TRAFFIC IMPACT STUDY

For

Shady Oak
Valley Center, CA.
(PDS2016-REZ-16-005, PDS2016-TM-5614, PDS2016-STP-16-019)

Prepared For: The County of San Diego

Submitted To:
Touchstone Development Inc.
9909 Mira Mesa Blvd, Suite 150
San Diego, CA 92131

Prepared By:
Darnell & Associates, Inc.
4411 Mercury Street, Suite 207A
San Diego, CA 92111

Signature: _____

Date Signed: ***04/06/2017***

Revised April 6, 2017
Revised December 15, 2016
Original: August 15, 2016

Darnell & ASSOCIATES, INC.

TRANSPORTATION PLANNING & TRAFFIC ENGINEERING

April 6, 2017

Mr. Kerry Garza
Touchstone Development, Inc.
9909 Mira Mesa Blvd, Suite 150
San Diego, CA 92131

D&A Ref. No: 160701

Subject: Traffic Impact Study for the Proposed Shady Oak 47 Unit Residential Project on the southside of Mirar de Valle west of Valley Center Road in the Valley Center Community of the County of San Diego. (PDS2016-REZ-16-005, PDS2016-TM-5614, PDS2016-STP-16-019)

Dear Mr. Garza;

In accordance with your authorization, Darnell & Associates, Inc. (D&A) has prepared this traffic impact study to assess the impacts associated with the proposed Shady Oak 47 Unit Residential Project located on the southside of Mirar De Valle Road in the Valley Center Community of the County of San Diego.

The traffic study analyzes the traffic impacts related to the proposed project on the surrounding roadways and intersections under existing and existing plus project conditions. The report has been revised to respond to County of San Diego comments dated December 5, 2016 and March 23, 2017.

If you have any questions, please feel free to contact this office.

Sincerely,

DARNELL & ASSOCIATES, INC.

Sincerely,

Darnell & Associates, Inc.

Bill E Darnell, P.E.
Firm Principal

RCE 22338, Expires 9/30/2017

Date Signed: 04/06/2017

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160701 - Shady Oak - April - 2017

TRAFFIC IMPACT STUDY

FOR

SHADY OAK PROJECT
VALLEY CENTER
(PDS2016-REZ-16-005, PDS2016-TM-5614, PDS2016-STP-16-019)

IN THE COUNTY OF SAN DIEGO

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Touchstone Development Inc.
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Prepared by:

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April 6, 2017
160701 - Shady Oak - April - 2017

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

APPENDIX A

- AM/PM Peak Hour Traffic Counts
- 24 Hour Machine Counts
- County of San Diego Level of Service Thresholds
- Excerpts from the County's Significance Thresholds

APPENDIX B

- Existing Conditions Synchro Worksheets
- Existing Plus Project Synchro Worksheets

APPENDIX C

- Valley Center Mobility Element
- Corner Sight Distance Certification Letter

SECTION I - INTRODUCTION

PROJECT DESCRIPTION

The applicant proposes to develop the Shady Oak Project, which includes 47 cottage residential units located on the southside of Mirar de Valle Road within the Valley Center Community of San Diego County. The project is generally located to the west of Valley Center Road and Mirar de Valle to the north. A vicinity map showing the project location is provided on Figure 1.

The project proposes 47 cottage residential units. The Shady Oak Illustrative Master Plan is provided on Figure 2. Figure 3 presents a copy of the Shady Oak Tentative Map

As detailed in this report, development of the proposed Shady Oak property is estimated to generate a total of 376 average daily driveway trips, 30 AM peak hour driveway trips, and 38 PM peak hour driveway trips.

SCENARIOS STUDIED

For purposes of this analysis, the following scenarios are included:

Existing (2016) Conditions refers to that condition which exists on the ground today (2016), including existing traffic and existing lane configurations at roadway segments.

Existing (Year 2016) Plus Project Conditions refers to those conditions which includes the existing traffic volumes and lane configurations plus the traffic generated by the proposed project.

LEVEL OF SERVICE

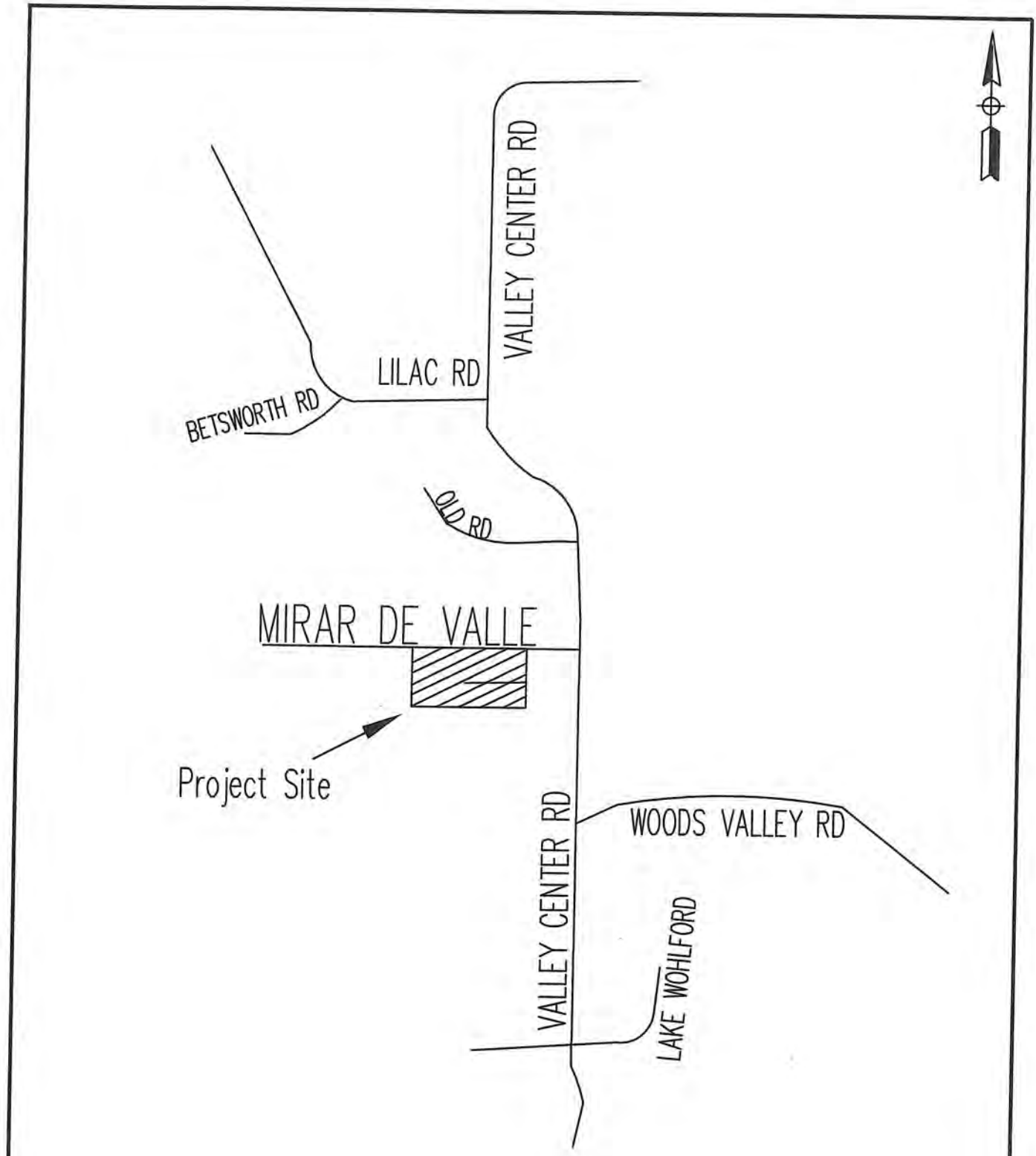
Level of Service (LOS) is a professional industry standard by which the operating conditions of a given roadway segment or intersection is measured. Level of Service is defined on a scale of A to F; where LOS A represents the best operating conditions and LOS F represents the worst operating conditions. LOS A facilities are characterized as having free flowing traffic conditions with no restrictions on maneuvering or operating speeds; traffic volumes are low and travel speeds are high. LOS F facilities are characterized as having forced flow with many stoppages and low operating speeds. Table 1 shows the delay and ADT ranges that are equivalent to each Level of Service.

In general, the region-wide goal for an acceptable Level of Service on all roadway segments and intersections is "D."

Table 1 - Level of Service Ranges

Level of Service	Roadway Segments – Average Daily Traffic (ADT) Volume [1]	Signalized Intersections – Delay (Seconds/Vehicle)[2]	Unsignalized Intersections – Delay (Seconds/Vehicle)[2]
A	Less Than 1,900	Less Than or Equal to 10.0	Less Than or Equal to 10.0
B	1,901 to 4,100	10.1 to 20.0	10.1 to 15.0
C	4,101 to 7,100	20.1 to 35.0	15.1 to 25.0
D	7,101 to 10,900	35.1 to 55.0	25.1 to 35.0
E	10,901 to 16,200	55.1 to 80.0	35.1 to 50.0
F	Greater Than 16,200	Greater than 80.0	Greater than 50.0

[1] The volume ranges are based on the County of San Diego Circulation Element of a Light Collector, the average daily volume ranges for the other roadway classifications has been provided on Table 1 of the County of San Diego Public Road Standards in Appendix A.
[2] The delay ranges shown are based on the 2000 Highway Capacity Manual (HCM).



Darnell & ASSOCIATES, INC.	FIGURE 1
160701-AA.dwg 12-15-16 VLA	VICINITY MAP

Darnell & ASSOCIATES, INC.

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FIGURE 2

The Shady Oak Illistrative Master Plan

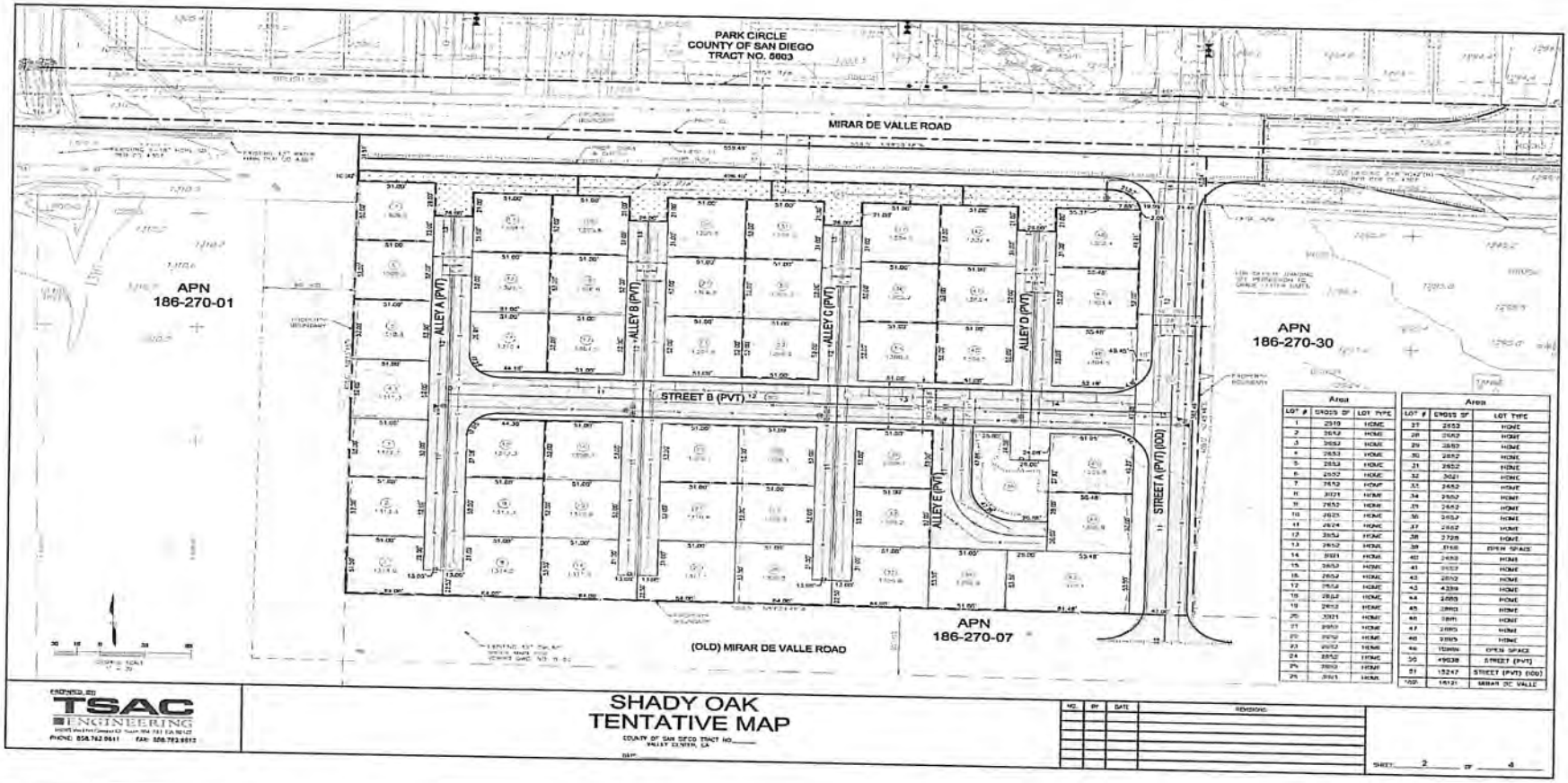

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FIGURE 3
Shady Oak Tentative Map

ANALYSIS METHODOLOGY

The roadway segment daily LOS was determined by comparing the average daily traffic (ADT) volumes under all traffic conditions to the capacity of the roadway according to its roadway cross-section and classification. For the purpose of this report, the daily traffic volumes of the roadway segments in the vicinity of the project were compared to the County of San Diego Level of Service classification thresholds. The daily (24 hour) traffic count sheets and a copy of the "Summary of County of San Diego Public Road Standards" are included in Appendix A.

Synchro, Version 8, was utilized to analyze the morning and afternoon peak hour conditions of the intersections in the project vicinity. The signalized intersection methodology defines LOS based on delay using variables such as lane configuration, traffic volumes, and signal timings. The unsignalized intersection methodology defines LOS based on the longest delay experienced by any single movement. Since the Synchro program calculates the average delay per vehicle, there may be instances where the Synchro analysis will show a reduction in delay with the addition of more traffic. This phenomenon occurs when the additional traffic is added to a movement that experiences a shorter amount of delay, thereby decreasing the intersection's average delay per vehicle (i.e. a larger amount of vehicles will have to wait a shorter time while only a few vehicles have to wait an extended period of time). It should be noted that the Synchro program is based on the 2000 Highway Capacity Manual (HCM).

REPORT ORGANIZATION

Following this introduction, Section II discusses existing conditions. Section III discusses trip generation and trip distribution associated with the proposed project. Analysis of project's traffic impacts under existing plus project conditions is discussed in Section IV. Section V addresses project access, corner sight distance and Mirar De Valle roadway channelization. Section VI summarizes the direct and cumulative impacts, and identification of recommended mitigation measures. Section VII provides a summary of Findings and Conclusions.

SECTION II - EXISTING CONDITIONS

This section of the traffic study is intended to assess the existing conditions of the roadways and intersections within the vicinity of the project to determine travel flow and/or delay difficulties, if any, that exist prior to adding the traffic generated by the proposed project. The existing conditions analysis establishes a base condition which is used to assess the other scenarios discussed in this report. Darnell & Associates, Inc. conducted a field review of the area surrounding the project in June 2016. Figure 4 depicts the existing roadway and intersection geometrics in the project vicinity, respectively.

KEY ROADWAY SEGMENTS

The key segments analyzed in the study area are identified below:

Valley Center Road (SF 639) is constructed south of Woods Valley Road to provide two (2) travel lanes in each direction with a painted median and a posted speed limit of 60 mph. Between Woods Valley Road and Cole Grade Road, Valley Center Road is currently constructed to provide two (2) travel lanes in each direction with a raised painted and/or median and a posted speed limit of 45 mph. From Woods Valley Road to Cole Grade Road the roadway has been constructed equivalent to a 4.1A Major Road with a LOS "E" capacity of 37,000.

Lilac Road (SF 1415) is generally constructed as a two (2)-lane undivided east-west circulation element roadway with turn lanes at intersections with a posted speed limit of 55 miles per hour (mph). Between Valley Center Road and Betsworth Road, Lilac Road widens to provide a westbound left turn lane at Betsworth Road and provides eastbound left, left thru and right-turn lanes at Valley Center Road. The existing capacity of Lilac Road west of Valley Center Road is estimated to be equivalent to that of a 2.2 C Light Collector with intermittent turn lanes, capacity of 16,200 at LOS "E".

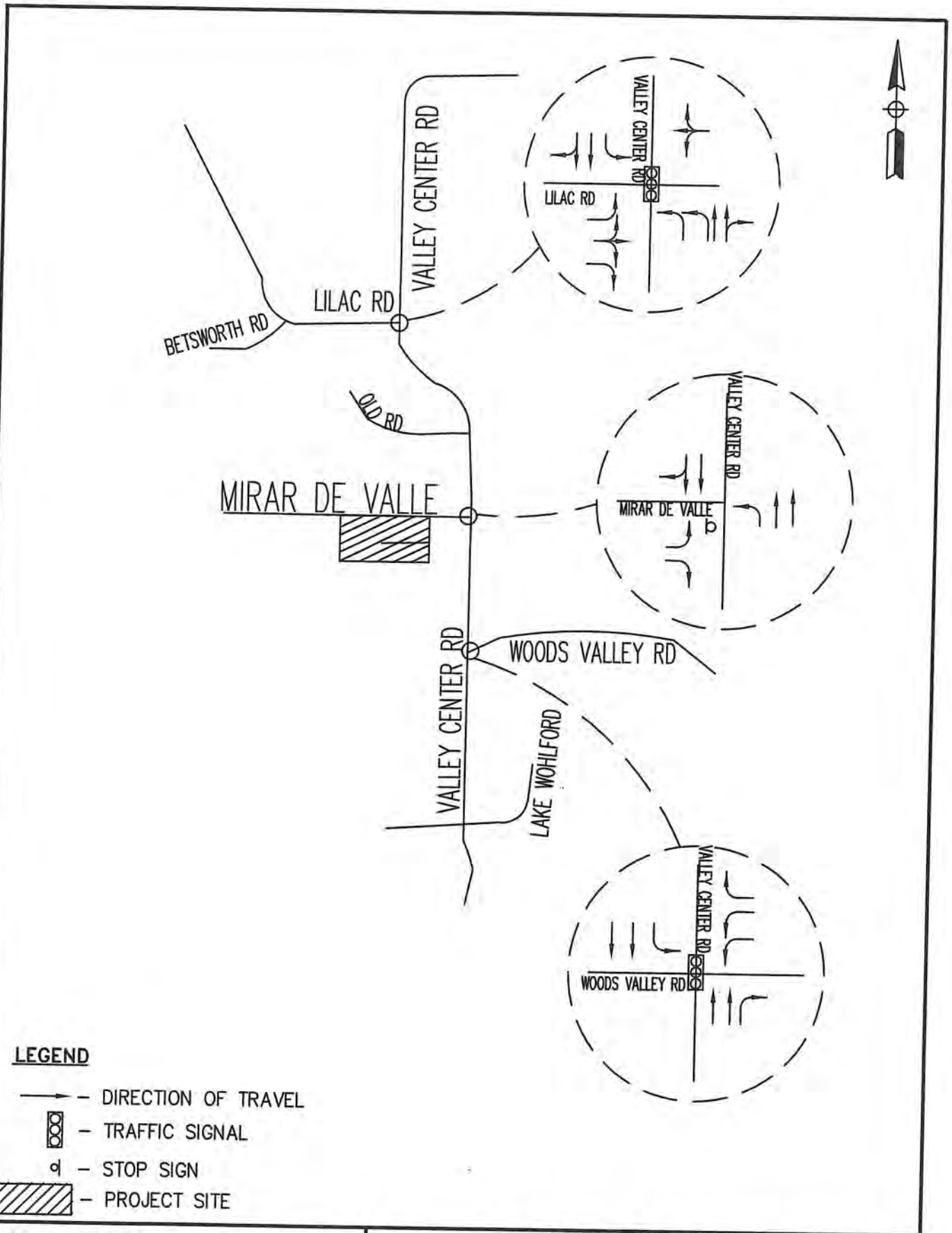
Per the General Plan Update, the ultimate classification of Lilac Road between Betsworth Road and Valley Center Road is classified as a 4.2B Boulevard (a four-lane roadway with intermittent turn lanes, 92 to 106 feet of ROW, and a capacity of 28,000 ADT at LOS "E").

Mirar de Valle is generally constructed as a 2-lane undivided east-west circulation element roadway west of Valley Center Road with a capacity of 9,000 at LOS "E". The Mobility Element of the General Plan designates Mirar de Valle as a 2.1D Community Collector Road west of Future Road 19 and was accepted at LOS "F" from New Road 19 to the Hidden Meadows Community boundary. Along the projects Mirar De Valle frontage between New Road 19 and Valley Center Road the roadway is classified as a non-Mobility Element Local Public Road.

Woods Valley Road is an east-west circulation element roadway. The posted speed limit is 45 MPH. Currently Woods Valley Road roadway capacity is equivalent to that of a 2.2 B Light Collector, 13,500 ADT at LOS "E".

ROADWAY SEGMENT DAILY TRAFFIC

Twenty-four (24) hour count data were collected on typical weekdays (Tuesday, Wednesday, or Thursday) in late March 2015 when school was in session. Count summary sheets can be found in Appendix A. The existing daily traffic volumes are illustrated on Figure 5.



Darnell & ASSOCIATES, INC.	FIGURE 4
160701–AA.dwg 12–15–16 VLA	EXISTING CONDITIONS

KEY INTERSECTIONS

Intersection configurations and traffic control for the key intersections was previously shown on Figures 4. The key intersections to be analyzed in the study are identified below:

- Valley Center Road/Lilac Road – Signalized;
- Valley Center Road / Mirar De Valle – One-Way Stop-Controlled; and
- Valley Center Road/Woods Valley Road – Signalized.

INTERSECTION TRAFFIC COUNTS

Morning and afternoon peak hour turn counts were collected at all key intersections, on a typical weekday (Tuesday, Wednesday, or Thursday) in late March 2015 when school was in session. The existing peak hour traffic counts are depicted on Figure 5. A copy of the traffic count sheets are provided in Appendix A.

EXISTING LEVEL OF SERVICE CONDITIONS

Existing – Roadway Segments

Table 2 summarizes the daily segment analysis for the existing conditions. As shown in Table 2, based on average daily conditions all of the roadway segments currently operate at an acceptable LOS "D" or better.

Table 2 - Existing Roadway Segment Level of Service Summary

Segment	Jurisdiction	LOS E Capacity	Existing	
			ADT	LOS
Valley Center Road				
Between Miller Rd and Lilac Rd	County	37,000	25,411	C
Between Lilac Rd and Mirar De Valle Rd	County	37,000	24,904	C
Between Mirar De Valle Rd and Woods Valley Rd	County	37,000	24,419	B
Between Woods Valley Rd and Lake Wohlford Rd	County	37,000	25,120	C
Lilac Road				
Between Betsworth Rd and Valley Center Rd	County	16,200	10,332	D
Mirar De Valle Rd				
West of Valley Center Rd	County	9,000	1,593	A

(a) Volume on this segment was estimated. Capacity is based on the upper limits of LOS E per the County of San Diego; <D = Operates at LOS D or better, ADT= Average Daily Traffic; LOS= Level of Service;

Existing – Intersections

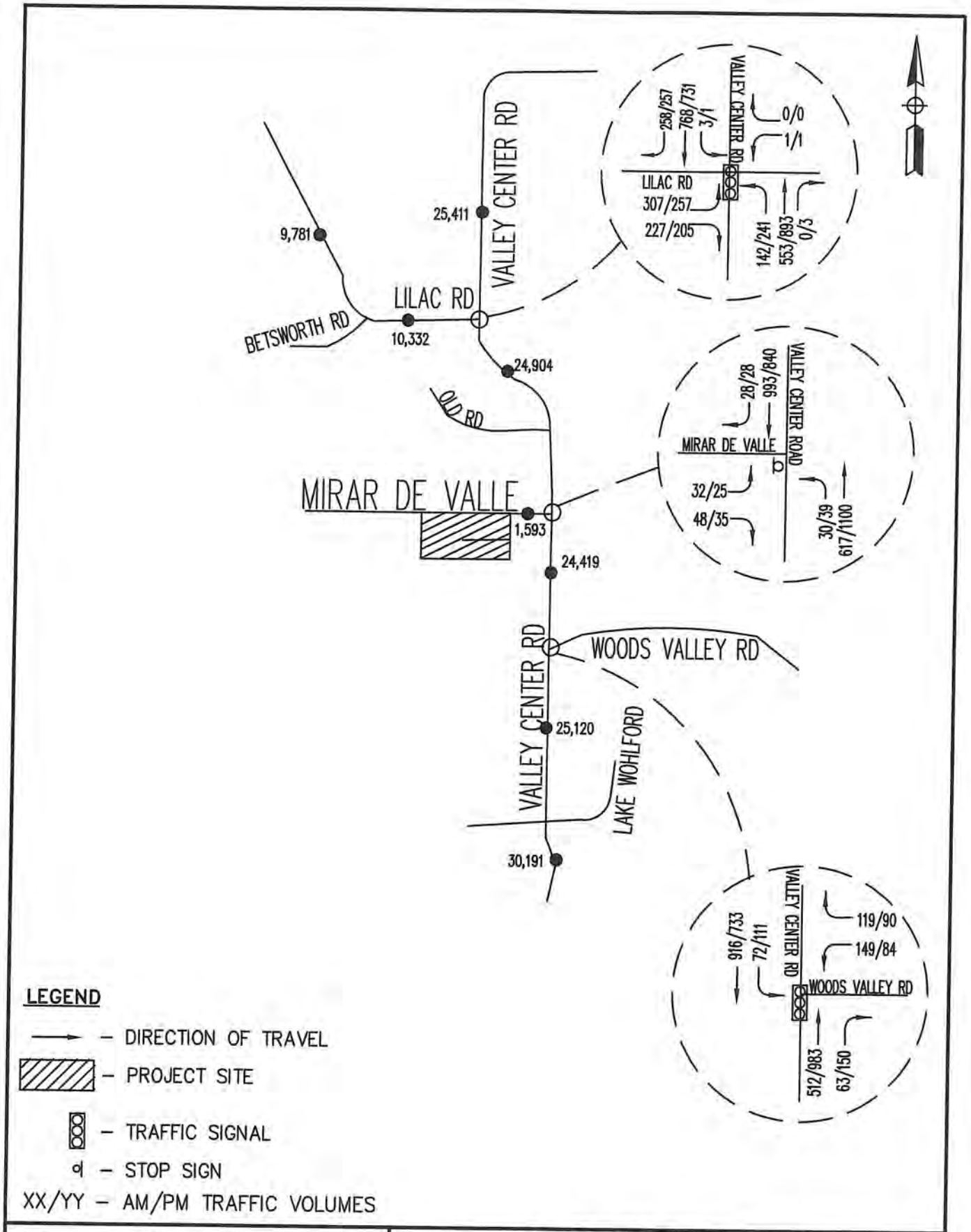
Table 3 illustrates the existing intersection levels of service for existing conditions. A copy of the Synchro worksheets for the existing conditions can be found in Appendix B.

Table 3 - Existing Conditions Intersection LOS Summary

Intersection	Jurisdiction	Traffic Control	Critical Move	AM Peak		PM Peak	
				Delay	LOS	Delay	LOS
Valley Center Road (N-S) @ Lilac Road (E-W)	County	Sig	Int.	22.8	C	22.2	C
Valley Center Road (N-S) @ Mirar De Valle (E-W)	County	OWSC	Int.	16.4	C	15.2	C
Valley Center Rd (N-S) @Woods Valley Rd (E-W)	County	Sig	Int.	9.1	A	11.2	B

Delay is measured in seconds/vehicle; LOS=Level of Service; sig=signalized; TWSC = Two-Way Stop-Controlled; OWSC=One Way Stop Controlled; sig – Signalized; Int = Intersection; NB = Northbound Approach; SB = Southbound Approach; EB = Eastbound Approach; WB = Westbound Approach; EBL = Eastbound Left; WBL = Westbound Left E-W = East-West Roadway; N-S = North-South Roadway

As can be seen from Table 3, each of the intersections currently operate at LOS 'C' or better during both peak hours under existing conditions.



Darnell & ASSOCIATES, INC.	FIGURE 5
160701-AA.dwg 12-15-16 VLA	EXISTING (2015) TRAFFIC VOLUMES

SECTION III — PROJECT RELATED CONDITIONS

TRIP GENERATION

Trip generation for the proposed project was estimated using the San Diego Association of Governments (SANDAG) *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

Table 4 presents the trip generation rates for each land use component and Table 5 summarizes the trip generation calculations for the proposed project using the full driveway rates and with pass-by reductions. As shown on Table 4, the driveway trips (those trips that enter the project site) for the entire project is estimated to generate 376 daily trips with 30 in the morning peak hour and 38 in the evening peak hour at project build-out.

Table 4 - Trip Generation Rates

Land Use	Rate	AM		PM PEAK	
		% of	In:Out	% of	In:Out Ratio
High Density Single Family	8 trips / du	8%	0.20 : 0.80	9%	0.70 : 0.30

Table 5 - Trip Generation Summary

Land Use	Amount	ADT	AM			PM		
			In	Out	Total	In	Out	Total
High Density Single Family Detached	47 du	376	6	24	30	27	11	38

TRIP DISTRIBUTION

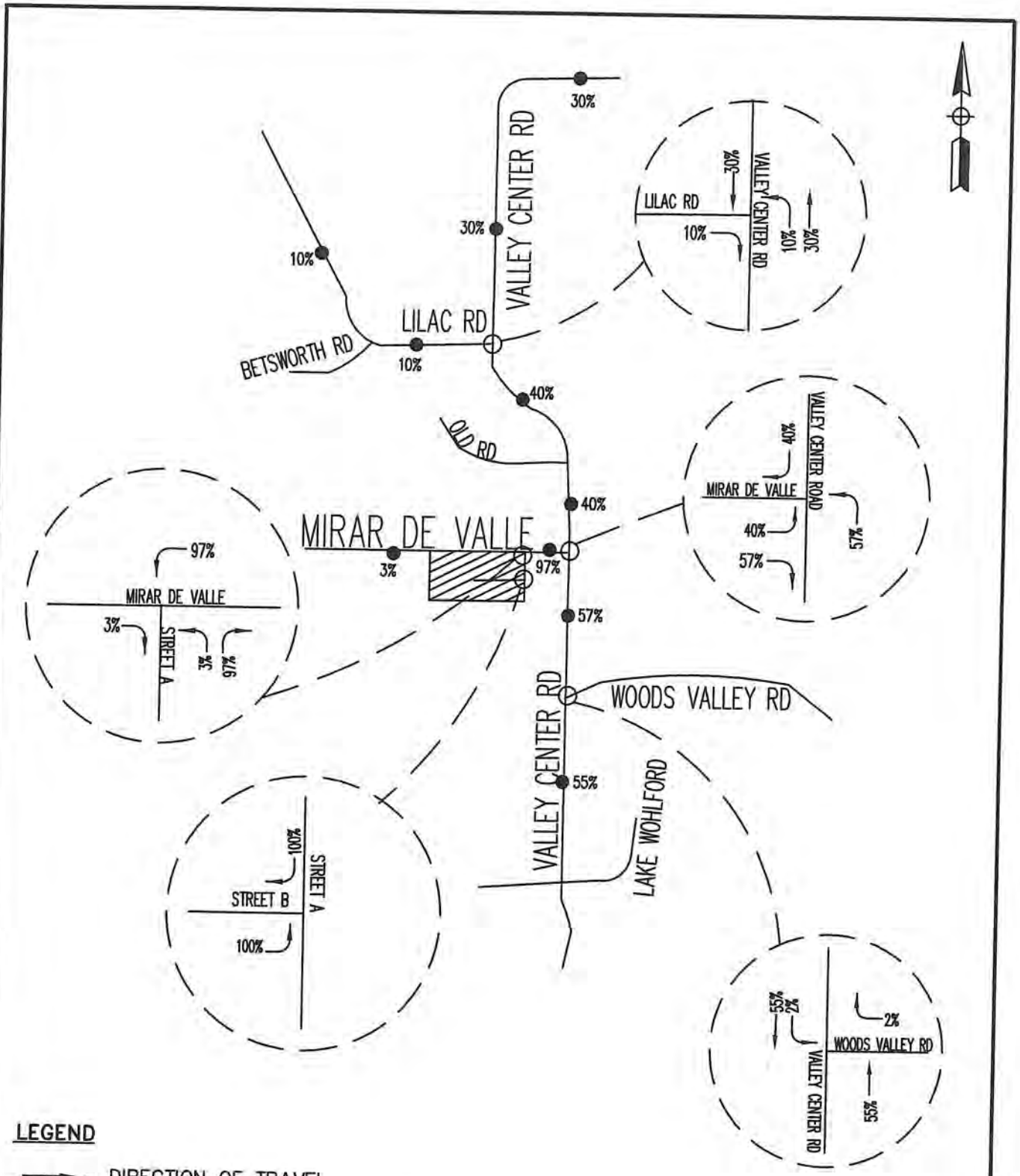
Trip distribution patterns for project traffic were estimated based on previous studies for projects in Valley Center.

Figure 6 illustrates the trip distribution percentages for the proposed project. Figure 7 presents the projects daily and peak hourly traffic volumes.

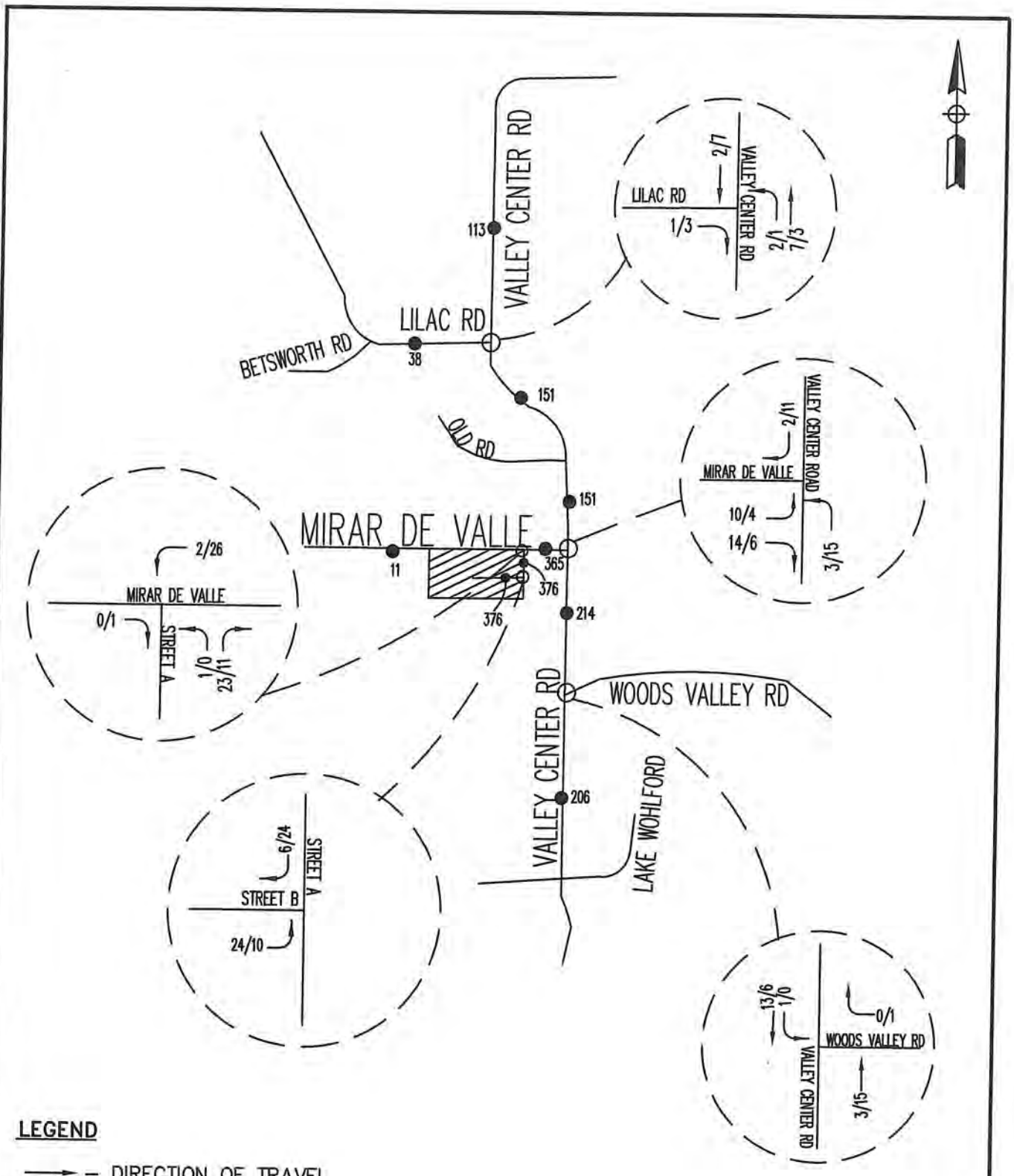
STUDY AREA

To determine the study area for the project D&A utilized the County of San Diego's criteria which recommends the inclusion of all transportation facilities that receive 25 or more peak hour trips from the proposed project. Based on the County's criteria and review of the project traffic presented on Figure 7, the study area for each scenario was determined to include:

- Valley Center Road from South of Woods Valley Road to North of Lilac Road;
- Mirar De Valle Road west of Valley Center Road; and
- Lilac Road West of Valley Center Road to Betsworth Road.



Darnell & ASSOCIATES, INC.	FIGURE 6
160701-AA.dwg 12-15-16 VLA	PROJECT DISTRIBUTION



Darnell & ASSOCIATES, INC.	FIGURE 7
160701–AA.dwg 12–15–16 VLA	PROJECT TRAFFIC

SECTION IV - EXISTING PLUS PROJECT IMPACTS

POLICIES AND SIGNIFICANCE STANDARDS

The County of San Diego General Plan Mobility Element Policy M-2.1 requires development projects to provide associated road improvements necessary to achieve a level of service of "D" or higher on all Mobility Element roads except for those where a failing level of service has been accepted by the County pursuant to the criteria specifically identified in the accompany text box (Criteria for Accepting a Road Classification with Level of Service "E"/"F"). When development is proposed on roads where a failing level of service has been accepted the policy requires feasible mitigation in the form of road improvements or a fair share contribution to a road improvement program, consistent with the Mobility Element road network.

To address project impacts the County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements for Transportation and Traffic dated August 24, 2011 identifies criteria, guidelines and standards to determine if, a discretionary project which has a significant impact on roadways will be required, as a condition of approval, to make "improvements or other measures necessary to mitigate traffic impacts to avoid reduction in the existing Level of Service below 'D' on off-site and on-site abutting County of San Diego's Circulation Element roads. New development that would significantly impact congestion on roads at LOS 'E' or 'F', either currently or as a result of the project, will be denied unless improvements are scheduled to increase the LOS to 'D' or better or appropriate mitigation is provided. Appropriate mitigation would include a fair share contribution in the form of road improvements or a fair share contribution to an established program or project. If impacts cannot be mitigated, the project will be denied unless a specific statement of overriding findings is made pursuant to Section 15091(b) and 15093 of the State CEQA Guidelines."

LEVELS OF SIGNIFICANCE STANDARDS

The *County of San Diego Guidelines for Determining Significance Transportation and Traffic, Second Modification August 24, 2011* was developed to evaluate the significance of traffic impacts on roadways and intersections which are currently operating at LOS E or F. A summary of the County's Guidelines is provided in Table 6.

Table 6 - Measures of Significant Project Impacts

LOS	Allowable Increase on Congested Roads and Intersections				
	Intersections		Road Segments		
	Signalized	Unsignalized	2-Lane Road	4-Lane Road	6-Lane Road
LOS E	Delay of 2 seconds or less	20 or less peak hour trips on a critical movement	200 ADT	400 ADT	600 ADT
LOS F	Either a Delay of l second, or 5 peak hour trips or less on a critical movement	5 or less peak hour trips on a critical movement	100 ADT	200 ADT	300 ADT

County Notes:

- A critical movement is an intersection movement (right turn, left turn, and through-movement) that experiences excessive queues, which typically operate at LOS F. Also if a project adds significant volume to a minor roadway approach, a gap study should be provided that details the headways between vehicles on the major roadway.
- 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.
- 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.
- For determining significance at signalized intersection 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.

ADT = Average Daily Traffic; LOS = Level of Service, sec = Seconds of Delay per Vehicle

Roadway Segments

As shown in Table 6, per the County's Guidelines, "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 level of service traffic impact on a road segment:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road or State Highway currently operating at LOS E or LOS F, or will cause a Circulation 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 6, or

- The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity."

As discussed on pages 13 and 14 of the *County of San Diego Guidelines for Determining Significance, Second Modification August 24, 2011*, an increase of the daily thresholds established for roadway segments operating at LOS E would result in only one additional car every 2.4 minutes per lane while the thresholds established for roadway segments operating at LOS F would result in only one additional car every 4.8 minutes. Therefore, the thresholds identified in Table 6, in most cases, would result in changes to traffic flow that would not be noticeable to the average driver and would thus not constitute a significant impact on the roadway.

Two-Lane Highways

Intersection Spacing Over One (1) Mile

In the *County of San Diego Guidelines for Determining Significance Transportation and Traffic, Second Modification August 24, 2011* the County of San Diego established a higher capacity and a higher impact significance level for two-lane highways (such as State Route 76) with signalized intersection spacing over one mile. Table 7 provides a summary of the level of service criteria and guidelines for significance for two-lane highways with intersection spacing over one-mile.

Table 7 - Measures of Significance on 2-Ln Hwys

Level of Service	LOS Criteria	Impact Significance Level
E	> 16,200 ADT	>325 ADT
F	> 22,900 ADT	>225 ADT

Note: Where detailed data is available, the Director of Public Works may also accept a detailed level of service analysis based upon the two-lane highway analysis procedures provided in the Chapter 20 Highway Capacity Manual

Intersection Spacing Less Than One (1) Mile

"Similar to the experience of drivers in urban areas with closely spaced intersections, the functionality of two-lane highway conditions with signalized intersection spacing under one-mile becomes constrained not due to the segment capacity but the intersection operations. Therefore the assessment of operates of intersection on two-lane highways shall be guided by a Level of Service standard. Level of Service for purposes of this significance guideline is based upon the overall intersection operations similar - to Urban Street analysis in Chapter 15 Highway Capacity Manual." Impacts for the two-lane highways with signalized intersection under one mile spacing will be determined by evaluating the intersection impact criteria identified in Table 8.

Table 8 - Measures of Significance on 2-Ln Hwys w/ Signalized Intersection Spacing < 1 Mile	
Level of Service	Adjacent Signalized Intersection
E	Delay of 2 seconds
F	Delay of 1 second, or 5 peak hour trips on a critical movement

Notes:
– A critical movement is an intersection movement (right turn, left turn, through-movement) that experiences excessive queues which typically operate at LOS F.
– 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.
– 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.

It should be noted that per the *County of San Diego Guidelines for Determining Significance Transportation and Traffic, Second Modification August 24, 2011*, "impacts related to operational features on two-lane highways will be evaluated on a case-by-case basis based upon traffic flow patterns, geometrics, available sight distance, accident histories, and other factors."

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 level of service 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 8."

- 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."

As discussed on page 16 of the *County of San Diego Guidelines for Determining Significance Transportation and Traffic, Second Modification August 24, 2011*, an increase in delay of two seconds or less, the threshold established for signalized intersections operating at LOS E, "…is a small fraction of the typical cycle length for a signalized intersection that ranges between 60 and 120 seconds. The likelihood of increased queues forming due to the additional two seconds of delay is low." Thus, the increase in delay of two (2) seconds or less, on average, would result in changes to traffic flow that would not be noticeable to the average driver and would thus not constitute a significant impact. Since small changes and disruptions to the traffic flow at a signalized intersection can have a greater effect on the overall intersection operation when the intersection is operating at LOS F, versus LOS E, a more stringent guideline of one (1) second of delay was established for intersections operating at LOS F.

The five (5)-peak hour trip threshold, established for the critical movement of a signalized intersection operating at LOS F, when spread out over the peak hour, results in an increase of one (1) vehicle every 12 minutes or 720 seconds. This increase would not be noticeable to the average driver because one additional vehicle during a 12-minute interval on average would clear the traffic signal cycles well within the 12-minute period. Further, even if all five (5) additional peak hour vehicles arrived at the same time, these trips would also, on average, clear the traffic cycle and the existing queue lengths would be re-established. Thus, the increase of five (5) peak hour trips to a critical movement at a signalized intersection, on average, would result in changes to traffic flow that would not be noticeable to the average driver and would thus not constitute a significant impact.

Unsignalized Intersections

"Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant impact at an unsignalized intersection as listed in Table [9] 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."

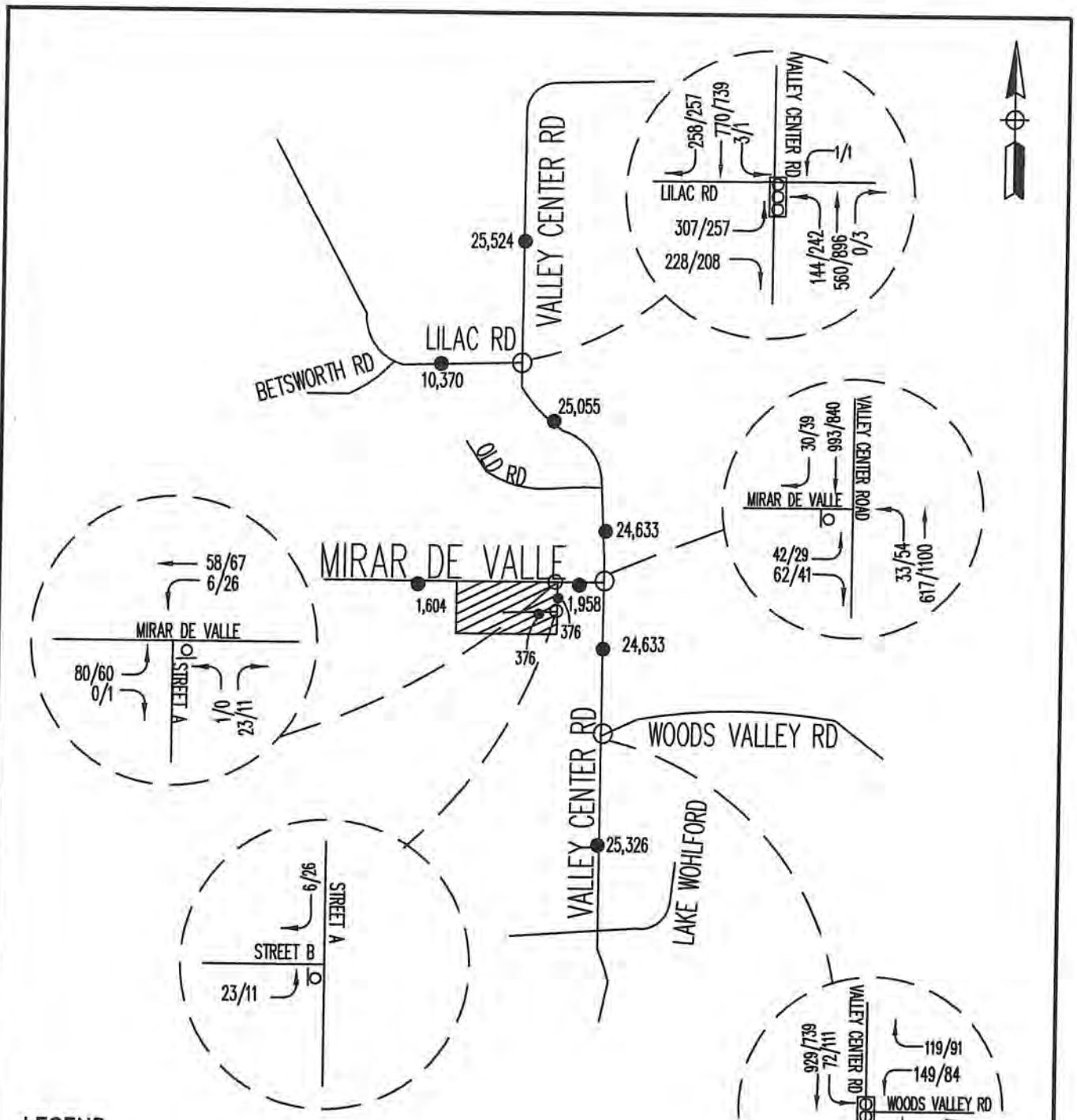
As discussed on page 18 of the *County of San Diego Guidelines for Determining Significance Transportation and Traffic, Second Modification August 24, 2011*, the addition of 20 peak hour trips to a critical movement, would result in an increase of one (1) vehicle every 3.0 minutes or 180 seconds. "Assuming the average wait time for a vehicle in the critical movement queue is less than 3.0 minutes, which is typical for LOS E conditions; this would not be noticeable to the average driver and would not be considered a significant impact." Five (5) – trips spread out over an hour would result in an increase of one (1) vehicle every 12.0 minutes or 720 seconds. "This typically exceeds the average wait time in the queue and would not be noticeable to the average driver." (See page 18 of the County's *Guidelines for Determining Significance Transportation and Traffic* provided in Appendix A.)

EXISTING PLUS PROJECT LEVEL OF SERVICE CONDITIONS

This scenario analyzes the traffic impacts of the proposed project under existing plus project conditions. Figure 8 illustrates the existing plus project traffic volumes.

Existing Plus Project – Roadway Segments

Table 9 summarizes the daily roadway segment level of service analysis under the existing without and with project conditions. As shown in Table 9, based on average daily conditions all of the roadway segments analyzed operate at LOS "D" or better under existing plus project conditions.



Darnell & ASSOCIATES, INC.	FIGURE 8
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Table 9 - Existing Plus Project Roadway Segment Level of Service Summary									
Segment	Jurisdiction	Class	LOS E Capacity	Existing		Existing Plus Project			
				ADT	LOS	Prj.	ADT	LOS	Sig.
Valley Center Road									
Between Lilac Rd and Miller Rd	County	4.1A MR	37,000	25,411	C	113	25,524	C	No
Between Lilac Rd and Mirar De Valle Rd	County	4.1A MR	37,000	24,904	C	151	25,055	C	No
Between Woods Valley Rd and Mirar De Valle Rd	County	4.1A MR	37,000	24,419	B	214	24,633	C	No
Between Lake Wohlford Rd and Woods Valley Rd	County	4.1A MR	37,000	25,120	C	206	25,326	C	No
Lilac Road									
Between Betsworth Rd and Valley Center Rd	County	2.2B LC	16,200	10,332	D	38	10,370	D	No
Mirar De Valle Rd									
West of Valley Center Rd to the Project Access	County	2.3 MC	8,000	1,593	A	365	1,958	A	No
West of the Project Access	County	2.3 MC	8,000	1,593	A	11	1,604	A	No
Street A									
South of Mirar De Valle Rd	County	PVT	750 (C)	DNE		376	376	A	No
Street B									
West of Street A	County	PVT	750 (C)	DNE		376	376	A	No

(a) Volume on this segment was estimated. Capacity is based on the upper limits of LOS E per the County of San Diego; <D = Operates at LOS D or better, Class = Roadway Classification; ADT= Average Daily Traffic; LOS= Level of Service; 4.1A MR = 4.1A Major Road; 2.2B LC = 2.2 B Light Collector; 2.3MC = Minor Collector, Sign? = Project Significance based on the County Guidelines per Significance and the General Plan Mobility Element, PVT = Private Road, (b) Significance based on Table 8 Criteria, (c0) ADI Limit on Page 8 of 20 of the Private Road Standards

Existing Plus Project – Intersections

The traffic volumes on Figure 5 and 8 were analyzed using Synchro 8 software for existing and existing plus project conditions. (A copy of the Synchro worksheets for existing plus project conditions can be found in Appendix B). Table 10 summarizes the AM/PM peak hour intersection level of service. Review of Table 10 shows that each intersection operates at LOS "C" or better.

Table 10 - Summary of Intersection Operation for Existing and Existing Plus Project														
Intersection	Traffic Control	Crit Mvmt	Existing				Existing + Project							
			AM Peak		PM Peak		AM Peak				PM Peak			
			Delay	LOS	Delay	LOS	Delay	LOS	Δ Delay	Type of Impact	Delay	LOS	Δ Delay	Type of Impact
Valley Center Rd (N-S) @ Lilac Rd (E-W)	Sig	Int.	22.8	C	22.2	C	22.8	C	0.0	None	22.3	C	0.1	None
Valley Center Rd (N-S) @ Mirar de Valle (E-W)	OWSC	Int.	16.4	C	15.2	C	17.1	C	0.7	None	15.6	C	0.4	None
Valley Center Rd (N-S) @Woods Valley Road (EW)	Sig	Int.	9.1	A	11.2	B	9.1	A	0.0	None	11.2	B	0.0	None
Mirar de Valle (E-W)@ Project Access Street	OWSC	Int.	**DNE**				8.8	A	8.8	None	8.7	A	8.7	None
LOS Capacity is based on the methodology outlined in the 2000 Highway Capacity Manual (HCM) and preformed using Synchro 8, Int. = Intersection, , Sig = Signal, OWSC = One way stop control, ADT= Average Daily Traffic; LOS= Level of Service; DNE = Does Not Exist, Crit Mvmt = Critical Movement														

SECTION V - PROJECT ACCESS, CORNER SIGHT DISTANCE AND PROJECT ROADWAYS

Project Access

Access to/from the project site is proposed via Street A and Street B connecting to Mirar De Valle Road. Analysis of short term conditions at the Mirar de Valle /Street A intersection was conducted and it was concluded that the access road need to be improved to provide the following improvements and Traffic Control:

Mirar de Valle at Street A:

- Stop sign control on Street A;
- One (1) westbound lane on Mirar de Valle;
- One (1) center turn lane;
- One (1) eastbound lane on Mirar de Valle;
- One (1) northbound left and right turning lane.

Street A at Street B:

- One (1) lane in each direction on Street A; and
- One (1) lane in each direction on Street B.

Corner Sight Distance

The project has two (2) intersections that require certification of Corner Sight Distance for conformance to Section 6.1E of the County of San Diego Public Works Standards.

- Mirar De Valle:
  Looking east and west from Street A.

- Street A:
  Looking north and south from Street B.

The County of San Diego Public Works Standards identifies the Classification and Design Speed for each roadway as follows:

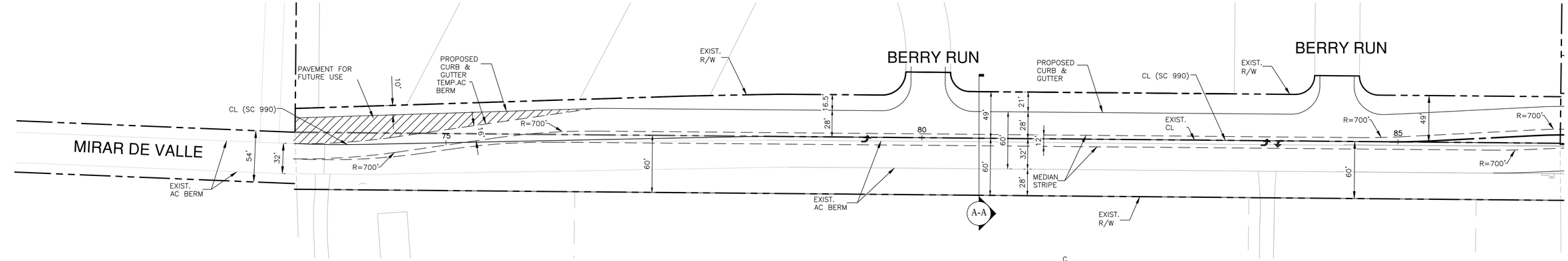
- Mirar De Valle:
  2.1D Community Collector – 45 MPH

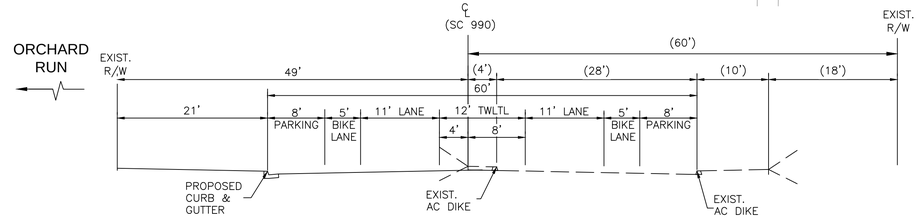
- Street A (New Road 19):
  2.3A Minor Collector – 35MPH

Prevailing Speeds

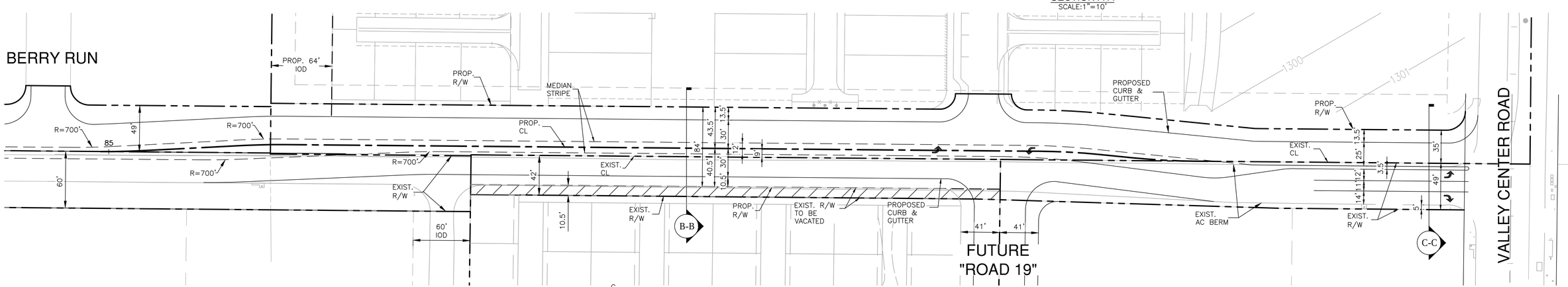
The traffic volume on existing Mirar de Valle is 1,593 daily vehicles and is not sufficient to identify a prevailing speed. Similarly the existing Street A does not have sufficient traffic volumes to establish a prevailing speed. Therefore the certification of corner sight distance will be based on the design speed of each roadway.

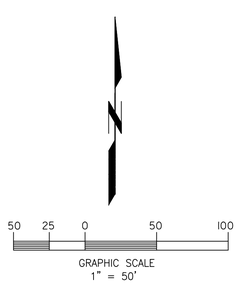
The required corner sight distance is based on the design speed times 10 feet per mile per hour of the design speed.

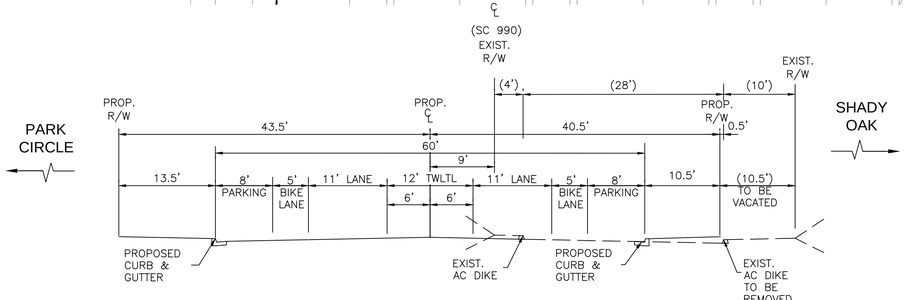




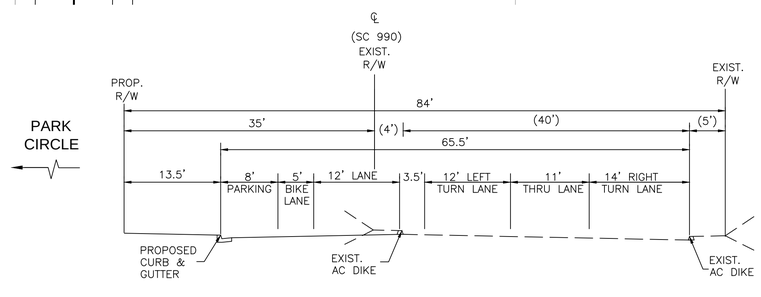
MIRAR DE VALLE
SECTION A-A
SCALE:1"=10'







MIRAR DE VALLE
SECTION B-B
SCALE:1"=10'



MIRAR DE VALLE
SECTION C-C
SCALE:1"=10'

TSAC JOB NO: 2145 DATE:

PREPARED BY:
TSAC ENGINEERING
16885 Via Del Campo Ct, Suite 304, SD, CA 92127
PHONE: 858.762.9611 FAX: 858.762.9612

FIGURE 9 MIRAR DE VALLE STRIPING PLAN

Based on County Standards the following Corner Sight Distance is required:

- Mirar De Valle:
  Looking west 450 feet (45 mph x 10ft/mph) at eastbound traffic and looking east 450 feet (45 mph x 10ft/mph) at westbound traffic on Mirar De Valle.

- Street A (New Road 19):
  Looking north 350 feet (35 mph x 10ft/mph) at southbound traffic from Street B and looking south 350 feet (35 mph x 10ft/mph) at northbound traffic from Street B.

Figure 10 presents the required corner sight distance of 450 feet looking east and west on Mirar de Valle from Street A and 350 feet looking north and south on Street A from Street B. Looking north on Street A from Street B the 350 feet of corner sight distance is based on the development of the Park Circle project.

Preliminary analysis of the required Corner Sight Distance found the Corner Sight Distance can be provided and certified at:

- Mirar De Valle at Street A; and
- Street B at Street A.

A separate stand alone report will be provided by the applicant to be used to certify corner sight distance at these two (2) locations.

Project Roadways

Street A and Street B:

The internal roadways within the project site were analyzed for conformance to the County of San Diego Private Road Standards. The project traffic volumes within the project were previously estimated and are presented on Figure 8. Each of the roadways was found to satisfy the County's Private Road Standards for 2-Lane roadways ADT Limit of 750 vehicles per day as follows:

- Street A is to be constructed to provide 28 feet of pavement within 41 feet of the right-of-way.

- Street B is to be constructed to provide 32 feet of pavement within 42 feet of the right-of-way.

Mirar De Valle:

The Projects Mirar De Valle frontage west of Valley Center Road is designated a Local Public Street. To accommodate the future extension of Mirar De Valle west of New Road 19 to Mountain Meadow Road as a 2.1D Community Collector . For roadway continuity it is recommended Mirar De Valle between New Road 19 and Valley Center Road be constructed equivalent to a 2.1 D Community Collector to provide one (1) lane in each direction plus a center turn lane. Figure 9 depicts the channelization concept previously submitted and approved by the County of San Diego. The project will construct the frontage to conform to the Figure 9 Channelization concept.

PARK CIRCLE
COUNTY OF SAN DIEGO
TRACT NO. 5603

MIRAR DE VALLE

PROPERTY BOUNDARY

EXIST. AC BERM

8.0'

450.0'

2.0'

10.0'

14

350.0'

13

60' IOD

ALLEY A (PVT)

ALLEY B (PVT)

ALLEY C (PVT)

ALLEY D (PVT)

10 11 12 13 14

STREET B (PVT)

12

ALLEY E (PVT)

11

FUTURE "ROAD 19" CENTERLINE

STREET A (PVT) (IOD)
HALF WIDTH OF
FUTURE "ROAD 19"

STREET A (IOD) CENTERLINE

VALLEY CENTER ROAD

(OLD) MIRAR DE VALLE

N

40 20 0 40 80

GRAPHIC SCALE
1" = 40'

TSAC ENGINEERING
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PHONE: 858.762.9611 FAX: 858.762.9612

FIGURE 10
CORNER SIGHT DISTANCE FOR SHADY OAK TM 5614

SECTION VI – IMPACTS / MITIGATION MEASURES

TRANSPORTATION IMPACT FEE (TIF)

The County of San Diego has developed an overall programmatic solution that addresses existing and projected future road deficiencies in the unincorporated portions of San Diego County. This program includes the adoption of a Transportation Impact Fee (TIF) program to fund improvements to roadways necessary to mitigate potential cumulative impacts caused by traffic from future development. Based on SANDAG regional growth and land use forecasts, the SANDAG Regional Transportation Model was utilized to analyze projected build-out (year 2050) development conditions on the existing circulation element roadway throughout the unincorporated area of the County. Based on the results of the traffic modeling, funding necessary to construct transportation facilities that will mitigate cumulative impacts from new development was identified. Existing roadway deficiencies will be corrected through improvement projects funded by other public funding sources, such as TransNet, gas tax and grants. Potential cumulative impacts to the region's freeways have been addressed in SANDAG's Regional Transportation Plan (RTP). This plan, which considers freeway build out over the next 40 years, will use funds from TransNet, state and federal funding to improve freeways to projected level of service objectives in the RTP.

Full build out of the project is estimated to generate a total of 376 average daily driveway trips. These trips will be distributed on circulation element roadways in the County that were analyzed by the TIF program, some of which currently or are projected to operate at inadequate levels of service. The potential growth represented by the proposed project was included in the growth projections upon which the TIF program is based. Therefore, compliance with the County TIF ordinance, which will be required at issuance of building permits, in combination with other components of the program described above, will mitigate potential cumulative traffic impacts to County Circulation Element Roadways to less than significant. The TIF program provides a mechanism for developers to mitigate their cumulative impacts by paying a specified fee for the use that is being proposed.

The County Board of Supervisors adopted the County of San Diego Traffic Impact Fee (TIF) program in April 2005. The latest TIF Ordinance Update was adopted by the Board of Supervisors effective on December 31, 2012. It should be noted that the actual traffic impact fees are subject to change as the TIF ordinance is updated annually as the fees are adjusted to reflect the engineering cost index. Compliance with the County TIF ordinance will mitigate any cumulative impact that the project has on the County roadway facilities located within the Valley Center Community Sub-region and the North TIF region. The project proposes to comply with the County's TIF to mitigate the project's local and regional cumulative impacts within the unincorporated area.

DIRECT IMPACTS

Direct Impacts – Roadway Segments

The project does not have any direct roadway impacts. Therefore no mitigation is required.

Direct Impacts – Intersections

The project does not have any direct intersection impacts. Therefore no mitigation is required.

CUMULATIVE IMPACTS

The project is considered to be part of cumulative impacts. To mitigate projects cumulative impacts the Applicant agrees to participate in the County of San Diego Traffic Impact Fees (TIF) Program and will pay the current County TIF Fees at the time building permits are issued.

SECTION VII - SUMMARY OF FINDINGS & CONCLUSIONS

- The applicant proposes to develop the Shady Oak 47 Unit Single Family project located on the southside of Mirar de Valle west of Valley Center Road in the Valley Center Community of San Diego County.
- The project proposes 47 higher density cluster, alley and cottage residential units.
- As detailed in this report, build out of the proposed Shady Oak Project is estimated to generate a total of 376 average daily driveway trips, 30 AM peak hour driveway trips, and 38 PM peak hour driveway trips.
- The analysis of the study area roadway segments found each roadway segment to operate at LOS "D" or better for existing and existing plus project conditions. Therefore the project does not have any direct impacts that require mitigation.
- The project will be a part of the cumulative impacts within the study area. Mitigation of Cumulative Impacts will be accommodated by paying the County's Traffic Impact fees.
- In accordance with the County's Centerline Ordinance the project will be responsible for improving its frontage along Mirar de Valle, Street A and Street B.
- Improvements to Mirar de Valle along the projects frontage are proposed to be consistent with the County of San Diego Classification of Mirar de Valle west of Road 19. Figure 9 presents the proposed improvements to construct the projects Mirar de Valle frontage to be consistent with the County's 2.1 D Classification and the following:

  Mirar de Valle at Street A:
  - Stop sign control on Street A;
  - One (1) westbound lane on Mirar de Valle;
  - One (1) eastbound lane on Mirar de Valle;
  - One (1) northbound left and right turning lane.

- Improvements to Street A along the projects frontage are proposed to be constructed to provide the following improvements and Traffic Control:
  - One (1) lane in each direction on Street A;
  - Street A is to be constructed to provide 28 feet of pavement within 41 feet of the right-of-way for the westerly half of New Road 19.
- Improvements to Street B are proposed to be constructed to provide the following:
  - One (1) lane in each direction plus parking on the northside;
  - Street B is to be constructed to provide 32 feet of pavement within 42 feet of the right-of-way.
- Corner Sight Distance at the two (2) project intersections was analyzed and recommended of the report. The corner sight distance is based on the following:
  - Mirar de Valle design speed of 45 MPH;
  - Street A design speed of 35 MPH.

  Certification will be provided by the projects Civil Engineer.

APPENDIX A

- Existing AM/PM Peak Hour Traffic Counts
- Existing 24 Hour Machine Counts
- County of San Diego Level of Service Worksheets
- Excerpts from the County's Significance Thresholds

Existing AM/PM Peak Hour Traffic Counts

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

MIRA DE VALLE W-O VALLEY CENTER

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			0		0			12:00			14		17		
00:15			0		1			12:15			19		8		
00:30			0		0			12:30			11		10		
00:45			0	0	0	1	1	12:45			9	53	12	47	100
01:00			1		1			13:00			12		8		
01:15			0		0			13:15			11		8		
01:30			0		2			13:30			6		13		
01:45			0	1	0	3	4	13:45			10	39	7	36	75
02:00			0		0			14:00			12		14		
02:15			0		1			14:15			11		13		
02:30			1		0			14:30			15		8		
02:45			0	1	0	1	2	14:45			9	47	18	53	100
03:00			0		0			15:00			7		19		
03:15			0		0			15:15			9		16		
03:30			0		0			15:30			23		9		
03:45			0	0	1	1	1	15:45			17	56	13	57	113
04:00			2		1			16:00			22		21		
04:15			1		0			16:15			14		14		
04:30			3		0			16:30			20		19		
04:45			2	8	1	2	10	16:45			14	70	17	71	141
05:00			4		0			17:00			8		17		
05:15			1		2			17:15			7		18		
05:30			5		0			17:30			7		25		
05:45			9	19	3	5	24	17:45			18	40	14	74	114
06:00			10		2			18:00			14		13		
06:15			9		8			18:15			12		12		
06:30			18		13			18:30			9		14		
06:45			17	54	18	41	95	18:45			14	49	13	52	101
07:00			15		14			19:00			4		11		
07:15			36		10			19:15			6		10		
07:30			20		26			19:30			12		7		
07:45			15	86	11	61	147	19:45			6	28	13	41	69
08:00			27		8			20:00			8		8		
08:15			19		15			20:15			3		21		
08:30			12		10			20:30			3		8		
08:45			11	69	5	38	107	20:45			1	15	10	47	62
09:00			14		8			21:00			0		8		
09:15			8		7			21:15			0		5		
09:30			15		9			21:30			3		2		
09:45			5	42	2	26	68	21:45			0	3	7	22	25
10:00			15		10			22:00			1		10		
10:15			14		15			22:15			3		7		
10:30			11		11			22:30			1		1		
10:45			21	61	11	47	108	22:45			1	6	4	22	28
11:00			11		12			23:00			0		1		
11:15			12		10			23:15			0		4		
11:30			11		7			23:30			2		0		
11:45			10	44	16	45	89	23:45			1	3	1	6	9
Total Vol.				385		271	**656**					409		528	**937**

	AM			PM		
				Daily Totals		
	NB	SB	EB	WB	**Combined**	
			794	799	**1593**	
Split %	58.7%	41.3%	**41.2%**	43.6%	56.4%	**58.8%**
Peak Hour	07:15	06:45	**06:45**	15:30	16:45	**16:00**
Volume	98	68	**156**	76	77	**141**
P.H.F.	0.68	0.65	**0.85**	0.83	0.77	**0.82**

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

VALLEY CENTER N-O LILAC

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	19		27					12:00	163		173				
00:15	23		32					12:15	184		171				
00:30	22		26					12:30	166		139				
00:45	17	81	32	117			198	12:45	155	668	168	651			1319
01:00	12		23					13:00	187		165				
01:15	16		31					13:15	182		171				
01:30	12		19					13:30	181		177				
01:45	6	46	19	92			138	13:45	217	767	194	707			1474
02:00	5		26					14:00	179		215				
02:15	9		24					14:15	204		192				
02:30	10		27					14:30	234		199				
02:45	4	28	14	91			119	14:45	209	826	256	862			1688
03:00	11		21					15:00	204		254				
03:15	9		14					15:15	217		217				
03:30	10		19					15:30	282		228				
03:45	10	40	26	80			120	15:45	268	971	200	899			1870
04:00	9		28					16:00	243		214				
04:15	12		27					16:15	283		215				
04:30	16		45					16:30	306		262				
04:45	21	58	52	152			210	16:45	295	1127	268	959			2086
05:00	24		70					17:00	288		215				
05:15	43		93					17:15	272		268				
05:30	65		122					17:30	284		205				
05:45	80	212	128	413			625	17:45	277	1121	181	869			1990
06:00	93		176					18:00	236		153				
06:15	136		199					18:15	260		172				
06:30	132		209					18:30	235		159				
06:45	125	486	184	768			1254	18:45	222	953	149	633			1586
07:00	188		215					19:00	203		127				
07:15	232		262					19:15	190		93				
07:30	215		288					19:30	163		92				
07:45	195	830	215	980			1810	19:45	152	708	63	375			1083
08:00	216		268					20:00	144		106				
08:15	184		277					20:15	152		101				
08:30	170		235					20:30	108		70				
08:45	161	731	181	961			1692	20:45	131	535	107	384			919
09:00	142		172					21:00	90		96				
09:15	134		221					21:15	91		67				
09:30	153		199					21:30	87		55				
09:45	162	591	141	733			1324	21:45	83	351	52	270			621
10:00	150		167					22:00	63		79				
10:15	128		170					22:15	67		71				
10:30	124		156					22:30	55		48				
10:45	157	559	142	635			1194	22:45	46	231	50	248			479
11:00	141		187					23:00	37		52				
11:15	155		184					23:15	37		42				
11:30	168		162					23:30	22		31				
11:45	170	634	173	706			1340	23:45	18	114	33	158			272
Total Vol.		4296		5728			**10024**			8372		7015			**15387**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
	12668	12743			**25411**

	AM			PM		
Split %	42.9%	57.1%	**39.4%**	54.4%	45.6%	**60.6%**
Peak Hour	07:15	07:30	**07:15**	16:15	16:30	**16:30**
Volume	858	1048	**1891**	1172	1013	**2174**
P.H.F.	0.92	0.91	**0.94**	0.96	0.94	**0.96**

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

LILAC W-O BETSWORTH

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	5		9					12:00	66		49				
00:15	5		1					12:15	69		68				
00:30	7		5					12:30	60		53				
00:45	7	24	4	19			43	12:45	68	263	61	231			494
01:00	2		2					13:00	62		81				
01:15	7		6					13:15	66		76				
01:30	3		5					13:30	63		62				
01:45	5	17	1	14			31	13:45	89	280	96	315			595
02:00	3		3					14:00	78		102				
02:15	6		1					14:15	80		132				
02:30	8		2					14:30	66		100				
02:45	6	23	0	6			29	14:45	103	327	81	415			742
03:00	6		5					15:00	106		83				
03:15	5		0					15:15	96		88				
03:30	1		11					15:30	102		98				
03:45	3	15	3	19			34	15:45	82	386	86	355			741
04:00	4		5					16:00	85		108				
04:15	4		5					16:15	86		98				
04:30	13		7					16:30	109		109				
04:45	5	26	18	35			61	16:45	119	399	115	430			829
05:00	13		21					17:00	99		107				
05:15	17		19					17:15	105		87				
05:30	26		36					17:30	97		92				
05:45	33	89	38	114			203	17:45	99	400	100	386			786
06:00	40		38					18:00	83		81				
06:15	58		68					18:15	96		69				
06:30	79		64					18:30	81		67				
06:45	64	241	73	243			484	18:45	88	348	57	274			622
07:00	67		98					19:00	67		41				
07:15	91		113					19:15	60		49				
07:30	75		126					19:30	52		51				
07:45	97	330	89	426			756	19:45	46	225	36	177			402
08:00	106		129					20:00	60		39				
08:15	86		118					20:15	55		21				
08:30	84		80					20:30	42		37				
08:45	61	337	82	409			746	20:45	35	192	30	127			319
09:00	52		61					21:00	33		21				
09:15	59		61					21:15	35		31				
09:30	49		74					21:30	23		22				
09:45	50	210	76	272			482	21:45	19	110	17	91			201
10:00	49		69					22:00	36		15				
10:15	48		68					22:15	28		13				
10:30	46		55					22:30	15		20				
10:45	53	196	59	251			447	22:45	11	90	9	57			147
11:00	77		59					23:00	14		5				
11:15	66		61					23:15	11		9				
11:30	57		70					23:30	11		5				
11:45	55	255	79	269			524	23:45	3	39	5	24			63
Total Vol.		1763		2077			**3840**			3059		2882			**5941**

Daily Totals

NB	SB	EB	WB	Combined
4822	4959			**9781**

	AM			PM		
Split %	45.9%	54.1%	**39.3%**	51.5%	48.5%	**60.7%**
Peak Hour	07:45	07:30	**07:15**	16:30	13:45	**16:30**
Volume	373	462	**826**	432	430	**850**
P.H.F.	0.88	0.90	**0.88**	0.89	0.81	**0.91**

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

LILAC W-O VALLEY CENTER

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			9		5			12:00			51		80		
00:15			2		4			12:15			71		69		
00:30			3		7			12:30			45		61		
00:45			1	15	7	23	38	12:45			68	235	72	282	517
01:00			1		3			13:00			76		67		
01:15			5		6			13:15			59		82		
01:30			5		3			13:30			38		72		
01:45			1	12	5	17	29	13:45			67	240	101	322	562
02:00			3		3			14:00			53		93		
02:15			1		7			14:15			78		104		
02:30			3		9			14:30			66		74		
02:45			0	7	6	25	32	14:45			66	263	114	385	648
03:00			2		8			15:00			79		114		
03:15			0		4			15:15			54		106		
03:30			10		1			15:30			103		107		
03:45			5	17	2	15	32	15:45			87	323	106	433	756
04:00			5		4			16:00			105		102		
04:15			5		5			16:15			116		102		
04:30			8		11			16:30			111		132		
04:45			16	34	5	25	59	16:45			128	460	132	468	928
05:00			25		12			17:00			121		121		
05:15			19		16			17:15			105		119		
05:30			41		30			17:30			95		121		
05:45			45	130	31	89	219	17:45			108	429	136	497	926
06:00			43		41			18:00			74		101		
06:15			49		59			18:15			79		115		
06:30			66		86			18:30			67		92		
06:45			83	241	73	259	500	18:45			52	272	98	406	678
07:00			103		78			19:00			53		72		
07:15			134		91			19:15			51		74		
07:30			126		83			19:30			45		56		
07:45			118	481	105	357	838	19:45			35	184	49	251	435
08:00			148		119			20:00			44		57		
08:15			131		88			20:15			44		47		
08:30			111		88			20:30			29		43		
08:45			90	480	72	367	847	20:45			33	150	49	196	346
09:00			72		54			21:00			22		57		
09:15			45		60			21:15			18		44		
09:30			77		57			21:30			21		25		
09:45			75	269	60	231	500	21:45			18	79	37	163	242
10:00			66		52			22:00			3		27		
10:15			50		57			22:15			13		39		
10:30			34		54			22:30			5		8		
10:45			57	207	62	225	432	22:45			4	25	20	94	119
11:00			58		79			23:00			6		19		
11:15			64		73			23:15			5		19		
11:30			71		73			23:30			6		10		
11:45			80	273	67	292	565	23:45			8	25	11	59	84
Total Vol.			2166		1925		**4091**				2685		3556		**6241**

Daily Totals

NB	SB	EB	WB	Combined
		4851	5481	**10332**

	AM			PM		
Split %	52.9%	47.1%	**39.6%**	43.0%	57.0%	**60.4%**
Peak Hour	07:15	07:45	**07:15**	16:15	16:30	**16:30**
Volume	526	400	**924**	476	504	**969**
P.H.F.	0.89	0.84	**0.87**	0.93	0.95	**0.93**

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

VALLEY CENTER S-O LILAC

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	18		20					12:00	175		168				
00:15	20		28					12:15	184		170				
00:30	16		33					12:30	160		151				
00:45	19	73	26	107			180	12:45	158	677	165	654			1331
01:00	15		20					13:00	177		170				
01:15	11		31					13:15	184		158				
01:30	10		22					13:30	168		168				
01:45	9	45	18	91			136	13:45	191	720	177	673			1393
02:00	11		21					14:00	188		181				
02:15	8		24					14:15	175		219				
02:30	9		26					14:30	195		205				
02:45	10	38	15	86			124	14:45	212	770	218	823			1593
03:00	5		11					15:00	206		216				
03:15	4		16					15:15	218		205				
03:30	6		21					15:30	268		226				
03:45	7	22	23	71			93	15:45	252	944	205	852			1796
04:00	9		29					16:00	266		215				
04:15	11		33					16:15	288		235				
04:30	18		40					16:30	315		218				
04:45	26	64	58	160			224	16:45	281	1150	242	910			2060
05:00	21		81					17:00	295		244				
05:15	38		105					17:15	260		233				
05:30	51		126					17:30	284		195				
05:45	66	176	168	480			656	17:45	277	1116	150	822			1938
06:00	95		184					18:00	242		141				
06:15	121		195					18:15	251		135				
06:30	135		213					18:30	235		141				
06:45	144	495	208	800			1295	18:45	226	954	121	538			1492
07:00	159		215					19:00	219		118				
07:15	161		268					19:15	205		105				
07:30	184		277					19:30	181		88				
07:45	177	681	212	972			1653	19:45	170	775	90	401			1176
08:00	185		252					20:00	142		105				
08:15	162		318					20:15	165		98				
08:30	144		230					20:30	122		88				
08:45	141	632	166	966			1598	20:45	131	560	70	361			921
09:00	144		184					21:00	105		65				
09:15	121		212					21:15	111		51				
09:30	135		189					21:30	89		66				
09:45	145	545	177	762			1307	21:45	89	394	54	236			630
10:00	151		181					22:00	88		50				
10:15	128		212					22:15	70		68				
10:30	122		184					22:30	65		51				
10:45	168	569	142	719			1288	22:45	55	278	40	209			487
11:00	132		155					23:00	40		35				
11:15	151		168					23:15	35		44				
11:30	168		174					23:30	22		28				
11:45	151	602	180	677			1279	23:45	20	117	30	137			254
Total Vol.		3942		5891			**9833**			8455		6616			**15071**

	AM			PM		
			Daily Totals			
	NB	SB	**Combined**	NB	SB	**Combined**
				12397	12507	**24904**
Split %	40.1%	59.9%	**39.5%**	56.1%	43.9%	**60.5%**
Peak Hour	07:30	07:30	**07:30**	16:15	16:15	**16:15**
Volume	708	1059	**1767**	1179	939	**2118**
P.H.F.	0.96	0.83	**0.92**	0.92	0.96	**0.98**

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

VALLEY CENTER N-O WOODS VALLEY

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	15		26					12:00	186		153				
00:15	23		31					12:15	177		178				
00:30	22		24					12:30	167		141				
00:45	16	76	24	105			181	12:45	147	677	164	636			1313
01:00	11		16					13:00	184		180				
01:15	15		37					13:15	165		164				
01:30	11		18					13:30	190		157				
01:45	6	43	15	86			129	13:45	195	734	163	664			1398
02:00	5		24					14:00	184		185				
02:15	11		21					14:15	186		202				
02:30	11		23					14:30	204		196				
02:45	4	31	11	79			110	14:45	202	776	209	792			1568
03:00	7		14					15:00	200		223				
03:15	10		14					15:15	225		199				
03:30	8		24					15:30	280		246				
03:45	8	33	26	78			111	15:45	240	945	192	860			1805
04:00	9		28					16:00	281		191				
04:15	10		30					16:15	277		198				
04:30	14		45					16:30	265		215				
04:45	18	51	55	158			209	16:45	275	1098	205	809			1907
05:00	23		87					17:00	255		216				
05:15	48		92					17:15	268		213				
05:30	52		129					17:30	284		166				
05:45	71	194	164	472			666	17:45	281	1088	175	770			1858
06:00	96		175					18:00	234		128				
06:15	118		198					18:15	261		150				
06:30	136		205					18:30	223		136				
06:45	156	506	204	782			1288	18:45	249	967	137	551			1518
07:00	144		222					19:00	209		109				
07:15	131		235					19:15	221		98				
07:30	168		267					19:30	164		101				
07:45	184	627	225	949			1576	19:45	178	772	82	390			1162
08:00	166		218					20:00	135		100				
08:15	141		268					20:15	161		109				
08:30	144		215					20:30	114		74				
08:45	121	572	188	889			1461	20:45	139	549	85	368			917
09:00	134		191					21:00	102		74				
09:15	125		220					21:15	104		58				
09:30	122		204					21:30	90		55				
09:45	137	518	166	781			1299	21:45	97	393	58	245			638
10:00	139		173					22:00	79		68				
10:15	133		208					22:15	84		72				
10:30	119		165					22:30	54		54				
10:45	160	551	150	696			1247	22:45	58	275	45	239			514
11:00	116		148					23:00	40		46				
11:15	160		188					23:15	44		33				
11:30	160		161					23:30	22		29				
11:45	162	598	184	681			1279	23:45	18	124	33	141			265
Total Vol.		3800		5756			**9556**			8398		6465			**14863**

	Daily Totals				
	NB	SB	EB	WB	Combined
	12198	12221			**24419**

	AM			PM		
Split %	39.8%	60.2%	**39.1%**	56.5%	43.5%	**60.9%**
Peak Hour	11:45	07:30	**07:30**	16:00	14:45	**16:30**
Volume	692	978	**1637**	1098	877	**1912**
P.H.F.	0.93	0.91	**0.94**	0.97	0.89	**0.99**

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

VALLEY CENTER S-O WOODS VALLEY

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	18		24					12:00	177		150				
00:15	21		38					12:15	183		177				
00:30	27		24					12:30	183		151				
00:45	13	79	25	111			190	12:45	156	699	150	628			1327
01:00	15		21					13:00	184		175				
01:15	12		39					13:15	166		163				
01:30	14		19					13:30	194		140				
01:45	7	48	16	95			143	13:45	185	729	168	646			1375
02:00	4		21					14:00	189		174				
02:15	14		23					14:15	165		187				
02:30	12		26					14:30	209		191				
02:45	6	36	16	86			122	14:45	193	756	202	754			1510
03:00	8		14					15:00	202		197				
03:15	10		19					15:15	250		199				
03:30	10		22					15:30	276		220				
03:45	7	35	28	83			118	15:45	250	978	195	811			1789
04:00	6		32					16:00	275		188				
04:15	14		32					16:15	297		196				
04:30	18		55					16:30	288		215				
04:45	11	49	54	173			222	16:45	278	1138	213	812			1950
05:00	23		99					17:00	281		196				
05:15	46		107					17:15	299		225				
05:30	49		155					17:30	325		170				
05:45	69	187	181	542			729	17:45	321	1226	159	750			1976
06:00	93		191					18:00	239		117				
06:15	113		230					18:15	277		157				
06:30	120		243					18:30	236		124				
06:45	139	465	224	888			1353	18:45	264	1016	137	535			1551
07:00	121		246					19:00	238		112				
07:15	141		267					19:15	228		99				
07:30	146		316					19:30	187		88				
07:45	157	565	255	1084			1649	19:45	191	844	85	384			1228
08:00	141		245					20:00	161		88				
08:15	126		287					20:15	166		92				
08:30	156		240					20:30	135		73				
08:45	123	546	193	965			1511	20:45	157	619	84	337			956
09:00	133		196					21:00	111		71				
09:15	125		238					21:15	126		55				
09:30	130		225					21:30	103		58				
09:45	147	535	167	826			1361	21:45	106	446	50	234			680
10:00	137		177					22:00	95		69				
10:15	130		204					22:15	94		63				
10:30	110		190					22:30	56		50				
10:45	148	525	157	728			1253	22:45	64	309	50	232			541
11:00	118		156					23:00	39		51				
11:15	160		183					23:15	46		38				
11:30	167		166					23:30	30		34				
11:45	153	598	190	695			1293	23:45	20	135	35	158			293
Total Vol.		3668		6276			**9944**			8895		6281			**15176**

Daily Totals

NB	SB	EB	WB	**Combined**
12563	12557			**25120**

	AM			PM		
Split %	36.9%	63.1%	**39.6%**	58.6%	41.4%	**60.4%**
Peak Hour	11:45	07:30	**07:30**	17:00	16:30	**16:30**
Volume	696	1103	**1673**	1226	849	**1995**
P.H.F.	0.95	0.87	**0.91**	0.95	0.94	**0.95**

TUESDAY, MARCH 24TH, 2015 CITY: VALLEY CENTER PROJECT: PTD15-0327-01

VALLEY CENTER S-O LAKE WOHLFORD

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	23		38					12:00	186		231				
00:15	27		45					12:15	215		210				
00:30	29		27					12:30	197		229				
00:45	14	93	34	144			237	12:45	193	791	192	862			1653
01:00	19		29					13:00	202		219				
01:15	14		41					13:15	207		216				
01:30	18		29					13:30	213		197				
01:45	8	59	26	125			184	13:45	197	819	203	835			1654
02:00	14		19					14:00	224		217				
02:15	13		33					14:15	175		249				
02:30	8		27					14:30	257		237				
02:45	8	43	22	101			144	14:45	203	859	253	956			1815
03:00	9		18					15:00	249		249				
03:15	17		22					15:15	297		250				
03:30	11		24					15:30	315		265				
03:45	9	46	36	100			146	15:45	280	1141	252	1016			2157
04:00	9		33					16:00	318		239				
04:15	15		46					16:15	368		236				
04:30	23		53					16:30	335		240				
04:45	15	62	64	196			258	16:45	368	1389	244	959			2348
05:00	37		116					17:00	350		248				
05:15	44		126					17:15	368		226				
05:30	66		170					17:30	353		208				
05:45	88	235	220	632			867	17:45	337	1408	198	880			2288
06:00	109		207					18:00	299		164				
06:15	116		278					18:15	295		171				
06:30	147		300					18:30	266		178				
06:45	136	508	292	1077			1585	18:45	307	1167	160	673			1840
07:00	154		294					19:00	260		144				
07:15	141		313					19:15	269		141				
07:30	168		342					19:30	217		115				
07:45	170	633	319	1268			1901	19:45	198	944	96	496			1440
08:00	177		305					20:00	208		106				
08:15	161		331					20:15	197		113				
08:30	155		308					20:30	151		95				
08:45	150	643	277	1221			1864	20:45	157	713	101	415			1128
09:00	159		257					21:00	133		91				
09:15	161		272					21:15	145		76				
09:30	152		279					21:30	117		75				
09:45	167	639	231	1039			1678	21:45	126	521	57	299			820
10:00	169		213					22:00	114		85				
10:15	146		243					22:15	88		84				
10:30	150		260					22:30	71		65				
10:45	155	620	228	944			1564	22:45	71	344	64	298			642
11:00	165		202					23:00	49		62				
11:15	170		239					23:15	50		53				
11:30	195		240					23:30	43		44				
11:45	187	717	215	896			1613	23:45	18	160	46	205			365
Total Vol.	4298		7743				**12041**		10256		7894				**18150**

Daily Totals

NB	SB	EB	WB	Combined
14554	15637			**30191**

	AM			PM		
Split %	35.7%	64.3%	**39.9%**	56.5%	43.5%	**60.1%**
Peak Hour	11:45	07:30	**07:30**	16:45	14:45	**16:15**
Volume	785	1297	**1973**	1439	1017	**2389**
P.H.F.	0.91	0.95	**0.97**	0.99	0.96	**0.98**

Existing 24 Hour Machine Counts

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

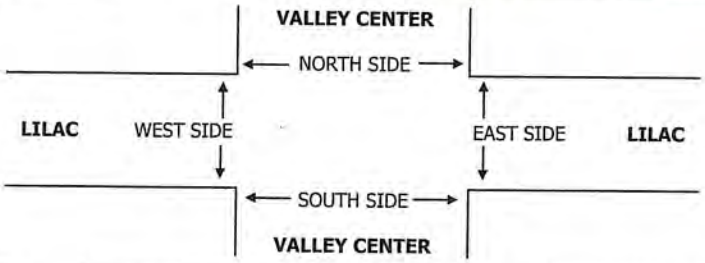
DATE:	LOCATION:	VALLEY CENTER	PROJECT #:	PTD15-0327-01
3/24/15	NORTH & SOUTH:	VALLEY CENTER	LOCATION #:	5
TUESDAY	EAST & WEST:	LILAC	CONTROL:	SIGNAL

NOTES:

N ▲ S ▼ W ◄ E ►

		NORTHBOUND VALLEY CENTER			SOUTHBOUND VALLEY CENTER			EASTBOUND LILAC			WESTBOUND LILAC			
	LANES:	NL 2	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1.3	ET 0.3	ER 1.3	WL 0	WT 1	WR 0	TOTAL
AM	7:00 AM	36	112	0	0	172	38	68	0	38	1	0	1	466
	7:15 AM	31	143	0	1	195	65	89	0	57	1	0	0	582
	7:30 AM	26	134	0	0	213	63	66	0	68	0	0	0	570
	7:45 AM	42	144	0	1	165	61	62	0	48	0	0	0	523
	8:00 AM	43	132	0	1	195	69	90	0	54	0	0	0	584
	8:15 AM	21	120	0	0	223	58	56	0	77	0	0	0	555
	8:30 AM	27	122	0	0	177	59	57	0	47	0	0	0	489
	8:45 AM	32	113	0	0	124	47	41	0	51	0	0	0	408
	VOLUMES	258	1,020	0	3	1,464	460	529	0	440	2	0	1	4,177
	APPROACH %	20%	80%	0%	0%	76%	24%	55%	0%	45%	67%	0%	33%	
	APP/DEPART	1,278	/	1,550	1,927	/	1,906	969	/	3	3	/	718	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	142	553	0	3	768	258	307	0	227	1	0	0	2,259
	APPROACH %	20%	80%	0%	0%	75%	25%	57%	0%	43%	100%	0%	0%	
	PEAK HR FACTOR		0.934			0.932			0.914			0.250		0.967
	APP/DEPART	695	/	860	1,029	/	996	534	/	3	1	/	400	0
PM	4:00 PM	53	204	1	0	153	46	59	0	53	0	0	1	570
	4:15 PM	61	223	1	1	169	47	58	0	54	0	0	0	614
	4:30 PM	64	237	1	1	176	65	63	0	45	0	0	0	652
	4:45 PM	64	216	0	0	191	83	74	0	47	1	0	0	676
	5:00 PM	70	220	0	0	175	50	64	0	62	0	0	0	641
	5:15 PM	43	220	0	0	189	65	56	0	51	0	0	0	624
	5:30 PM	75	217	0	1	148	45	63	1	34	0	0	0	584
	5:45 PM	74	204	0	0	105	65	68	0	42	0	0	0	558
	VOLUMES	504	1,741	3	3	1,306	466	505	1	388	1	0	1	4,919
	APPROACH %	22%	77%	0%	0%	74%	26%	56%	0%	43%	50%	0%	50%	
	APP/DEPART	2,248	/	2,247	1,775	/	1,695	894	/	7	2	/	970	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	241	893	1	1	731	263	257	0	205	1	0	0	2,593
	APPROACH %	21%	79%	0%	0%	73%	26%	56%	0%	44%	100%	0%	0%	
	PEAK HR FACTOR		0.940			0.908			0.917			0.250		0.959
	APP/DEPART	1,135	/	1,150	995	/	937	462	/	2	1	/	504	0

U-TURNS				
NB X	SB X	EB X	WB X	TTL
				0
				0
				0
	1			1
	1			1
				0
				0
				0
0	2	0	0	2
			1	1
	1			1
				0
				0
				0
				0
1				1
1				1
2	1	0	1	4



		PEDESTRIAN CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM					0
	7:15 AM					0
	7:30 AM					0
	7:45 AM					0
	8:00 AM					0
	8:15 AM					0
	8:30 AM					0
	8:45 AM					0
	TOTAL	0	0	0	0	0
PM	4:00 PM					0
	4:15 PM					0
	4:30 PM					0
	4:45 PM					0
	5:00 PM					0
	5:15 PM					0
	5:30 PM					0
	5:45 PM					0
	TOTAL	0	0	0	0	0

PEDESTRIAN ACTIVATIONS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:		PROJECT #:	
3/24/15	NORTH & SOUTH:	VALLEY CENTER	LOCATION #:	6
TUESDAY	EAST & WEST:	MIRAR DE LA VALLE	CONTROL:	1-WAY STOP (EB)

NOTES:

◄ W N ▲ S ▼ E ►

		NORTHBOUND VALLEY CENTER			SOUTHBOUND VALLEY CENTER			EASTBOUND MIRAR DE LA VALLE			WESTBOUND MIRAR DE LA VALLE			
	LANES:	NL 1	NT 2	NR X	SL X	ST 2	SR 0	EL 1	ET X	ER 1	WL X	WT X	WR X	TOTAL
AM	7:00 AM	7	147			204	6	5		11				380
	7:15 AM	6	154			222	5	13		26				426
	7:30 AM	10	156			275	12	5		17				475
	7:45 AM	9	167			222	3	6		7				414
	8:00 AM	3	161			226	4	17		11				422
	8:15 AM	8	133			270	9	4		13				437
	8:30 AM	5	148			218	5	5		5				386
	8:45 AM	3	130			169	1	6		8				317
	VOLUMES	51	1,196	0	0	1,806	45	61	0	98	0	0	0	3,257
	APPROACH %	4%	96%	0%	0%	98%	2%	38%	0%	62%	0%	0%	0%	
	APP/DEPART	1,247	/	1,257	1,851	/	1,904	159	/	0	0	/	96	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	30	617	0	0	993	28	32	0	48	0	0	0	1,748
	APPROACH %	5%	95%	0%	0%	97%	3%	40%	0%	60%	0%	0%	0%	
	PEAK HR FACTOR		0.919			0.889			0.714			0.000		0.920
	APP/DEPART	647	/	649	1,021	/	1,041	80	/	0	0	/	58	0
PM	4:00 PM	17	246			203	3	7		16				492
	4:15 PM	7	287			199	6	8		7				514
	4:30 PM	12	271			212	7	6		14				522
	4:45 PM	8	265			209	9	7		5				503
	5:00 PM	12	277			220	6	4		9				528
	5:15 PM	18	254			224	3	5		4				508
	5:30 PM	21	285			165	5	0		9				485
	5:45 PM	11	271			155	3	4		13				457
	VOLUMES	106	2,156	0	0	1,587	42	41	0	77	0	0	0	4,009
	APPROACH %	5%	95%	0%	0%	97%	3%	35%	0%	65%	0%	0%	0%	
	APP/DEPART	2,262	/	2,197	1,629	/	1,664	118	/	0	0	/	148	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	39	1,100	0	0	840	28	25	0	35	0	0	0	2,067
	APPROACH %	3%	97%	0%	0%	97%	3%	42%	0%	58%	0%	0%	0%	
	PEAK HR FACTOR		0.969			0.960			0.750			0.000		0.979
	APP/DEPART	1,139	/	1,125	868	/	875	60	/	0	0	/	67	0

U-TURNS					
NB X	SB X	EB X	WB X	TTL	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
0	0	0	0	0	
				0	
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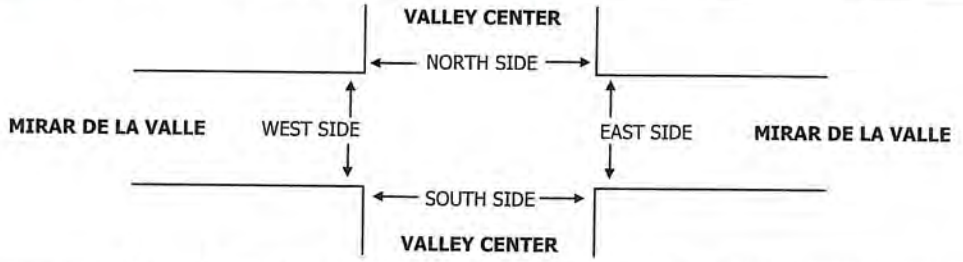
				0	
				0	
				0	
				0	
				0	
				0	
0	0	0	0	0	



		PEDESTRIAN CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM					0
	7:15 AM					0
	7:30 AM					0
	7:45 AM					0
	8:00 AM					0
	8:15 AM					0
	8:30 AM					0
	8:45 AM					0
	TOTAL	0	0	0	0	0
PM	4:00 PM					0
	4:15 PM					0
	4:30 PM					0
	4:45 PM					0
	5:00 PM					0
	5:15 PM					0
	5:30 PM					0
	5:45 PM					0
	TOTAL	0	0	0	0	0

PEDESTRIAN ACTIVATIONS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	VALLEY CENTER	PROJECT #:	PTD13-0329-01
3/24/15	NORTH & SOUTH:	VALLEY CENTER	LOCATION #:	7
TUESDAY	EAST & WEST:	LAKE WOHLFORD	CONTROL:	SIGNAL

NOTES:

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		NORTHBOUND VALLEY CENTER			SOUTHBOUND VALLEY CENTER			EASTBOUND LAKE WOHLFORD			WESTBOUND LAKE WOHLFORD			
	LANES:	NL X	NT 2	NR 1	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
AM	7:00 AM		118	26	2	238					55		3	442
	7:15 AM		121	21	3	252					50		3	450
	7:30 AM		148	18	3	269					68		4	510
	7:45 AM		139	26	2	255					70		2	494
	8:00 AM		142	33	4	241					54		1	475
	8:15 AM		138	31	2	256					77		4	508
	8:30 AM		131	27	6	218					84		2	468
	8:45 AM		121	20	2	202					60		1	406
	VOLUMES	0	1,058	202	24	1,931	0	0	0	0	518	0	20	3,753
	APPROACH %	0%	84%	16%	1%	99%	0%	0%	0%	0%	96%	0%	4%	
	APP/DEPART	1,260	/	1,078	1,955	/	2,449	0	/	226	538	/	0	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	0	567	108	11	1,021	0	0	0	0	269	0	11	1,987
	APPROACH %	0%	84%	16%	1%	99%	0%	0%	0%	0%	96%	0%	4%	
	PEAK HR FACTOR		0.964			0.949			0.000			0.864		0.974
	APP/DEPART	675	/	578	1,032	/	1,290	0	/	119	280	/	0	0
PM	4:00 PM		268	65	9	181					42		9	574
	4:15 PM		284	84	5	200					35		12	620
	4:30 PM		251	81	4	202					33		18	589
	4:45 PM		268	95	6	195					40		15	619
	5:00 PM		278	77	8	199					44		11	617
	5:15 PM		288	65	12	184					51		6	606
	5:30 PM		291	54	11	161					40		9	566
	5:45 PM		277	55	10	155					38		12	547
	VOLUMES	0	2,205	576	65	1,477	0	0	0	0	323	0	92	4,738
	APPROACH %	0%	79%	21%	4%	96%	0%	0%	0%	0%	78%	0%	22%	
	APP/DEPART	2,781	/	2,297	1,542	/	1,800	0	/	641	415	/	0	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	0	1,081	337	23	796	0	0	0	0	152	0	56	2,445
	APPROACH %	0%	76%	24%	3%	97%	0%	0%	0%	0%	73%	0%	27%	
	PEAK HR FACTOR		0.963			0.989			0.000			0.945		0.986
	APP/DEPART	1,418	/	1,137	819	/	948	0	/	360	208	/	0	0

U-TURNS					
NB X	SB X	EB X	WB X	TTL	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
				0	
0	0	0	0	0	
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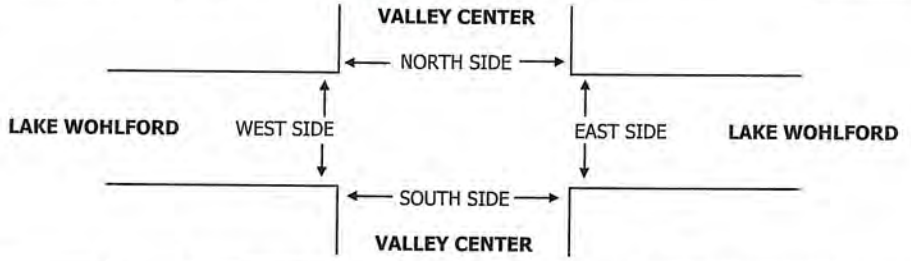
				0	
				0	
				0	
				0	
0	0	0	0	0	



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 1
AVERAGE DAILY VEHICLE TRIPS*

CIRCULATION ELEMENT ROADS			LEVELS OF SERVICE				
Road Classification		# of Travel Lanes	A	B	C	D	E
Expressway (6.1)		6	<36,000	<54,000	<70,000	<86,000	<108,000
Prime Arterial (6.2)		6	<22,200	<37,000	<44,600	<50,000	<57,000
Major Road	(4.1A)	4	<14,800	<24,700	<29,600	<33,400	<37,000
	w/ Intermittent Turn Lanes (4.1B)	4	<13,700	<22,800	<27,400	<30,800	<34,200
Collector		4	<13,700	<22,800	<27,400	<30,800	<34,200
Boulevard	w/ Raised Median (4.2A)	4	<18,000	<21,000	<24,000	<27,000	<30,000
	w/ Intermittent Turn Lanes (4.2B)	4	<16,800	<19,600	<22,500	<25,000	<28,000
Town Collector		2	<3,000	<6,000	<9,500	<13,500	<19,000
Community Collector	w/ Raised Median (2.1A)	2	<10,000	<11,700	<13,400	<15,000	<19,000
	w/ Continuous Left Turn Lane (2.1B)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Intermittent Turn Lane (2.1C)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Passing Lane (2.1D)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.1E)	2	<1,900	<4,100	<7,100	<10,900	<16,200
Light Collector	w/ Raised Median (2.2A)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Continuous Left Turn Lane (2.2B)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Intermittent Turn Lane (2.2C)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	w/ Passing Lane (2.2D)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.2E)	2	<1,900	<4,100	<7,100	<10,900	<16,200
		2	<1,900	<4,100	<7,100	<10,900	<16,200
	w/ Reduced Shoulder (2.2F)	2	<5,800	<6,800	<7,800	<8,700	<9,700
Rural Collector		2	<1,900	<4,100	<7,100	<10,900	<16,200
Rural Light Collector		2	<1,900	<4,100	<7,100	<10,900	<16,200
Rural Mountain		2	<1,900	<4,100	<7,100	<10,900	<16,200
Recreational Parkway		2	<1,900	<4,100	<7,100	<10,900	<16,200
Minor Collector	w/ Raised Median (2.3A)	2	<3,000	<6,000	<7,000	<8,000	<9,000
	w/ Intermittent Turn Lane (2.3B)	2	<3,000	<6,000	<7,000	<8,000	<9,000
	No Median (2.3C)	2	<1,900	<4,100	<6,000	<7,000	<8,000
NON-CIRCULATION ELEMENT ROADS**			**LEVELS OF SERVICE**				
Residential Collector		2	-	-	<4,500	-	-
Rural Residential Collector***		2	-	-	<4,500	-	-
Residential Road		2	-	-	<1,500	-	-
Rural Residential Road***		2	-	-	<1,500	-	-
Residential Cul-de-Sac or Loop Road		2	-	-	<200	-	-

* The values shown are subject to adjustment based on the geometry of the roadway, side frictions, and other relevant factors as determined by the Director, Department of Public Works.

** Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

*** Rural Residential Collectors and Rural Residential Roads are intended to serve areas with lot sizes of 2 acres or more which do not have a demand for on-street parking. On-street parking is not assured for these cross sections. Additional right-of-way is needed if on-street parking is in paved area.

**** See Tables 2A and 2B for roadway surfacing and right-of-way widths.

Excerpts from the County's Significance Thresholds

COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE AND REPORT FORMAT AND CONTENT REQUIREMENTS

TRANSPORTATION AND TRAFFIC

LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

Second Revision
June 30, 2009

Second Modification
August 24, 2011

APPROVAL

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Transportation and Traffic** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and were considered by the Director of Planning and Land Use, in coordination with the Director of Public Works on the 24th day of August, 2011.

ERIC GIBSON
Director of Planning and Land Use

RICHARD E. CROMPTON
Director of Public Works

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Transportation and Traffic** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and have hereby been approved by the Deputy Chief Administrative Officer (DCAO) of the Land Use and Environment Group on the 24th day of August, 2011. The Director of Planning and Land Use is authorized to approve revisions to these Guidelines for Determining Significance and Report Format and Content Requirements for Transportation and Traffic, except any revisions to Section 4.0 of the Guidelines for Determining Significance for Transportation and Traffic must be approved by the Deputy CAO.

Second Modification
August 24, 2011

Approved: August 24, 2011

First Modification
February 19, 2010

Second Revision
June 30, 2009

First Revision
December 5, 2007

Approved
September 26, 2006

SARAH AGHASSI
Deputy CAO

EXPLANATION

These Guidelines for Determining Significance for Transportation and Traffic and information presented herein shall be used by County staff in their review of discretionary projects and environmental documents pursuant to the California Environmental Quality Act (CEQA). These Guidelines present a range of quantitative, qualitative, and performance levels for particular environmental effects. Normally, (in the absence of substantial evidence to the contrary), non-compliance with a particular standard stated in these Guidelines will usually mean the project will result in a significant effect, whereas compliance will normally mean the effect will be determined to be "less than significant." Section 15064(b) of the State CEQA Guidelines states:

> "The determination whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on factual and scientific data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

These Guidelines assist in providing a consistent, objective and predictable evaluation of significant effects. These Guidelines are not binding on any decision-maker and should not be substituted for the use of independent judgment to determine significance or the evaluation of evidence in the record. The County reserves the right to request further, project specific, information in its evaluation of a project's environmental effects and to modify these Guidelines in the event a scientific discovery or factual data alters the common application of a Guideline. In addition, evaluations to verify the applicability of the significance guidelines for individual project conditions may be necessary. Additional evaluations may include analysis of vehicle headways, speeds, average gaps, queues, delay, or other factors.

4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

The following significance guidelines should guide the evaluation of whether a significant impact to transportation and traffic will occur as a result of project implementation. A project will generally be considered to have a significant effect if it proposes any of the following, absent specific evidence to the contrary. Conversely, if a project does not propose any of the following, it will generally not be considered to have a significant effect on transportation and traffic, absent specific evidence of such an effect.

This section provides guidance for evaluating adverse environmental effects a project may have in relation to traffic and transportation. The guidelines for determining significance are organized into eight categories: road segments, intersections, two-lane highways, ramps, congestion management plan, hazards due to an existing transportation design feature, hazards to pedestrians or bicyclists, and public transportation.

Land Development Projects

Land Development projects are projects that may result in an increase in the density or intensity or use on a parcel or parcels of land. These projects include, but are not limited to subdivisions, use permits, rezones and general plan amendments. Land development projects, typically, require discretionary approval. Due to the increased intensity of uses, land development projects generate additional traffic onto the County's road network and can contribute towards traffic congestion. A traffic impact study is often required to fully assess potential traffic impacts that may result from implementation of the proposed project.

Road Improvement Projects

Road improvement projects are projects that can affect transportation system operations; including level of service and other performance measures. Projects may consist of increasing road capacity or improving the traffic operations on the County's road network. This section refers to stand alone road improvement projects that are not improvements associated with a proposed development. These projects are typically publicly initiated. Road improvement projects do not generate additional trips but, in some cases, may cause a redistribution of trips on the County's road network. Road improvement projects are typically one or more of the following; road widening, construction of new road, intersection improvements and operational improvements/road maintenance. Additional guidance on how to evaluate Publicly Initiated Road Improvement Projects is included as Attachment B of the Report Format and Content Requirements.

4.1 Road Segments

Pursuant to the County's General Plan Public Facilities Element (PFE Pg. XII-4-18), new development must provide improvements or other measures to mitigate traffic impacts to avoid:

(a) Reduction in Level of Service (LOS) below "C" for on-site Circulation Element roads;

(b) Reduction in LOS below "D" for off-site and on-site abutting Circulation 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 PFE, 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 motor vehicle 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 1. The levels in Table 1 are based upon average operating conditions on County roadways. It should be noted that these levels 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.

On-site Circulation Element Roads

PFE, Transportation, Policy 1.1 states that "new development shall provide needed roadway expansion and improvements on-site to meet demand created by the development, and to maintain a Level of Service C on Circulation 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 Circulation 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 PFE, Implementation Measure 1.1.2.***

Off-site Circulation Element Roads

PFE, Transportation, Policy 1.1 also addresses offsite Circulation Element roads. It states, "new development shall provide off-site improvements designed to contribute to the overall achievement of a Level of Service D on Circulation Element Roads". Implementation Measure 1.1.3 addresses projects that would significantly impact

congestion on roads at LOS E or F. It states that 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. 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 level of service traffic impact on a road segment:

- ***The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Circulation Element Road or State Highway currently operating at LOS E or LOS F, or will cause a Circulation 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 1, or***

- ***The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity.***

Table 1
Measures of Significant Project Impacts to Congestion on Circulation 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

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.**

LOS E

The first significance criterion listed in Table 1 addresses roadways presently operating at LOS E. Based on these criteria, an impact from new development on an LOS E road would be reached when the increase in average daily trips (ADT) on a two-lane road exceeds 200 ADT. Using SANDAG's "Brief Guide for Vehicular Traffic Generation Rates for the San Diego Region" for most discretionary projects this would generate less than 25 peak hour trips. On average, during peak hour conditions, this would be only one additional car every 2.4 minutes.

Therefore, the addition of 200 ADT, in most cases, would result in changes to traffic flow that would not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway. Significance criteria were also established for 4-lane and 6-lane roads operating at LOS E and are based upon the above 24 hour ADT significance criterion established for two-lane roads. The two-lane road criterion was doubled to determine impacts to four-lane roads and tripled to determine impacts to six-lane roads. This was considered to be conservative since the 24 hour per lane road capacity for a 4-lane road is more than double that of a two-lane road and the per lane capacity of a six-lane road is more than triple that of the two-lane road. For LOS E roads, the additional significance criteria are 400 ADT for a 4-lane road and 600 ADT for a 6-lane road.

Similar to the criteria for two-lane roads, 400 ADT for a 4-lane road and 600 ADT for a 6-lane road criteria would generate less than 25 per lane peak hour trips for most discretionary projects. On average, during peak hour conditions, this would be only one additional car per lane every 2.4 minutes. The addition of 200 ADT per lane (400 ADT for a 4 lane road or 600 ADT for a 6 lane road), in most cases, would result in changes to traffic flow that would not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway. Road capacities based upon level of service for County roads can be found in the County's Public Road Standards, available online at http://www.sdcounty.ca.gov/dpw/land/rtelocs.html.

LOS F

The second significance criteria listed in Table 1 addresses roadways presently operating at LOS F. Under LOS F congested conditions, small changes and disruptions to the traffic flow on County Circulation Element Roads can have a greater effect on traffic operations when compared to other LOS conditions. In order to better account for potential effects of increased traffic on LOS F roads more stringent significance criteria was established when compared to that for LOS E. Based on this guidance, an impact from new development on an LOS F road would be reached when the increase in average daily trips (ADT) on a two-lane road exceeds 100. Again, using SANDAG's "Brief Guide for Vehicular Traffic Generation Rates for the San Diego Region" for most discretionary projects this would generate less than 12.5 peak hour trips. On average, during peak hour conditions, this would be only one additional car every 4.8 minutes.

The addition of 100 ADT, in most cases, would not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway. The same approach used to determine significance criteria for 4-lane and 6-lane roads operating at LOS E was used to determine appropriate significance criteria for four-lane and six-lane roads operating at LOS F. Based on this approach, the significance criteria for a four-lane road (200 ADT) and for a six-lane road (300 ADT) would generate less than 12.5 per lane peak hour trips for most discretionary projects. On average, during peak hour conditions, this would be only one additional car per lane every 4.8 minutes. The addition of 100 per lane ADT (200 ADT for a 4-lane road and 300 ADT for a 6-lane road) would, in most cases, not be noticeable to the average driver and therefore would not constitute a significant impact on the roadway.

In summary, under extremely congested LOS F conditions, small changes and disruptions to the traffic flow can significantly affect traffic operations and additional project traffic can increase the likelihood or frequency of these events. Therefore, the LOS F ADT significance criteria was set at 100 ADT (50% of the LOS E criterion) to provide a higher level of assurance that the traffic allowed under the criterion would not significantly impact traffic operation on the road segment.

Non-Circulation Element Residential Streets

Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots and not to carry through traffic, however, for projects that will substantially increase traffic volumes on residential streets, a comparison of the traffic volumes on the residential streets with the recommended design capacity must be provided. Recommended design capacities for residential non-Circulation Element streets are provided in the San Diego County Public and Private Road Standards. Traffic volume that exceeds the design capacity on residential streets may impact residences and should be analyzed on a case-by-case basis.

4.2 Intersections

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

Table 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

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. Also if a project adds significant volume to a minor roadway approach, a gap study should be provided that details the headways between vehicles on the major roadway.
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 direct 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.

4.2.1 Signalized

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 level of service 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 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.***

LOS E

The significance criterion for signalized intersections identified in Table 2 allows an increase in the overall delay at an intersection operating at LOS E of two seconds. This is consistent with the capacity limit contained in the SANDAG's CMP and guidelines established by the City of San Diego. A delay of two seconds is a small fraction of the typical cycle length for a signalized intersection that ranges between 60 and 120 seconds. The likelihood of increased queues forming due to the additional two seconds of delay is low. Therefore, an increased wait time of two seconds, on average, would result in changes to traffic flow that would not be noticeable to the average driver. Therefore the significance guideline for intersections operating at LOS E is 2 seconds.

LOS F

The primary significance criterion for signalized intersections operating at LOS F conditions was based upon increased delay at the intersection. Under LOS F congested conditions, small changes and disruptions to the traffic flow to signalized intersections can have a greater effect on overall intersection operations when compared to other LOS conditions. In order to better account for potential effects of increased traffic at signalized intersections operating at LOS F, a more stringent guideline was established when compared to signalized intersection operating at LOS E. A significance guideline of an increased delay of 1 second was established for signalized intersections operating at LOS F. An increase in the overall delay at an intersection of one second, on average, would result in changes to traffic flow that would not be noticeable to the average driver. Therefore the significance guideline for intersections operating at LOS F is 1 second.

Signalized intersections operating at LOS F also have the potential for substantial queuing at specific turning movements that may detrimentally effect overall intersection and/or road segment operations. Thus, an increase of peak hour trips to a critical move was also established as a secondary significance criterion for signalized intersections. A critical movement would be a movement or a lane at an intersection that is experiencing queuing or substantial delay and is affecting the overall operation of the

intersection. The increase in peak hour trips to a critical move is a measurement of how many cars can be added to an existing queue. The addition of more than five trips (peak hour) per critical movement will normally be considered a significant impact. This significance criterion was selected because the five or less additional trips spread out over the peak hour would not significantly increase the length of an existing queue and would not be noticeable to the average driver (5 peak hour trips equals one trip every 12 minutes or 720 seconds).

For LOS F intersections, the 5 peak hour trips to a critical movement would not be noticeable to the average driver since the one additional trip during the 12 minute interval on average would clear the traffic signal cycles well within the 12 minute period. It should also be noted that if the 5 additional peak hour trips arrived at the same time these trips would also clear the traffic cycle and existing queue lengths would be re-established.

4.2.2 Unsignalized

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant impact to an unsignalized intersection as listed in Table 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.***

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. As noted in Table 2 on page 15, significance criteria for unsignalized intersections are based upon a minimum number of trips added to a critical movement at an unsignalized intersection.

LOS E

The significance guidelines for unsignalized intersections identify a minimum number of trips added to a critical movement at an unsignalized intersection. Since the operations of unsignalized intersections under congested conditions are heavily influenced by traffic volume increases on critical moves, the significance guidelines for unsignalized intersections were based upon the number of trips added to a critical movement. This guideline directly relates to the number of vehicles that can be added to an existing queue that forms at the intersection. A significance criteria of (21) twenty-one or more trips (peak hour) per critical movement was used for LOS E conditions. Although delays drivers experience under LOS E condition may be noticeable, they are not yet considered unacceptable. Twenty trips spread out over the peak hour would not likely cause the intersection delay or existing queue lengths to become unacceptable. The twenty trips (peak hour) would not be noticeable to the average driver.

The operations of unsignalized intersections under congested conditions are heavily influenced by traffic volume increases on critical moves. Therefore, the significance guidelines for unsignalized intersections are based upon the number of peak hour trips added to a critical movement at that intersection. This guideline examines the number of vehicles that may be added to an existing queue that forms at the intersection by the additional traffic generated by a project. In LOS E situations, the delays that drivers experience are noticeable, but are not considered excessive. A peak hour increase of twenty trips to the critical movement of an unsignalized intersection would be, on average, one additional car every 3.0 minutes or 180 seconds. Assuming the average wait time for a vehicle in the critical movement queue is less than 3.0 minutes, which is typical for LOS E condition, this would not be noticeable to the average driver and would not be considered a significant impact.

LOS F

For LOS F conditions, a significance level of 6 or more trips (peak hour) per critical movement was used. Five trips or less spread out over the peak hour would not significantly increase the length of an existing queue and would not be noticeable to the average driver. For example, 5 trips spread out over an hour would be one car every 12 minutes. This typically exceeds the average wait time in the queue and would not be noticeable to the average driver.

4.3 Two-Lane Highways

This section provides level of service impact guidelines for State highways and County arterials operating as two-lane highways.

Several designated County Circulation Element Roads are State highways that are managed and maintained by Caltrans. These highways include State Route 67, State Route 76, State Route 78, State Route 79 and State Route 94 and within the unincorporated area of the County most of these routes operate as two-lane highways. Caltrans has prepared a "Guide for the Preparation of Traffic Impact Studies" that should also be referenced when evaluating traffic impacts to the above Circulation Element Roads that are under the jurisdiction of Caltrans. Also, Caltrans District 11 local office should be consulted early to adequately scope the traffic study and ensure potential local district issues in the traffic impact study are addressed. While the "Guide for the Preparation of Traffic Impact Studies" provides guidance for scoping a traffic study to assess impacts on Caltrans facilities, it does not provide specific guidelines for determining when a significant traffic impact occurs; hence, the development of the following significance guidelines for two-lane highways.

In addition to the State Routes identified above, several County Circulation Element Roads, although designated as arterials, operate as two-lane highways. These include roadways that have passing opportunities for 40% or more along the length of the roadway and/or have few/limited access points and intersections along the length of the roadway. Examples would include sections of Old Highway 80, Old Highway 395 and Del Dios Highway. The Highway Capacity Manual (HCM) includes analysis criteria for assessment of LOS for two-lane highways. Section 2.2 of the County of San Diego's "Transportation and Traffic Report Format and Content Requirements" states that "The Director of Public Works may, based upon a review of the operational characteristics of the roadway, designate that a HCM analysis be used to determine the LOS for a two-lane County arterial in lieu of the LOS table provided in the County of San Diego Public Road Standards." Level of service tables for two-lane highways have also been established by the County of Riverside and the County of Sacramento.

4.3.1 Signalized Intersection Spacing Over One Mile

This section provides LOS impact significance levels for State highways and County arterials operating as two-lane highways with signalized intersection spacing over one mile. County arterials were addressed in section 4.1 and Table 1, however, those that operate as two-lane highways would have higher project contribution amounts and different LOS E and LOS F levels and are treated in this section.

Table 3
Measures of Significant Project Impacts to Congestion: Allowable Increases on Two-lane Highways with Signalized Intersection Spacing Over One Mile

Level of Service	LOS Criteria	Impact Significance Level
LOS E	> 16,200 ADT	>325 ADT
LOS F	> 22,900 ADT	>225 ADT

Note:
Where detailed data are available, the Director of Public Works may also accept a detailed level of service analysis based upon the two-lane highway analysis procedures provided in the Chapter 20 Highway Capacity Manual.

Two-lane highways with intersection spacing over one mile have minimal side friction and conform to the HCM assumptions for two-lane highways. Level of service criteria for LOS E and LOS F are provided in Table 3 based upon criteria established with the Counties of Riverside and Sacramento and concurred upon by Caltrans-District 11. These criteria are appropriate for use for most projects with the potential to affect two-lane highways, as road conditions for two-lane highways in these Counties are similar to those in the County of San Diego. The ADT based guidelines should be the first applied method of analysis, however, County staff may allow the use of HCM Chapter 20 methodology (average travel speed and/or percent time spent following) to provide a more detailed evaluation and to determine the overall level of service in certain cases, with the approval of the Director of Public Works. Where impacts to State Highways are involved, consultation with Caltrans is recommended.

LOS E

Impact significance levels are provided in Table 3 for two-lane highways with signalized intersection spacing over one mile. The first impact significance level addresses impacts from new development (both direct and cumulative impacts) on an LOS E road. In this scenario a significant impact would be reached when the increase in average daily trips (ADT) on a two-lane road exceeds 325. For most discretionary projects, the 325 ADT level would generate less than 35 peak hour trips. On average, during peak hour conditions, this would be only one additional car every 1.7 minutes. The addition of 325 ADT would, in most cases, not be noticeable to the average driver on a two-lane highway which has higher speeds and reduced side friction compared to a typical arterial. The additional 325 ADT, therefore, would not constitute a significant impact on a two-lane highway operating at LOS E; however, the addition of more than 325 ADT would generally result in a significant impact.

LOS F

The second impact significance guideline concerns roadways presently operating at LOS F (for a 2-lane highway LOS F would not occur until ADT exceeds 22,900 trips per day. Under LOS F congested conditions, small changes and disruptions to the traffic flow on County Circulation Element Roads can have a greater affect on traffic operations when compared to other LOS conditions. In order to better account for potential effects of increased traffic on LOS F roads, a more stringent guideline was established when compared to that for LOS E. The guideline for determining significance from new development (both direct and cumulative impacts) on a LOS F

road would be reached when the increase in average daily trips (ADT) on a two-lane road exceeds 225. For most discretionary projects, the 225 ADT level would generate less than 25 peak hour trips. On average, during peak hour conditions, this would be only one additional car every 2.4 minutes. The addition of 225 ADT would, in most cases, not be noticeable to the average driver on a two-lane highway which has higher speeds and reduced side friction compared to a typical arterial. The addition 225 ADT or less would therefore not constitute a significant impact on a two-lane highway operating at LOS F. However, the addition of more than 225 ADT would be considered a significant impact.

4.3.2 Signalized Intersection Spacing Under One Mile

This section provides level of service impact guidelines for State highway segments and County arterials operating as two-lane highways with signalized intersection spacing under one mile. Typical examples of this type of roadway are those segments of two lane highways that traverse town centers. Similar to the experience of drivers in urban areas with closely spaced intersections, the functionality of two-lane highway conditions with signalized intersections spacing under one mile becomes constrained not due to the segment capacity but the intersection operations. Therefore the assessment of operations of intersections on two-lane highways shall be guided by a Level of Service standard. Level of Service for purposes of this significance guideline is based upon the overall intersection operations – similar to Urban Street analysis in Chapter 15 Highway Capacity Manual. For determining impact significance at the signalized intersection, Table 4 "Measures of Significant Project Impacts to Congestion on Intersections Allowable Increases on Congested Intersections" may be used as summarized below:

Table 4
Measures of Significant Project Impacts to Congestion: Allowable Increases on Two-lane Highways with Signalized Intersection Spacing Under One Mile

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

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.

The second impact significance guideline (Table 4) concerns two-lane highways with signalized intersection spacing less than 1 mile. Two-lane highways with intersection spacing less than 1 mile operate similar to urban streets as identified in the HCM. Per the HCM, level Urban Streets have lower speeds with levels of service most

APPENDIX B

- Existing Conditions Synchro and HCM Worksheets
- Existing Plus Project Conditions Synchro and HCM Worksheets

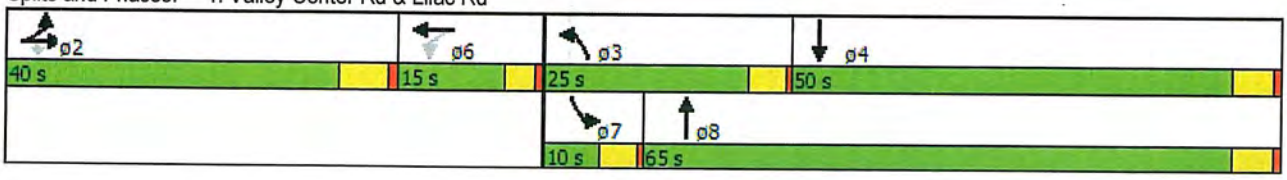
➢Existing Synchro and HCM Work Sheets

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	307	0	227	1	0	142	553	3	768
Turn Type	Split	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases	2	2			6	3	8	7	4
Permitted Phases			2	6					
Detector Phase	2	2	2	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0	6.0
Minimum Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	50.0	10.0	50.0
Total Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	65.0	10.0	50.0
Total Split (%)	30.8%	30.8%	30.8%	11.5%	11.5%	19.2%	50.0%	7.7%	38.5%
Yellow Time (s)	5.0	5.0	5.0	3.2	3.2	3.9	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.2	4.4	5.3	4.4	5.3
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	16.4	16.4	16.4		9.6	9.2	46.9	5.3	34.0
Actuated g/C Ratio	0.20	0.20	0.20		0.12	0.11	0.58	0.07	0.42
v/c Ratio	0.59	0.48	0.41		0.00	0.40	0.29	0.03	0.77
Control Delay	41.1	17.9	8.9		39.0	42.9	13.5	51.3	26.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	17.9	8.9		39.0	42.9	13.5	51.3	26.7
LOS	D	B	A		D	D	B	D	C
Approach Delay		23.0			39.0		19.5		26.8
Approach LOS		C			D		B		C

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 81.2
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 23.7 — Intersection LOS: C
Intersection Capacity Utilization 56.8% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Valley Center Rd & Lilac Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	307	0	227	1	0	0	142	553	0	3	768	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Lane Util. Factor	0.95	0.91	0.95		1.00		0.97	0.95		1.00	0.95	
Frt	1.00	0.95	0.85		1.00		1.00	1.00		1.00	0.96	
Flt Protected	0.95	0.97	1.00		0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1560	1504		1770		3433	3539		1770	3406	
Flt Permitted	0.95	0.97	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1560	1504		1863		3433	3539		1770	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	334	0	247	1	0	0	154	601	0	3	835	280
RTOR Reduction (vph)	0	104	149	0	0	0	0	0	0	0	21	0
Lane Group Flow (vph)	200	94	34	0	1	0	154	601	0	3	1094	0
Turn Type	Split	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases			2	6								
Actuated Green, G (s)	16.4	16.4	16.4		3.6		9.2	46.9		0.7	38.4	
Effective Green, g (s)	16.4	16.4	16.4		3.6		9.2	46.9		0.7	38.4	
Actuated g/C Ratio	0.19	0.19	0.19		0.04		0.11	0.54		0.01	0.44	
Clearance Time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Vehicle Extension (s)	2.0	2.0	2.0		2.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	315	292	281		76		360	1896		14	1494	
v/s Ratio Prot	c0.12	0.06					c0.04	0.17		0.00	c0.32	
v/s Ratio Perm			0.02		c0.00							
v/c Ratio	0.63	0.32	0.12		0.01		0.43	0.32		0.21	0.73	
Uniform Delay, d1	32.8	30.7	29.6		40.2		36.7	11.3		43.1	20.3	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.2	0.1		0.1		0.3	0.0		2.8	1.6	
Delay (s)	35.9	31.0	29.6		40.3		37.0	11.4		45.9	21.9	
Level of Service	D	C	C		D		D	B		D	C	
Approach Delay (s)		32.2			40.3			16.6			22.0	
Approach LOS		C			D			B			C	

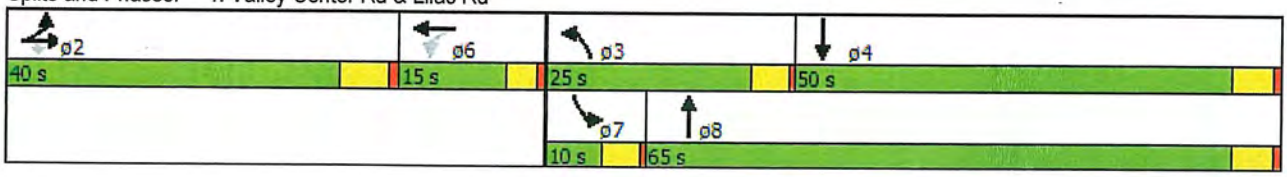
Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	87.5	Sum of lost time (s)	19.9
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	257	0	205	1	0	241	893	1	731
Turn Type	Split	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases	2	2			6	3	8	7	4
Permitted Phases			2	6					
Detector Phase	2	2	2	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0	6.0
Minimum Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	50.0	10.0	50.0
Total Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	65.0	10.0	50.0
Total Split (%)	30.8%	30.8%	30.8%	11.5%	11.5%	19.2%	50.0%	7.7%	38.5%
Yellow Time (s)	5.0	5.0	5.0	3.2	3.2	3.9	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.2	4.4	5.3	4.4	5.3
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	15.2	15.2	15.2		9.6	12.2	48.7	5.2	32.6
Actuated g/C Ratio	0.19	0.19	0.19		0.12	0.15	0.60	0.06	0.40
v/c Ratio	0.55	0.44	0.39		0.00	0.51	0.46	0.01	0.78
Control Delay	42.1	15.9	9.7		41.0	40.7	14.5	54.0	28.2
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	15.9	9.7		41.0	40.7	14.5	54.0	28.2
LOS	D	B	A		D	D	B	D	C
Approach Delay		23.0			41.0		20.1		28.3
Approach LOS		C			D		C		C

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 81.8
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 23.7 — Intersection LOS: C
Intersection Capacity Utilization 56.8% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Valley Center Rd & Lilac Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	0	205	1	0	0	241	893	3	1	731	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Lane Util. Factor	0.95	0.91	0.95		1.00		0.97	0.95		1.00	0.95	
Frt	1.00	0.94	0.85		1.00		1.00	1.00		1.00	0.96	
Flt Protected	0.95	0.97	1.00		0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1550	1504		1770		3433	3538		1770	3401	
Flt Permitted	0.95	0.97	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1550	1504		1863		3433	3538		1770	3401	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	279	0	223	1	0	0	262	971	3	1	795	279
RTOR Reduction (vph)	0	106	131	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	173	65	27	0	1	0	262	974	0	1	1050	0
Turn Type	Split	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases			2	6								
Actuated Green, G (s)	15.2	15.2	15.2		3.5		12.3	48.8		0.6	37.1	
Effective Green, g (s)	15.2	15.2	15.2		3.5		12.3	48.8		0.6	37.1	
Actuated g/C Ratio	0.17	0.17	0.17		0.04		0.14	0.55		0.01	0.42	
Clearance Time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Vehicle Extension (s)	2.0	2.0	2.0		2.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	290	267	259		74		479	1961		12	1433	
v/s Ratio Prot	c0.10	0.04					c0.08	0.28		0.00	c0.31	
v/s Ratio Perm			0.02		c0.00							
v/c Ratio	0.60	0.24	0.11		0.01		0.55	0.50		0.08	0.73	
Uniform Delay, d1	33.6	31.4	30.7		40.6		35.3	12.0		43.4	21.3	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.2	0.1		0.1		0.7	0.1		1.1	1.7	
Delay (s)	35.8	31.6	30.7		40.6		35.9	12.1		44.5	23.0	
Level of Service	D	C	C		D		D	B		D	C	
Approach Delay (s)		32.8			40.6			17.2			23.0	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	19.9
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	32	48	30	617	993	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	52	33	671	1079	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1495	555	1110			
vC1, stage 1 conf vol	1095					
vC2, stage 2 conf vol	401					
vCu, unblocked vol	1495	555	1110			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	89	95			
cM capacity (veh/h)	262	475	625			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	35	52	33	335	335	720	390
Volume Left	35	0	33	0	0	0	0
Volume Right	0	52	0	0	0	0	30
cSH	262	475	625	1700	1700	1700	1700
Volume to Capacity	0.13	0.11	0.05	0.20	0.20	0.42	0.23
Queue Length 95th (ft)	11	9	4	0	0	0	0
Control Delay (s)	20.9	13.5	11.1	0.0	0.0	0.0	0.0
Lane LOS	C	B	B				
Approach Delay (s)	16.4		0.5			0.0	
Approach LOS	C						

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	35	39	1100	840	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	38	42	1196	913	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1611	472	943			
vC1, stage 1 conf vol	928					
vC2, stage 2 conf vol	683					
vCu, unblocked vol	1611	472	943			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	93	94			
cM capacity (veh/h)	277	539	723			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	27	38	42	598	598	609	335
Volume Left	27	0	42	0	0	0	0
Volume Right	0	38	0	0	0	0	30
cSH	277	539	723	1700	1700	1700	1700
Volume to Capacity	0.10	0.07	0.06	0.35	0.35	0.36	0.20
Queue Length 95th (ft)	8	6	5	0	0	0	0
Control Delay (s)	19.4	12.2	10.3	0.0	0.0	0.0	0.0
Lane LOS	C	B	B				
Approach Delay (s)	15.2		0.4			0.0	
Approach LOS	C						

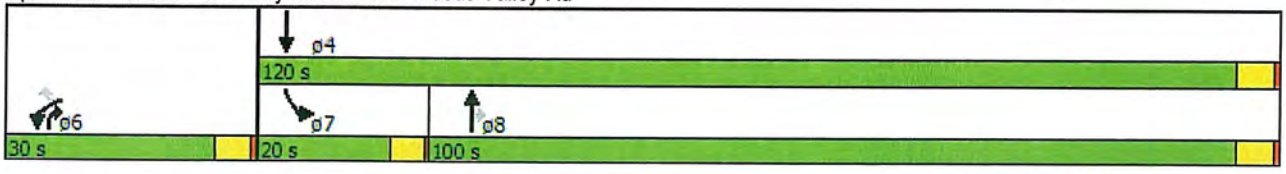
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	149	119	512	63	72	916
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Detector Phase	6	6	8	6	7	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	7.0	4.0	4.0	1.0
Minimum Split (s)	30.0	30.0	100.0	30.0	20.0	100.0
Total Split (s)	30.0	30.0	100.0	30.0	20.0	120.0
Total Split (%)	20.0%	20.0%	66.7%	20.0%	13.3%	80.0%
Yellow Time (s)	4.3	4.3	4.3	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effct Green (s)	9.1	9.1	16.0	33.9	7.0	22.3
Actuated g/C Ratio	0.21	0.21	0.37	0.79	0.16	0.52
v/c Ratio	0.22	0.30	0.42	0.05	0.27	0.54
Control Delay	15.7	5.8	14.1	1.1	22.9	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	5.8	14.1	1.1	22.9	8.8
LOS	B	A	B	A	C	A
Approach Delay	11.3		12.7			9.8
Approach LOS	B		B			A

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 43.1
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 10.9 — Intersection LOS: B
Intersection Capacity Utilization 38.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Valley Center Rd & Woods Valley Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	149	119	512	63	72	916
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	129	557	68	78	996
RTOR Reduction (vph)	0	102	0	29	0	0
Lane Group Flow (vph)	162	27	557	39	78	996
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Actuated Green, G (s)	9.1	9.1	16.0	25.1	4.0	24.4
Effective Green, g (s)	9.1	9.1	16.0	25.1	4.0	24.4
Actuated g/C Ratio	0.21	0.21	0.36	0.57	0.09	0.55
Clearance Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	708	326	1283	1091	160	1958
v/s Ratio Prot	c0.05		0.16	0.01	0.04	c0.28
v/s Ratio Perm		0.02		0.02		
v/c Ratio	0.23	0.08	0.43	0.04	0.49	0.51
Uniform Delay, d1	14.6	14.1	10.6	4.2	19.1	6.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1	0.0	0.9	0.1
Delay (s)	14.6	14.2	10.7	4.2	19.9	6.2
Level of Service	B	B	B	A	B	A
Approach Delay (s)	14.4		10.0			7.2
Approach LOS	B		B			A

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	44.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

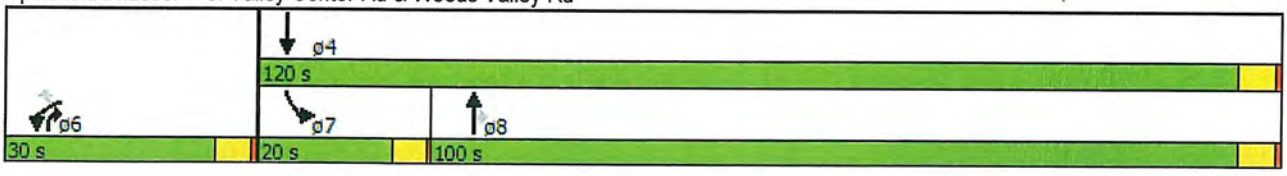
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	84	90	983	150	111	733
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Detector Phase	6	6	8	6	7	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	7.0	4.0	4.0	7.0
Minimum Split (s)	30.0	30.0	100.0	30.0	20.0	100.0
Total Split (s)	30.0	30.0	100.0	30.0	20.0	120.0
Total Split (%)	20.0%	20.0%	66.7%	20.0%	13.3%	80.0%
Yellow Time (s)	4.3	4.3	4.3	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effct Green (s)	8.7	8.7	26.6	41.1	9.5	40.9
Actuated g/C Ratio	0.14	0.14	0.44	0.67	0.16	0.67
v/c Ratio	0.19	0.32	0.69	0.15	0.44	0.34
Control Delay	25.8	9.4	17.4	0.9	33.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	9.4	17.4	0.9	33.1	5.2
LOS	C	A	B	A	C	A
Approach Delay	17.3		15.2			8.9
Approach LOS	B		B			A

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 61
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 12.9 — Intersection LOS: B
Intersection Capacity Utilization 49.2% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Valley Center Rd & Woods Valley Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	84	90	983	150	111	733
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	98	1068	163	121	797
RTOR Reduction (vph)	0	84	0	66	0	0
Lane Group Flow (vph)	91	14	1068	97	121	797
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Actuated Green, G (s)	8.7	8.7	26.9	35.6	9.5	40.8
Effective Green, g (s)	8.7	8.7	26.9	35.6	9.5	40.8
Actuated g/C Ratio	0.14	0.14	0.45	0.59	0.16	0.68
Clearance Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	496	229	1584	1077	279	2402
v/s Ratio Prot	c0.03		c0.30	0.01	c0.07	0.23
v/s Ratio Perm		0.01		0.05		
v/c Ratio	0.18	0.06	0.67	0.09	0.43	0.33
Uniform Delay, d1	22.6	22.2	13.1	5.3	22.9	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.9	0.0	0.4	0.0
Delay (s)	22.6	22.2	14.0	5.3	23.3	4.0
Level of Service	C	C	B	A	C	A
Approach Delay (s)	22.4		12.9			6.6
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

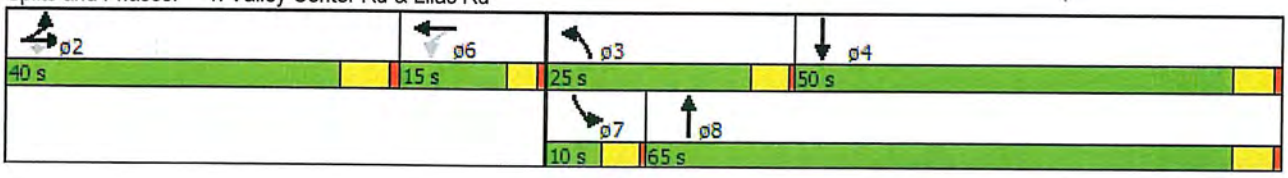
- Existing Plus Project Synchro and HCM Work Sheets

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	307	0	228	1	0	144	560	3	770
Turn Type	Split	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases	2	2			6	3	8	7	4
Permitted Phases			2	6					
Detector Phase	2	2	2	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0	6.0
Minimum Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	50.0	10.0	50.0
Total Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	65.0	10.0	50.0
Total Split (%)	30.8%	30.8%	30.8%	11.5%	11.5%	19.2%	50.0%	7.7%	38.5%
Yellow Time (s)	5.0	5.0	5.0	3.2	3.2	3.9	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.2	4.4	5.3	4.4	5.3
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	16.4	16.4	16.4		9.6	9.2	47.1	5.3	34.2
Actuated g/C Ratio	0.20	0.20	0.20		0.12	0.11	0.58	0.07	0.42
v/c Ratio	0.59	0.48	0.41		0.00	0.40	0.30	0.03	0.77
Control Delay	41.3	17.9	8.9		39.0	43.0	13.5	51.3	26.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	17.9	8.9		39.0	43.0	13.5	51.3	26.8
LOS	D	B	A		D	D	B	D	C
Approach Delay		23.1			39.0		19.5		26.8
Approach LOS		C			D		B		C

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 81.4
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 23.7 — Intersection LOS: C
Intersection Capacity Utilization 56.9% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Valley Center Rd & Lilac Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	307	0	228	1	0	0	144	560	0	3	770	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Lane Util. Factor	0.95	0.91	0.95		1.00		0.97	0.95		1.00	0.95	
Frt	1.00	0.95	0.85		1.00		1.00	1.00		1.00	0.96	
Flt Protected	0.95	0.97	1.00		0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1560	1504		1770		3433	3539		1770	3406	
Flt Permitted	0.95	0.97	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1560	1504		1863		3433	3539		1770	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	334	0	248	1	0	0	157	609	0	3	837	280
RTOR Reduction (vph)	0	104	150	0	0	0	0	0	0	0	21	0
Lane Group Flow (vph)	200	94	34	0	1	0	157	609	0	3	1096	0
Turn Type	Split	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases			2	6								
Actuated Green, G (s)	16.4	16.4	16.4		3.6		9.2	47.2		0.7	38.7	
Effective Green, g (s)	16.4	16.4	16.4		3.6		9.2	47.2		0.7	38.7	
Actuated g/C Ratio	0.19	0.19	0.19		0.04		0.10	0.54		0.01	0.44	
Clearance Time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Vehicle Extension (s)	2.0	2.0	2.0		2.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	313	291	280		76		359	1902		14	1501	
v/s Ratio Prot	c0.12	0.06					c0.05	0.17		0.00	c0.32	
v/s Ratio Perm			0.02		c0.00							
v/c Ratio	0.64	0.32	0.12		0.01		0.44	0.32		0.21	0.73	
Uniform Delay, d1	33.0	30.9	29.7		40.4		36.9	11.3		43.3	20.2	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.2	0.1		0.1		0.3	0.0		2.8	1.6	
Delay (s)	36.1	31.1	29.8		40.4		37.2	11.4		46.1	21.8	
Level of Service	D	C	C		D		D	B		D	C	
Approach Delay (s)		32.4			40.4			16.7			21.9	
Approach LOS		C			D			B			C	

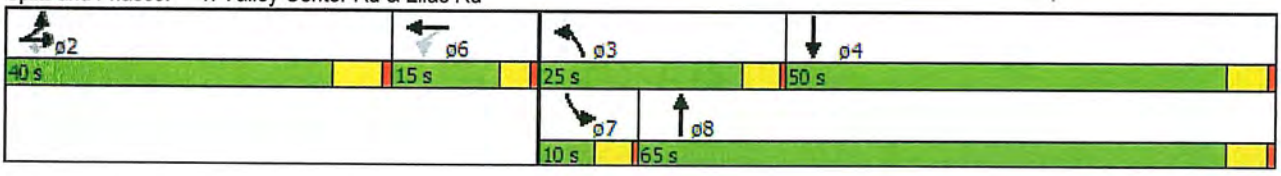
Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	19.9
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	257	0	208	1	0	242	896	1	739
Turn Type	Split	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases	2	2			6	3	8	7	4
Permitted Phases			2	6					
Detector Phase	2	2	2	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0	6.0
Minimum Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	50.0	10.0	50.0
Total Split (s)	40.0	40.0	40.0	15.0	15.0	25.0	65.0	10.0	50.0
Total Split (%)	30.8%	30.8%	30.8%	11.5%	11.5%	19.2%	50.0%	7.7%	38.5%
Yellow Time (s)	5.0	5.0	5.0	3.2	3.2	3.9	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.2	4.4	5.3	4.4	5.3
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	15.4	15.4	15.4		9.6	12.3	49.2	5.2	33.0
Actuated g/C Ratio	0.19	0.19	0.19		0.12	0.15	0.60	0.06	0.40
v/c Ratio	0.56	0.44	0.39		0.00	0.51	0.46	0.01	0.78
Control Delay	42.4	15.9	9.7		41.0	41.0	14.5	55.0	28.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	15.9	9.7		41.0	41.0	14.5	55.0	28.3
LOS	D	B	A		D	D	B	D	C
Approach Delay		23.2			41.0		20.2		28.3
Approach LOS		C			D		C		C

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 82.4
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 23.8 — Intersection LOS: C
Intersection Capacity Utilization 57.1% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Valley Center Rd & Lilac Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	0	208	1	0	0	242	896	3	1	739	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Lane Util. Factor	0.95	0.91	0.95		1.00		0.97	0.95		1.00	0.95	
Frt	1.00	0.94	0.85		1.00		1.00	1.00		1.00	0.96	
Flt Protected	0.95	0.97	1.00		0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1681	1547	1504		1770		3433	3538		1770	3402	
Flt Permitted	0.95	0.97	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1681	1547	1504		1863		3433	3538		1770	3402	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	279	0	226	1	0	0	263	974	3	1	803	279
RTOR Reduction (vph)	0	106	131	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	176	65	27	0	1	0	263	977	0	1	1058	0
Turn Type	Split	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases	2	2			6		3	8		7	4	
Permitted Phases			2	6								
Actuated Green, G (s)	15.4	15.4	15.4		3.5		12.3	49.2		0.6	37.5	
Effective Green, g (s)	15.4	15.4	15.4		3.5		12.3	49.2		0.6	37.5	
Actuated g/C Ratio	0.17	0.17	0.17		0.04		0.14	0.56		0.01	0.42	
Clearance Time (s)	6.0	6.0	6.0		4.2		4.4	5.3		4.4	5.3	
Vehicle Extension (s)	2.0	2.0	2.0		2.5		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	292	268	261		73		476	1964		11	1439	
v/s Ratio Prot	c0.10	0.04					c0.08	0.28		0.00	c0.31	
v/s Ratio Perm			0.02		c0.00							
v/c Ratio	0.60	0.24	0.11		0.01		0.55	0.50		0.09	0.74	
Uniform Delay, d1	33.8	31.6	30.8		40.9		35.6	12.1		43.7	21.4	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.2	0.1		0.1		0.8	0.1		1.3	1.7	
Delay (s)	36.2	31.7	30.9		40.9		36.4	12.2		45.0	23.1	
Level of Service	D	C	C		D		D	B		D	C	
Approach Delay (s)		33.0			40.9			17.3			23.1	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	88.6	Sum of lost time (s)	19.9
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	42	62	33	617	993	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	67	36	671	1079	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1503	556	1112			
vC1, stage 1 conf vol	1096					
vC2, stage 2 conf vol	407					
vCu, unblocked vol	1503	556	1112			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	82	86	94			
cM capacity (veh/h)	261	475	624			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	46	67	36	335	335	720	392
Volume Left	46	0	36	0	0	0	0
Volume Right	0	67	0	0	0	0	33
cSH	261	475	624	1700	1700	1700	1700
Volume to Capacity	0.18	0.14	0.06	0.20	0.20	0.42	0.23
Queue Length 95th (ft)	16	12	5	0	0	0	0
Control Delay (s)	21.7	13.8	11.1	0.0	0.0	0.0	0.0
Lane LOS	C	B	B				
Approach Delay (s)	17.0		0.6			0.0	
Approach LOS	C						

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	29	41	54	1100	840	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	45	59	1196	913	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1649	478	955			
vC1, stage 1 conf vol	934					
vC2, stage 2 conf vol	715					
vCu, unblocked vol	1649	478	955			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	92	92			
cM capacity (veh/h)	268	534	715			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	32	45	59	598	598	609	347
Volume Left	32	0	59	0	0	0	0
Volume Right	0	45	0	0	0	0	42
cSH	268	534	715	1700	1700	1700	1700
Volume to Capacity	0.12	0.08	0.08	0.35	0.35	0.36	0.20
Queue Length 95th (ft)	10	7	7	0	0	0	0
Control Delay (s)	20.2	12.4	10.5	0.0	0.0	0.0	0.0
Lane LOS	C	B	B				
Approach Delay (s)	15.6		0.5			0.0	
Approach LOS	C						

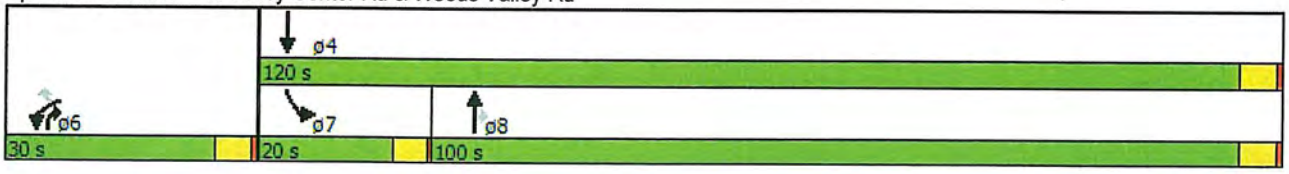
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	149	119	515	63	72	929
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Detector Phase	6	6	8	6	7	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	7.0	4.0	4.0	1.0
Minimum Split (s)	30.0	30.0	100.0	30.0	20.0	100.0
Total Split (s)	30.0	30.0	100.0	30.0	20.0	120.0
Total Split (%)	20.0%	20.0%	66.7%	20.0%	13.3%	80.0%
Yellow Time (s)	4.3	4.3	4.3	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effct Green (s)	9.1	9.1	16.1	34.0	7.0	22.4
Actuated g/C Ratio	0.21	0.21	0.37	0.79	0.16	0.52
v/c Ratio	0.22	0.30	0.43	0.05	0.27	0.55
Control Delay	15.8	5.8	14.1	1.1	22.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	5.8	14.1	1.1	22.9	8.9
LOS	B	A	B	A	C	A
Approach Delay	11.3		12.7			9.9
Approach LOS	B		B			A

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 43.2
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 11.0 — Intersection LOS: B
Intersection Capacity Utilization 38.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Valley Center Rd & Woods Valley Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	149	119	515	63	72	929
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	129	560	68	78	1010
RTOR Reduction (vph)	0	102	0	29	0	0
Lane Group Flow (vph)	162	27	560	39	78	1010
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Actuated Green, G (s)	9.1	9.1	16.1	25.2	4.0	24.5
Effective Green, g (s)	9.1	9.1	16.1	25.2	4.0	24.5
Actuated g/C Ratio	0.21	0.21	0.36	0.57	0.09	0.55
Clearance Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	706	325	1289	1092	160	1961
v/s Ratio Prot	c0.05		0.16	0.01	0.04	c0.29
v/s Ratio Perm		0.02		0.02		
v/c Ratio	0.23	0.08	0.43	0.04	0.49	0.52
Uniform Delay, d1	14.6	14.2	10.6	4.2	19.1	6.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.1	0.0	0.9	0.1
Delay (s)	14.7	14.2	10.7	4.2	20.0	6.2
Level of Service	B	B	B	A	B	A
Approach Delay (s)	14.5		10.0			7.2
Approach LOS	B		A			A

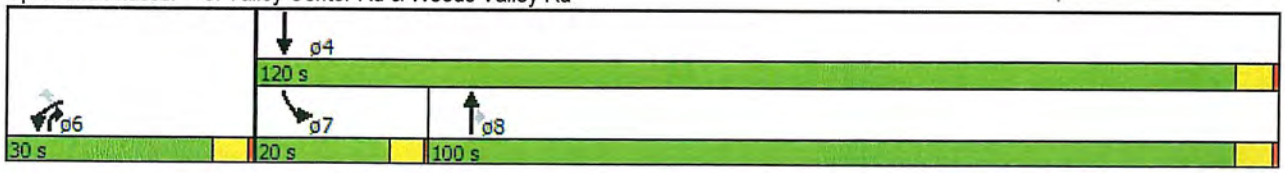
Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	84	91	998	150	111	739
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Detector Phase	6	6	8	6	7	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	7.0	4.0	4.0	7.0
Minimum Split (s)	30.0	30.0	100.0	30.0	20.0	100.0
Total Split (s)	30.0	30.0	100.0	30.0	20.0	120.0
Total Split (%)	20.0%	20.0%	66.7%	20.0%	13.3%	80.0%
Yellow Time (s)	4.3	4.3	4.3	4.3	3.9	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	0.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effct Green (s)	8.7	8.7	27.1	41.5	9.5	41.3
Actuated g/C Ratio	0.14	0.14	0.44	0.67	0.15	0.67
v/c Ratio	0.19	0.32	0.70	0.15	0.44	0.34
Control Delay	26.1	9.5	17.5	0.9	33.4	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	9.5	17.5	0.9	33.4	5.2
LOS	C	A	B	A	C	A
Approach Delay	17.5		15.3			8.9
Approach LOS	B		B			A

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 61.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 13.0 — Intersection LOS: B
Intersection Capacity Utilization 49.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Valley Center Rd & Woods Valley Rd



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	84	91	998	150	111	739
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	99	1085	163	121	803
RTOR Reduction (vph)	0	85	0	66	0	0
Lane Group Flow (vph)	91	14	1085	97	121	803
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	6		8	6	7	4
Permitted Phases		6		8		
Actuated Green, G (s)	8.7	8.7	27.4	36.1	9.5	41.3
Effective Green, g (s)	8.7	8.7	27.4	36.1	9.5	41.3
Actuated g/C Ratio	0.14	0.14	0.45	0.60	0.16	0.68
Clearance Time (s)	5.3	5.3	5.3	5.3	4.4	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	492	227	1600	1081	277	2411
v/s Ratio Prot	c0.03		c0.31	0.01	c0.07	0.23
v/s Ratio Perm		0.01		0.05		
v/c Ratio	0.18	0.06	0.68	0.09	0.44	0.33
Uniform Delay, d1	22.8	22.4	13.1	5.2	23.1	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.9	0.0	0.4	0.0
Delay (s)	22.9	22.5	14.0	5.2	23.5	4.0
Level of Service	C	C	B	A	C	A
Approach Delay (s)	22.7		12.9			6.6
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	80	0	6	58	1	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	0	7	63	1	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			87		163	87
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			87		163	87
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1509		824	972

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	87	7	63	26
Volume Left	0	7	0	1
Volume Right	0	0	0	25
cSH	1700	1509	1700	964
Volume to Capacity	0.05	0.00	0.04	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.0	7.4	0.0	8.8
Lane LOS		A		A
Approach Delay (s)	0.0	0.7		8.8
Approach LOS				A

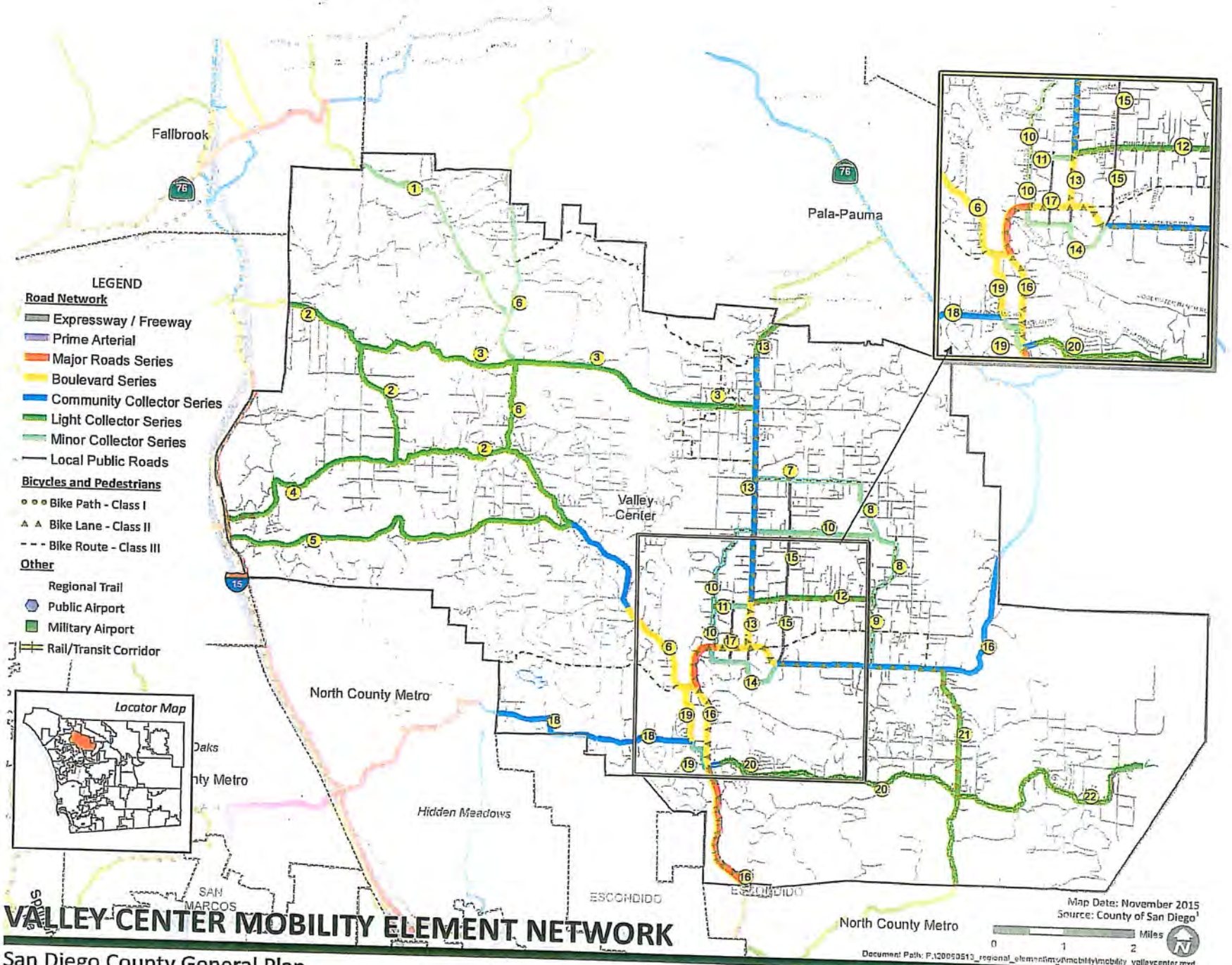
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	60	1	26	67	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	1	28	73	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			66		195	66
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			66		195	66
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	99
cM capacity (veh/h)			1535		779	998

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	66	28	73	12
Volume Left	0	28	0	0
Volume Right	1	0	0	12
cSH	1700	1535	1700	998
Volume to Capacity	0.04	0.02	0.04	0.01
Queue Length 95th (ft)	0	1	0	1
Control Delay (s)	0.0	7.4	0.0	8.7
Lane LOS		A		A
Approach Delay (s)	0.0	2.1		8.7
Approach LOS				A

APPENDIX C

- Valley Center Mobility Element
- Corner Sight Distance Certification Letter



VALLEY CENTER MOBILITY ELEMENT NETWORK

San Diego County General Plan

Figure M-A-23

Mobility Element Network—Valley Center Community Planning Area Matrix			
ID[a]	Road Segment	Designation/Improvement #.#X = [# of lanes].[roadway classification][improvement]	Special Circumstances
1	**Couser Canyon Road (SC 240)** Segment: Fallbrook CPA boundary to Lilac Road	**2.3C Light Collector** Reduced Shoulder — two feet; Reduced Parkway to ten feet	**Improvement Option** Reduce shoulder width to six feet for use as a bike lane (requires parking prohibition)
2	**West Lilac Road (SC 270.1 / 280.2)** Segment: Bonsall CPA boundary to Lilac Road	**2.2F Light Collector** Reduced Shoulder—New Road 3 to Lilac Road **2.2C Light Collector** Intermittent Turn Lanes—New Road 3 to Bonsall CPA boundary	None
3	**New Road 3** Segment: West Lilac Road to West Oak Glen Road / Cole Grade Road	**2.2C Light Collector** Intermittent Turn Lanes	None
4	**Circle R Road (SC 280.1)** Segment: Old Highway 395 to West Lilac Road	**2.2E Light Collector**	None
5	**Old Castle Road (SF 1415)** Segment: Old Highway 395 to Lilac Road	**2.2D Light Collector** Improvement Options [Passing Lanes]	None
6	**Lilac Road (SA 110/ SF 1415)** Segment: Pala/Pauma Subregion boundary to Valley Center Road	**2.3C Minor Collector** Reduced Shoulder to two feet / Reduced Parkway to ten feet — Pala/Pauma Subregion boundary to New Road 3 **2.2E Light Collector** New Road 3 to Old Castle Road **2.1C Community Collector** Intermittent Turn Lanes—Old Castle Road to Anthony Road **4.2B Boulevard** Intermittent Turn Lanes—Anthony Road to Valley Center Rd.	**Accepted at LOS F** Segment: New Road 19 to Valley Center Road
7	**Cool Valley Road (SC 300)** Segment: Cole Grade Road to Villa Sierra Road	**2.3C Minor Collector** Reduced Shoulder to two feet / Reduced Parkway to ten feet	None
8	**Villa Sierra Road (SC 300)** Segment: Cool Valley Road to Mac Tan Road	**2.3C Minor Collector** Reduced Shoulder to two feet / Reduced Parkway to ten feet	None

C-2

Mobility Element Network—Valley Center Community Planning Area Matrix			
ID[a]	Road Segment	Designation/Improvement #.#X = [# of lanes].[roadway classification][improvement]	Special Circumstances
9	**Mac Tan Road (SC 300)** Segment: Villa Sierra Road to Valley Center Road	**2.3C Minor Collector** Reduced Shoulder to two feet / Reduced Parkway to ten feet	None
10	**Miller Road** Segment: Valley Center Road to Villa Sierra Road	**2.3B Minor Collector** Intermittent Turn Lanes—Valley Center to new local public road (south of Misty Oak) **2.3C Minor Collector** Reduced Shoulder to two feet; Reduced Parkway to ten feet—New Road 11 (south of Misty Oak) to Villa Sierra Road	None
11	**New Road 11 (south of Misty Oak Road)** Segment: Miller Road to Cole Grade Road	**2.3A Minor Collector** Raised Median	None
12	**Fruitvale Road (SC 310)** Segment: Cole Grade Road to Villa Sierra Road	**2.2C Light Collector** Intermittent Turn Lanes—Cole Grade Road to Villa Sierra Road	None
13	**Cole Grade Road (SA 110)** Segment: New Road 14 to Pala/Pauma Subregion boundary	**Industrial / Commercial Local Public Road** New Road 14 to Valley Center Road **4.2A Boulevard** Raised Median—Valley Center Road to Fruitvale Road **2.1D Community Collector** Improvement Options (left / right turn lanes)——Fruitvale Road to Pauma Heights Road **2.1C Community Collector** Intermittent Turn Lanes—Pauma Heights Road to McNally Road **2.2E Light Collector** McNally Road to Pala/Pauma Subregion boundary	None
14	**New Road 14** Segment: Valley Center (at Miller Road) to Valley Center Road (at New Road 15)	**2.3B Minor Collector** Intermittent Turn Lanes	**Road Alignment** North of floodplain whenever feasible

Mobility Element Network—Valley Center Community Planning Area Matrix			
ID[a]	Road Segment	Designation/Improvement #.#X = [# of lanes].[roadway classification][improvement]	Special Circumstances
15	**New Road 15 / High Point Drive** Segment: Valley Center (at New Road 14) to Cool Valley Road	**Local Public Road**	None
16	**Valley Center Road (SF 639)** Segment: North County Metro Subregion boundary to Pala/Pauma Subregion boundary	**4.1A Major Road** Raised Median—North County Metro Subregion boundary to Woods Valley Road **4.2A Boulevard** Raised Median—Woods Valley Road to Lilac Road **4.1A Major Road** Raised Median—Lilac Road to Miller Road **4.2A Boulevard** Raised Median—Miller Road to New Roads 14/15 **2.1D Community Collector** Improvement Options [Passing Lanes]—New Roads 14/15 to Pala/Pauma Subregion boundary	**Accepted at LOS F** Segment: Miller Road to Indian Creek Road
17	**New Road 17** Segment: New Road 14 to Misty Oak Road	**Rural Residential Collector** Local Public Road	None
18	**Mirar de Valle Road (SC 990.2)** Segment: North County Metro Subregion boundary to New Road 19	**2.1D Community Collector** Improvement Options [Unspecified]	**Accepted at LOS F** Segment: New Road 19 to Hidden Meadows community boundary
19	**New Road 19** Segment: Lilac Road to Valley Center Road (at Woods Valley Road)	**4.2B Boulevard** Intermittent Turn Lanes—Lilac Road to Mirar de Valle Road **2.3A Minor Collector** Raised Median—Mirar de Valle Road to Woods Valley Road	**Accepted at LOS E** Segment: Mirar de Valle Road to Lilac Road
20	**Woods Valley Road (SC 1010)** Segment: Valley Center Road to Lake Wohlford Road	**2.1D Community Collector** Improvement Options [Raised Median and Right-Turn Lanes]—Valley Center Road to Oakmont Rd. **2.2C Light Collector** Intermittent Turn Lanes—Oakmont Rd. to Lake Wohlford Road	**Accepted at LOS E** Segment: Oakmont Road to Karibu Lane

C-4

Mobility Element Network—Valley Center Community Planning Area Matrix			
ID[a]	Road Segment	Designation/Improvement #.#X = [# of lanes].[roadway classification][improvement]	Special Circumstances
21	**Lake Wohlford Road (SA 130)** Segment: North County Metro Subregion boundary to Valley Center Road	**2.2D Light Collector** Improvement Options [Unspecified]	None
22	**Paradise Mountain Rd. (SC 1010.1)** Segment: Lake Wohlford Road to Hell Hole Canyon Open Space Preserve entrance	**2.2E Light Collector**	None

a. ID = Roadway segment on Figure M-A-23

C-5

TSAC
ENGINEERING

Date: April 13, 2017

Richard E. Crompton, Director
Department of Public Works
County of San Diego
Traffic Engineering
5510 Overland Ave., Suite 410
San Diego, CA 92123

Subject: Sight Distance Certification for the Street A at Mirar De Valle and Street B at Street A intersections in conjunction with the TM 5614 Development in Valley Center. (PDS 2016-REZ-16-005, PDS2016-TM5614, PDS2016-STP-16-019). Based on the current circumstances.

Dear Mr. Crompton:

I, Stephen J. McPartland (RCE 35109) certify the following:

- That there is 450 feet of unobstructed intersectional Sight Distance in the eastbound and westbound direction from Street A along Mirar De Valle measured in accordance with the methodology described in Table 5 of the March 2012 County of San Diego Public Road Standards. This sight distance satisfy's the required intersectional Sight Distance requirements of 450 feet as described in Table 5 based on a design speed of 45 mph, which I have verified to be the higher of the prevailing speed or the minimum design speed of the road classification.

- That there is 350 feet of unobstructed intersectional Sight Distance in the northbound and southbound direction from Street B along Street A measured in accordance with the methodology described in Table 5 of the March 2012 County of San Diego Public Road Standards. This sight distance satisfy's the required intersectional Sight Distance requirements of 350 feet as described in Table 5 based on a speed of 35 mph, which I have verified to be the higher of the prevailing speed or the minimum design speed of the road classification.

This certifications are based on the proposed project roadway improvements for TM 5614.
I have exercised responsible charge for the certification as defined in Section 6703 of the Professional Engineers Act of the California Business and Professions Code.

Sincerely,

Stephen J. McPartland RCE 35109
Senior Vice President
TSAC Engineering
16885 Via Del Campo Court, Suite 304
San Diego, Ca 92127

Date Signed: 4/13/17

PARK CIRCLE
COUNTY OF SAN DIEGO
TRACT NO. 5603

MIRAR DE VALLE

PROPERTY BOUNDARY

EXIST. AC BERM

8.0'

450.0'

2.0'

10.0'

14

350.0'

13

60' IOD

ALLEY A (PVT)

ALLEY B (PVT)

ALLEY C (PVT)

ALLEY D (PVT)

10 11 12 13 14

STREET B (PVT)

2.0'

12

10.0'

ALLEY E (PVT)

FUTURE "ROAD 19" CENTERLINE

STREET A (PVT) (IOD)
HALF WIDTH OF
FUTURE "ROAD 19"

11

STREET A (IOD) CENTERLINE

PROPERTY BOUNDARY

(OLD) MIRAR DE VALLE

60' IOD

10

350.0'

8.0'

VALLEY CENTER ROAD

HV 207
1298.84

N

40 20 0 40 80

GRAPHIC SCALE
1" = 40'

TSAC ENGINEERING
16885 Via Del Campo Ct, Suite 304, SD, CA 92127
PHONE: 858.762.9611 FAX: 858.762.9612

CORNER SIGHT DISTANCE FOR SHADY OAK TM 5614