are generally in session and the occurrence of national holidays is limited.

PeMS stations are located at different post-miles along the freeway. The post-mile where data was collected for a specific segment of the freeway was analyzed using the mainline conditions of that particular location.

3.3.1 *Harmony Grove Village Traffic Volumes*

As stated in *Section 3.2.1*, the Harmony Grove Village project is currently under construction. With the completion of this project anticipated by summary 2015, it was determined that the total traffic generated by this project would be on the street system prior to the opening day of the proposed Project, and therefore is included under existing baseline conditions.

The trip assignment taken from the Harmony Grove Village Final Environmental Impact Report (EIR) was added to the existing 2012 traffic data to arrive at the final existing traffic volume conditions.

Table 3–1 is a summary of the most recent available average daily traffic volumes (ADTs). ***Appendix C*** contains the manual count sheets and the freeway mainline traffic data as well as a copy of the project assignment for Harmony Grove Village.

Figure 3–2 depicts the *Existing* peak hour intersection turning movement and 24-hour segment volumes at the study area intersections and segments.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	ADT [a]	Jurisdiction
E. Barham Drive		
1. S. Twin Oaks Valley Road to Campus Way	14,840	San Marcos
2. Campus Way to W. La Moree Road	14,840	San Marcos
3. W. La Moree Road to the State Route 78 (SR 78) Eastbound Off-Ramp	14,840	San Marcos
4. State Route 78 (SR 78) Eastbound Off-Ramp to Woodland Parkway	19,420	San Marcos
Barham Drive		
5. Woodland Parkway to E. La Moree Road	15,750	San Marcos
6. E. La Moree Road to the SR 78 Eastbound On-Ramp	15,750	San Marcos
7. SR 78 Eastbound On-Ramp to Mission Road	11,280	San Marcos
Mission Road		
8. Auto Park Way to Enterprise Street	18,000	Escondido
Auto Park Way		
9. Mission Road to Country Club Drive	26,180	Escondido
Country Club Drive		
10. Auto Park Way to Hill Valley Drive	5,710	Escondido
11. Hill Valley Drive to Kauana Loa Drive	4,930	County
12. Kauana Loa Drive to Mount Whitney Road	3,150	County
13. Mount Whitney Road to Future Street 5A (N)	3,150	County
14. Future Street 5A (N) to Future Street 5A (S)	3,150	County
15. Future Street 5A (S)to Harmony Grove Road	3,150	County
Kauana Loa Drive		
16. Country Club Drive to Harmony Grove Road	1,480	County
Eden Valley Lane		
17. Project Access to Country Club Drive	400	County
Mount Whitney Road		
18. Project Access to Country Club Drive	200	County
Freeway Mainline Segments	**ADT** [a]	
1. State Route 78 West of Nordahl Road	159,000	Caltrans
2. State Route 78 East of Nordahl Road	164,000	Caltrans

Footnotes:

1. Average Daily Traffic Volumes collected in September and October of 2012 when schools were in session. Caltrans volumes taken from most recent Year 2011 data.

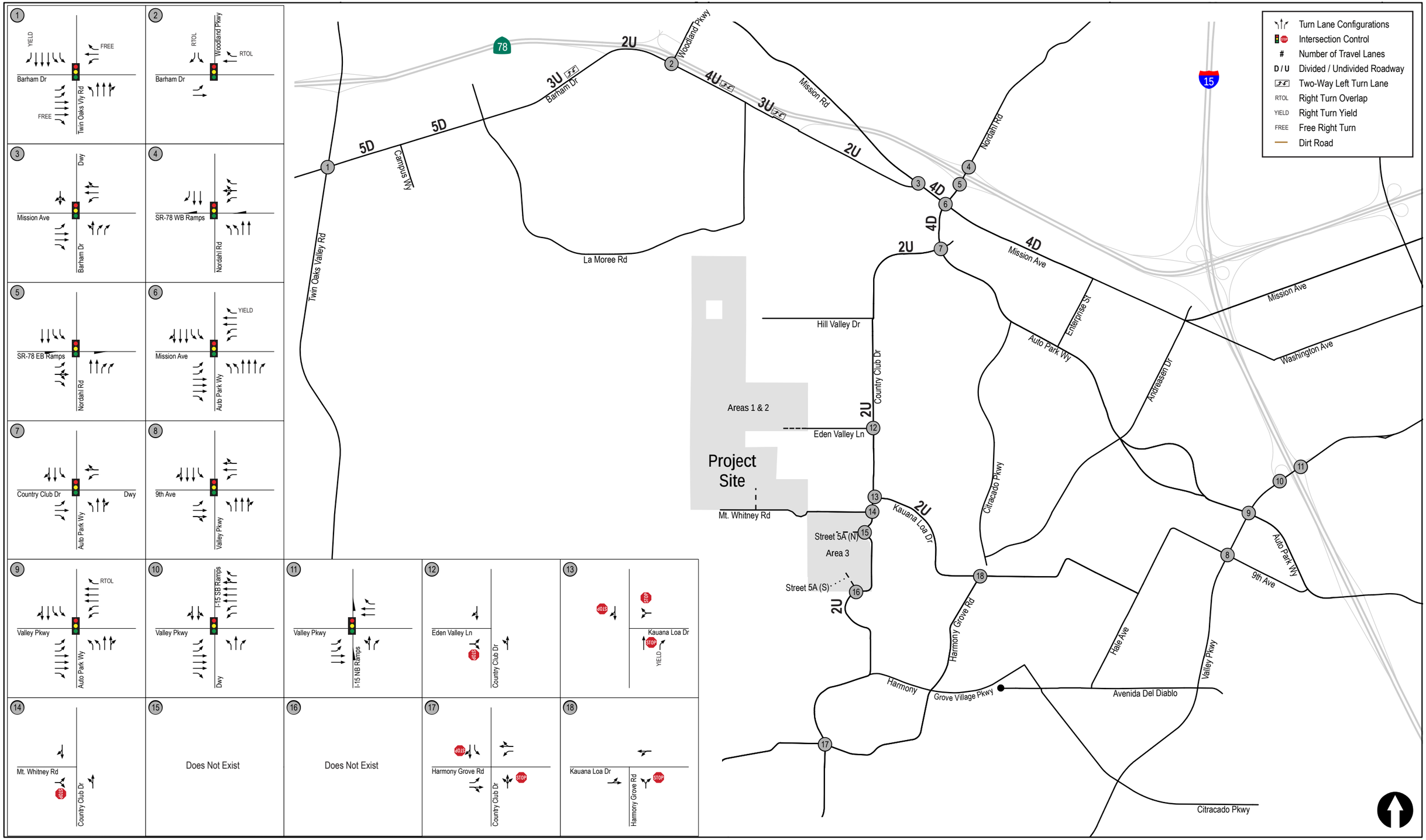

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Figure 3-1

Existing Conditions Diagram

VALIANO

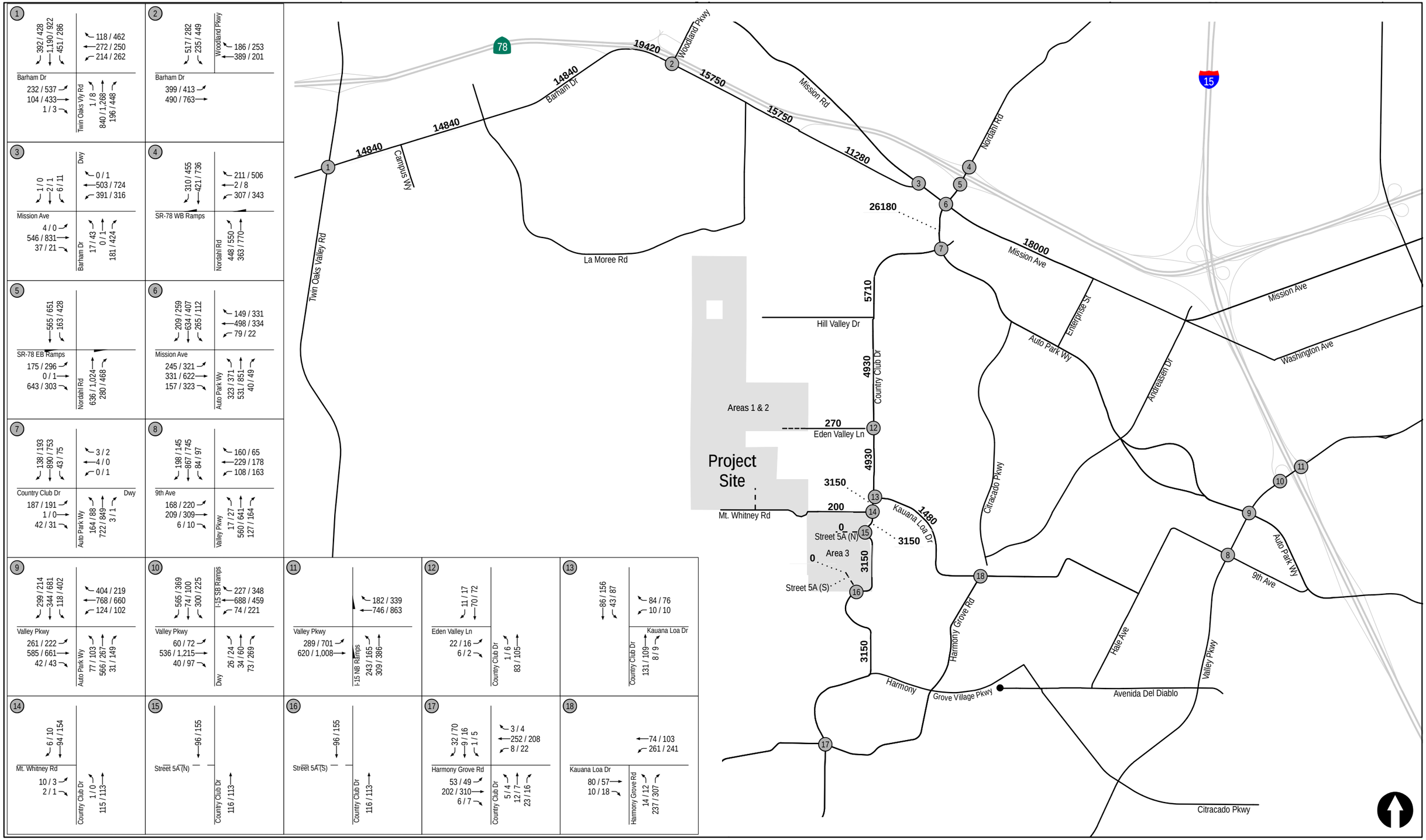

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Figure 3-2

Existing Traffic Volumes

VALIANO

4.0 ANALYSIS APPROACH AND METHODOLOGY

4.1 Analysis Approach

As previously mentioned, since the preparation of this traffic study, the Project site plan has been reduced from 334 residential dwelling units (DU) to 326 DU (8 less units). The description of the Project, trip generation calculations, and traffic analysis provided in this traffic study utilizes the 334 DU amount, which represents a conservative analysis.

The Project is separated into three development areas. The first area consists of 255 acres proposed to develop 230 units within Neighborhoods 1, 2 and 4. The second area consists of 36 acres proposed to develop 35 units within Neighborhood 3. The third area making up the remainder of the entire Project consists of 48 acres proposed to develop 69 units within Neighborhood 5. The exact phasing of the Project is unknown at this time. Therefore, in order to provide for a worst-case analysis, significant impacts were measured assuming construction of all 334 units at once.

Table 4–1 lists the scenarios analyzed in this report. Following *Table 4–1* is an explanation of each of the scenarios analyzed in this report.

TABLE 4–1
ANALYSIS SCENARIOS

Scenario
Existing & Near-Term Conditions
▪ Existing ▪ Existing + Project ▪ Existing + Cumulative Projects ▪ Existing + Project + Cumulative Projects
Year 2035 Condition
▪ Year 2035 Without Project (*General Plan* Land Use) ▪ Year 2035 With Project (Proposed Land Use)

Existing conditions represent the existing on-the-ground network and traffic volume conditions. As previously mentioned in *Section 3.2.1* and *3.3.1*, the Harmony Grove Village project is currently under construction. As part of the project, Country Club Drive is being improved from Kauana Loa Drive south along the Harmony Grove Village project frontage. Also, the construction of the new Harmony Grove Village Parkway roadway is currently in progress which will result in a rerouting of existing traffic from Kauana Loa Drive to this new roadway. The majority of these improvements have been completed with the remainder anticipated by late 2014. With the completion of this project anticipated for late 2014, it was determined that traffic volumes generated by this project would be on the street system prior to the opening day of the proposed Project, and therefore were included under existing traffic conditions.

Existing + Project conditions represent the operations of the existing street network with the addition of the total traffic generated by 334 dwelling units.

Existing + Project + Cumulative Projects conditions represent the time period in the near future when traffic generated by the total Project would be on the street system and when it would be expected that other nearby development or infrastructure projects would contribute to cumulative growth in the area which would increase the overall study area traffic volumes. *Section 8.0* discusses the cumulative conditions in greater detail.

Year 2035 Without Project (General Plan Land Use) conditions represent the forecasted traffic volume and network conditions at buildout of the County and City *General Plan* land use designations. *Section 10.0* provides more information on the Year 2035 assumptions.

Year 2035 With Project (Proposed Land Use) conditions represent the forecasted traffic volume and network conditions at buildout of the County and City *General Plan* land use designations with the exception of the Project site requiring a *General Plan* Amendment the increase the allowable land use intensity. The net increase in traffic volumes with this change was added to the baseline Year 2035 conditions. *Section 10.0* provides more information on the Year 2035 assumptions.

4.2 Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS designation is reported differently for signalized intersections, unsignalized intersections, and roadway segments.

4.3 Intersections

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 16 of the *2000 Highway Capacity Manual (HCM),* with the assistance of the *Synchro* (version 7.0) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS. A more detailed explanation of the methodology is attached in ***Appendix D.***

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and LOS was determined based upon the procedures found in Chapter 17 of the *HCM,* with the assistance of the *Synchro* (version 7.0) computer software. A more detailed explanation of the methodology is attached in *Appendix D.*

4.4 Street Segments

Street segment analysis is based upon the comparison of average daily traffic volumes (ADTs) to the County of San Diego, City of Escondido, and City of San Marcos *Roadway Classification, Level of Service, and ADT Tables*, depending on which jurisdiction the street segment is located within. These tables provide segment capacities for different street classifications, based on traffic volumes and roadway characteristics. Copies of the County of San Diego, City of Escondido, and City of San Marcos capacity tables are attached in ***Appendix E***.

4.5 Freeway Segments

Freeway segments were analyzed during the AM and PM peak hours based on the methodologies as outlined in the SANTEC/ITE Guidelines developed by Caltrans. The freeway segments LOS is based on a Volume to Capacity (V/C) method. Page 5 of Caltrans' *Guide for the Preparation of Traffic Impact Studies,* December 2002 documents a maximum service flow rate of 2,000 passenger cars per hour per lane. The freeway segments were analyzed using the existing mainline lane conditions at the location where PeMS data was collected. The freeway LOS operations are summarized below in ***Table 4–2***.

TABLE 4–2
CALTRANS DISTRICT 11
FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

LOS	V/C	Congestion/Delay	Traffic Description
USED FOR FREEWAYS, EXPRESSWAYS AND CONVENTIONAL HIGHWAYS			
A	<0.41	None	Free flow
B	0.42-0.62	None	Free to stable flow, light to moderate volumes.
C	0.63-0.80	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted
D	0.81-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
E	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
USED FOR FREEWAYS AND EXPRESSWAYS			
F(0)	1.01-1.25	Considerable: 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
F(l)	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
F(2)	1.36-1.45	Very Severe: 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
F(3)	>1.46	Extremely Severe: 3+ hours of delay	Gridlock

5.0 SIGNIFICANCE CRITERIA

The following criterion was utilized to evaluate potential significant impacts, based on the County's document, *Guidelines for Determining Significance*, February 19, 2010, for study area locations within the County of San Diego. For study area intersections and segments located in the City of Escondido, the City of Escondido's guidelines were used, and for the City of San Marcos, the San Diego Traffic Engineers Council/Institute of Transportation Engineers (SANTEC/ITE) *Guidelines for Traffic Impact Studies in the San Diego Region*, March 2, 2000, was applied.

5.1 County of San Diego

5.1.1 *Road Segments*

Pursuant to the County's *General Plan Mobility Element*, new development must provide improvements or other measures to mitigate traffic impacts to avoid:

a. Reduction in LOS below "C" for on-site Mobility Element roads;

b. Reduction in LOS below "D" for off-site and on-site abutting *Mobility Element* roads; and

c. "Significantly impacting congestion" on roads that operate at LOS "E" or "F". If impacts cannot be mitigated, the project cannot be approved unless a statement of overriding findings is made pursuant to the State CEQA Guidelines. The *Mobility Element*, however, does not include specific guidelines for determining the amount of additional traffic that would "significantly impact congestion" on such roads.

The County has created the following guidelines to evaluate likely traffic impacts of a proposed project for road segments and intersections serving that project site, for purposes of determining whether the development would "significantly impact congestion" on the referenced LOS E and F roads. The guidelines are summarized in ***Table 5–1***. The thresholds in *Table 5–1* are based upon average operating conditions on County roadways. It should be noted that these thresholds only establish general guidelines, and that the specific project location must be taken into account in conducting an analysis of traffic impact from new development.

TABLE 5–1
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON MOBILITY ELEMENT ROAD SEGMENTS
ALLOWABLE INCREASES ON CONGESTED ROAD SEGMENTS

Level of Service	Two-Lane Road	Four-Lane Road	Six-Lane Road
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

General Notes:

1. By adding proposed project trips to all other trips from a list of projects, this same table must be used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes additional trips must mitigate a share of the cumulative impacts.
2. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

On-site Mobility Element Roads—The *General Plan Mobility Element* Policy 2.1 (ME Policy 2.1) states that "new development shall provide needed roadway expansion and improvements on-site to meet demand created by the development, and to maintain LOS C on Mobility Element Roads during peak traffic hours". Pursuant to this policy, a significant traffic impact would result if:

- The additional or redistributed ADT generated by the proposed land development project will cause on-site *Mobility Element* Roads to operate below LOS C during peak traffic hours except within the Otay Ranch and Harmony Grove Village plans as specified in the previously adopted general plan's PFE, Implementation Measure 1.1.2.

Off-Site Circulation Element Roads— ME Policy 2.1 also addresses offsite *Mobility Element* roads. It states that "new development shall provide off-site improvements designed to contribute to the overall achievement of LOS D on *Mobility Element* Roads." ME Policy 2.1 addressed projects that would significantly impact congestion on roads operating at LOS E or F. It states, "new development that would significantly impact congestion on roads operating at LOS E or F, either currently or as a result of the project, will be denied unless improvements are scheduled to attain a LOS to D or better or appropriate mitigation is provided." In circumstances in which appropriate mitigation is not feasible, the project can only be approved if "a specific statement of overriding findings is made pursuant to" the State CEQA Guidelines. The following significance guidelines define a method for evaluating whether or not increased traffic volumes generated or redistributed from a proposed project will "significantly impact congestion" on County roads, operating at LOS E or F, either currently or as a result of the project.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or LOS impact on a road segment:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a *Mobility Element* Road or State Highway currently operating at LOS E or LOS F, or will cause a *Mobility Element* Road or State Highway to operate at a LOS E or LOS F as a result of the proposed project as identified in *Table 5–1*, or
- The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity.

5.1.2 *Intersections*

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and unsignalized intersections. ***Table 5–2*** summarizes significant project impacts for signalized and unsignalized intersections.

TABLE 5–2
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON INTERSECTIONS
ALLOWABLE INCREASES ON CONGESTED INTERSECTIONS

Level of service	Signalized	Unsignalized
LOS E	Delay of 2 seconds or less	20 or less peak hour trips on a critical movement
LOS F	Either a Delay of 1 second, or 5 peak hour trips or less on a critical movement	5 or less peak hour trips on a critical movement

General Notes:

1. A critical movement is an intersection movement (right-turn, left-turn, through-movement) that experiences excessive queues, which typically operate at LOS F.
2. By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.
4. For determining significance at signalized intersections with LOS F conditions, the analysis must evaluate both the delay ***and*** the number of trips on a critical movement, exceedance of either criteria result in a significant impact.

Signalized Intersections—Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or LOS traffic impact on a signalized intersection:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F, or will cause a signalized intersection to operate at a LOS E or LOS F as identified in *Table 5–2*.
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance, or other factors, the project would significantly impact the operations of the intersection.

Unsignalized Intersections—The operating parameters and conditions for unsignalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn and/or through movement of an unsignalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for unsignalized intersections are based upon a minimum number of trips added to a critical movement at an unsignalized intersection.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic impact on an unsignalized intersection as listed in *Table 5–2* and described as text below:

- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection, and cause an unsignalized intersection to operate below LOS D, or
- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS E, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate at LOS F, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS F, or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance, or other factors, the project would significantly impact the operations of the intersection.

Using County of San Diego guidelines, impacts calculated in the *Existing + Project* scenario are considered "direct" and impacts calculated in the *Existing + Project + Cumulative Projects* time frame are considered "cumulative".

5.2 City of San Marcos

The City of San Marcos utilizes the SANTEC/ITE *Guidelines for Traffic Impact Studies in the San Diego Region* to determine if the traffic caused by the project would create a significant impact, with the one exception that LOS D is considered acceptable. A more detailed description regarding this criteria is provided below.

5.2.1 *Signalized Intersections*

A signalized intersection is considered significantly impacted when project traffic degrades the level of service from acceptable to unacceptable. Unacceptable LOS is E or F. If an intersection is operating at LOS E or F, then a significant impact is calculated when the project adds more than 2.0 seconds of delay.

5.2.2 *Unsignalized Intersections*

An unsignalized intersection is considered significantly impacted when project traffic degrades the level of service from acceptable to unacceptable. Unacceptable LOS is E or F. If an intersection is operating at LOS E or F, then a significant impact is calculated when the project adds more than 2.0 seconds of delay.

5.2.3 *Street Segments*

A street segment is considered significantly impacted when the project traffic degrades the level of service from acceptable to unacceptable. Unacceptable LOS is E or F. If a segment is operating at LOS E or F, then a significant impact is calculated when the project causes an increase in the V/C ratio of greater than 0.02.

5.2.4 *Freeway Mainline Segments*

Caltrans' Guide for the Preparation of Traffic Impact Studies, December 2002, outlines recommended procedures for traffic study contents but does not identify specific traffic impact thresholds. The criterion provided by SANTEC/ITE identifies that an increase in the V/C ratio greater than 0.01 for LOS E and F indicates a significant freeway impact.

Using City of San Marcos guidelines, impacts calculated in the *Existing + Project* scenario are considered "direct" and impacts calculated in the *Existing + Project + Cumulative Projects* and *Year 2035 With Project* scenarios are considered "cumulative".

Table 5–3 summarizes the significance criteria discussed above.

TABLE 5–3
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project [a]	Allowable Increase Due to Project Impacts [b]					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E & F (*or ramp meter delays above 15 minutes*)	0.01	1	0.02	1	2	2[c]

Source: SANTEC/ITE *Guidelines for Traffic Impact Studies in the San Diego Region*, March 2, 2000.

Footnotes:

a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

b. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the Traffic Impact Study [TIS] report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note a above), or if the project adds a significant amount of peak hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating significant impact changes.

c. The impact is only considered significant if the total delay exceeds 15 minutes.

General Notes:

1. V/C = Volume to Capacity Ratio
2. Speed = Arterial speed measured in miles per hour
3. Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
4. LOS = Level of Service

5.3 City of Escondido

Certain types of developments that their traffic impact is found to be significant need to identify measures to mitigate the traffic impact. In accordance with *SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region*, the following thresholds shall be used to identify if a project is of significance traffic impact under any scenario. Based on SANTEC/ITE Guidelines, if now or in the future, the project's traffic impact (now or in the future) causes the values in ***Table 5–4*** to be exceeded in a roadway segment or an intersection that is operating at a LOS D or worse, it is determined to be a significant project impact and it shall identify mitigation measures. Below are the proposed thresholds for determining significant traffic impacts to a roadway segment and intersection.

TABLE 5–4
CITY OF ESCONDIDO
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project	Allowable Change due to Project Impact		
	Roadway Segments		Intersections
	V/C	Speed (mph)	Delay (sec.)
D, E, or F	0.02	1.0	2.0

General Notes:

1. No Significant Impact occurs at areas in GP Downtown Specific Plan that operates at LOS "D" or better.
2. *Mitigation measures should also be considered for any segment or intersection operating on LOS "F" subject to less than significant impact.

Using City of Escondido guidelines, "direct" impacts were calculated if the Project decreases the LOS from acceptable LOS C or worse and "cumulative" impacts were calculated if the V/C ratio increased by 0.02 or intersection delay increased by more than 2.0 seconds to locations already operating at LOS D or worse, for all scenarios.

6.0 ANALYSIS OF EXISTING CONDITIONS

The criteria used for determining unacceptable operations are subject to each jurisdiction's standards, as discussed in *Section 5.0* of this report. City of San Marcos and County of San Diego intersection and street segment operations are considered unacceptable at LOS E or F. The City of Escondido considers LOS Mid-D the threshold for unacceptable operations. Caltrans' criteria indicates freeway segments operating at LOS E or worse are unacceptable operations. The following section summarizes the existing analysis of study area locations.

6.1 Peak Hour Intersection Levels of Service

Table 6–1 summarizes the *Existing* intersections LOS. As seen in *Table 6–1*, all intersections are calculated to currently operate at acceptable levels of service with the exception of the following:

City of Escondido

- 8. Valley Parkway/ 9th Avenue – LOS D/D during the AM/PM peak hours
- 10. Valley Parkway/ I-15 SB Ramps – LOS D/D during the AM/PM peak hours

Appendix F contains the existing intersection analysis worksheets.

6.2 Daily Street Segment Operations

Table 6–2 summarizes the *Existing* roadway segment operations. As seen in *Table 6–2*, the following study area segments are calculated to currently operate at unacceptable levels of service:

City of San Marcos

- 4. E. Barham Drive between the SR 78 Off-Ramp and Woodland Parkway – LOS F

6.3 Freeway Mainline Operations

Table 6–3 summarizes the *Existing* freeway mainline operations on SR 78. As seen in *Table 6–3*, the eastbound and westbound segments of SR 78 east and west of Nordahl Road currently operate at acceptable levels during both the AM and PM peak hours except for the following:

- 1. West of Nordahl Road: LOS E/E during the AM/PM peak hours

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
City of San Marcos Jurisdiction				
1. E. Barham Dr / S. Twin Oaks Valley Rd / Discovery St	Signal	AM	28.1	C
		PM	53.3	D
2. E. Barham Dr / Woodland Pkwy	Signal	AM	17.8	B
		PM	21.3	C
3. Barham Dr / Mission Rd	Signal	AM	23.9	C
		PM	24.1	C
City of Escondido Jurisdiction				
4. Nordahl Rd / SR 78 WB Ramps	Signal	AM	22.6	C
		PM	25.6	C
5. Nordahl Rd / SR 78 EB Ramps	Signal	AM	19.4	B
		PM	18.0	B
6. Auto Park Way / Mission Road	Signal	AM	32.2	C
		PM	31.2	C
7. Auto Park Way / Country Club Drive	Signal	AM	17.5	B
		PM	15.1	B
8. Valley Pkwy / 9th Avenue	Signal	AM	38.2	C
		PM	46.3	D
9. Valley Pkwy / Auto Park Way	Signal	AM	33.3	C
		PM	29.6	C
10. Valley Pkwy / I-15 SB Ramps	Signal	AM	37.6	D
		PM	42.6	D
11. Valley Pkwy / I-15 NB Ramps	Signal	AM	26.3	C
		PM	31.9	C

Continued on Next Page

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay [a]	LOS [b]
County of San Diego Jurisdiction				
12. Country Club Dr / Eden Valley Ln	MSSC [c]	AM	9.4	A
		PM	9.7	A
13. Country Club Dr / Kauana Loa Dr	AWSC [d]	AM	8.1	A
		PM	8.8	A
14. Country Club Dr / Mt. Whitney Rd	MSSC	AM	9.7	A
		PM	9.9	A
15. Country Club Dr / Future Street 5A (N)	*DNE*	AM	*DNE*	*DNE*
		PM	*DNE*	*DNE*
16. Country Club Dr / Future Street 5A (S)	*DNE*	AM	*DNE*	*DNE*
		PM	*DNE*	*DNE*
17. Country Club Dr / Harmony Grove Rd	Signal	AM	9.5	A
		PM	9.4	A
18. Harmony Grove Rd / Kauana Loa Dr	MSSC	AM	11.1	B
		PM	11.2	B

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. MSSC – Minor Street Stop Controlled intersection. Minor street left-turn delay is reported.
d. AWSC – All-Way Stop Controlled intersection. Average delay reported.

General Notes:

1. DNE = Does not exist.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

City of San Marcos Street Segments	Currently Built As	Existing Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
E. Barham Drive					
1. S. Twin Oaks Valley Road to Campus Way	5-Ln Divided	50,000	14,840	B	0.297
2. Campus Way to W. La Moree Rd	5-Ln Divided	50,000	14,840	B	0.297
3. W. La Moree Rd to SR 78 EB Off-Ramp	3-Ln w/ TWLTL	22,500	14,840	C	0.660
4. SR 78 EB Off-Ramp to Woodland Pkwy	2-Ln Undivided	15,000	19,420	F	1.295
Barham Drive					
5. Woodland Pkwy to E. La Moree Rd	4-Ln w/ TWLTL	30,000	15,750	C	0.525
6. E. La Moree Rd to SR 78 EB On-Ramp	4-Ln w/ TWLTL	30,000	15,750	C	0.525
7. SR 78 EB On-Ramp to Mission Rd	2-Ln Undivided	15,000	11,280	D	0.752
City of Escondido Street Segments	**Currently Built As**	**Existing Capacity (LOS E) [a]**	**ADT**	**LOS**	**V/C**
Mission Road					
8. Auto Park Way to Enterprise St	4-Ln Divided	34,200	18,000	B	0.526
Auto Park Way					
9. Mission Rd to Country Club Dr [e]	5-Ln Divided	43,500 [e]	26,180	B	0.602
Country Club Drive					
10. Auto Park Way to Hill Valley Dr	2-Ln Undivided	10,000	5,710	C	0.571
County of San Diego Street Segments	**Currently Built As**	**Existing Capacity (LOS E) [a]**	**ADT**	**LOS**	
Country Club Drive					
11. Hill Valley Dr to Kauana Loa Dr	2-Ln Undivided	9,700 [f]	4,930	A	
12. Kauana Loa Dr to Mt. Whitney Rd	2-Ln Undivided	9,700 [g]	3,150	A	
13. Mt. Whitney Rd to Future Street 5A (N)	2-Ln Undivided	9,700 [g]	3,150	A	
14. Future Street 5A (N) to Future Street 5A (S)	2-Ln Undivided	9,700 [g]	3,150	A	
15. Future Street 5A (S) to Harmony Grove Rd	2-Ln Undivided	16,200 [h]	3,150	B	
Kauana Loa Drive					
16. Country Club Dr to Harmony Grove Rd	2-Ln Undivided	8,000 [i]	1,480	A	

Footnotes:

a. Capacities based City of San Marcos, City of Escondido, and County of San Diego Roadway Classification Tables.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity ratio.
e. Auto Park Way is currently built as a 6-Ln Major from Mission Road to Meyers Avenue and a 4-Ln Major from Meyers Avenue to Country Club Drive. Therefore, a 5-Ln Major road capacity of 43,500 was used in the analysis
f. Although Country Club Drive is not a Mobility Element roadway, due to the increased paved width and 45 mph speed limit and reduced shoulder, the roadway functions as a 2.2F Light Collector with an LOS "E" capacity of 9,700 ADT.
g. Country Club Drive from Kauana Loa Drive to the northerly boundary of Harmony Grove Village (just south of Future Street 5A South) is currently being improved to Rural Light Collector standards per the previously adopted General Plan (corresponding with a 2.2F Light Collector on the currently adopted General Plan) with an ADT capacity of 9,700.
h. South of Future Street 5A South to Harmony Grove Village Parkway it is being improved to Rural Collector standards per the previously adopted General Plan (corresponding with 2.2E Light Collector on the currently adopted General Plan) with an ADT capacity of 16,200. From Harmony Grove Village Parkway to Harmony Grove Road, it is being improved to Town Collector standards per the previously adopted General Plan (corresponding with 2.1C Community Collector on the currently adopted General Plan) with an ADT capacity of 19,000. Since the study area segment from Future Street 5A (S) and Harmony Grove Road transitions between these two capacities, the 16,200ADT capacity was used to provide a conservative analysis.
i. Since this portion of Kauana Loa Drive has an increased paved width and 40 mph speed limit, the roadway functions as a 2.3C Minor Collector with an LOS "E" capacity of 8,000 ADT.

TABLE 6–3
EXISTING FREEWAY MAINLINE OPERATIONS

Freeway Segment	Dir.	# of Lanes [a]	Hourly Capacity [b]	Volume [c]	Peak Hour Volume [d]		V/C [e]		LOS [f]	
					AM	PM	AM	PM	AM	PM
State Route 78										
1. West of Nordahl Rd	EB	3M+1A	7,200	159,000	4,994	4,983	0.694	0.692	C	C
	WB	3M	6,000		5,862	5,625	0.977	0.938	E	E
2. East of Nordahl Rd	EB	3M+1A	7,200	164,000	4,144	5,097	0.576	0.708	B	C
	WB	4M+1A	9,200		5,663	5,070	0.616	0.551	B	B

Footnotes:

a. Lane geometry taken from 2011 PeMS lane configurations at corresponding postmile.
b. Capacity calculated at 2000 vehicles per hour (vph) per lane (pcphpl) for mainline lanes and 1200 vph for auxiliary lanes, from *Caltrans Guide for the Preparation of Traffic Impact Studies, Dec 2002.*
c. Existing ADT volumes taken from 2011 Caltrans traffic volumes
d. Peak hour volumes taken from 2011 PeMS traffic volumes.
e. V/C = (Peak Hour Volume/Hourly Capacity)
f. LOS = Level of Service

General Notes:

1. M = Mainline.
2. A = Auxiliary lane.

LOS	V/C
A	<0.41
B	0.62
C	0.80
D	0.92
E	1.00
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

7.0 PROJECT TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

7.1 Project Trip Generation

Trip generation rates were taken from the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates*, April 2002. According to this reference, two residential trip rates were deemed appropriate for this analysis: "estate, urban or rural" and "single-family detached" residential. The estate residential trip rate is used for densities averaging 1-2 units per acre. The single-family residential trip rate is used for densities averaging 3-6 units per acre.

As previously mentioned, since the preparation of this traffic study, the Project site plan has been reduced from 334 residential DU to 326 DU (8 less units). The trip generation calculations provided in this traffic study utilize the 334 DU amount, which represents a conservative analysis. The Project also proposes to develop a maximum of 54 small Second Dwelling Units (SDU) which could be attached or detached from the main unit. The trip generation calculations provided in this traffic study utilize the maximum 54 SDU amount, which represents a conservative analysis.

The Project proposes to develop 334 units within five (5) neighborhoods. Based on the Project Description, each Neighborhood proposes different densities and minimum lot sizes. The trip generation calculations for Neighborhoods proposed with lot sizes less than 0.5-acre assumed the single-family rate of 10 ADT per unit. Neighborhoods where the lot sizes were 0.5 acres or greater, or had lot sizes of 10,000 SF or more, were considered estate residential. For the purpose of this study, the "apartment" trip rate was used for the Second Dwelling Unit. The following lists each Neighborhood, by Area, and their corresponding trip rates:

Area 1		
Neighborhood 1		
49 DU	"4-pack" detached condos	10 ADT/DU
47 DU	4,640 sf minimum	10 ADT/DU
Neighborhood 2		
58 DU	8,620 sf minimum	10 ADT/DU
23 DU	second dwelling units	6 ADT/DU
Neighborhood 4		
76 DU	7,000 sf minimum	10 ADT/DU
Area 2		
Neighborhood 3		
35 DU	15,000 sf minimum	12 ADT/DU
11 DU	second dwelling units	6 ADT/DU
Area 3		
Neighborhood 5		
21 DU	0.5 acre minimum	12 ADT/DU
48 DU	6,000 sf minimum	10 ADT/DU
20 DU	second dwelling units	6 ADT/DU

Using the trip rates listed on the previous page, the Project is calculated to generate 3,786 ADT. In addition to the residential units proposed, a wastewater treatment plant is proposed within

Neighborhood 5. This facility was estimated to generate 10 trips per day to account for the maintenance, management, and supervision of the site.

Table 7–1 shows the forecast trip generation for the Project. As shown in *Table 7–1*, the total Project is calculated to generate 3,786 ADT with a total of 304 trips during the AM peak hour (88 inbound/216 outbound trips) and 376 total trips during PM peak hour (263 inbound/ 113 outbound).

7.2 Project Trip Distribution and Assignment

Trip distribution percentages were calculated using a Select Zone Assignment (SZA) based on the SANDAG traffic model. The Project-generated traffic was distributed and assigned to the street system based on the results of the SZA and also based on the Project access points, characteristics of the roadway system, and the location of residential and employment opportunities in the surrounding area.

As previously mentioned, the Project site consists of three separate areas. Areas 1 and 2 are situated between Hill Valley Drive and Mount Whitney Road. These two areas consist of 230 homes and 35 homes, for a total of 265 DU. The primary access points for these combined areas are on Eden Valley Lane and Mount Whitney Road, connecting to Country Club Drive. It was assumed that Project trips would be evenly distributed between these two access roads.

Area 3 is located south of Mount Whitney Road, abutting Country Club Drive (See *Figure 2–1*). This area consists of 69 homes and is assumed to take access from two new access driveways on Future Street 5A, both connecting to Country Club Drive. It was assumed that Project trips would be evenly distributed between the two access roads.

The trips generated by the wastewater treatment plant located in the southeastern corner of Neighborhood 5 were distributed out of the New Access Road 5A South. One hundred percent of these trips were assumed to travel north on Country Club Drive to the Nordahl Road/ SR 78 interchange. The Project assignment for these trips was included in the Area 3 traffic assignment.

The trip distribution for Areas 1 and 2 are shown together and Area 3 is shown separately since Project traffic for these areas was distributed to the street system via different access points. Traffic generated by all three areas plus the wastewater treatment plant trips were combined and assigned to the street system representing the total traffic generated by the Project.

It should be noted that as part of the Project, northbound left-turn pockets are proposed at each of the four (4) Project access locations along Country Club Drive. The provision of left-turn pockets allows for northbound left-turning vehicles to be passed by northbound through vehicles without substantially slowing northbound through traffic. Given Country Club Drive currently has a posted speed limit of 45 mph, much higher than the 30 mph limit for Residential Collector roadways, the proposed left-turn pockets would enhance the flow of northbound through traffic along Country Club Drive between Hill Valley Road and New Access Road 5A South.

Figure 7–1a shows the Project traffic distribution for Areas 1 and 2 and ***Figure 7–1b*** shows the Project traffic distribution for Area 3. ***Figure 7–2*** shows the assignment of the total Project trips for all three areas and the wastewater treatment plant. ***Figure 7–3*** shows the *Existing + Project* traffic volumes.

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total
***Area 1:* 255-Acres**													
Neighborhood 1a (4-pack detached condos)	49 DU	10 /DU	490	8%	3:7	12	27	39	10%	7:3	34	15	49
Neighborhood 1b (≥ 4,640 SF lots)	47 DU	10 /DU	470	8%	3:7	11	27	38	10%	7:3	33	14	47
Neighborhood 2a (≥ 8,260 SF lots)	58 DU	10 /DU	580	8%	3:7	14	32	46	10%	7:3	41	17	58
Neighborhood 2b (SDUs)	23 DU	6 /DU	138	8%	2:8	2	9	11	9%	7:3	8	4	12
Neighborhood 4 (≥ 7,000 SF lots)	76 DU	10 /DU	760	8%	3:7	18	43	61	10%	7:3	53	23	76
Subtotal Area 1	*253 DU*	—	*2,2,438*	—	—	*57*	*138*	*195*	—	—	*169*	*73*	*242*
***Area 2:* 36-Acres**													
Neighborhood 3a (≥ 15,000 sf lots)	35 DU	12 /DU	420	8%	3:7	10	24	34	10%	7:3	29	13	42
Neighborhood 3b (SDUs)	11 DU	6 /DU	66	8%	2:8	1	4	5	9%	7:3	4	2	6
Subtotal Areas 1 & 2	*299 DU*	—	*2,924*	—	—	*68*	*166*	*234*	—	—	*202*	*88*	*290*
***Area 3*: 48-Acres**													
Neighborhood 5a (≥ 0.5 acre lots)	21 DU	12 /DU	252	8%	3:7	6	14	20	10%	7:3	18	7	25
Neighborhood 5b (≥ 6,000 sf lots)	48 DU	10 /DU	480	8%	3:7	11	27	38	10%	7:3	34	14	48
Neighborhood 5c (SDUs)	20 DU	6 /DU	120	8%	2:8	2	8	10	9%	7:3	8	3	11
Total Areas 1, 2 & 3	*388 DU*	—	*3,776*	—	—	*87*	*215*	*302*	—	—	*262*	*112*	*374*
Wastewater Treatment Plant [b]		—	10	—	—	1	1	2	—	—	1	1	2
Total Project		—	**3,786**	—	—	**88**	**216**	**304**	—	—	**263**	**113**	**376**

Continued on Next Page

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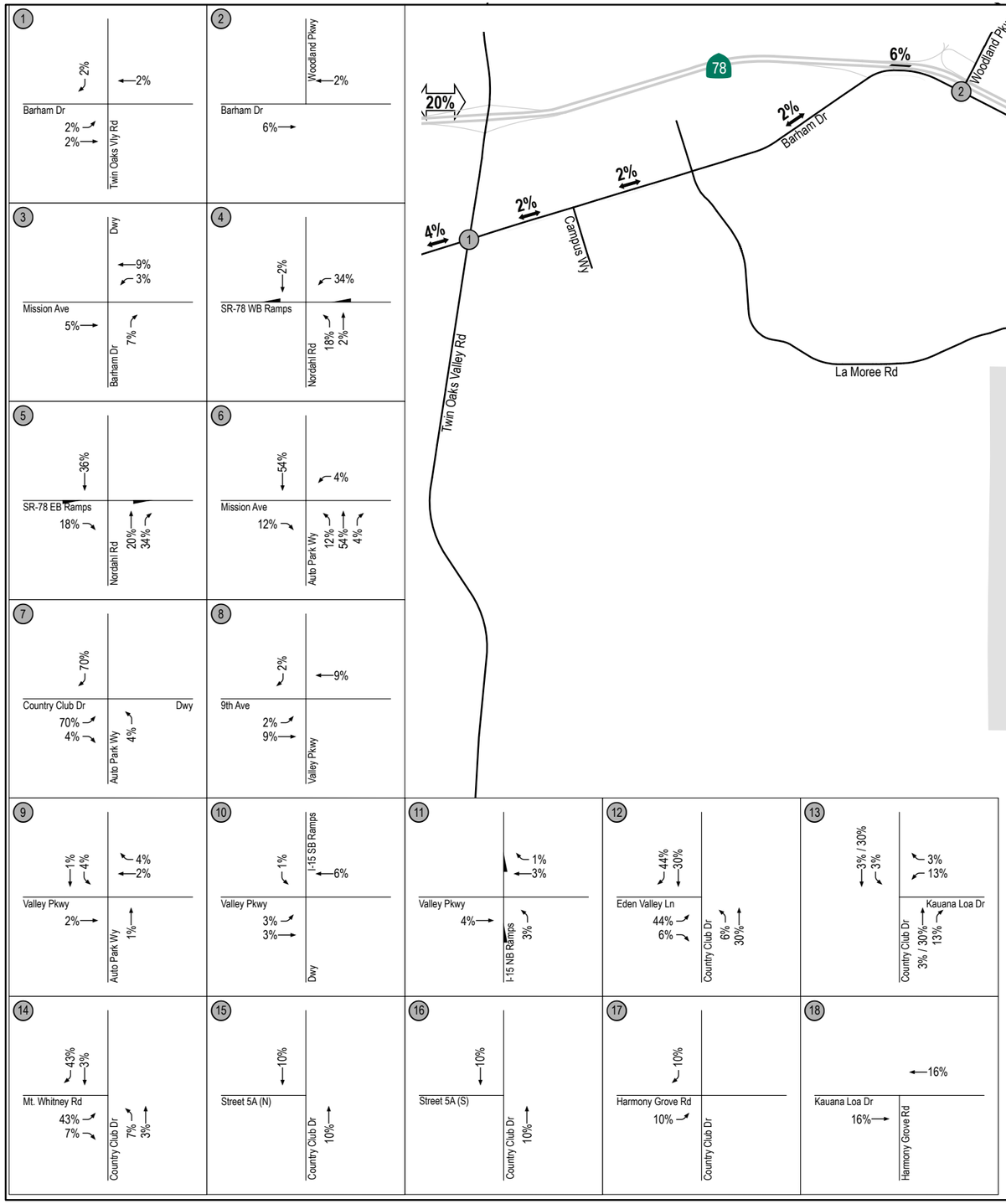
Footnotes:

a. Rate is based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.
b. Few trips are expected to be generated by the water reclamation facility. 10 trips per day were estimated to account for the maintenance, management and supervision of the site.

General Notes:

1. ADT = Average daily traffic.
2. DU = Dwelling Units
3. Since the preparation of this traffic study, the Project site plan has been reduced from 334 residential DU to 326 DU (8 less units). The trip generation calculations provided in this traffic study utilize the 334 DU amount, which represents a conservative analysis.



Note:
Area 1 contains neighborhoods 1, 2 and 4
Area 2 contains neighborhood 3
Area 3 contains neighborhood 5

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Figure 7-1a

Project Traffic Distribution - Areas 1 & 2

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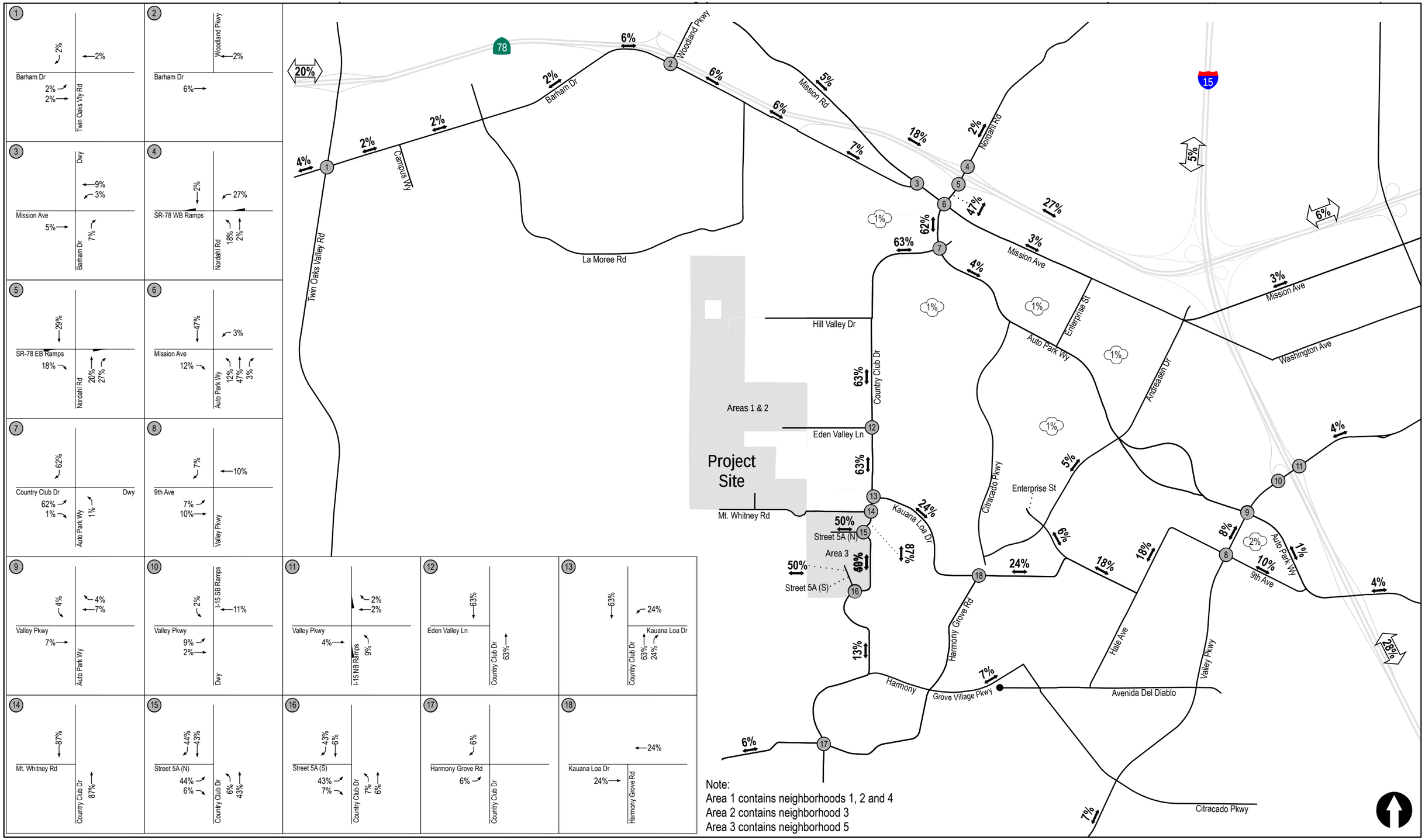

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Figure 7-1b

Project Traffic Distribution - Area 3

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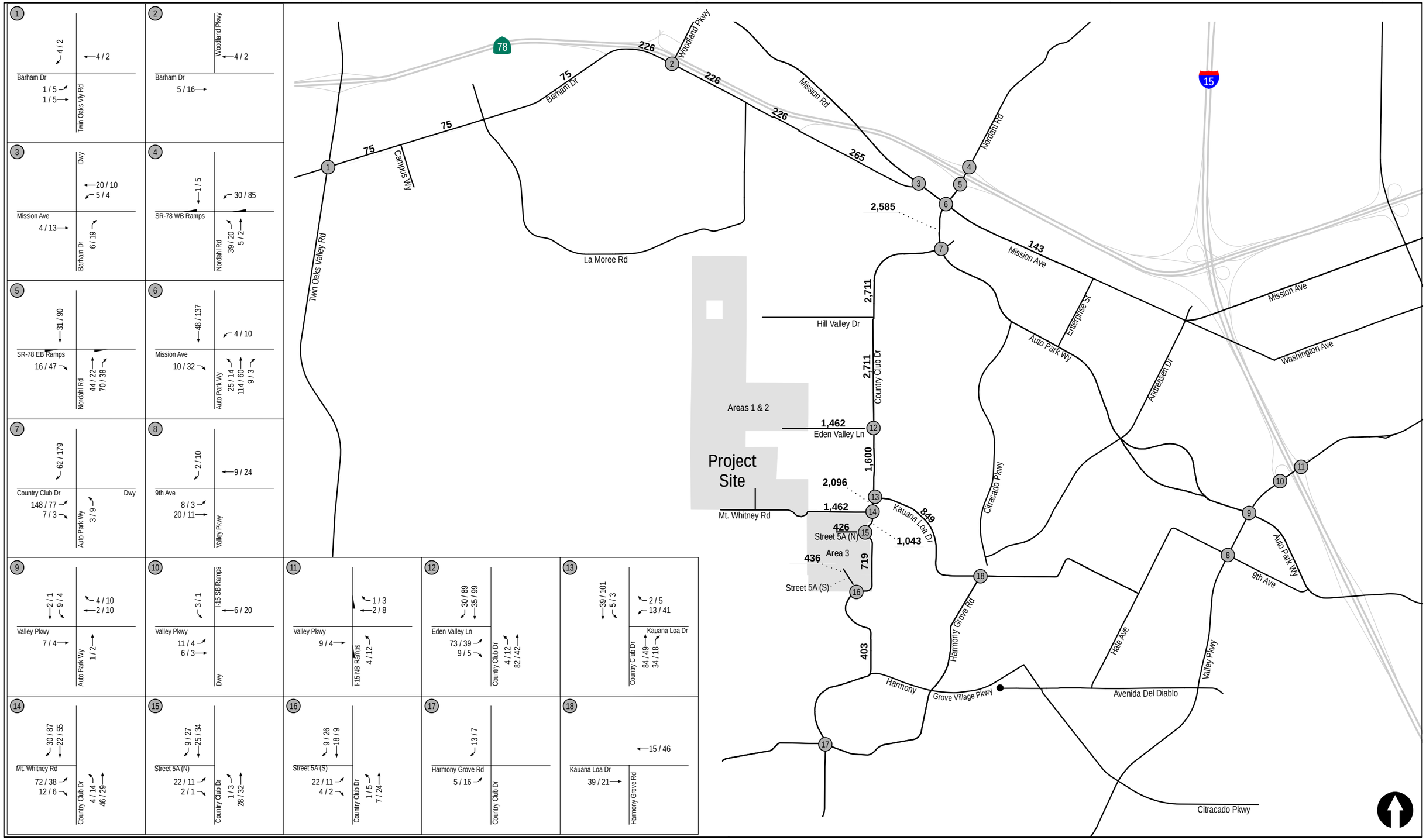

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Figure 7-2

Project Traffic Volumes

VALIANO

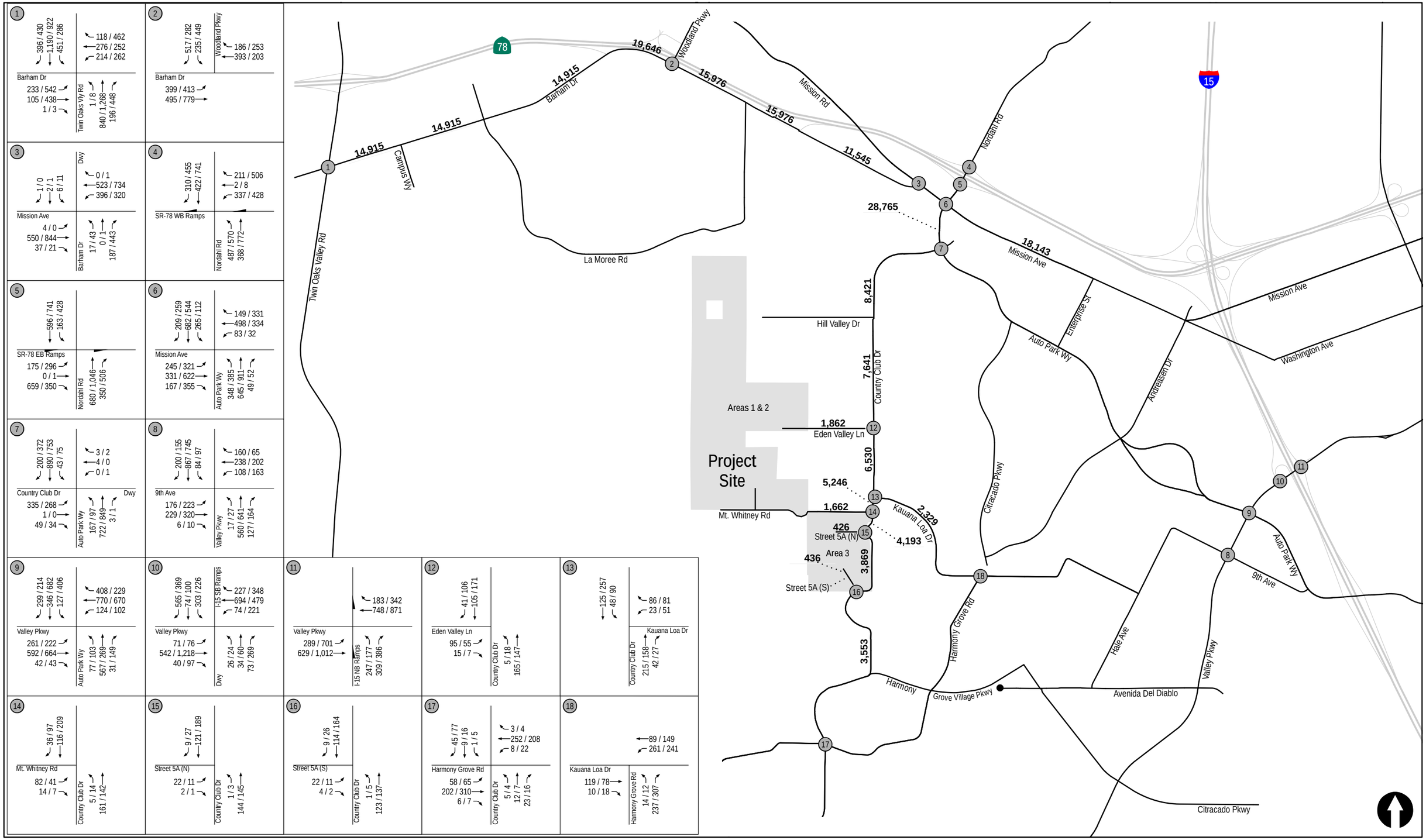

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Figure 7-3

Existing + Project Traffic Volumes

VALIANO

8.0 EXISTING + CUMULATIVE CONDITIONS

8.1 Summary of Cumulative Projects

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. Based on research conducted for the cumulative condition, three (3) County of San Diego projects, 31 City of San Marcos projects, and seven (7) City of Escondido projects were identified for inclusion in the traffic study. The following is a brief description of each of the cumulative projects in the general vicinity of the Project.

COUNTY OF SAN DIEGO

1. **Parcel SE of Harmony Grove Village** is a parcel located southeast of the Harmony Grove Village project bound by Country Club Drive to the northwest, Cordrey Drive to the west, and undeveloped land to the north. Access is proposed along Country Club Drive between Harmony Grove Road and Cordrey Drive. This project proposes the development of 453 single-family homes on a 111-acre site.

2. **Harmony Grove Industrial Park** is a 13.53-acre industrial development located at the Enterprise Street / Andreasen Drive intersection.

3. **Harmony Grove Meadows** proposes the development of 216 single family detached dwelling units in the County of San Diego.

CITY OF SAN MARCOS

1. **University District Specific Plan –** The 194 acre proposed project is located on Twin Oaks Valley Road, north of Discovery Street. The project proposes 1,000,000 square feet of commercial, 938,000 square feet of office space, 2,600 units of mixed-use residential, 800 units of student housing, and 450 hotel rooms.

2. **Palomar Station** is a proposed mixed-use developed that consists of 333 residential units, 55,260 square feet of commercial, and 9,800square feet of office space. The project is located on Las Posas Road both north and south of Armorlite Drive.

3. **San Marcos Creek District Specific Plan** is a proposed mixed-use development that consists of 2,300 residential units, 1.3 million square feet of commercial, and 589,000 square feet of office space. The project is located on San Marcos Boulevard between Via Vera Cruz and SR 78.

4. **Rancho Santalina** is a 237-unit residential development located north of Las Flores Drive and South Santa Fe Road.

5. **San Elijo Hills** is a specific plan area that consists of 3,398 residential units, 97,000 square feet of commercial, 100,000 square feet of office space, 1,050 acres of open space and 59

acres for elementary school use. The project is located near the intersection of San Elijo Hills and Elfin Forest Road.

6. **Marketplace @ Twin Oaks** is a proposed mixed-use development that consists of a 168,419 square foot shopping center, a 2-story and a 3-story office building. The project is located near the southwest corner of the intersection of Twin Oaks Valley Road and San Marcos Boulevard.

7. **University of St. Augustine** is a proposed physical therapy graduate school consisting of 77,500 square feet in Phase 1 and 44,000 square feet in Phase 2. The project is located at 700 Windy Point Drive.

8. **Pacific Industrial No.1** is a proposed 22,160 square foot industrial building. The project is located on Pacific Street, north of Grand Avenue.

9. **Old Creek Ranch** is a proposed development consisting of 401 single-family homes, 1,123 multifamily homes, 103 acres light industrial and 181 acres of open space on 416 total acres. The project is located on San Elijo Road east of Rancho Santa Fe Road.

10. **Kachay Homes** is a proposed development consisting of 8 single-family homes on a one-acre lot subdivision. The project is located on the southeast corner of Richland and Mulberry Road.

11. **Kaiser Hospital Medical Office** is a 3-story, 70,667 square foot outpatient medical office building and 335 parking stalls. The project is located at 400 Craven Road.

12. **Westlake Village** is a proposed mixed-use development containing 105 residential units and 5,000 square feet of commercial space located on Autumn Drive.

13. **Heritage Ranch** is an approved 16 unit residential development on Richland Road

14. **East Gate** proposes a mixed-use development of 42 multi-family affordable housing units and 11,285 SF of retail/commercial. The site is located on the northwest corner of Grand Avenue and Future Creekside Road.

15. **Campus Pointe II** proposed to construct 108 residential units and 10,000 SF of retail space (previously approved as "The Quorum"). The grading phase was underway as of June 2012 with the residential portion under construction.

16. **Davia Village (Milano Holdings, Inc.)** proposes a mixed-use project of 3-stories, 368 residential apartments, 19,855 SF of commercial/retail, and 8,895 SF of live/work units. The project is located at 1001 Armorlite Drive.

17. **Windy Point Development** is four proposed light industrial buildings and three office buildings on Borden Road at the extension of Windy Way. An application has been submitted to modify the industrial buildings to an office park.

18. **Parkview Apartments** is a proposed development of 81 affordable housing units and 4,500 square feet of commercial development. The project is located at 210-262 Chinaberry and 351 Autumn Drive.

19. **San Elijo Hills Town Center** is a mixed-use development that consists of 12,000 square feet of ground-floor commercial space and 12 condominiums. The project is located at San Elijo Road and Elfin Forest Road.

20. **Main Street Plaza** is a proposed mixed-use development that consists of 475 apartments, 62,080 square feet of commercial use, 14,800 square feet of office use, 40,000 square feet of residential storage, and a 4,559 gym/lounge. The project is located in the San Marcos Creek District Specific Plan area at 1167 West San Marcos Boulevard.

21. **Richmar Specific Plan** is the evaluation of a Specific Plan focusing on mixed-use development between Richmar Avenue and Mission Road and along Autumn Drive with extension of Tiger Way. The project is located south of Richmar Avenue to the area north of San Marcos Elementary School, south of Autumn Drive, and from Paseo de Oro to Firebird.

22. **The Promenade @ Creekside** is a proposed mixed-use development that consists of 98 apartments and 26,491 square feet of commercial use. The project is located in the San Marcos Creek District Specific Plan area at South Bent Avenue and Grand Avenue.

23. **The Quad at CSUSM** is a proposed 5-story mixed-use building consisting of 174,000 square feet of student housing and retail space.

24. **Sonic Drive-In** is a proposed 1,795 square foot drive-in restaurant with 899 square feet of covered outdoor dining area. The project is located at the southeast corner of Grand Avenue and Via Vera Cruz.

25. **Pacific Commercial** is a project proposing development of 31,776 square feet of commercial space on a 2.77 acre lot at the northeast corner of Grand Avenue and Pacific Street.

26. **Nicholas Banche** is a proposed development of 11 single-family homes in the area of Poinsettia Avenue and Specialty Drive.

27. **Candera** is a partially complete development constructing 50 multi-family units and 8 single-family homes. The project is located at Bougher Road and Via Camellia.

28. **Leigh Hanson site** is a proposed Specific Plan Amendment to allow the construction of 346 dwelling units consisting of single family and duplex units, and a K-8 school. The project is located on Twin Oaks Valley Road, south of Craven Road.

29. **San Marcos Highlands** is a proposed project consisting of 198 single family homes located at the northern terminus of Las Posas Road.

30. **UK Investments, LLC** is a proposed project consisting of 35 units of multi-family housing on N. Alda Drive.

31. **Shane Park Plaza** is a proposed mixed-use neighborhood shopping center consisting of 6,138 square feet of retail use and 19 multi-family dwelling units. The project is located on Rancho Santa Fe Road between Grand Avenue and La Mirada Drive.

CITY OF ESCONDIDO

1. **Citracado High School** is located south of W. Valley Parkway and north of Citracado Parkway. The high school is expected to serve 800 students in grades nine through 12.

2. **Escondido Asphalt Expansion** is located at 500 North Tulip Street and proposes to expand the operations of an existing asphalt concrete plant from 250,000 tons per year of material to 400,000 tons per year.

3. **Springhill Suites by Marriott** is located at 300 La Terraza Boulevard in the City of Escondido. The project consists of 105 hotel rooms.

4. **350 La Terraza Boulevard** is located on La Terraza Boulevard north of 9th Avenue and south of Valley Parkway in the City of Escondido. The project consists of a 44,000-square foot office building.

5. **City Square Residential** project is located at the southeast corner of the Centre City Parkway / 2nd Avenue intersection in the City of Escondido. This project consists of developing 102 multifamily dwelling units, 20 of which are already developed.

6. **Del Lago Academy** is a magnet biotechnology high school projected to open in fall 2013. It is located on a 34-acre site off W. Valley Parkway near Citracado Parkway and is expected to serve up to 800 students.

7. **Escondido Research and Technology Center (ERTC)** is a research center comprising of 208 acres located along the future alignment of Citracado Parkway in the City of Escondido.

8.2 Network Conditions

Several network improvements are proposed by the cumulative projects listed above. However, since the timeframe for construction of the majority of these improvements is unknown, the existing lane geometries with the inclusion of the Harmony Grove Village network improvements currently under construction were assumed as the baseline conditions in the *Existing + Cumulative* scenarios.

8.3 Traffic Volumes

In order to forecast traffic volumes for the cumulative condition, the SANDAG North County Model traffic model, the County of San Diego *General Plan* traffic model, and the recently adopted *Escondido General Plan* traffic model were reviewed. Land use assumptions contained in these forecast models within the Project area were reviewed and cumulative projects listed in the section above were determined to be included in the traffic volume forecast. All of these projects were assumed to be completed by the near-term condition, with the exception of the University District Specific Plan and the San Marcos Creek District Specific Plan.

In order to forecast intersection traffic volumes for the *Existing + Cumulative Projects* condition, the forecast ADT volumes taken from the SANDAG models were then used to calculate peak hour volumes based partially on the existing relationship between ADT and peak hour volumes. This same relationship can be assumed to generally continue in the future.

Figure 8–1 depicts the *Existing + Cumulative Projects* traffic volumes and ***Figure 8–2*** shows the *Existing + Project + Cumulative Projects traffic* volumes in the study area.

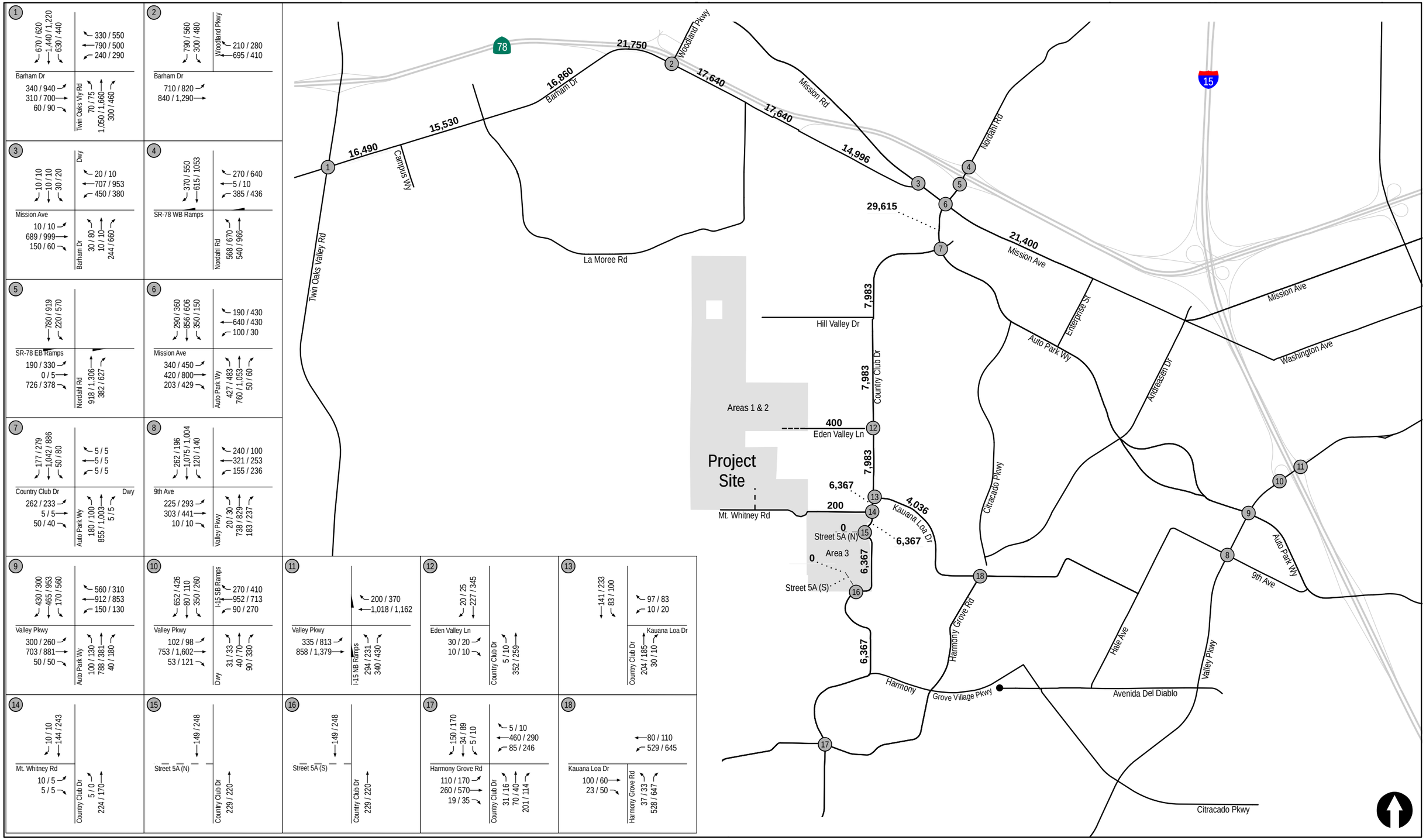

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Figure 8-1

Existing + Cumulative Projects (Year 2020) Traffic Volumes

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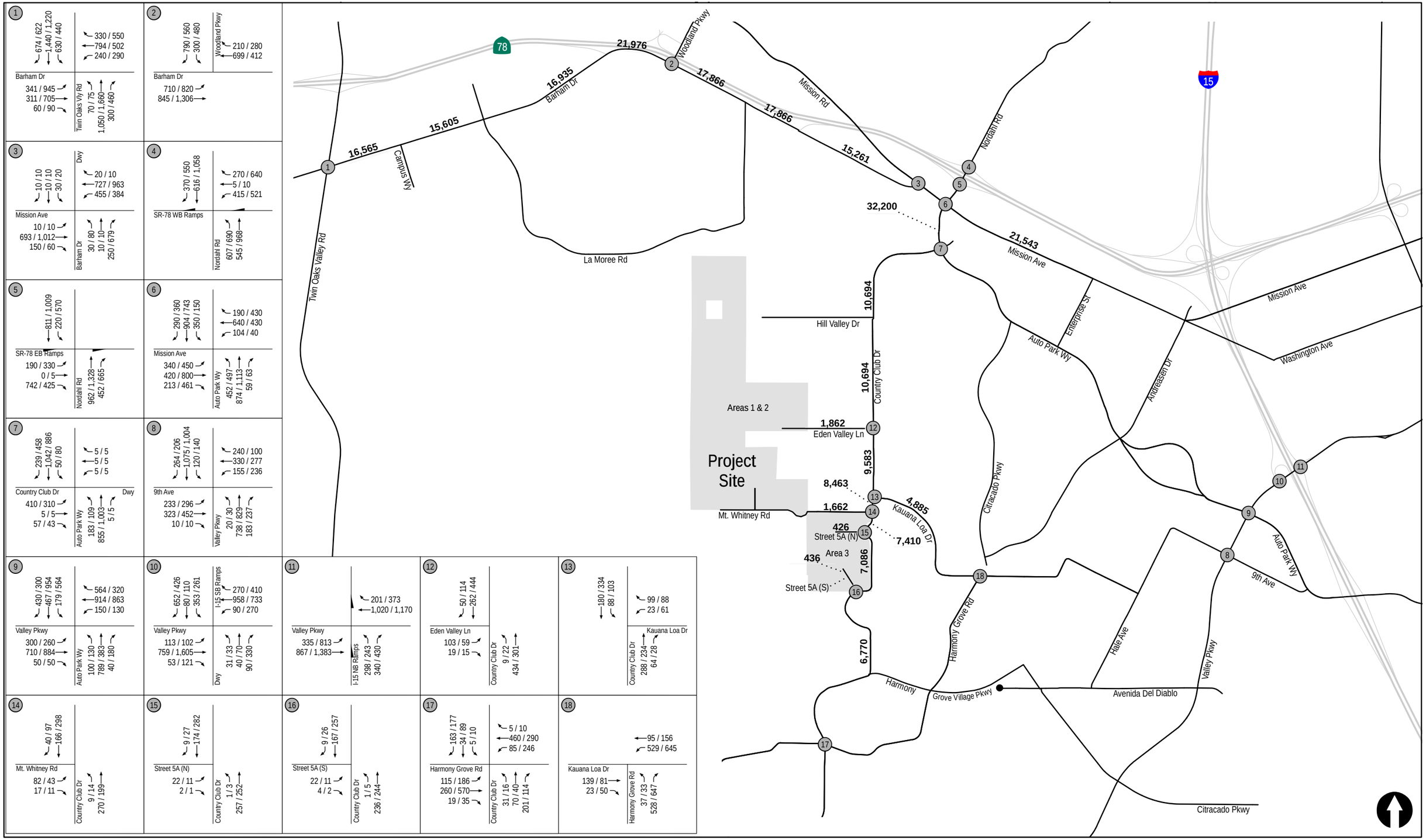

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Figure 8-2

Existing + Project + Cumulative Projects Traffic Volumes

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9.0 ANALYSIS OF NEAR-TERM SCENARIOS

9.1 Existing + Project Conditions

9.1.1 *Peak Hour Intersection Levels of Service*

Table 9–1 summarizes the *Existing + Project* intersections LOS. As seen in *Table 9–1*, with the addition of Project traffic, the following intersections are calculated to operate at unacceptable levels of service:

City of Escondido

- 8. Valley Parkway/ 9th Avenue – LOS D/D during the AM/PM peak hours
- 10. Valley Parkway/ I-15 Southbound Ramps – LOS D/D during the AM/PM peak hours

Based on the applied significance criteria, **no significant direct impacts** were calculated with the addition of Project traffic.

Appendix G contains the *Existing + Project* intersection analysis worksheets.

9.1.2 *Segment Operations*

Table 9–2 summarizes the *Existing + Project* roadway segment LOS. As seen in *Table 9–2*, with the addition of Project traffic, the following segments are calculated to operate at unacceptable levels of service:

City of San Marcos

- 4. E. Barham Drive between the SR 78 Eastbound Off-Ramp and Woodland Parkway – LOS F

City of Escondido

- **10. Country Club Drive between Auto Park Way and Hill Valley Drive – LOS D**

Based on the applied significance criteria, **one (1) significant direct impact** was calculated with the addition of Project traffic and the location **bolded** and underlined above.

9.1.3 *Freeway Mainline Operations*

Table 9–3 summarizes the *Existing + Project* freeway mainline operations on SR 78. As seen in *Table 9–3*, with the addition of Project traffic the following segments of SR 78 operate at unacceptable levels of service:

- Westbound SR 78 west of Nordahl Road: LOS E/E during the AM/PM peak hours

Based on the applied significance criteria, **no significant direct impacts** were calculated with the addition of Project traffic.

9.2 Existing + Cumulative Project Conditions

9.2.1 *Peak Hour Intersection Levels of Service*

Table 9–1 summarizes the *Existing + Cumulative Projects* intersections LOS. As seen in *Table 9–1*, with the addition of cumulative projects traffic, the following intersections are calculated to operate at unacceptable levels of service:

City of San Marcos

- 1. E. Barham Drive / S. Twin Oaks Valley Road/Discovery Street – LOS F/F during the AM/PM peak hours
- 2. E. Barham Drive / Woodland Parkway – LOS E/F during the AM/PM peak hours

City of Escondido

- 4. Nordahl Road / SR 78 Westbound Ramps – LOS D during the PM peak hour
- 6. Auto Park Way / Mission Road – LOS D/D during the AM/PM peak hours
- 8. Valley Parkway / 9th Avenue – LOS D/D during the AM/PM peak hours
- 9. Valley Parkway / Auto Park Way – LOS D/D during the AM/PM peak hours
- 10. Valley Parkway / I-15 Southbound Ramps – LOS D/E during the AM/PM peak hour
- 11. Valley Parkway / I-15 Northbound Ramps – LOS D during the PM peak hour

County of San Diego

- 18. Harmony Grove Road / Kauana Loa Drive – LOS F/F during the AM/PM peak hours

Appendix H contains the *Existing + Cumulative Projects* intersection analysis worksheets.

9.2.2 *Segment Operations*

Table 9–2 summarizes the *Existing + Cumulative Projects* roadway segment LOS. As seen in *Table 9–2*, with the addition of project traffic, the following segments are calculated to operate at unacceptable levels of service:

City of San Marcos

- 4. E. Barham Drive between the SR 78 EB Off-Ramp and Woodland Parkway – LOS F
- 7. Barham Drive between SR 78 EB On-Ramp to Mission Road – LOS E

City of Escondido

- 11. Country Club Drive between Auto Park Way to Hill Valley Drive – LOS D

9.2.3 *Freeway Mainline Operations*

Table 9–3 summarizes the *Existing + Cumulative Projects* freeway mainline operations on SR 78. As seen in *Table 9–3*, with the addition of cumulative projects traffic, the following segments of SR 78 operate at unacceptable levels of service:

- Westbound SR 78 west of Nordahl Road: LOS F(0)/F(0) during the AM/PM peak hours

9.3 Existing + Project + Cumulative Projects Conditions

9.3.1 *Peak Hour Intersection Levels of Service*

Table 9–1 summarizes the *Existing + Project + Cumulative Projects* intersections LOS. As seen in *Table 9–1*, with the addition of Project traffic and cumulative project traffic, the following intersections are calculated to operate at unacceptable levels of service:

City of San Marcos

- 1. E. Barham Drive / S. Twin Oaks Valley Road/Discovery Street – LOS F/F during the AM/PM peak hours
- 2. E. Barham Drive / Woodland Parkway – LOS E/F during the AM/PM peak hours

City of Escondido

- 4. Nordahl Road / SR 78 Westbound Ramps – LOS D during the PM peak hour
- **6. Auto Park Way / Mission Road – LOS D/D during the AM/PM peak hours**
- **7. Auto Park Way / Country Club Drive – LOS D during the AM peak hour**
- 8. Valley Parkway / 9th Avenue – LOS D/D during the AM/PM peak hours
- 9. Valley Parkway / Auto Park Way – LOS D/D during the AM/PM peak hours
- 10. Valley Parkway / I-15 Southbound Ramps – LOS D/E during the AM/PM peak hour
- 11. Valley Parkway / I-15 Northbound Ramps – LOS D during the PM peak hour

County of San Diego

- 18. Harmony Grove Road / Kauana Loa Drive – LOS F/F during the AM/PM peak hours for the minor street critical movement (northbound shared left/right-turn)

Based on the applied significance criteria, **two (2) significant cumulative impacts** were calculated with the addition of Project traffic and cumulative projects traffic.

It should be noted that although the intersection of Harmony Grove Road at Kauana Loa Drive is forecasted at LOS F operations, since the Project adds zero (0) trips to the northbound critical movement, **no significant impact is calculated**.

Appendix I contains the *Existing + Project + Cumulative Projects* intersection analysis worksheets.

9.3.2 *Segment Operations*

Table 9–2 summarizes the *Existing + Project + Cumulative Projects* roadway segment LOS. As seen in *Table 9–2* with the addition of Project traffic and cumulative project traffic, the following segments are calculated to operate at unacceptable levels of service:

City of San Marcos

- 4. Barham Drive between the SR 78 EB Off-Ramp and Woodland Parkway – LOS F
- 7. Barham Drive SR 78 EB On-Ramp to Mission Road – LOS F

City of Escondido

- **10. Country Club Drive between Auto Park Way and Hill Valley Drive – LOS F**

County of San Diego

- **11. Country Club Drive between Hill Valley Drive and Kauana Loa Drive – LOS F**

Based on the applied significance criteria, **two (2) significant cumulative impacts** were calculated with the addition of Project traffic and cumulative projects traffic on the street segments **bolded** and underlined above.

9.3.3 *Freeway Mainline Operations*

Table 9–3 summarizes the *Existing + Project + Cumulative Projects* freeway mainline operations on SR 78. As seen in *Table 9–3*, with the addition of Project traffic and cumulative projects traffic, the following segments of SR 78 operate at unacceptable levels of service:

- Westbound SR 78 west of Nordahl Road: LOS F(0)/F(0) during the AM/PM peak hours

Based on the applied significance criteria, **no significant cumulative impacts** were calculated with the addition of Project traffic and cumulative projects traffic.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Project + Cumulative Projects			Impact Type
			Delay [a]	LOS [b]	Delay	LOS	Δ [c]	Delay	LOS	Delay	LOS	Δ	
City of San Marcos Jurisdiction													
1. E. Barham Dr / S. Twin Oaks Valley Rd / Discovery St	Signal	AM	28.1	C	28.3	C	0.2	101.4	F	102.0	F	0.6	None
		PM	53.3	D	53.7	D	0.4	147.8	F	148.3	F	0.5	
2. E. Barham Dr / Woodland Pkwy	Signal	AM	17.8	B	18.0	B	0.2	71.0	E	71.6	E	0.6	None
		PM	21.3	C	21.6	C	0.3	90.8	F	91.0	F	0.2	
3. Barham Dr / Mission Rd	Signal	AM	23.9	C	24.0	C	0.1	33.3	C	33.7	C	0.4	None
		PM	24.1	C	24.6	C	0.5	35.1	D	36.0	D	0.9	
City of Escondido Jurisdiction													
4. Nordahl Rd / SR 78 WB Ramps	Signal	AM	22.6	C	23.2	C	0.6	24.8	C	27.1	C	2.3	None
		PM	25.6	C	26.7	C	1.1	37.5	D	39.0	D	1.5	
5. Nordahl Rd / SR 78 EB Ramps	Signal	AM	19.4	B	19.6	B	0.2	21.6	C	22.6	C	1.0	None
		PM	18.0	B	19.0	B	1.0	28.5	C	29.1	C	0.6	
6. Auto Park Way / Mission Rd	Signal	AM	32.2	C	33.5	C	1.3	46.1	D	**49.3**	**D**	**3.2**	**Cumulative**
		PM	31.2	C	32.1	C	0.9	48.5	D	**51.0**	**D**	**2.5**	
7. Auto Park Way / Country Club Dr	Signal	AM	17.5	B	25.8	C	8.3	26.5	C	**53.7**	**D**	**27.2**	**Cumulative**
		PM	15.1	B	19.0	B	3.9	19.8	B	27.6	C	7.8	
8. Valley Pkwy / 9th Ave	Signal	AM	38.2	D	39.8	D	1.6	40.6	D	41.7	D	1.1	None
		PM	46.3	D	47.1	D	0.8	49.9	D	50.5	D	0.6	
9. Valley Pkwy / Auto Park Way	Signal	AM	33.3	C	33.5	C	0.2	38.0	D	38.2	D	0.2	None
		PM	29.6	C	29.6	C	0.0	50.8	D	51.1	D	0.3	
10. Valley Pkwy / I-15 SB Ramps	Signal	AM	37.6	D	38.0	D	0.4	42.5	D	43.2	D	0.7	None
		PM	42.6	D	42.8	D	0.2	74.7	E	75.1	E	0.4	
11. Valley Pkwy / I-15 NB Ramps	Signal	AM	26.3	C	26.3	C	0.0	28.7	C	28.6	C	0.0	None
		PM	31.9	C	32.0	C	0.1	43.1	D	43.6	D	0.5	

Continued on Next Page

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Project + Cumulative Projects			Impact Type
			Delay [a]	LOS [b]	Delay	LOS	Δ [c]	Delay	LOS	Delay	LOS	Δ	
County of San Diego Jurisdiction													
12. Country Club Dr / Eden Valley Ln	MSSC [d]	AM	9.4	A	11.3	B	—	13.1	B	19.4	C	—	None
		PM	9.7	A	12.0	B	—	13.3	B	19.8	C	—	
13. Country Club Dr / Kauana Loa Dr	AWSC [e]	AM	8.1	A	9.1	A	—	9.3	A	10.9	B	—	None
		PM	8.8	A	10.6	B	—	10.2	B	13.3	B	—	
14. Country Club Dr / Mt. Whitney Rd	MSSC	AM	9.7	A	11.2	B	—	10.6	B	13.1	B	—	None
		PM	9.9	A	11.9	B	—	10.6	B	13.6	B	—	
15. Country Club Dr / Future Street 5A (N)	*DNE*/ MSSC	AM	*DNE*	*DNE*	10.3	B	—	*DNE*	*DNE*	11.7	B	—	None
		PM	*DNE*	*DNE*	10.8	B	—	*DNE*	*DNE*	12.8	B	—	
16. Country Club Dr / Future Street 5A (S)	*DNE*/ MSSC	AM	*DNE*	*DNE*	10.0	B	—	*DNE*	*DNE*	11.3	B	—	None
		PM	*DNE*	*DNE*	10.5	B	—	*DNE*	*DNE*	12.3	B	—	
17. Country Club Dr / Harmony Grove Rd	Signal	AM	9.5	A	10.1	B	—	26.8	C	27.9	C	—	None
		PM	9.4	A	9.8	A	—	26.2	C	26.6	C	—	
18. Harmony Grove Rd / Kauana Loa Dr	MSSC	AM	11.1	B	11.6	B	—	69.0	F	95.9	F	0 [f]	None
		PM	11.2	B	11.6	B	—	182.3	F	225.5	F	0 [f]	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. "Δ" denotes the Project-induced increase in delay for intersections located in the City of San Marcos and Escondido. "Δ" denotes the Project-induced increase in delay for signalized intersections and Project traffic added to the critical movement for unsignalized intersections located in the County of San Diego.
d. MSSC = Minor Street Stop Controlled intersection. Minor street left-turn delay is reported.
e. AWSC = All-Way Stop Controlled intersection. Average delay is reported.
f. The Project only adds traffic to the east/west uncontrolled movements. Zero (0) Project trips are added to the northbound critical stop-controlled movement. Therefore, no significant traffic impacts were calculated.

General Notes:

1. DNE = Does not exist.
2. Bold typeface and shading represents a significant impact.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

City of San Marcos Street Segments	Existing Capacity (LOS E) [a]	Existing			Existing + Project				Existing + Cumulative Projects			Existing + Project + Cumulative Projects				Impact Type
		ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C	Δ [e]	ADT	LOS	V/C	ADT	LOS	V/C	Δ [e]	
E. Barham Drive																
1. S. Twin Oaks Valley Road to Campus Way	50,000	14,840	B	0.297	14,915	B	0.298	0.002	16,490	B	0.330	16,565	B	0.331	0.002	None
2. Campus Way to W. La Moree Rd	50,000	14,840	B	0.297	14,915	B	0.298	0.002	15,530	B	0.311	15,605	B	0.312	0.002	None
3. W. La Moree Rd to SR 78 EB Off-Ramp	22,500	14,840	C	0.660	14,915	C	0.663	0.003	16,860	D	0.749	16,935	D	0.753	0.003	None
4. SR 78 EB Off-Ramp to Woodland Pkwy	15,000	19,420	F	1.295	19,646	F	1.310	0.015	21,750	F	1.450	21,976	F	1.465	0.015	None
Barham Drive																
5. Woodland Pkwy to E. La Moree Rd	30,000	15,750	C	0.525	15,976	C	0.533	0.008	17,640	C	0.588	17,866	C	0.596	0.008	None
6. E. La Moree Rd to SR 78 EB On-Ramp	30,000	15,750	C	0.525	15,976	C	0.533	0.008	17,640	C	0.588	17,866	C	0.596	0.008	None
7. SR 78 EB On-Ramp to Mission Rd	15,000	11,280	D	0.752	11,545	D	0.770	0.018	14,996	E	1.000	15,261	F	1.017	0.018	None
City of Escondido Street Segments	**Existing Capacity (LOS E) [a]**	**Existing**			**Existing + Project**				**Existing + Cumulative Projects**			**Existing + Project + Cumulative Projects**				**Impact Type**
		ADT	**LOS**	**V/C**	**ADT**	**LOS**	**V/C**	**Δ [e]**	**ADT**	**LOS**	**V/C**	**ADT**	**LOS**	**V/C**	**Δ [e]**	
Mission Road																
8. Auto Park Way to Enterprise St	34,200	18,000	B	0.526	18,143	B	0.530	0.004	21,400	C	0.626	21,543	C	0.630	0.004	None
Auto Park Way																
9. Mission Rd to Country Club Dr	43,500 [f]	26,180	B	0.602	28,765	B	0.661	0.059	29,615	B	0.681	32,200	C	0.740	0.059	None
Country Club Drive																
10. Auto Park Way to Hill Valley Dr	10,000	5,710	C	0.571	**8,421**	**D**	**0.842**	**0.271**	7,983	d	0.798	**10,694**	**F**	**1.069**	**0.271**	**Direct & Cumulative**

Continued on Next Page

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

County of San Diego Street Segments	Existing Capacity (LOS E) [a]	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Project + Cumulative Projects			Impact Type
		ADT	LOS	ADT	LOS	Δ [e]	ADT	LOS	ADT	LOS	Δ [e]	
Country Club Drive												
11. Hill Valley Dr to Kauana Loa Dr	9,700 [g]	4,930	A	7,641	C	2,711	7,983	D	**10,694**	**F**	**2,711**	**Cumulative**
12. Kauana Loa Dr to Mt. Whitney Rd	9,700 [h]	3,150	A	5246	A	2,096	6,367	B	8,463	D	2,096	None
13. Mt. Whitney Rd to Future Project Access	9,700 [h]	3,150	A	4,193	A	1,043	6,367	B	7,410	C	1,043	None
14. Future Street 5A (N) to Future Street 5A (S)	9,700 [h]	3,150	A	3,869	A	719	6,367	B	7,086	C	719	None
15. Future Street 5A (S)to Harmony Grove Rd	16,200 [i]	3,150	B	3,553	B	403	6,367	C	6,770	C	403	None
Kauana Loa Drive												
16. Country Club Dr to Harmony Grove Rd	8,000 [i]	1,480	A	2,329	B	849	4,036	B	4,885	C	849	None

Footnotes:

a. Capacities based on City of San Marcos, City of Escondido, and County of San Diego Roadway Classification Tables.
b. ADT = Average Daily Traffic Volumes.
c. LOS = Level of Service.
d. V/C = Volume to Capacity ratio.
e. "Δ" denotes the Project-induced increase in V/C for City of San Marcos and Escondido roadway segments. "Δ" denotes the Project-induced increase in ADT for segments operating at LOS E or F located in the County of San Diego.
f. Auto Park Way is currently built as a 6-Ln Major from Mission Road to Meyers Avenue and a 4-Ln Major from Meyers Avenue to Country Club Drive. Therefore, a 5-Ln Major road capacity of 43,500 was used in the analysis.
g. Although Country Club Drive is not a Mobility Element roadway, due to the 45 mph speed limit, reduced shoulder and the provision of northbound left-turn pockets proposed by the Project, the roadway functions as a 2.2F Light Collector with an LOS "E" capacity of 9,700 ADT.
h. Country Club Drive from Kauana Loa Drive to the northerly boundary of Harmony Grove Village (just south of Future Street 5A South) is currently being improved to Rural Light Collector standards per the previously adopted General Plan (corresponding with a 2.2F Light Collector on the currently adopted General Plan) with an ADT capacity of 9,700.
i. South of Future Street 5A South to Harmony Grove Village Parkway, Country Club Drive is being improved to Rural Collector standards per the previously adopted General Plan (corresponding with 2.2E Light Collector on the currently adopted General Plan) with an ADT capacity of 16,200. From Harmony Grove Village Parkway to Harmony Grove Road, it is being improved to Town Collector standards per the previously adopted General Plan (corresponding with 2.1C Community Collector on the currently adopted General Plan) with an ADT capacity of 19,000. Since the study area segment from Future Street 5A (S) and Harmony Grove Road transitions between these two capacities, the 16,200ADT capacity was used to provide a conservative analysis.
j. Since this portion of Kauana Loa Drive has an increased paved width and 40 mph speed limit, the roadway functions as a 2.3C Minor Collector with an LOS "E" capacity of 8,000 ADT.

General Notes:

1. Bold typeface and shading represents a significant impact.

TABLE 9–3
NEAR-TERM FREEWAY MAINLINE OPERATIONS

Freeway Segment	Dir.	# of Lanes [a]	Hourly Capacity [b]	Existing [c]		V/C [d]		LOS [e]		Existing + Project		V/C		LOS		Δ [f/g] V/C		Impact Type
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
State Route 78																		
West of Nordahl Rd	EB	3M+1A	7,200	4,994	4,983	0.694	0.692	C	C	5,009	5,026	0.696	0.698	C	C	0.002	0.006	None
	WB	3M	6,000	5,862	5,625	0.977	0.938	E	E	5,897	5,643	0.983	0.941	E	E	0.006	0.003	None
East of Nordahl Rd	EB	3M+1A	7,200	4,144	5,097	0.576	0.708	B	C	4,208	5,132	0.584	0.713	B	C	0.009	0.005	None
	WB	4M+1A	9,200	5,663	5,070	0.616	0.551	B	B	5,691	5,149	0.619	0.560	B	B	0.003	0.009	None

Freeway Segment	Dir.	# of Lanes [a]	Hourly Capacity [b]	Existing + Cumulative Projects		V/C [d]		LOS [e]		Existing + Project + Cumulative Projects		V/C		LOS		Δ [f/g] V/C		Impact Type
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
State Route 78																		
West of Nordahl Rd	EB	3M+1A	7,200	5,547	5,535	0.770	0.769	C	C	5,562	5,578	0.772	0.775	C	C	0.002	0.006	None
	WB	3M	6,000	6,511	6,248	1.085	1.041	F(0)	F(0)	6,546	6,266	1.091	1.044	F(0)	F(0)	0.006	0.003	None
East of Nordahl Rd	EB	3M+1A	7,200	4,424	5,442	0.615	0.756	B	C	4,488	5,477	0.623	0.761	C	C	0.009	0.005	None
	WB	4M+1A	9,200	6,046	5,413	0.657	0.588	C	B	6,074	5,492	0.660	0.597	C	B	0.003	0.009	None

Footnotes:

a. Lane geometry taken from 2011 PeMS lane configurations at corresponding postmile.
b. Existing volumes taken from PeMS October 2011 peak hour data.
c. Capacity calculated at 2000 vehicles per hour (vph) per mainline lane (pcphpl) and 1200 vph per lane for auxiliary lanes from *Caltrans Guide for the Preparation of Traffic Impact Studies, Dec 2002.*
d. V/C = (Peak Hour Volume/Hourly Capacity)
e. LOS = Level of Service
f. "Δ" denotes the Project-induced increase in V/C. Per SANTEC/ITE Guidelines, a significant impact occurs when the V/C is reduced by 0.01 for LOS E or F.
g. A decrease in the V/C with the Project is due to the increase in capacity on SR 78 due to the SR 78 Improvement Project which adds one (1) auxiliary lane in each direction.

General Notes:

1. M = Mainline

LOS	V/C
A	<0.41
B	0.62
C	0.80
D	0.92
E	1.00
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

10.0 YEAR 2035 ANALYSIS

A buildout (Year 2035) analysis was completed since the proposed Project land uses generate more traffic than the *General Plan* land uses. Per County criteria, a buildout analysis is conducted to determine whether the proposed land use changes would require any changes to the *Mobility Element* roadway classifications. The Year 2035 analysis presented in this section compares the adopted *General Plan* to the proposed Project.

10.1 Network Conditions

This section describes the buildout of the street system based on the *General Plan* roadway classifications for County of San Diego, City of San Marcos, and City of Escondido study area roadways, respectively. Per County guidelines, the *General Plan Mobility Element* roadway classifications were used in the LOS analysis provided in this report.

In addition to buildout of local area roadways, the Woodland Parkway/Barham Road interchange with SR 78 is expected to incur major improvements in the future. An eastbound on-ramp is proposed from Barham Drive with Barham Drive being realigned up to its intersection of Woodland Parkway.

Table 10–1 displays the City of San Marcos *Circulation Element*, City of Escondido *General Plan Mobility Element*, and County of San Diego *General Plan Mobility Element* roadway classifications for study area street segments.

TABLE 10–1
GENERAL PLAN STREET SEGMENT CLASSIFICATIONS

Street Segments	Currently Built As	Adopted *General Plan* Classification [a]
City of San Marcos		
E. Barham Drive		
1. S. Twin Oaks Valley Road to Campus Way	5-Ln Divided	6-Ln Prime Arterial
2. Campus Way to W. La Moree Rd	5-Ln Divided	6-Ln Prime Arterial
3. W. La Moree Rd to SR 78 EB Off-Ramp	3-Ln w/ TWLTL	6-Ln Prime Arterial
4. SR 78 EB Off-Ramp to Woodland Pkwy	2-Ln Undivided	6-Ln Prime Arterial
Barham Drive		
5. Woodland Pkwy to E. La Moree Rd	4-Ln w/ TWLTL	4-Ln Secondary Arterial
6. E. La Moree Rd to SR 78 EB On-Ramp	4-Ln w/ TWLTL	4-Ln Secondary Arterial
7. SR 78 EB On-Ramp to Mission Rd	2-Ln Undivided	4-Ln Secondary Arterial
(Continued on Next Page)		

TABLE 10–1
GENERAL PLAN STREET SEGMENT CLASSIFICATIONS

Street Segments	Currently Built As	Adopted *General Plan* Classification [a]
City of Escondido		
Mission Road		
8. Auto Park Way to Enterprise St	4-Ln Divided	4-Ln Major
Auto Park Way		
9. Mission Rd to Country Club Dr	4-Ln Divided	6-Ln Major Super Road
Country Club Drive		
10. Auto Park Way to Hill Valley Dr	2-Ln Undivided	2-Ln Local Collector
County of San Diego		
Country Club Drive [b]		
11. Hill Valley Dr to Kauana Loa Dr	2-Ln Undivided	Unclassified [b]
12. Kauana Loa Dr to Mt. Whitney Rd	2-Ln Undivided	Unclassified [c]
13. Mt. Whitney Rd to Future Street 5A (N)	2-Ln Undivided	Unclassified [c]
14. Future Street 5A (N) to Future Street 5A (S)	2-Ln Undivided	Unclassified [c]
15. Future Street 5A (S) to Harmony Grove Rd	2-Ln Undivided	Unclassified [d]
Kauana Loa Drive		
16. Country Club Dr to Harmony Grove Rd	2-Ln Undivided	Unclassified [e]

Footnotes:

a. Classifications based on City of San Marcos, City of Escondido, and County of San Diego *General Plans*.

b. Although Country Club Drive is not a Mobility Element roadway, due to the 45 mph speed limit, reduced shoulder and the provision of northbound left-turn pockets proposed by the Project, the roadway functions as a 2.2F Light Collector with an LOS "E" capacity of 9,700 ADT.

c. Country Club Drive from Kauana Loa Drive to the northerly boundary of Harmony Grove Village (just south of Future Street 5A South) is currently being improved to Rural Light Collector standards per the previously adopted General Plan (corresponding with a 2.2F Light Collector on the currently adopted General Plan) with an ADT capacity of 9,700.

d. South of Future Street 5A South to Harmony Grove Village Parkway, Country Club Drive is being improved to Rural Collector standards per the previously adopted General Plan (corresponding with 2.2E Light Collector on the currently adopted General Plan) with an ADT capacity of 16,200. From Harmony Grove Village Parkway to Harmony Grove Road, it is being improved to Town Collector standards per the previously adopted General Plan (corresponding with 2.1C Community Collector on the currently adopted General Plan) with an ADT capacity of 19,000. Since the study area segment from Future Street 5A (S) and Harmony Grove Road transitions between these two capacities, the 16,200ADT capacity was used to provide a conservative analysis.

e. Since this portion of Kauana Loa Drive has an increased paved width and 40 mph speed limit, the roadway functions as a 2.3C Minor Collector with an LOS "E" capacity of 8,000 ADT.

10.2 Traffic Volumes

In order to forecast traffic volumes for the Year 2035 condition (with adopted *General Plan* land uses), the SANDAG North County Model, SANDAG Series 12 Model, the County of San Diego *General Plan*, and the recently adopted Escondido *General Plan* traffic models were reviewed. These traffic models include all *General Plan* roadway conditions and land uses from each jurisdiction. In addition, all cumulative projects listed in *Section 8.1* of this report were assumed to

be at full buildout by Year 2035. Similar to the *Existing + Cumulative Projects* condition, it would be expected that vehicular traffic may decrease at certain study area locations due to the changes in the circulation network expected with the buildout of *General Plan* roadways and freeway improvements in the vicinity of the Project.

This is particularly evident on Country Club Drive. The County *General Plan* traffic model shows unrealistically low traffic volumes on Country Club Drive south of Kauana Loa Drive (200 ADT). Based on professional engineering judgment, the traffic volumes generated by the *General Plan* model do not appear to be accurate. A review of the SANDAG Series 12 Year 2035 traffic model, which includes all *General Plan* land uses, including the Harmony Grove Village project, was conducted to determine if this model more accurately forecasts the future volumes on Country Club Drive. Based on a review of said model, the SANDAG Series 12 Year 2035 traffic volumes were deemed more appropriate for use in the analysis of Country Club Drive.

10.3 Trip Generation Comparison

As mentioned in *Section 2.0* of this report, the Project proposes a *General Plan* Amendment (GPA) for the Project site. The adopted *General Plan* zoned the 209-acre Project area as RS and A70 with minimum lot sizes of 1 and 2 acres. The current *General Plan* designations are SR-1 and SR-2, and the Regional Category is Semi-Rural. Under the current *General Plan*, a maximum of 209 DU would be permitted (at a minimum of 1 acre lot sizes). Applying the SANDAG rate for the single-family estate residential land use, approximately 2,510 ADT would be generated by the existing zoning.

The Project is requesting a *General Plan* Amendment (GPA) to allow for a maximum development of 334 DU and 54 SDU. Applying the density-specific single-family and single-family estate residential land use rates to the five (5) neighborhoods with the inclusion of the wastewater reclamation facility, approximately 3,786 ADT would be generated by the Project site, a net increase of 1,278 ADT.

An analysis of the site redevelopment was conducted to evaluate the Year 2035 operations at 15 off-site street segment locations surrounding the Project area. In order to evaluate the Project-related changes to the street system with the GPA, the net increase of 1,278 ADT was distributed to the street to represent the "With Project" conditions. Therefore, *Year 2035 Without Project* traffic volumes represent traffic generated by the adopted *General Plan* land uses for the Project site and the *Year 2035 With Project* traffic volumes represent the net increase in traffic with the GPA.

Table 10–2 shows the trip generation comparison for the each scenario.

Figure 10–1 depicts the *Year 2035 Without Project* traffic volumes and ***Figure 10–2*** depicts the *Year 2035 With Project* traffic volumes.

TABLE 10–2
YEAR 2035 PROJECT TRIP GENERATION COMPARISON

Land Use	Quantity	ADT [a]	
		Rate [b]	Volume
Without Project: Adopted *General Plan* Land Use			
Single Family Estate Residential (RS and A70 – 1 DU/1-2 acres)	209 DU	12 /DU	2,508
With Project: Proposed Land Use			
278 Single-Family, 56 Single-Family Estate Residential (RS and A70 – 1 DU/5KSF lot minimum), and 54 Second Dwelling Units with Wastewater Treatment Facility	388 DU	[c] /DU	3,786
Net Increase with Proposed Land Use			**1,278**

Footnotes:
a. ADT = Average Daily Traffic, rounded up to the nearest tenth.
b. *(Not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* dated April 2002.
c. 278 single-family units at a rate of 10 ADT/unit; 56 single-family units at a rate of 12 ADT/unit, 54 second dwelling units at a rate of 6 ADT/unit. See *Table 7–1* earlier in this report for more information. 10 ADT assumed for wastewater treatment plant.

10.4 Year 2035 Without Project Land Use Analysis

10.4.1 *Daily Street Segment Operations*

Country Club Drive is not currently classified on the County *Mobility Element*. Although this roadway functions as a 2.2E Light Collector due to a higher posted speed limit, the *Mobility Element* does not currently designate this roadway as having the corresponding increase in ADT capacity.

The provision of northbound left-turn pockets, as proposed by the Project, at each of the four (4) Project access locations along Country Club Drive would allow northbound left-turning vehicles to be passed by northbound through vehicles without substantially slowing northbound through traffic. Given Country Club Drive currently has a posted speed limit of 45 mph, much higher than the 30 mph limit for non-*Mobility Element* Residential Collector roadways, and left-turn pockets are proposed to improve the flow of northbound through traffic, an analysis of Country Club Drive at the both the unclassified capacity of 4,500 ADT for a residential collector and the functional capacity of 9,700 ADT is provided in this section.

Table 10–3 summarizes the *Year 2035 Without Project* (with adopted *General Plan* land use) roadway segment LOS. As seen in *Table 10–3*, all street segments are calculated to operate at acceptable levels of service except for the segments of Country Club Drive between Hill Valley Drive and Kauana Loa Drive which exceed the 4,500 ADT threshold for a Residential Collector.

It should be noted that these segments of Country Club Drive are calculated to operate at acceptable LOS D operations assuming the functional capacity of 9,700 ADT.

10.5 Year 2035 With Proposed Project Land Use Analysis

10.5.1 *Daily Street Segment Operations*

Table 10–3 also summarizes the *Year 2035 With Project* (with proposed Project land use) roadway segment LOS. As seen in *Table 10–3*, all street segments are calculated to continue to operate at acceptable levels of service except for three locations along Country Club Drive.

Assuming a Residential Collector capacity of 4,500 ADT, the following segment along Country Club Drive located within the County's jurisdiction exceeds this capacity:

- 11. Country Club Drive between Hill Valley Drive and Kauana Loa Drive

Using the functional 2.2E Light Collector capacity of 9,700 ADT, all segments along Country Club Drive are forecasted to operate at LOS D or better conditions.

Based on the analysis of Country Club Drive, portions of this roadway are anticipated to operate at unacceptable levels of service both without and with the proposed Project land use using the non-*Mobility Element* capacity of a 4,500 ADT Residential Collector. It can therefore be concluded that the Project alone would not result in poor operations along this roadway.

TABLE 10–3
YEAR 2035 STREET SEGMENT OPERATIONS

City of San Marcos Street Segments	Year 2035 Capacity (LOS E) [a]	Year 2035 Without Project (*General Plan* Land Use)			Year 2035 With Project (Proposed Project Land Use)		
		ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C
E. Barham Drive							
1. S. Twin Oaks Valley Road to Campus Way	60,000	29,000	B	0.483	29,026	B	0.484
2. Campus Way to W. La Moree Rd	60,000	28,200	B	0.470	28,226	B	0.470
3. W. La Moree Rd to SR 78 EB Off-Ramp	60,000	40,600	C	0.677	40,626	C	0.677
4. SR 78 EB Off-Ramp to Woodland Pkwy	60,000	37,500	C	0.625	37,577	C	0.626
Barham Drive							
5. Woodland Pkwy to E. La Moree Rd	30,000	21,600	D	0.720	21,677	D	0.723
6. E. La Moree Rd to SR 78 EB On-Ramp	30,000	21,600	D	0.720	21,677	D	0.723
7. SR 78 EB On-Ramp to Mission Rd	30,000	18,500	C	0.617	18,590	C	0.620
City of Escondido Street Segments	**Year 2035 Capacity (LOS E) [a]**	**Year 2035 Without Project (*General Plan* Land Use)**			**Year 2035 With Project (Proposed Project Land Use)**		
		ADT	**LOS**	**V/C**	**ADT**	**LOS**	**V/C**
Mission Road							
8. Auto Park Way to Enterprise St	37,000	22,500	C	0.608	22,548	C	0.609
Auto Park Way							
9. Mission Rd to Country Club Dr	50,000	31,600	C	0.632	32,481	C	0.650
Country Club Drive							
10. Auto Park Way to Hill Valley Dr	10,000	7,500	D	0.750	8,423	D	0.842

Continued on Next Page

TABLE 10–3
YEAR 2035 STREET SEGMENT OPERATIONS

County of San Diego Street Segments	Year 2035 Capacity (LOS E) [a]	Year 2035 Without Project (*General Plan* Land Use)		Year 2035 With Project (Proposed Project Land Use)	
		ADT	LOS	ADT	LOS
Country Club Drive (at 4,500 ADT Capacity)					
11. Hill Valley Dr to Kauana Loa Dr	4,500	6,300	C-	6,994	C-
12. Kauana Loa Dr to Mt. Whitney Rd	4,500	3,600	C+	4,131	C+
13. Mt. Whitney Rd to Future Street 5A (N)	4,500	3,600	C+	3,859	C+
14. Future Street 5A (N) to Future Street 5A (S)	4,500	3,600	C+	3,783	C+
15. Future Street 5A (S) to Harmony Grove Rd	4,500	3,600	C+	3,701	C+
Country Club Drive *(at Increased Capacity)*					
11. Hill Valley Dr to Kauana Loa Dr	9,700 [f]	6,300	B	7,223	C
12. Kauana Loa Dr to Mt. Whitney Rd	9,700 [g]	3,600	A	4319	A
13. Mt. Whitney Rd to Future Street 5A (N)	9,700 [g]	3,600	A	3,964	A
14. Future Street 5A (N) to Future Street 5A (S)	9,700 [g]	3,600	A	3,852	A
15. Future Street 5A (S) to Harmony Grove Rd	16,200 [h]	3,600	B	3,736	B
Kauana Loa Drive					
16. Country Club Dr to Harmony Grove Rd	8,000 [i]	3,700	B	3,988	B

Continued on Next Page

TABLE 10–3
YEAR 2035 STREET SEGMENT OPERATIONS

Continued from Previous Page

Footnotes:

a. Capacities based on City of San Marcos, City of Escondido, and County of San Diego Roadway Classification Tables.
b. ADT = Average Daily Traffic Volumes.
c. LOS = Level of Service.
d. V/C = Volume to Capacity ratio.
e. "Δ" denotes the Project-induced increase in V/C for City of San Marcos and Escondido roadway segments. "Δ" denotes the Project-induced increase in ADT for segments operating at LOS E or F located in the County of San Diego.
f. Although Country Club Drive is not a Mobility Element roadway, due to the 45 mph speed limit and the provision of northbound left-turn pockets proposed by the Project, the roadway functions as a 2.2F Light Collector with an LOS "E" capacity of 9,700 ADT.
g. Country Club Drive from Kauana Loa Drive to the northerly boundary of Harmony Grove Village (just south of Future Street 5A South) is currently being improved to Rural Light Collector standards per the previously adopted General Plan (corresponding with a 2.2F Light Collector on the currently adopted General Plan) with an ADT capacity of 9,700.
h. South of Future Street 5A South to Harmony Grove Village Parkway, County Club Drive is being improved to Rural Collector standards per the previously adopted General Plan (corresponding with 2.2E Light Collector on the currently adopted General Plan) with an ADT capacity of 16,200. From Harmony Grove Village Parkway to Harmony Grove Road, it is being improved to Town Collector standards per the previously adopted General Plan (corresponding with 2.1C Community Collector on the currently adopted General Plan) with an ADT capacity of 19,000. Since the study area segment from Future Street 5A (S) and Harmony Grove Road transitions between these two capacities, the 16,200ADT capacity was used to provide a conservative analysis.
i. The previously adopted *General Plan* identified Kauana Loa Drive as a Rural Collector with a capacity of 16,200 ADT. Since this portion of Kauana Loa Drive has an increased paved width and 40 mph speed limit, the roadway functions as a 2.3C Minor Collector with an LOS "E" capacity of 8,000 ADT.

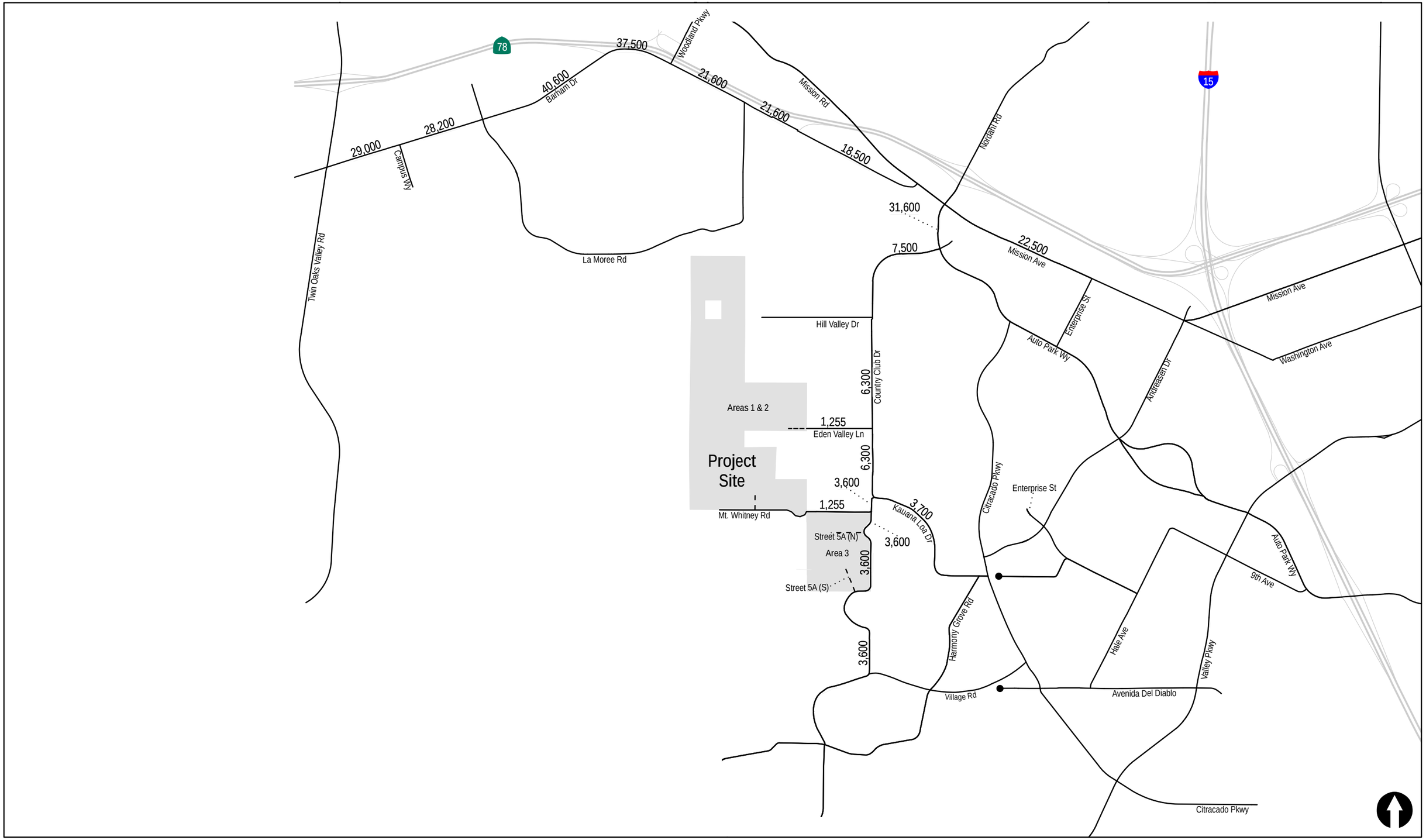

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Figure 10-1

Year 2035 Without Project Traffic Volumes

VALIANO

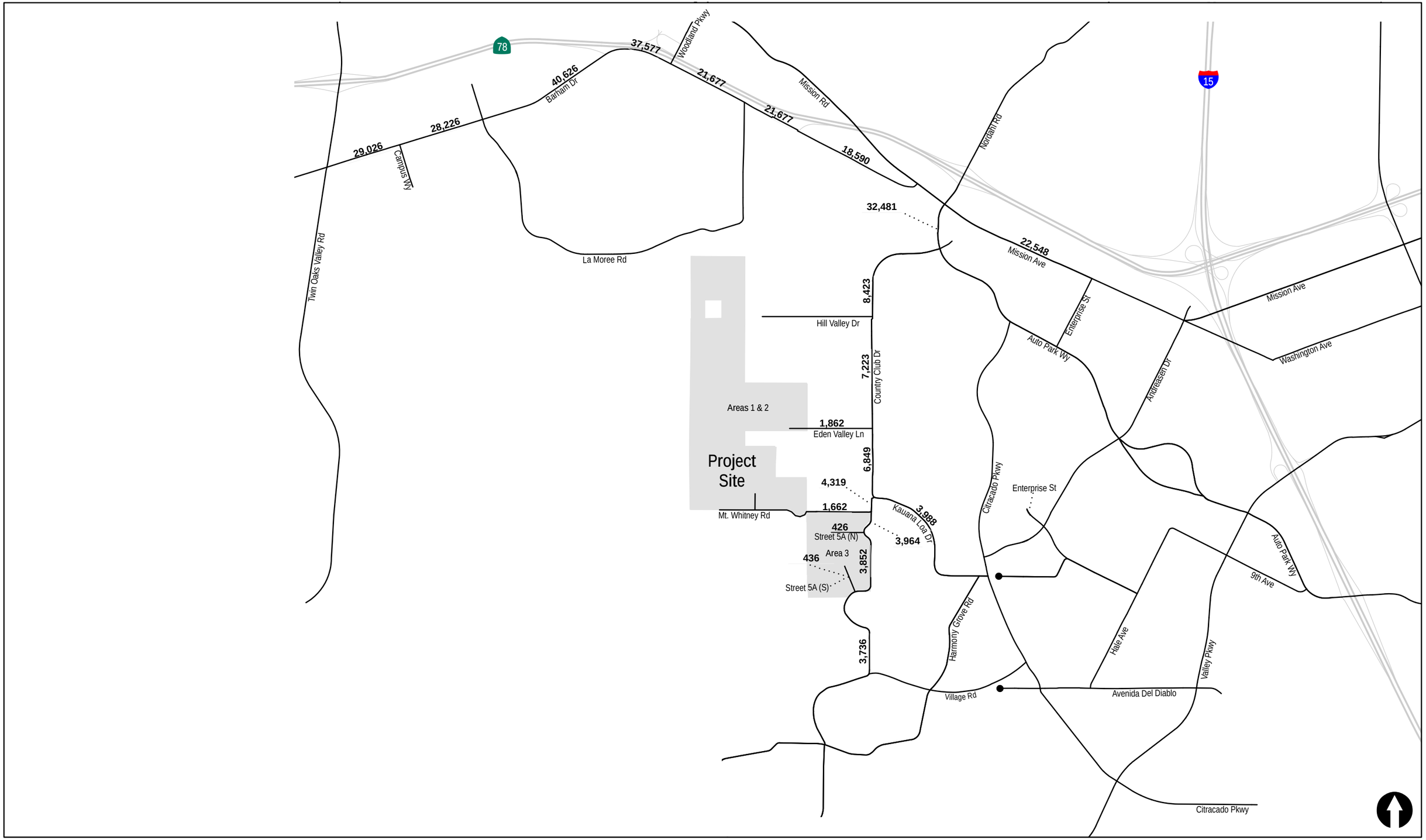

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Figure 10-2

Year 2035 With Project Traffic Volumes

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11.0 ACCESS AND OTHER ISSUES

11.1 Access Roads Discussion

Project access is proposed via Eden Valley Lane, Mount Whitney Road, and two (2) future access driveways south of Mount Whitney Road, all connecting to Country Club Drive, all of which are located within the County's jurisdiction.

Eden Valley Lane is a private roadway for its entire length extending west from Country Club Drive. It is paved for a curb-to-curb width of less than the private road standard of 24 feet. With the construction of Areas 1 & 2, this roadway would be expected to carry 1,862 ADT. In order for this roadway to meet private road standards set by the County, Eden Valley Lane would need to be improved to a graded width of 28 feet and an improved (paved) width of 24 feet with a corresponding design speed of 30 mph. These improvements would allow Eden Valley Lane to meet the private road standards for roadways carrying between 751 to 2,500 ADT.

Mount Whitney Road is a private roadway for its entire length extending west from Country Club Drive. It is paved for a curb-to-curb width of less than the private road standard of 24 feet. With the construction of Areas 1 & 2, this roadway would be expected to carry 1,662 ADT. In order for this roadway to meet private road standards set by the County, Mount Whitney Road would need to be improved to a graded width of 28 feet and an improved (paved) width of 24 feet with a corresponding design speed of 30 mph. These improvements would allow Mount Whitney Road to meet the private road standards for roadways carrying between 751 to 2,500 ADT.

Future Street 5A currently does not exist. With the construction of Area 3, this roadway would be expected to carry a total of 862 ADT between the north and south access points. In order for this roadway to meet private road standards set by the County, Future Street 5A would need to be improved to a graded width of 28 feet and an improved (paved) width of 24 feet with a corresponding design speed of 20 mph. These improvements would allow Future Street 5A to meet the private road standards for roadways carrying between 101 to 750 ADT.

All on-site roadways and off-site fronting roadways are planned to be built to County private road standards. It is possible that not all of Mount Whitney Road would be constructed to County standards. If this is the case, a design exception would be required.

TABLE 11–1
ACCESS ROAD IMPROVEMENTS

	Existing		Existing + Project	County Standards		
County of San Diego Private Access Road Segments	**Roadway Conditions**	**Volume**	**Volume**	**Recommended Improvements**	**Design Speed (mph)**	**Volume**
Eden Valley Lane						
Project Access to Country Club Drive	Paved <24'	400	1,862	Grade to 28' & Pave to 24'	30	751-2,500
Mount Whitney Road						
Project Access to Country Club Drive	Paved <24'	200	1,662	Grade to 28' & Pave to 24'	30	751-2,500
Future Street 5A	DNE	DNE	862	Grade to 28' & Pave to 24'	25	750 or Less

11.2 Driveways

11.2.1 *Proposed Improvements*

As mentioned above, the Project will take access from Country Club Drive via Eden Valley Lane, Mount Whitney Road, and two (2) Future Access Driveways. The Eden Valley Lane and Mount Whitney Road intersections with Country Club Drive exist today. It is recommended, however, that a stop-sign be installed on Mount Whitney Road where one does not exist today, provided warrants are met.

Future Street 5A (North) is proposed to intersect Country Club Drive approximately 450 feet south of Mount Whitney Road. Future Street 5A (South) is proposed to intersect Country Club Drive approximately 0.4 miles (2,090 ft) south of Mount Whitney Road.

The Project proposes to construct northbound left-turn pockets at each of the four (4) access locations along Country Club Drive. Conceptual drawings showing the striping of these improvements are shown in ***Figures 11–1***, ***11–2***, ***11–3*** and ***11–4*** for Eden Valley Lane, Mount Whitney Road, Future Street 5A (North), and Future Street 5A (South), respectively at the end of this section.

11.2.2 *Queuing Assessment*

As shown earlier in this report in *Table 9–1*, LOS C or better operations were calculated at the Project access driveways with the proposed improvements discussed above in *Section 11.2.1*. Given the low amount of northbound left-turns (maximum 16 PM peak hour inbound trips) and LOS C or better intersection operations, the queuing analysis conducted shows that no queuing issues would be anticipated at any access driveway with minor street stop-sign controls and dedicated northbound left-turn pockets. ***Table 11–2*** shows the results of the queue analysis.

Based on the results of the queuing analysis, it is recommended that the Project provide a minimum of 50 feet of storage for all dedicated left-turns with 90-foot tapers at the northbound approaches on Country Club Drive. *Traffix 8.0* software was used to analyze the 95th percentile queues for unsignalized intersections. ***Appendix J*** provides the queuing analysis worksheets.

TABLE 11–2
PROJECT ACCESS QUEUING OPERATIONS

Intersection	Movement	Recommended Storage (ft)	Existing + Project + Cumulative Projects	
			95th Percentile Queue (ft) [a]	
			AM	PM
11. Country Club Dr/ Eden Valley Ln	NBL	50'	0.0'	2.2'
14. Country Club Dr/ Mount Whitney Rd	NBL	50'	0.0'	0.0'
15. Country Club Dr/ Future Street 5A (N)	NBL	50'	0.0'	0.0'
16. Country Club Dr/ Future Street 5A (S)	NBL	50'	0.0'	0.0'

Footnotes:
a. 95th percentile queue is defined as the queue length that has only a 5% probability of being exceeded.

General Notes:
1. Calculated queue lengths in feet per lane.
2. One vehicle length = approximately 22 feet.
3. Ft = Feet

11.3 Sight Distance

In accordance with County Private and Public Road Standards, a review of the sight distance standards for all four (4) Project access locations was conducted. The Project should ensure that sight distance meeting County standards is provided at these four (4) locations. Sight distance certification letters addressing these four (4) locations are provided under separate cover.

11.4 On-site Circulation

Figure 11–5 shows the conceptual on-site circulation plan and internal traffic volumes. As shown on this figure, a main feeder road (Street A) runs through Areas 1 & 2 between Eden Valley Lane and Mount Whitney Road. The number of residential units is split rather evenly between these two access points. Based on the Project distribution on *Figures 7–1a* and *7–1b* shown earlier in this report, it would be expected that 50% of Project traffic would use Eden Valley Lane to reach Country Club Drive and 50% would use Mount Whitney Road to reach Country Club Drive. Of the total 2,924 ADT generated by Areas 1 & 2, 860 ADT would travel in either direction on Street A.

The same 50/50 distribution was also assumed on Street 5A located in Area 3 since two access driveways are proposed at Country Club Drive. With the total 852 ADT generated by Area 3, 371 ADT would be expected to travel in either direction to ultimately reach Country Club Drive.

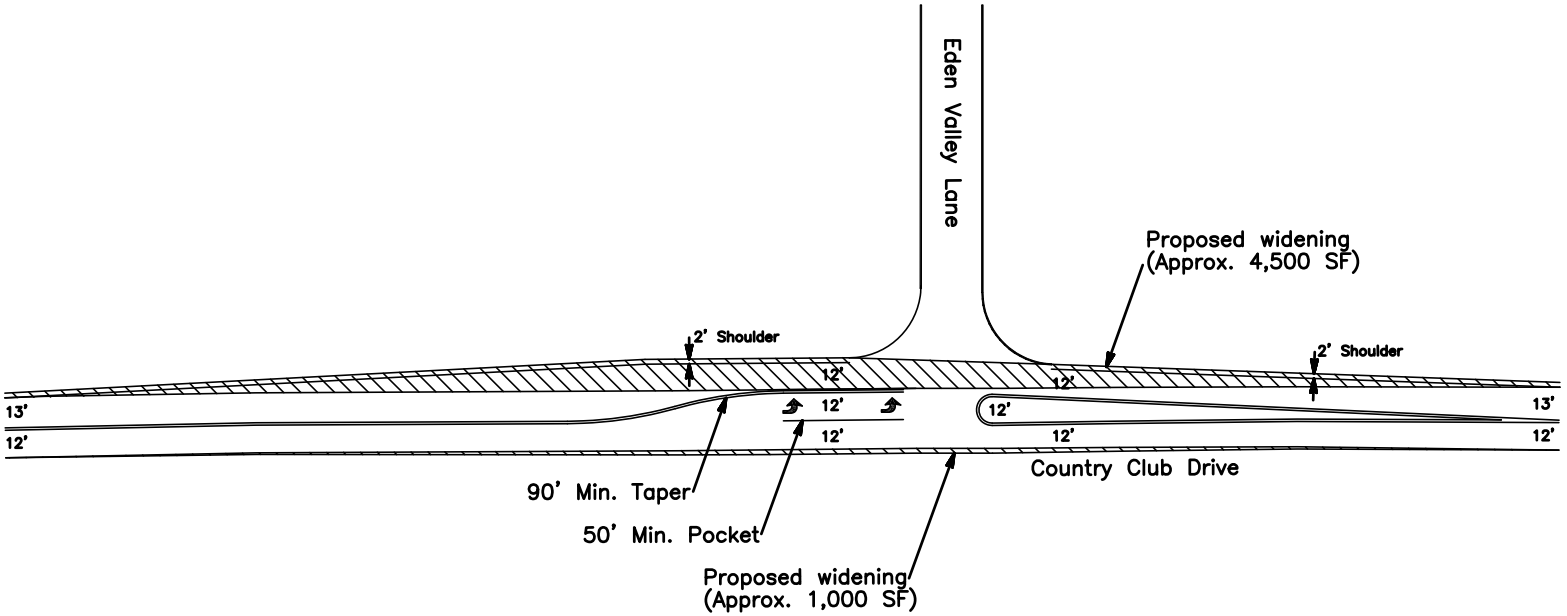
It is recommended that on-site roadways be constructed to private road standards. A review of the proposed grading plans indicated that all on-site roadways were in conformance with private road standards. The construction of on-site roadways to County private road standards would facilitate adequate on-site circulation within the Project site.

11.5 Hazards for Pedestrian and Equestrian Crossings

Pedestrians and equestrian riders may need to cross on and off site roadways at times. The following is a brief discussion of the implications of crossings for each intersection control type.

Unsignalized Intersections: Pedestrian and equestrian crossings at unsignalized intersections are legal at all intersections, whether marked or unmarked. Road users (drivers, pedestrians and equestrian riders) should exercise caution when approaching or crossing unmarked intersections. On-site roads will have lower posted speeds than Country Club Drive and present fewer hazards for pedestrian and equestrian crossings.

Signalized Intersections: Signalized intersections are considered controlled and thus provide a relatively better alternative as compared to unsignalized intersections, however, no signalized intersections are located within the direct vicinity of the Project access.



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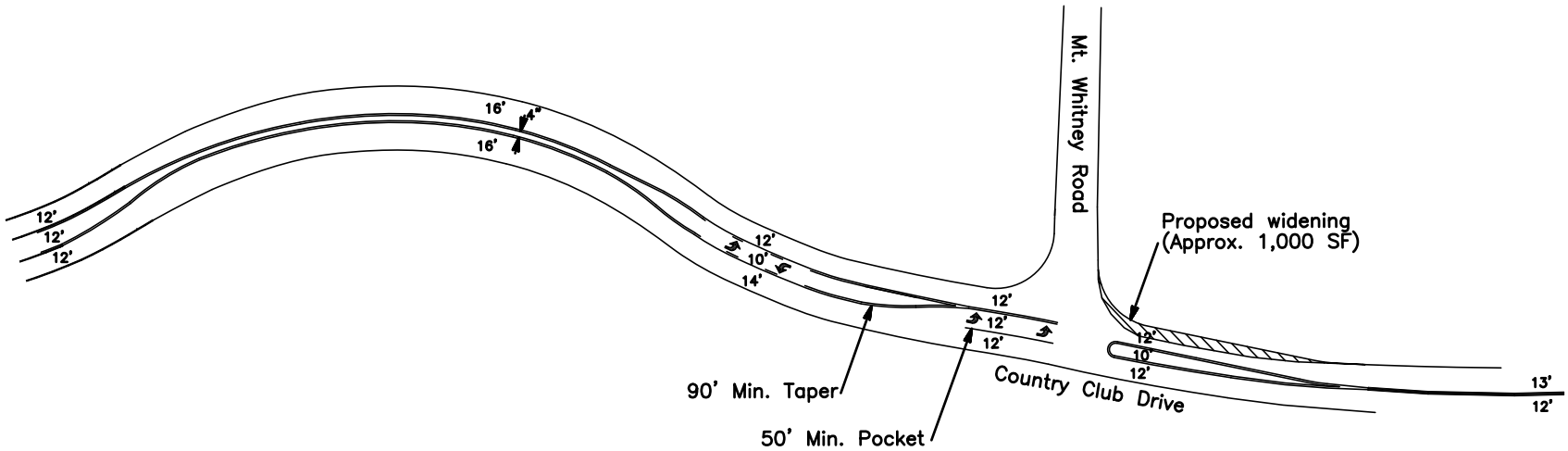
NORTH

1"=80'

Figure 11-1

Conceptual Improvements: Country Club Drive at Eden Valley Lane

VALIANO



NOTE:
Widening improvements to Country Club Drive based on review of Curb Grade Plan CG-4779 and field survey conducted in August 2014.

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NORTH

1"=100'

Figure 11-2

Conceptual Improvements: Country Club Drive at Mt. Whitney Road

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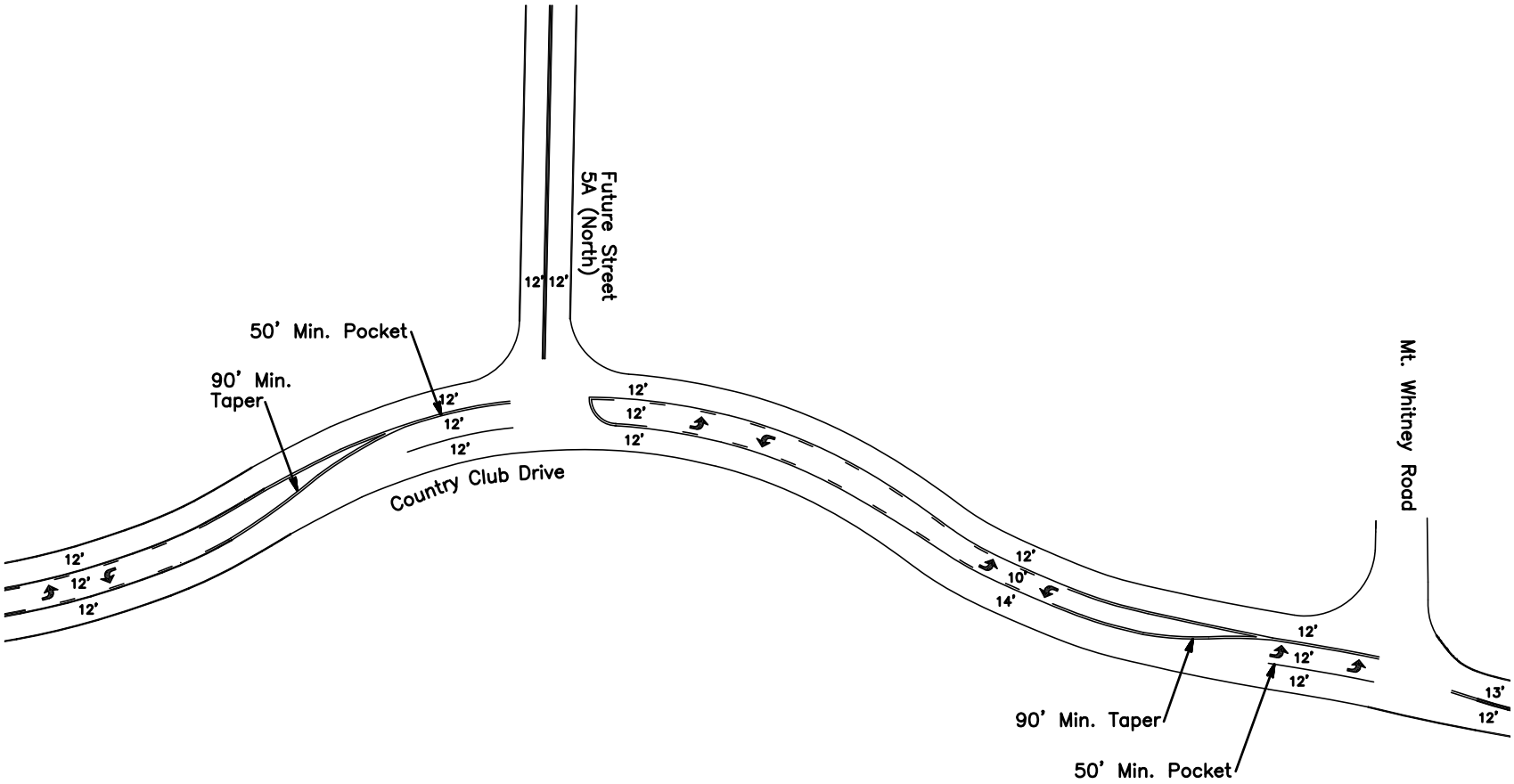

NOTE:
Widening improvements to Country Club Drive based on review of Curb Grade Plan CG-4779 and field survey conducted in August 2014.

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NORTH

1"=80'

Figure 11-3

Conceptual Improvements: Country Club Drive at Future Street 5A (North)

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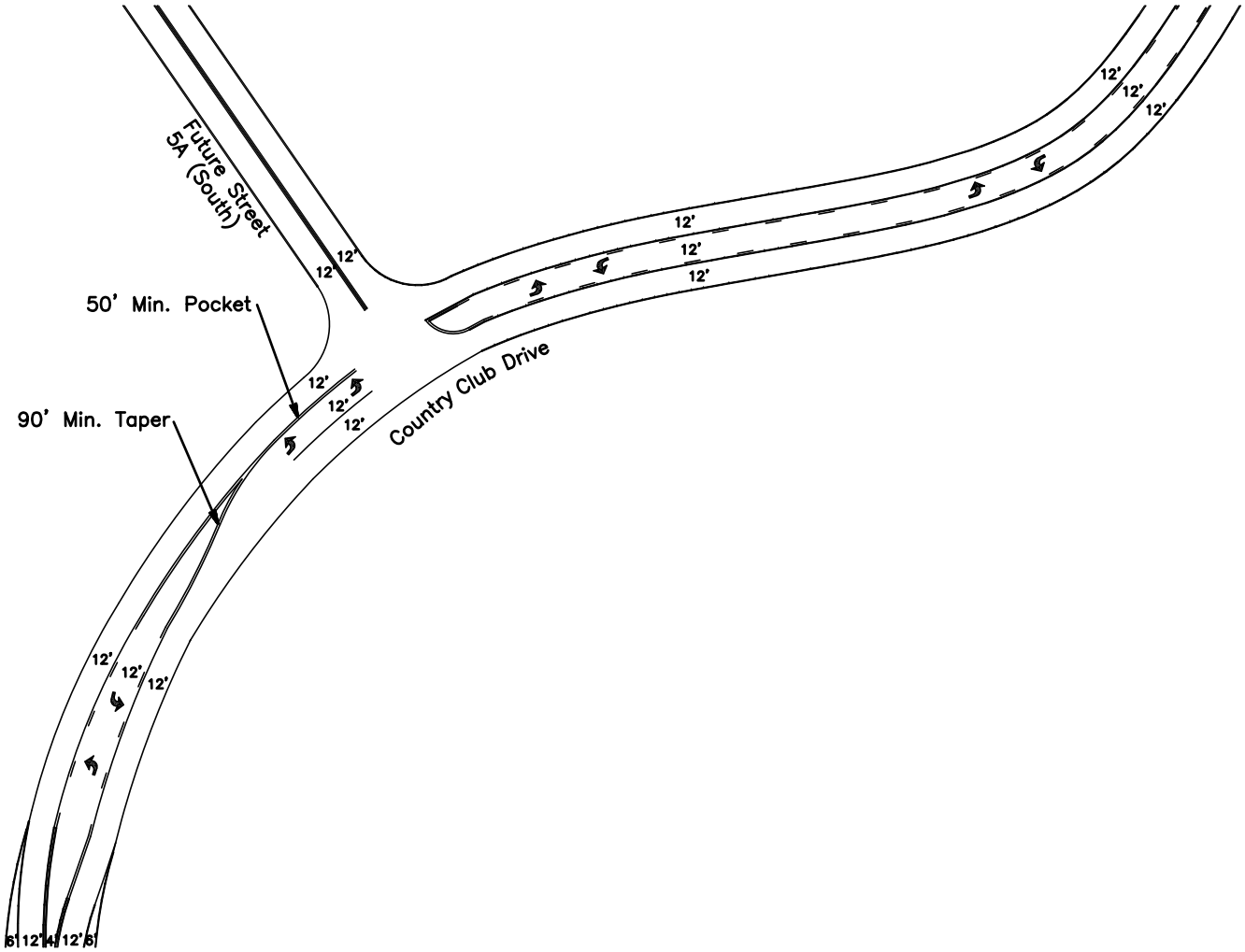

NOTE:
Widening improvements to Country Club Drive based on review of Curb Grade Plan CG-4779 and field survey conducted in August 2014.

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NORTH

1"=80'

Figure 11-4

Conceptual Improvements: Country Club Drive at Future Street 5A (South)

VALIANO

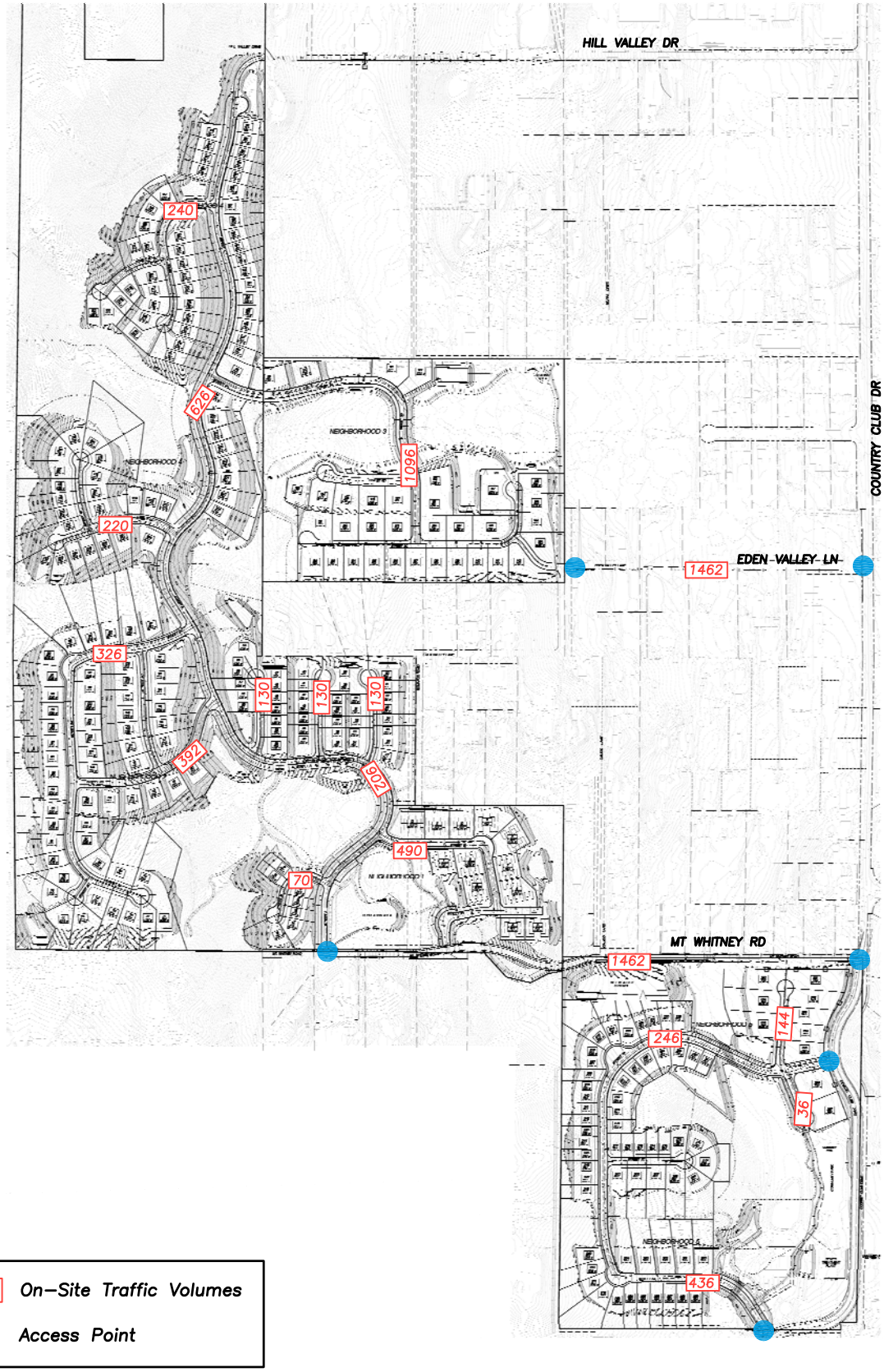

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Figure 11-5

On-Site Traffic Volumes

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12.0 ADDITIONAL ACCESS SCENARIO

Analysis was conducted for an additional scenario where project access is also provided via Hill Valley Drive in addition to Eden Valley Lane, Mount Whitney Road, and two (2) future access driveways south of Mount Whitney Road, all connecting to Country Club Drive. Based on the project distribution discussed in Section 7.2, the traffic volumes at the following study locations would be affected by the addition of Hill Valley Drive as an access point:

Intersections

- Country Club Drive / Hill Valley Drive
- Country Club Drive / Eden Valley Lane

Segments

- Country Club Drive between Hill Valley Drive and Eden Valley Lane

The traffic volumes at the remaining study locations would not change.

The project trips were reassigned to the locations listed above based on the project distribution discussed in Section 7.2 and the assumption that 60% of the trips originally accessing the project via Eden Valley Lane would now utilize Hill Valley Drive. The figure below shows the reassigned project trips.

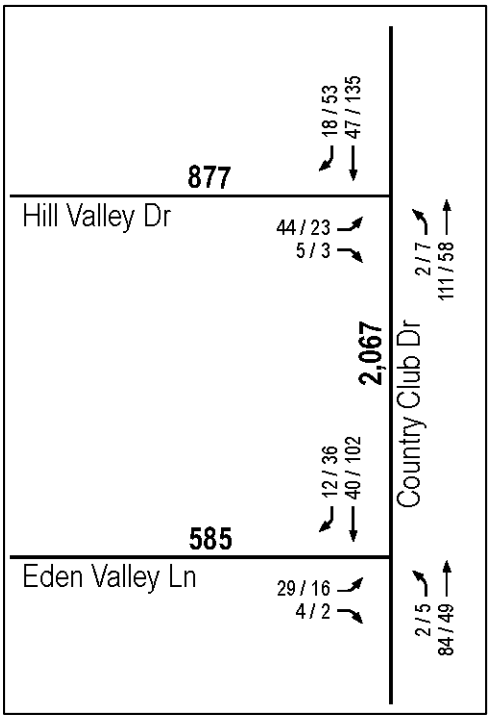


Table 12–1 summarizes the intersections LOS for the *Existing*, *Existing + Project*, *Existing + Cumulative Projects* and *Existing + Project + Cumulative Projects* scenarios. As seen in *Table 11–1*, the Country Club Drive / Hill Valley Drive and Country Club Drive / Eden Valley Lane intersections are calculated to operate at acceptable levels of service in all four scenarios.

Appendix L contains the additional access scenario intersection analysis worksheets.

Table 12–2 summarizes the roadway segment LOS for the *Existing*, *Existing + Project*, *Existing + Cumulative Projects* and *Existing + Project + Cumulative Projects* scenarios. As seen in *Table 12–2*, Country Club Drive between Hill Valley Drive and Eden Valley Lane is calculated to operate at the same LOS under this alternative scenario as compared to the proposed Project.

Hill Valley Drive is a public roadway from Country Club Drive along the industrial complex frontage for a quarter mile to the west. This portion of Hill Valley Drive is unclassified in the County *Mobility Element*, and is paved for a curb-to-curb width of 24 feet with a graded width of 28 feet. Beyond this portion of the road, Hill Valley Drive continues as a private dirt road where it ultimately dead-ends at the Project boundary. Hill Valley Drive would be expected to carry 1,147 ADT with the access alternative. In order for this roadway to meet private road standards set by the County, the dirt portion of the roadway connecting to the Project site would need to be improved to a graded width of 28 feet and an improved (paved) width of 24 feet with a corresponding design speed of 30 mph. These improvements would allow Hill Valley Drive to meet the private road standards for roadways carrying between 751 to 2,500 ADT.

If this additional access is chosen, it is recommended that the project widen Country Club Drive at the Country Club Drive/Hill Valley Drive intersection to provide a dedicated northbound left-turn lane onto Hill Valley Drive. The provision of this left-turn lane would provide a refuge lane for left-turning vehicles thus improving the flow of northbound through traffic and reducing the potential for vehicular conflict due to the slowing of northbound traffic. Implementation of this mitigation measure would be expected to reduce this cumulative impact to below a level of significance. It is also recommended that adequate sight distance be provided per City/County standards at the Country Club Drive/ Hill Valley Drive intersection to avoid any potential access impacts. A conceptual drawing showing the striping of these improvements is shown in ***Figure 12–1***.

With the improvements of Hill Valley Drive as recommended, no significant impacts in addition to those already identified for the proposed access scheme were calculated.

TABLE 12–1
ADDITIONAL ACCESS SCENARIO INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Project + Cumulative Projects			Impact Type
			Delay [a]	LOS [b]	Delay	LOS	Δ [c]	Delay	LOS	Delay	LOS	Δ	
County of San Diego Jurisdiction													
12. Country Club Dr / Eden Valley Ln	MSSC [d]	AM	9.4	A	10.4	B	—	13.1	B	15.9	C	—	None
		PM	9.7	A	11.3	B	—	13.3	B	18.9	C	—	
19. Country Club Dr / Hill Valley Dr	MSSC	AM	11.7	B	14.4	B	—	14.3	B	18.7	C	—	None
		PM	11.4	B	15.3	C	—	13.5	B	20.2	C	—	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. "Δ" denotes the Project-induced increase in delay for signalized intersections and Project traffic added to the critical movement for unsignalized intersections located in the County of San Diego.
d. MSSC = Minor Street Stop Controlled intersection. Minor street left-turn delay is reported.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 12–2
ADDITIONAL ACCESS SCENARIO STREET SEGMENT OPERATIONS

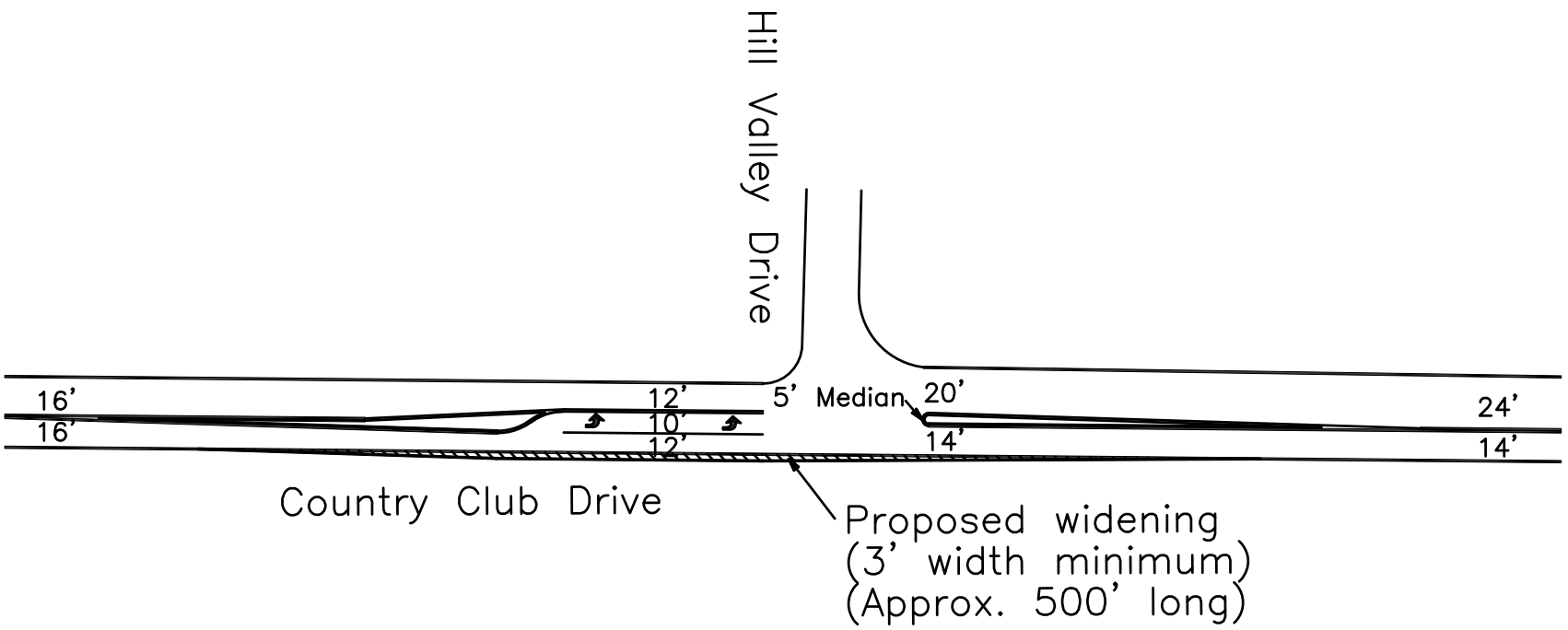
County of San Diego Street Segments	Existing Capacity (LOS E) [a]	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Project + Cumulative Projects			Impact Type
		ADT	LOS	ADT	LOS	Δ [e]	ADT	LOS	ADT	LOS	Δ [e]	
Country Club Drive												
11. Hill Valley Dr to Eden Valley Ln	9,700 [f]	4,930	A	6,997	C	2,067	7,983	D	**10,050**	**F**	**2,067**	**Cumulative**

Footnotes:

a. Capacities based on County of San Diego Roadway Classification Table.
b. ADT = Average Daily Traffic Volumes.
c. LOS = Level of Service.
d. V/C = Volume to Capacity ratio.
e. "Δ" denotes the Project-induced increase in ADT for segments operating at LOS E or F located in the County of San Diego.
f. Although Country Club Drive is not a Mobility Element roadway, due to the 45 mph speed limit, reduced shoulder and the provision of northbound left-turn pockets proposed by the Project, the roadway functions as a 2.2F Light Collector with an LOS "E" capacity of 9,700 ADT.

General Notes:

1. Bold typeface and shading represents a significant impact.



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NORTH

1"=80'

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Figure 12-1

Conceptual Improvements: Country Club Drive at Hill Valley Drive

VALIANO

13.0 SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

As previously mentioned, since the preparation of this traffic study, the Project site plan has been reduced from 334 residential dwelling units (DU) to 326 DU (8 less units). The analysis provided in this traffic study utilizes the 334 DU amount, which represents a conservative analysis. No changes to the conclusions of significance for traffic impacts would occur with the reduced unit count.

Per the City of San Marcos, City of Escondido, and County of San Diego's significance thresholds and the analysis methodologies presented in this report, Project-related and cumulative traffic are calculated to cause significant impacts within the study area under the direct and cumulative conditions. The following section lists the significant impacts and provides recommendations for mitigation measures to address operating deficiencies.

13.1 Roadway Segments

13.1.1 *Significant Impacts Prior to Mitigation*

Based on the applied significance criteria, the following impacts were calculated on study area roadway segments:

City of Escondido

TRA-1. Segment #10: Country Club Drive between Auto Park Way and Hill Valley Drive *(Direct and Cumulative)*

County of San Diego

TRA-2. Segment #11: Country Club Drive between Hill Valley Drive and Kauana Loa Drive *(Cumulative Only)*

13.1.2 *Mitigation Measures and Design Considerations*

City of Escondido

TRA-1. **Segment #10: Country Club Drive between Auto Park Way and Hill Valley Drive –** In order to mitigate this direct and cumulative impact, it is recommended that the eastbound approach at the Auto Park Way/ Country Club Drive intersection be restriped to provide one left-turn lane, one shared left-turn/through lane, and one right turn lane. A signal timing modification would be required to change the east/west approach to "split" phasing. Currently, a very small amount of peak hour trips complete the eastbound through movement into the Quality Chevrolet parking lot. The additional capacity provided by changing this lane to a shared left-turn/through movement would improve the flow along Country Club Drive by allowing an increased number of vehicles to make the heavy left-turn movement onto northbound Auto Park Way. The improvements at this location would also improve the forecasted LOS D operations at this intersection to pre-Project conditions.

In addition, it is recommended that on-street parking be prohibited along this portion of Country Club Drive. Curbside parking is currently permitted on the west side of the roadway along the industrial park frontage. Per Escondido roadway classification standards, the removal of curbside parking would increase the capacity of this Local

Collector to 15,000 ADT. The removal of on-street parking would increase the capacity of the roadway since the likelihood of potential conflicts between vehicles completing parking maneuvers and through traffic would be eliminated, thus reducing friction along the roadway.

Implementation of these two recommendations would reduce this cumulative impact to below a level of significance. However, the improvements necessary to reduce the cumulative impacts are the responsibility of another jurisdiction (City of Escondido) and it cannot be guaranteed that the city would implement the recommended improvements or that the improvements would be completed in time to avoid the significant project impact. Thus, the impact would remain significant and unavoidable. It should be noted that the Project representative will be required to fund or construct the mitigation measures, subject to approval by the City of Escondido.

County of San Diego

The County Board of Supervisors adopted a Transportation Impact Fee (TIF) ordinance, which provides a mechanism for the County to obtain funding to mitigate anticipated cumulative transportation/circulation impacts, by requiring payment of an impact fee designated in the ordinance. Typically, cumulative improvements are implemented with the Final First Map of a project. The County updated the TIF Program in December 2012. The TIF Program identifies transportation facilities needed to address cumulative impacts within designate areas of the County (TIF Areas) and then provides for payment of fees to cover a project's "fair share" of the cost. TIF fees are segregated by TIF Area, Region, State Highway, and Ramps and are used to help fund transportation improvements within those identified locations. The Project is located within the San Dieguito TIF Area. In order for this GPA project to promote orderly development and comply with the County's TIF Program, the TIF Program shall be updated to include potential changes to the Land Use Element and Mobility Element. The Project shall provide a fair share contribution towards the cost of updating the County's TIF program. The amount of the fair share contribution will be determined at the time the County begins the effort to update the TIF program. The cost of the TIF update will be shared by all of the approved GPAs that are being incorporated into the TIF Program to the satisfaction of the Director of Planning & Development Services. Prior to the recordation of the First Final Map for any unit, the Project shall provide a fair share contribution towards the cost of updating the County's TIF program. The [PDS, LDR] shall review the County's TIF Program and update it to allow the use of a TIF payment to mitigate cumulative traffic impacts. The County's TIF Program update shall be approved by the Board of Supervisors.

The following mitigation measures are recommended to reduce cumulative impacts to below a level of significance:

TRA-2. **Segment #11: Country Club Drive between Hill Valley Drive and Kauana Loa Drive** – In order to mitigate the cumulative impact along this portion of Country Club Drive, it is recommended that the Project widen Country Club Drive at the Country Club Drive/ Eden Valley Lane intersection to provide a dedicated northbound left-turn lane onto Eden Valley Lane. The provision of this left-turn lane would provide a

refuge lane for left-turning vehicles thus improving the flow of northbound through traffic and reducing the potential for vehicular conflict due to the slowing of northbound traffic. Implementation of this mitigation measure would be expected to reduce this cumulative impact to below a level of significance. A maximum of 97 units (generating approximately 969 ADT) could be occupied prior to implementation of this mitigation measure.

In addition, if Project access is provided to Hill Valley Drive, a dedicated northbound left-turn lane should be provided on Country Club Drive at Hill Valley Drive.

It is also recommended that adequate sight distance be provided per City/County standards at the Country Club Drive/ Eden Valley Lane intersection to avoid any potential access impacts.

In addition, the Project should pay the appropriate TIF amount toward the County TIF Program.

13.2 Intersections

13.2.1 *Significant Impacts Prior to Mitigation*

Based on the applied significance criteria, the following impacts were calculated at study area intersections:

City of Escondido

TRA-3. Intersection #6. Auto Park Way at Mission Road *(Cumulative Only)*

TRA-4. Intersection #7. Auto Park Way at Country Club Drive *(Cumulative Only)*

13.2.2 *Mitigation Measures and Design Considerations*

City of Escondido

TRA-3. **Intersection #6. Auto Park Way at Mission Road** – In May 2012, the *Escondido General Plan Update FEIR* was certified by the Escondido City Council. As part of the CEQA Findings of Significant Effects, the anticipated poor operations of the Auto Park Way/ Mission Road intersection were deemed significant and unavoidable and a Statement of Overriding Considerations was approved. Therefore, no mitigation measures are proposed and the impact remains significant and unavoidable. ***Appendix K*** contains a copy of the City Council Agenda approving the Escondido *General Plan* FEIR

TRA-4. **Intersection #7. Auto Park Way at Country Club Drive** – The mitigation measures recommended in TRA-1 to restripe the eastbound approach at this intersection to provide one left-turn lane, one shared left-turn/through lane, and one right-turn lane with a signal timing modification to change the east/west approach to "split" phasing would mitigate this cumulative intersection impact to below a level of significance by improving the forecasted LOS D operations at this intersection to better than pre-Project conditions. A maximum of 118 units (generating approximately 1,180 ADT) could be occupied prior to implementation of this mitigation measure.

13.3 Access Impacts

It is recommended that the Project construct northbound dedicated left-turn lanes at all four (4) Project access locations, as discussed in *Section 12.0* of this report. All left-turn pockets should provide a minimum of 50 feet of storage with 90-foot tapers. These dedicated turn lanes would allow for left-turning vehicles to queue outside the flow of thru traffic, thus allowing left-turning vehicles to be passed by thru vehicles without significantly slowing thru traffic and effectively increasing the capacity of Country Club Drive.

It is also recommended that the Project install a stop-sign at the eastbound approach on Mount Whitney Road where one does not exist today, provided warrants are met, and that adequate sight distance be provided at the Country Club Drive intersections at Eden Valley Lane, Mount Whitney Road, and the Future Street 5A north and south access driveways to mitigate any potential access impacts.

It is also recommended that all on-site roadways and off-site fronting roadways be built to County private road standards. It is possible that not all of Mount Whitney Road would be constructed to County standards. If this is the case, a design exception would be required.

13.4 Impacts and Mitigation Summary Table

Table 13–1 summarizes the significant impacts and the corresponding mitigation measures.

TABLE 13–1
SUMMARY OF SIGNIFICANT IMPACTS / MITIGATION MEASURES

MM#	Location	Impact Type	Mitigation Measure	Mitigated to Below a Significant Level?		Improvement Required Prior to "X" Number of Units Occupied
				LOS	Yes/No?	
Segments						
TRA-1	#10. Country Club Drive: Auto Park Way to Hill Valley Drive *(City of Escondido)*	Direct & Cumulative	In order to mitigate this direct and cumulative impact, it is recommended that the eastbound approach at the Auto Park Way/ Country Club Drive intersection be restriped to provide one left-turn lane, one shared left-turn/through lane, and one right turn lane. A signal timing modification would be required to change the east/west approach to "split" phasing. Currently, a very small amount of peak hour trips complete the eastbound through movement into the Quality Chevrolet parking lot. The additional capacity provided by changing this lane to a shared left-turn/through movement would improve the flow along Country Club Drive by allowing an increased number of vehicles to make the heavy left-turn movement onto northbound Auto Park Way. In addition, it is recommended that on-street parking be prohibited along this portion of Country Club Drive. Curbside parking is currently permitted on the west side of the roadway along the industrial park frontage. Per Escondido roadway classification standards, the removal of curbside parking would increase the capacity of this Local Collector to 15,000 ADT. The removal of on-street parking would increase the capacity of the roadway since the likelihood of potential conflicts between vehicles completing parking maneuvers and through traffic would be eliminated, thus reducing friction along the roadway. Implementation of these two recommendations would reduce this cumulative impact to below a level of significance. However, the improvements necessary to reduce the cumulative impact are the responsibility of another jurisdiction (City of Escondido) and it cannot be guaranteed that the city would implement the recommended improvements or that the improvements would be completed in time to avoid the significant project impact. Thus, the impact would remain significant and unavoidable. It should be noted that the Project representative will be required to fund or construct the mitigation measures, subject to approval by the City of Escondido.	C	No	—

(Continued on Next Page)

TABLE 13–1
SUMMARY OF SIGNIFICANT IMPACTS / MITIGATION MEASURES

MM#	Location	Impact Type	Mitigation Measure	Mitigated to Below a Significant Level?		Improvement Required Prior to "X" Number of Units Occupied
				LOS	Yes/No?	
Segments *(Continued)*						
TRA-2	#11. Country Club Drive: Hill Valley Drive to Kauana Loa Drive *(County of San Diego)*	Cumulative	In order to mitigate the cumulative impact along this portion of Country Club Drive, it is recommended that the Project widen Country Club Drive at the Country Club Drive/Eden Valley Lane intersection to provide a dedicated northbound left-turn lane onto Eden Valley Lane. The provision of this left-turn lane would provide a refuge lane for left-turning vehicles thus improving the flow of northbound through traffic and reducing the potential for vehicular conflict due to the slowing of northbound traffic. Implementation of this mitigation measure would be expected to reduce this cumulative impact to below a level of significance. In addition, if Project access is provided to Hill Valley Drive, a dedicated northbound left-turn lane should be provided on Country Club Drive at Hill Valley Drive. It is also recommended that adequate sight distance be provided per City/County standards at the Country Club Drive/ Eden Valley intersection to avoid any potential access impacts. In addition, the Project should pay the appropriate TIF amount toward the County TIF Program.	D	Yes	97 Units (969 ADT)
Intersections						
TRA-3	#6. Auto Park Way/ Mission Road *(City of Escondido)*	Cumulative	In May 2012, the *Escondido General Plan Update FEIR* was certified by the Escondido City Council. As part of the CEQA Findings of Significant Effects, the anticipated poor operations of the Auto Park Way/ Mission Road intersection were deemed significant and unavoidable and a Statement of Overriding Considerations was approved. Therefore, no mitigation measures are recommended and the impact remains significant and unavoidable. *Appendix K* contains a copy of the City Council Agenda approving the Escondido *General Plan Update* FEIR.	E	No	—

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TABLE 13–1
SUMMARY OF SIGNIFICANT IMPACTS / MITIGATION MEASURES

MM#	Location	Impact Type	Mitigation Measure	Mitigated to Below a Significant Level?		Improvement Required Prior to "X" Number of Units Occupied
				LOS	Yes/No?	
Intersections *(Continued)*						
TRA-4	#7. Auto Park Way/ Country Club Drive *(City of Escondido)*	Cumulative	The mitigation measures recommended in TRA-1 to restripe the eastbound approach at this intersection to provide one left-turn lane, one shared left-turn/through lane, and one right-turn lane with a signal timing modification to change the east/west approach to "split" phasing would mitigate this cumulative intersection impact to below a level of significance.	C/C	Yes	118 Units (1,180 ADT)
Access						
—	Country Club Drive at Eden Valley Lane, Mount Whitney Road, and Future Street 5A Access Driveways *(County of San Diego)*	—	It is recommended that the Project install a stop-sign at the eastbound approach on Mount Whitney Road where one does not exist today, provided warrants are met, and that adequate sight distance be provided per City/County standards at the Country Club Drive intersections at Eden Valley Lane, Mount Whitney Road and the Future Street 5A north and south access driveways to mitigate any potential access impacts. It is also recommended that all on-site roadways and off-site fronting roadways be built to County private road standards. It is possible that not all of Mount Whitney Road would be constructed to County standards. If this is the case, a design exception would be required.	—	Yes	—

General Notes:

1. MM# = Mitigation measure number.
2. Mitigation provided for locations currently operating at LOS D, E or F are required to improve operations to better than or equal to pre-Project conditions only.

14.0 REFERENCES AND LIST OF PREPARERS AND ORGANIZATIONS CONTACTED

14.1 References

The following references were utilized in preparing this Traffic Impact Study.

- *Highway Capacity Manual* (HCM) 2000
- SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.
- County of San Diego *Guidelines for Determining Significance—Transportation and Traffic*, dated August 24, 2011.
- County of San Diego *Report Format & Content Requirements—Transportation and Traffic*, dated August 24, 2011.
- *SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region*, March 2, 2000.
- City of San Marcos *General Plan Mobility Element*
- City of Escondido *General Plan Update Mobility Element*
- County of San Diego *General Plan Mobility Element – San Dieguito Planning Area*
- Harmon Grove Village Conditions of Approval, 2007
- *Citracado Parkway Specific Alignment Plan and Final Environmental Impact Report*, approved April 2012
- TransNet *State Route 78: Improvements Fact Sheet*, February 2012
- Escondido City Council Agenda: Approval of Significant and Unavoidable Impacts for the Auto Park Way/ Mission Road intersection – *Escondido General Plan Update FEIR*, certified May 2012

14.2 List of Preparers

- John Boarman, P.E., Principal—Linscott, Law & Greenspan, Engineers
- Charlene Sadiarin, Transportation Engineer II—Linscott, Law & Greenspan, Engineers

14.3 Organizations Contacted

- County of San Diego;
  - Department of Public Works, Transportation Division
  - Department of Planning & Development Services, Transportation Planning
- City of San Marcos, Development Services Department – Planning Division
- City of Escondido, Community Development Department – Planning