



COMMENTS	RESPONSES
<div data-bbox="195 233 957 383">  <p><b>Comment Letter L2</b></p> <p>Julie Procopio, P.E. Director of Engineering/City Engineer 201 North Broadway, Escondido, CA 92025 Phone: 760-839-4001 Fax: 760-839-4313</p> </div> <p>June 20, 2017</p> <p>Michelle Irace County of San Diego Planning and Development Services 5510 Overland Avenue, Suite 310 San Diego, CA 92123</p> <p>RE: Harmony Grove Village South Draft EIR (PDS2015-ER-15-08-006)</p> <p>Dear Ms. Irace:</p> <p>Thank you for the opportunity to submit our comments regarding the Draft EIR for the proposed Harmony Grove Village South project. The City of Escondido Planning and Engineering Divisions value the cooperative relationship we have established with County staff, particularly during the project review process.</p> <p>The Project proposes 453 dwelling units at an overall density of 4.08 dwelling units per acre; a 5,000 square foot community clubhouse building with 1,500 square feet of commercial uses; public and private parks, two miles of trails and pathways, and 35 acres of dedicated biological open space. The project site is located outside the City of Escondido Sphere of Influence, but is within the Escondido General Plan area.</p> <p>The following comments are provided for your review and consideration:</p> <p>The response times from Escondido Fire Department (Engine and Truck) do not take into account the manual communication/processing time between North Comm and Escondido Dispatch Centers. Our goal is to have RCIP CAD to CAD established in the near future, but until that happens the response time assumptions should be increased 2-3 minutes.</p> <p>Comments on the Traffic Impact Analysis (TIA):</p> <ol style="list-style-type: none"> <li>Existing lane configurations are incorrectly evaluated/shown at the following intersections located with the City of Escondido: <ol style="list-style-type: none"> <li>Country Club Dr/Auto Park Way (SB)</li> <li>Citracado Pkwy/Avenida Del Diablo (NB and SB)</li> <li>11th Ave/Valley Pkwy (SB)</li> </ol> </li> <li>Existing roadway capacity used for Auto Park Way between Mission Rd and Country Club Dr. is incorrect. The capacity should be 37,000 for a 4-lane divided major road per City's TIA guidelines. A 5-lane roadway capacity does not correctly reflect the existing roadway conditions. The 6-lane portion south of the intersection at Mission Rd provides transition from a 6-lane roadway in San Marcos to 4-lane roadway in the</li> </ol> <div data-bbox="216 1344 924 1365"> <p>Sam Abed, Mayor   Michael Morasco, Deputy Mayor   Olga Diaz   Ed Gallo   John Masson</p> </div>	<p><b>Response to Comment L2-1</b></p> <p>The County acknowledges these introductory comments. The County similarly appreciates the cooperative relationship with the staff of the City of Escondido. Please see the responses below to specific comments.</p> <p><b>Response to Comment L2-2</b></p> <p>The City's comment regarding Escondido Fire Department's engine and truck total response times is noted. However, the response times to the Project from the Escondido Fire Stations are listed for informational purposes only to show that there are additional resources that can respond within an acceptable time frame, as a secondary response in accordance with automatic and mutual aid agreements. It is acknowledged that, currently, there may be additional time required for manual communication/processing time between North Command and Escondido Dispatch Centers. As the comment indicates, there is an effort underway to transition "in the near future" the current system to a form of automatic aid/drop boundary where CAD to CAD dispatches the nearest engine and minimizes delays.</p> <p>Even if the system is not yet operational when Harmony Grove Village South (HGV South) is built and occupied, the Project still meets the Fire Authority Having Jurisdiction's requirements. Fire protection will be provided to the Project by the Rancho Santa Fe Fire Protection District (RSFFPD), as recently approved by the Local Area Formation Committee (LAFCO). As described in the Fire Protection Plan (FPP) prepared for the Project (Dudek 2016; included as Appendix L of this EIR), travel times were calculated for the Project using the nationally recognized National Fire Protection Association (NFPA) 1710 and Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard. The required travel time for Village areas and limited Semi-Rural Residential areas, per the Safety Element of the County General Plan, is 5 minutes or less. Travel time to the HGV South site for the first responding engine from the new station to the most remote area of the Project would be within 3 minutes.</p>

	<p><b>Response to Comment L2-3</b></p> <p>The comment lists three locations within the City of Escondido in which the City believes the existing lane configurations were incorrectly evaluated. The following response addresses each of these intersections:</p> <ol style="list-style-type: none"> <li>1. County Club Drive/Auto Park Way. The SB right-turn lane from Auto Parkway Way to Country Club Drive was striped as a dedicated turn lane subsequent to the analysis being performed for that intersection. Thus, the Project's traffic analysis correctly reflected the existing condition at the time of NOP publication (CEQA Guidelines section 15125). However, with the addition of this right-turn lane, delays actually improved at this location. Therefore, the subsequent change to the intersection at this location would not result in any change to the conclusions of significance described in the Project's Traffic analysis and thus the traffic study represents a more conservative analysis.</li> <li>2. Citracado Parkway/Avenida Del Diablo. The improvements to the Citracado Parkway/Avenida Del Diablo intersection were included in the existing street network assumptions and represent the full improvements required to be built by the Harmony Grove Village (HGV) project. The County approved HGV in 2007, the entire site has been rough graded, and approximately half of the site has been finish-graded. Homes have been available for sale since May 2015 and the construction of more homes is under way. The Water Reclamation Facility (WRF) that will serve HGV has been constructed and the majority of the required roadway improvements are completed, including one restricted left-turn lane in east-, west-, and southbound directions at Citracado and Avenida del Diablo. That improvement accommodates projected Project traffic. The roadway surface to support ultimate width is currently present. Because the development of HGV had been initiated during traffic study preparation, and physical, on-the-ground roadway improvements were already being implemented, the presence of that project was included as a baseline environmental condition (an existing condition) in the HGV South EIR (see also Global Response Baseline Conditions for additional discussion).</li> </ol> <p>In brief, however, this represents a conservative approach because acknowledging implementation of the roadway network upgrades assumed as part of that project's design or mitigation, but not assuming that the total</p>
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	<p>traffic generated by HGV would be on the street system prior to the opening day of the Proposed Project, would have would have discounted potential HGV South direct impacts as described below. Appendix A of the TIA contains a copy of the HGV Conditions of Approval (COA), which required the improvements discussed above.</p> <p>If the presence of the HGV project was not included in the existing condition, the baseline would be misleading or without informational value and would not best define the Harmony Grove Valley which is subject to rapidly changing environmental conditions. In any event, while all of the HGV project design or mitigation measures were assumed and have subsequently been implemented as described above (which does provide additional capacity at the impacted locations), the addition of HGV's traffic volumes to the overall street system both in the County and the City of Escondido also commensurately reduces the available capacity area-wide that would otherwise be available for the Proposed Project. As such, the assumed baseline conditions do not result in the Project's traffic effects being underestimated.</p> <p>3. 11th Ave/Valley Pkwy (SB). The Existing Conditions Diagram in the EIR traffic study contains a typographical error that erroneously depicts two southbound left-turn lanes at the 11th Avenue/Valley Parkway signalized intersection. In fact, there is only one southbound left-turn lane. Linscott, Law &amp; Greenspan, Engineers (LLG) has reviewed the analysis, and the intersection was analyzed using the correct single southbound left-turn lane. No changes to the analysis are required as a result of this comment, because only the graphic was in error and the actual analysis and results are based on the correct geometry. The updated figure (TIA Figure 3-1) has been updated in the Final TIA and FEIR.</p> <p><b>Response to Comment L2-4</b>  Auto Park Way between Mission Road and Country Club Drive is approximately 810 feet in length. South of Mission Road for approximately 365 feet, Auto Park Way provides a minimum of five lanes, with a maximum of nine total lanes south of the Mission Avenue/Auto Park Way intersection (six northbound through/turn lanes and three southbound through lanes). North</p>

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	<p>of Country Club Drive, five lanes are provided for approximately 120 feet (three southbound through/turn lanes and two northbound through lanes). Thus, over half the length of the roadway provides five or more lanes. With respect to additional capacity enhancing features, the length of the roadway includes Class II bike lanes, a raised median, and turn lanes approaching intersections. Bike lanes separate drivers from cyclists (decreasing vehicular/cyclist conflicts), and raised medians preclude left turns to/from minor streets which can create friction and impede arterial flow. Turn lanes at intersections provide additional capacity separating slower moving vehicles out of the free flow of through traffic. These features are all indicative of a high-capacity roadway. Based on roadway features described above, an average five-lane capacity is most accurate and was therefore assumed in the analysis.</p>

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<p style="text-align: center;"><b>Comment Letter L2</b></p> <p>Letter to Ms. Irace Harmony Grove Village South – Draft EIR Page 2</p> <p>City of Escondido. The evaluation should be correct to reflect that the majority of the segment is 4-lane. L2-4</p> <p>3. Per City of Escondido's TIA Guidelines, the following intersections and roadway segments should be included in the study because the amount of traffic added to these facilities would exceed the City's thresholds.</p> <p>Intersections:</p> <ul style="list-style-type: none"> <li>a. 9th Ave/Auto Park Way</li> <li>b. Valley Pkwy/Avenida Del Diablo</li> <li>c. Citracado Pkwy/Johnston Rd.</li> <li>d. Citracado Pkwy/Mobile Home Park Driveways</li> </ul> <p>L2-5</p> <p>Roadway Segments:</p> <ul style="list-style-type: none"> <li>a. Valley Pkwy south of Citracado Pkwy.</li> <li>b. Harmony Grove Rd between Harmony Grove Rd and Hale Ave.</li> </ul> <p>4. The traffic study should evaluate a scenario that includes the completion of the Citracado Pkwy extension project. This important Regional Arterial Roadway is included in both the County of San Diego's and City of Escondido's Circulation Element. It is anticipated that impacts to the roadways and intersections in the area would be different with the extended Citracado Pkwy. The number of trips diverted to Citracado Parkway in near term (after Citracado Parkway project completion) would be the basis for determining fair share contribution towards future Citracado Parkway project. L2-6</p> <p>5. The traffic study should consider improvement of Country Club Drive between Auto Parkway and Progress Place to Local Collector Standards to provide adequate capacity to handle project traffic in addition to previous Harmony Grove Village and Valiano projects. City and County staff worked cooperatively on the Valiano project to determine appropriate improvements to ensure safe access and adequate capacity for the volumes of anticipated traffic. L2-7</p> <p>6. The traffic study should consider project traffic impact on Kauana Loa (Oak View Way to Harmony Grove Road) and propose improvement to handle the additional traffic from the project. This segment of Kauana Loa lacks adequate width and structural section to handle any additional traffic by the project without improvements. L2-8</p> <p>Engineering staff is available to discuss comments or assist with determining required improvements and determining fair share contribution amount.</p> <p>Sincerely,</p>  <p>Julie Procopio, PE Director of Engineering Services/City Engineer</p>	<p><b>Response to Comment L2-5</b></p> <p>The project is located within the County's jurisdiction. As such, the Project study area was selected using two sets of guidelines:</p> <ol style="list-style-type: none"> <li>1. The County of San Diego's Traffic Report Format Guidelines for locations within the County's jurisdiction; and</li> <li>2. The regional SANTEC/ITE guidelines for locations outside of the County's jurisdiction (i.e., City of Escondido).</li> </ol> <p>For consistency and as a standard of practice, the regional SANTEC/ITE guidelines (not adjacent local jurisdictions' guidelines) are used to determine the extents of the project study area outside of the County when project traffic may affect a neighboring jurisdiction. These guidelines set the minimum study area based on locations affected by 50 or more peak-hour trips in either direction. If and when traffic volumes meet this 50 peak-hour directional trip warrant, the standard of practice is then to evaluate only the intersections of circulation element (classified) roadways. Typically, unsignalized intersections, non-circulation element roadways, local driveways, and minor intersections where project traffic does not contribute to conflicting (turning) movements are not included in analyses. The pertinent section of these guidelines is attached (see Attachment A to the responses to this letter).</p> <p>It should be noted that professional engineering judgment is relied upon in determining which intersections and segments should be analyzed within the context of these guidelines. Typically, circulation element roadway segments are analyzed, as well as the signalized intersections where these circulation element roadways intersect. Lesser intersections (signalized or unsignalized) affected directly by Project access or substantial "critical" turning volumes may also be considered, but typically only in the vicinity of project access. It is impractical and provides little value to analyze each minor-street and local driveway intersection along all circulation element roadways; therefore, a reasonable study area is determined by using these guidelines, standards of practice and reliance on engineering judgment.</p>

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	<p>The comment specifically requests that the following four additional intersections and two additional street segments be analyzed within the City of Escondido.</p> <p>Intersections:</p> <ol style="list-style-type: none"> <li>1. 9th Avenue/Auto Park Way (signalized)</li> <li>2. Valley Parkway/ Avenida del Diablo (signalized)</li> <li>3. Citracado Parkway/ Johntson Road (unsignalized)</li> <li>4. Citracado Parkway/ Mobile Home Park Driveways (unsignalized)</li> </ol> <p>Street Segments:</p> <ol style="list-style-type: none"> <li>5. Valley Parkway from Citracado Parkway to Claudan Road</li> <li>6. Harmony Grove Road from Harmony Grove Road to Hale Avenue</li> </ol> <p>Therefore, in response to this comment, LLG evaluated these intersections and segments against the criteria summarized as follows:</p> <ul style="list-style-type: none"> <li>• The SANTEC 50 peak-hour directional trip threshold (using traffic volumes from Figure 7–2, Project Traffic Volumes of the traffic study)</li> <li>• The circulation element status of the roadways, and</li> <li>• The presence of Project trips affecting critical (turning) movements at unsignalized locations</li> </ul> <ol style="list-style-type: none"> <li>1. 9th Ave/Auto Park Way: Intersection No. 13 (W. 9th Ave/I-15 SB Ramps) shows that fewer than 50 peak-hour directional trips would be westbound at this intersection. A maximum of 47 directional peak-hour trips (WB thru, PM peak hour) would affect this segment (see TIA Figure 7–2). Therefore, it would not meet the standards for inclusion based on the SANTEC guidelines described above. No further analysis is warranted.</li> <li>2. Valley Pkwy/Avenida Del Diablo: Intersection No. 11 (W. 11th Ave/W. Valley Parkway) shows that 58 northbound AM peak-hour trips and 72 southbound PM peak-hour trips would be oriented to the south at the subject intersection (see TIA Figure 7–2). This exceeds the 50 peak-hour</li> </ol>

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	<p>directional trip threshold described in the SANTEC guidelines above. Both roadways are classified as circulation element roadways, and the intersection is signalized, which would satisfy the regional standards of practice for consideration in the study area as described above. Despite these features, the intersection was not originally included since the Project does not add turning trips to the conflicting movements at this intersection. Moreover, substantial traffic calming measures have been completed for Avenida Del Diablo at Citracado Parkway to restrict through traffic onto Avenida Del Diablo, effectively negating its function as a circulation element roadway on the City of Escondido's Circulation Element. Nonetheless, the intersection meets the criteria for analysis described above, and a supplemental analysis has been prepared in response to this comment. The supplemental analysis concludes there would be no new impacts with the addition of Project and cumulative projects' traffic volumes (see Attachment B to the responses to this letter).</p> <p>3. Citracado Pkwy/Johnston Rd: Intersection No. 6 (Citracado Parkway /Avenida del Diablo) shows that 101 southbound AM peak-hour trips and 126 northbound PM peak-hour trips would be oriented to the north through the subject intersection. While this exceeds the 50 peak-hour directional trips described in the SANTEC guidelines above, Johnston Road is not a classified circulation element roadway. Furthermore, the intersection is unsignalized, and the project does not add peak-hour turning volumes to the critical movements. Given the overall characteristics described above, Johnston Road is not included in the analysis based on the SANTEC guidelines described above, just as numerous other minor street intersections along the other County or City of Escondido circulation element roadways were not included. No further analysis is warranted.</p> <p>4. Citracado Pkwy/Mobile Home Park Driveways: The same conditions that describe the Citracado Parkway/Johnston Road intersection above apply to the Citracado Parkway/Mobile Home Park Driveways. The same number of Project volumes affect these driveway intersections, both of which are unsignalized and are also not circulation element roadways. As with Johnston Road, the Project does not contribute left-or-right turning trips to/from these unclassified driveways, so no additional trips to critical</p>

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	<p>movements occur due to the Project. Given the above characteristics, the driveways are excluded from analysis just as numerous other minor street intersections along the other circulation element roadways were excluded in both the County and the City of Escondido.</p> <p>5. Valley Pkwy from Citracado Pkwy to Claudan Rd: Intersection No. 12 (W. Valley Parkway/Citracado Parkway) shows that 54 northbound AM peak-hour trips enter the intersection. This intersection sets the outer boundary of the overall study area, as it serves just over 50 peak-hour directional trips, and fewer than 50 peak-hour directional trips would occur at further outlying intersections. Therefore, additional circulation element segments and intersections beyond this location would not be analyzed. Nonetheless, as the roadway is a circulation element roadway and the Project volumes immediately adjacent this intersection on the subject segment are slightly above the threshold, a supplemental analysis has been prepared in response to this comment that shows no new impacts with the addition of Project and cumulative projects' traffic volumes would occur to this segment (see Attachment C to the responses to this letter).</p> <p>6. (City of Escondido - Segment) Harmony Grove Rd between Harmony Grove Rd and Hale Ave: Intersection No. 5 (Harmony Grove Road/Enterprise Street) shows that fewer than 50 peak-hour directional trips would be added to this portion of Harmony Grove Road. A maximum of 44 directional peak-hour trips (WB left, PM peak hour) would affect this segment. Therefore, these volumes do not meet the threshold for inclusion based on the SANTEC guidelines described above.</p> <p>In summary, of the six locations identified by the City for potential inclusion and analysis:</p> <ul style="list-style-type: none"> <li>• Two locations do not meet the minimum SANTEC/ITE volume thresholds to consider analysis;</li> <li>• Two locations do meet the minimum SANTEC/ITE volume thresholds, but do not meet the circulation element roadway classification requirements to consider analysis;</li> </ul>



COMMENTS	RESPONSES
	<ul style="list-style-type: none"> <li>Two locations do meet the volume and classification thresholds. These have been analyzed and no new significant impacts were calculated.</li> </ul> <p><b>Response to Comment L2-6</b></p> <p>As stated in the EIR traffic study and described in Subsection 2.2.3.1 of the EIR, funding has yet to be identified for the Citracado Parkway Extension Project. Therefore, the traffic study correctly assumes that Citracado Parkway is not constructed in the near-term baseline condition since it is not fully funded. The study does, however, include a long-term Year 2035 analysis and the Citracado Parkway extension is fully included.</p> <p>Per the Citracado Parkway Extension Project EIR, certified by the City of Escondido in February 2012, this future roadway is planned to be built to Four Lane Major Road standards with a carrying capacity of 37,000 Average Daily Trips (ADT). The forecasted volume in Year 2035 per the Citracado Parkway Extension Project EIR is around 19,000 ADT, equating to Level of Service (LOS) B operations. Even if 100 percent of Project trips (4500 ADT) were to use this roadway, which is not the case, 23,500 ADT continues to result in acceptable LOS C operations of this roadway. Regardless, the City has no financing plan to fund this improvement for the Project to pay a fair share toward, and the County is without jurisdiction to ensure construction. Potential mitigation is therefore not feasible at this time.</p> <p><b>Response to Comment L2-7</b></p> <p>The commenter suggests that the Project's Traffic Study consider improvement of Country Club Drive between Auto Parkway and Progress Place to local collector standards to provide adequate capacity to handle Project traffic in addition to HGV and Valiano projects.</p> <p>As shown in Figure 2.2-5, <i>Existing Plus Project Traffic Volumes</i>, and Table 2.2-6, <i>Roadway Segment Operations Under Existing and Existing Plus Cumulative Plus Project Conditions</i>, one segment on Country Club Drive would operate at unacceptable LOS in the City of Escondido due to the addition of Project traffic: Auto Park Way to Hill Valley Drive. The Proposed Project would add direct and cumulative traffic to the segment of Country Club Drive</p>

COMMENTS	RESPONSES
	<p>from Auto Park Way to Hill Valley Drive in the City of Escondido, resulting in direct and cumulative impacts (TR-1a and 1b).</p> <p>CEQA requires identification of possible mitigation measures for significant impacts. Therefore, potential mitigation measures adequate to lower significant impacts to less than significant levels have been developed and were included within the circulated DEIR. M-TR-1a and M-TR-1b would improve operations on Country Club Drive between Auto Park Way and Hill Valley Drive segment (south of Progress Place). Project effects could be mitigated through the widening of Country Club Drive to provide a paved width of 36 feet consisting of two travel lanes and a 10-foot striped center turn lane starting 220 feet southwest of Auto Park Way for a length of approximately 830 feet. Improvements would include connecting the existing sidewalk along the northern side of this roadway section with a 5-foot sidewalk complete with a 6-inch curb and gutter and providing a 4-foot decomposed granite pathway along the south side of this segment with a 6-inch asphalt berm. With the additional 12 feet added to the paved width, the roadway capacity of would increase to 15,000 ADT. This mitigation was analyzed with the addition of Harmony Grove Village and Valiano project traffic under the cumulative scenario and was shown in the EIR traffic study to improve operations to acceptable LOS C. However, the County cannot ensure mitigation occurring within a separate CEQA lead agency's jurisdiction (the City of Escondido). The County has no jurisdiction to ensure that the mitigation is implemented, and therefore these mitigation measures are identified as significant and unavoidable and are infeasible. Nevertheless, the Applicant will work with the City regarding these mitigation measures, and, should these mitigation measures be approved by the City, they will be implemented as described. If the Proposed Project would complete the improvements, then once constructed, the Project would no longer have a significant impact as the increase in capacity to 15,000 ADT would sufficiently carry the 10,655 ADT expected under the Existing + Project + Cumulative Projects traffic condition.</p> <p><b>Response to Comment L2-8</b></p> <p>The County concurs with this comment and the information is consistent with the conclusions of the EIR. Kauana Loa Drive is listed in the County of San</p>

COMMENTS	RESPONSES
	<p>Diego Road System 2012 Index of the County Maintained Road System. As a County roadway, it does not receive 25 peak-hour directional trips from the Project, and therefore was not analyzed on a daily roadway segment basis. The Kauana Loa Drive/Harmony Grove Road intersection, however, was analyzed in the EIR and for the cumulative impact at this intersection, the EIR concluded appropriate mitigation to be payment into the County Transportation Impact Fee (TIF) program.</p>

**RTC-L2-5**  
**ATTACHMENT A**

**SANTEC/ITE TRAFFIC GUIDELINES – EXCERPT**

# **SANTEC / ITE GUIDELINES FOR TRAFFIC IMPACT STUDIES [TIS] IN THE SAN DIEGO REGION**

**MARCH 2, 2000 FINAL DRAFT**

## **PREFACE**

These guidelines are subject to continual update, as future technology and documentation become available. Always check with local jurisdictions for their preferred or applicable procedures.

**Committee Compilation by Kent A. Whitson**

**Reviewed by committee members: Hank Morris (co-chair),  
Tom Parry (co-chair), Arnold Torma (co-chair), Susan O'Rourke,  
Bill Darnell, Labib Qasem, John Boarman, Ralph Leyva, and Erik Ruehr**

**Additional review by: Ann French Gonsalves, Bill Figge,  
Bob Goralka, and Gary Halbert**

LOS objectives. For example, the Regional Growth Management Strategy for San Diego has a level-of-service objective of "D;" while the Congestion Management Program has established a minimum level-of-service of "E", or "F" if that is the existing 1990 base year LOS. In other words, if the existing LOS is "D" or worse, preservation of the existing LOS must be maintained or acceptable mitigation must be identified.

These guidelines do not establish a legal standard for these functions, but are intended to supplement any individual TIS manuals or level-of-service objectives for the various jurisdictions. These guidelines attempt to consolidate regional efforts to identify when a TIS is needed, what professional procedures should be followed, and what constitutes a significant traffic impact.

The instructions outlined in these guidelines are subject to update as future conditions and experience become available. Special situations may call for variation from these guidelines. Caltrans and lead agencies should agree on the specific methods used in traffic impact studies involving any State Route facilities, including metered and un-metered freeway ramps.

#### IV. NEED FOR A STUDY

A TIS should be prepared for all projects which generate traffic greater than 1,000 total average daily trips (ADT) or 100 peak-hour trips. If a proposed project is not in conformance with the land use and/or transportation element of the general or community plan, use threshold rates of 500 ADT or 50 peak-hour trips. Early consultation with any affected jurisdictions is strongly encouraged since a "focused" or "abbreviated" TIS may still be required – even if the above threshold rates are not met.

Currently, a Congestion Management Program (CMP) analysis is required for all large projects, which are defined as generating 2,400 or more average daily trips or 200 or more peak-hour trips. This size of study would usually include computerized long-range forecasts and select zone assignments. Please refer to the following flow chart (Figure 1) for TIS requirements.

The geographic area examined in the TIS must include the following:

- All local roadway segments (including all State surface routes), intersections, and mainline freeway locations where the proposed project will add 50 or more peak-hour trips in either direction to the existing roadway traffic.
- All freeway entrance and exit ramps where the proposed project will add a significant number of peak-hour trips to cause any traffic queues to exceed ramp storage capacities (see Figure 1). (NOTE: Care must be taken to include other ramps and intersections that may receive project traffic diverted as a result of already existing, or project causing congestion at freeway entrances and exits.)

**RTC-L2-5**  
**ATTACHMENT B**

**AVENIDA DEL DIABLO/CITRACADO PARKWAY  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

**RTC-L2-5 – ATTACHMENT B**  
**SUPPLEMENTAL ANALYSIS – AVENIDA DEL DIABLO/ VALLEY PARKWAY**  
**PEAK HOUR INTERSECTION LEVEL OF SERVICE OPERATIONS**

Intersection	Jur.	Control Type	Peak Hour	Existing		Existing + Project		$\Delta^c$
				Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS	
Avenida Del Diablo/ Valley Parkway	City of Escondido	Signal	AM	10.2	B	10.2	B	0.0
			PM	12.7	B	13.4	B	0.7
		Control Type	Peak Hour	Existing + Cumulative Projects		Existing + Cumulative Projects + Project		$\Delta^c$
				Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS	
		Signal	AM	10.3	B	10.3	B	0.0
			PM	13.3	B	13.3	B	0.0

**Footnotes:**

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “ $\Delta$ ” denotes the Project-induced increase in delay.

**General Notes:**

- 1. Peak hour data collected in August 2017 while schools were in session.

SIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F



HCM 2010 Signalized Intersection Summary  
1. W Valley Pkwy & Avenida Del Diablo

Existing AM  
06/29/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	←	←	→	→	←	→	→	←	→	→
Traffic Volume (veh/h)	36	22	64	46	27	8	24	715	46	6	1203	73
Future Volume (veh/h)	36	22	64	46	27	8	24	715	46	6	1203	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Q <sub>0</sub> ), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ), pbT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/hln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	39	24	70	50	29	9	26	777	50	7	1306	79
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	50	147	182	164	51	40	2340	151	13	2006	136
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.02	0.69	0.69	0.01	0.69	0.68
Sat Flow, veh/h	1364	420	1206	1297	1305	420	1774	3377	217	1774	3386	201
Grp Volume(s), veh/h	39	0	94	50	0	33	26	407	420	7	694	720
Grp Sat Flow(s), veh/hln	1364	0	1646	1297	0	1783	1774	1770	1324	1774	1770	1307
Q Serve(s), s	2.0	0.0	4.0	2.3	0.0	1.4	1.1	6.9	6.9	0.3	16.6	15.7
Cycle Q Clear(s), s	3.4	0.0	4.0	6.9	0.0	1.4	1.1	6.9	6.9	0.3	16.6	15.7
Prop In Lane	1.00	0.00	0.74	1.00	0.00	0.24	1.00	0.12	1.00	0.00	0.11	0.11
Lane Grp Cap(s), veh/h	233	0	197	182	0	214	40	1226	1294	13	1200	1209
V/C Ratio(s)	0.17	0.00	0.48	0.27	0.00	0.11	0.06	0.32	0.32	0.55	0.58	0.58
Avail Cap(s), s	625	0	692	664	0	741	106	1226	1294	97	1200	1209
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(s)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	30.8	24.0	0.0	29.7	36.4	4.6	4.6	27.1	6.4	6.4
Incr Delay (d <sub>2</sub> ), s/veh	0.3	0.0	1.8	0.8	0.0	0.4	17.0	0.7	0.7	31.6	2.0	2.0
Initial Q Delay (d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Back Q Delay (d <sub>4</sub> ), s/veh	0.8	0.0	1.3	1.0	0.0	0.7	3.9	0.3	0.3	8.4	0.5	0.5
InGrp Delay (d <sub>5</sub> ), s/veh	31.6	0.0	32.6	34.8	0.0	30.1	53.4	5.5	5.5	68.6	8.6	8.6
InGrp LOS	C	C	C	C	C	C	D	A	A	E	A	A
Approach Vol, veh/h	133			88			863			1421		
Approach Delay, s/veh	22.3			32.3			6.8			9.7		
Approach LOS	C			C			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	56.5		13.5	6.2	55.4		13.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (G <sub>max</sub> ), s	4.1	51.3		31.1	4.5	50.9		31.1				
Max Q Clear Time (G <sub>c</sub> +H), s	2.3	5.6		6.0	3.1	11.7		8.4				
Green End Time (G <sub>c</sub> ), s	0.0	5.9		0.6	0.0	11.4		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				10.2								
HCM 2010 LOS				B								

HGIS 06/29/2017 Existing AM

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HCM 2010 Signalized Intersection Summary  
1. W Valley Pkwy & Avenida Del Diablo

Existing PM  
06/29/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	←	←	→	→	←	→	→	←	→	→
Traffic Volume (veh/h)	40	18	42	108	18	13	26	1167	91	14	673	60
Future Volume (veh/h)	40	18	42	108	18	13	26	1167	91	14	673	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Q <sub>0</sub> ), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ), pbT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/hln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	43	20	46	117	20	14	28	1263	99	15	732	66
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	76	175	248	165	108	41	2194	171	25	2138	190
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.02	0.66	0.66	0.01	0.66	0.65
Sat Flow, veh/h	1369	603	1156	1330	1022	716	1774	3377	269	1774	3386	201
Grp Volume(s), veh/h	43	0	66	117	0	34	28	673	694	15	394	403
Grp Sat Flow(s), veh/hln	1369	0	1659	1330	0	1737	1774	1770	1517	1774	1770	1511
Q Serve(s), s	2.2	0.0	2.7	6.6	0.0	1.3	1.2	16.2	16.2	0.6	7.7	7.7
Cycle Q Clear(s), s	3.5	0.0	2.7	9.3	0.0	1.3	1.2	16.2	16.2	0.6	7.7	7.7
Prop In Lane	1.00	0.00	0.70	1.00	0.00	0.41	1.00	0.14	1.00	0.00	0.16	0.16
Lane Grp Cap(s), veh/h	278	0	252	248	0	263	41	1167	1198	25	1150	1177
V/C Ratio(s)	0.15	0.00	0.26	0.47	0.00	0.12	0.67	0.58	0.58	0.59	0.54	0.54
Avail Cap(s), s	625	0	672	576	0	704	142	1167	1199	99	1150	1177
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(s)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	0.0	23.9	33.0	0.0	23.2	37.4	7.2	7.2	27.3	6.1	6.1
Incr Delay (d <sub>2</sub> ), s/veh	0.3	0.0	0.6	1.4	0.0	0.2	17.4	2.1	2.0	20.2	0.8	0.8
Initial Q Delay (d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Back Q Delay (d <sub>4</sub> ), s/veh	0.8	0.0	1.2	2.5	0.0	0.6	0.8	1.3	1.3	8.7	0.5	0.5
InGrp Delay (d <sub>5</sub> ), s/veh	30.1	0.0	29.8	34.8	0.0	28.6	54.8	9.5	9.5	58.5	6.6	6.6
InGrp LOS	C	C	C	C	C	C	D	A	A	E	A	A
Approach Vol, veh/h	109			161			1421			812		
Approach Delay, s/veh	29.7			32.1			10.2			7.8		
Approach LOS	C			C			B			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.6	56.4		16.2	6.3	54.7		16.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (G <sub>max</sub> ), s	4.1	51.3		31.3	6.2	49.0		31.3				
Max Q Clear Time (G <sub>c</sub> +H), s	2.6	5.6		6.5	3.2	9.7		11.2				
Green End Time (G <sub>c</sub> ), s	0.0	10.8		0.4	0.0	5.1		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				11.7								
HCM 2010 LOS				B								

HGIS 06/29/2017 Existing PM

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HCM 2010 Signalized Intersection Summary  
1. W Valley Pkwy & Avenida Del Diablo

Ex+Project AM  
06/29/2017

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	←	→	←	←	→	→	←	→	→	←	→	→
Lane Configurations												
Traffic Volume (veh/h)	36	22	64	46	27	8	24	773	46	6	1253	73
Future Volume (veh/h)	36	22	64	46	27	8	24	773	46	6	1253	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Q <sub>0</sub> ), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ), pbT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	39	24	70	50	29	9	26	810	50	7	1302	79
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	50	147	182	164	51	40	2363	140	13	2006	136
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.02	0.69	0.69	0.01	0.68	0.68
Sat Flow, veh/h	1364	420	1206	1297	1305	420	1774	3375	202	1774	3401	197
Grp Volume(s), veh/h	39	0	94	50	0	33	26	428	420	7	707	724
Grp Sat Flow(s), veh/hln	1364	0	1646	1297	0	1783	1774	1770	1327	1774	1770	1307
Q Serve(s), s	2.0	0.0	4.0	2.3	0.0	1.4	1.1	7.6	7.6	0.3	16.1	16.2
Cycle Q Clear(s), s	3.4	0.0	4.0	6.9	0.0	1.4	1.1	7.6	7.6	0.3	16.1	16.2
Prop In Lane	1.00	0.00	0.74	1.00	0.00	0.24	1.00	0.11	1.00	0.00	0.11	0.11
Lane Grp Cap(s), veh/h	233	0	197	182	0	214	40	1226	1296	13	1200	1209
V/C Ratio(s)	0.17	0.00	0.48	0.27	0.00	0.11	0.05	0.36	0.36	0.05	0.59	0.59
Avail Cap(s), veh/h	635	0	682	564	0	741	106	1226	1296	97	1200	1209
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Platoon	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Q Delay(s), veh/h	31.2	0.0	30.8	24.0	0.0	29.7	25.4	4.7	4.7	37.1	6.6	6.5
Initial Q Delay(s), veh/h	0.3	0.0	1.3	0.8	0.0	0.4	17.0	0.8	0.8	21.5	2.1	2.1
Initial Q Delay(s), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95th RunQ of 95th veh/h	0.8	0.0	1.9	1.0	0.0	0.7	3.9	4.0	4.0	8.4	3.4	3.7
95th Delay of 95th veh/h	31.6	0.0	32.6	34.8	0.0	30.1	53.4	5.5	5.5	68.6	8.6	8.6
LnGrp Delay, s			C	C	C	C	C	D	A	A	F	A
LnGrp Delay, s		122						916			149	
Approach Delay, veh/h		32.3			32.8			6.9			8.8	
Approach LOS		C			C			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		1	2	3	4	5	6	7	8			
Phs Duration (Q+V+P), s	5.0	56.5		13.5	6.2	55.4		13.5				
Change Period (H+R), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (G <sub>max</sub> ), s	4.1	51.3		4.1	4.1	65.0		31.1				
Max Q Clear Time (C+V+P), s	2.3	9.6		14.0	0.1	14.0		9.6				
Green Ext Time (P), s	0.0	5.9		0.6	0.0	11.7		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				10.2								
HCM 2010 LOS				B								



# HCM 2010 Signalized Intersection Summary 1: W Valley Pkwy & Avenida Del Diablo

Ex+CP AM  
06/29/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	←	←	→	→	←	→	→	←	→	→
Traffic Volume (veh/h)	36	22	64	46	27	8	24	814	46	6	1343	73
Future Volume (veh/h)	36	22	64	46	27	8	24	814	46	6	1343	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Q <sub>0</sub> ) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ,pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	39	24	70	50	29	9	26	885	50	7	1466	79
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	50	147	182	164	51	40	2050	133	13	2016	124
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.02	0.69	0.69	0.01	0.69	0.69
Sat Flow, veh/h	1364	420	1206	1297	1305	420	1774	3406	192	1774	3406	192
Grp Volume(s), veh/h	39	0	94	50	0	33	26	460	476	7	767	78
Grp Sat Flow(s), veh/h	1364	0	1646	1297	0	1783	1774	1770	1529	1774	1770	1529
Q Serve(s), s	2.0	0.0	4.0	2.3	0.0	1.4	1.1	8.1	8.1	0.2	18.1	19.3
Cycle Q Clear(s), s	3.4	0.0	4.0	6.9	0.0	1.4	1.1	8.1	8.1	0.2	18.1	19.3
Prop In Lane	1.00	0.00	0.74	1.00	0.00	0.24	1.00	0.00	0.11	1.00	0.00	0.10
Lane Grp Cap(s), veh/h	233	0	197	182	0	214	40	1226	1267	13	1200	1241
V/C Ratio(s)	0.17	0.00	0.48	0.27	0.00	0.11	0.66	0.27	0.27	0.55	0.62	0.62
Avail Cap(s), s	625	0	682	564	0	741	106	1226	1267	97	1200	1241
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(s)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (s), veh/h	21.2	0.0	30.8	24.0	0.0	29.7	36.4	4.9	4.9	27.1	6.9	6.9
Incr Delay (s), veh/h	0.3	0.0	1.8	0.8	0.0	0.4	17.0	0.9	0.8	21.6	2.6	2.6
Initial Q Delay(s), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Back Q Delay(s), veh/h	0.8	0.0	1.3	1.0	0.0	0.7	4.6	4.7	4.7	9.9	0.5	0.5
InGrp Delay(s), veh/h	31.6	0.0	32.6	24.8	0.0	30.1	53.4	5.9	5.8	48.6	9.5	9.5
InGrp LOS	C	C	C	C	C	C	D	A	A	E	B	A
Approach Vol, veh/h	133			88			961			1592		
Approach Delay, s/veh	32.3			32.3			6.9			9.6		
Approach LOS	C			C			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R), s	5.0	56.5		13.5	6.2	55.4		13.5				
Change Period (Y+R), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (G <sub>max</sub> ), s	4.1	51.3		31.1	4.5	50.9		31.1				
Max Q Clear Time (G <sub>c</sub> +H), s	2.3	10.8		6.0	3.1	20.3		8.8				
Green End Time (G <sub>c</sub> ), s	0.0	6.9		0.6	0.0	12.9		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay												
HCM 2010 LOS												

HVS 06/29/2017 Ex+CP AM

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# HCM 2010 Signalized Intersection Summary 1: W Valley Pkwy & Avenida Del Diablo

Ex+CP PM  
06/29/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	←	←	→	→	←	→	→	←	→	→
Traffic Volume (veh/h)	40	18	42	108	18	13	26	1269	91	14	819	60
Future Volume (veh/h)	40	18	42	108	18	13	26	1269	91	14	819	60
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Q <sub>0</sub> ) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ,pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	43	20	46	117	20	14	28	1379	99	16	888	66
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	76	175	247	166	108	41	2216	159	25	2182	160
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.02	0.66	0.66	0.01	0.66	0.66
Sat Flow, veh/h	1369	603	1156	1339	1022	715	1774	3359	240	1774	3359	240
Grp Volume(s), veh/h	43	0	66	117	0	34	28	726	752	16	470	433
Grp Sat Flow(s), veh/h	1369	0	1659	1339	0	1737	1774	1770	1529	1774	1770	1529
Q Serve(s), s	2.2	0.0	2.7	6.7	0.0	1.3	1.2	19.1	19.3	0.7	10.9	10.9
Cycle Q Clear(s), s	3.5	0.0	2.7	9.4	0.0	1.3	1.2	19.1	19.3	0.7	10.9	10.9
Prop In Lane	1.00	0.00	0.70	1.00	0.00	0.41	1.00	0.00	0.13	1.00	0.00	0.12
Lane Grp Cap(s), veh/h	276	0	251	247	0	263	41	1170	1204	25	1154	1157
V/C Ratio(s)	0.16	0.00	0.26	0.47	0.00	0.13	0.68	0.62	0.62	0.59	0.41	0.41
Avail Cap(s), s	615	0	661	576	0	692	102	1170	1204	93	1154	1157
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(s)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (s), veh/h	20.2	0.0	29.2	32.4	0.0	28.7	37.8	7.6	7.6	29.2	6.4	6.4
Incr Delay (s), veh/h	0.3	0.0	0.6	1.4	0.0	0.2	17.6	2.6	2.6	20.3	1.1	1.1
Initial Q Delay(s), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Back Q Delay(s), veh/h	0.8	0.0	1.3	2.5	0.0	0.6	0.8	9.9	9.9	0.5	0.5	0.5
InGrp Delay(s), veh/h	30.4	0.0	29.8	34.8	0.0	29.8	55.4	10.3	10.3	58.5	7.8	7.8
InGrp LOS	C	C	C	C	C	C	E	B	B	E	A	A
Approach Vol, veh/h	109			161			1540			1046		
Approach Delay, s/veh	30.1			33.5			11.2			8.5		
Approach LOS	C			C			B			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R), s	5.6	56.1		16.3	6.3	55.4		16.3				
Change Period (Y+R), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (G <sub>max</sub> ), s	4.1	51.3		31.1	4.5	50.9		31.1				
Max Q Clear Time (G <sub>c</sub> +H), s	2.7	21.3		5.5	2.2	12.9		11.4				
Green End Time (G <sub>c</sub> ), s	0.0	11.9		0.4	0.0	6.4		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay												
HCM 2010 LOS												

HVS 06/29/2017 Ex+CP PM

Synchro 10 Report  
Page 1

# HCM 2010 Signalized Intersection Summary 1: W Valley Pkwy & Avenida Del Diablo

Ex+CP+P AM  
06/29/2017

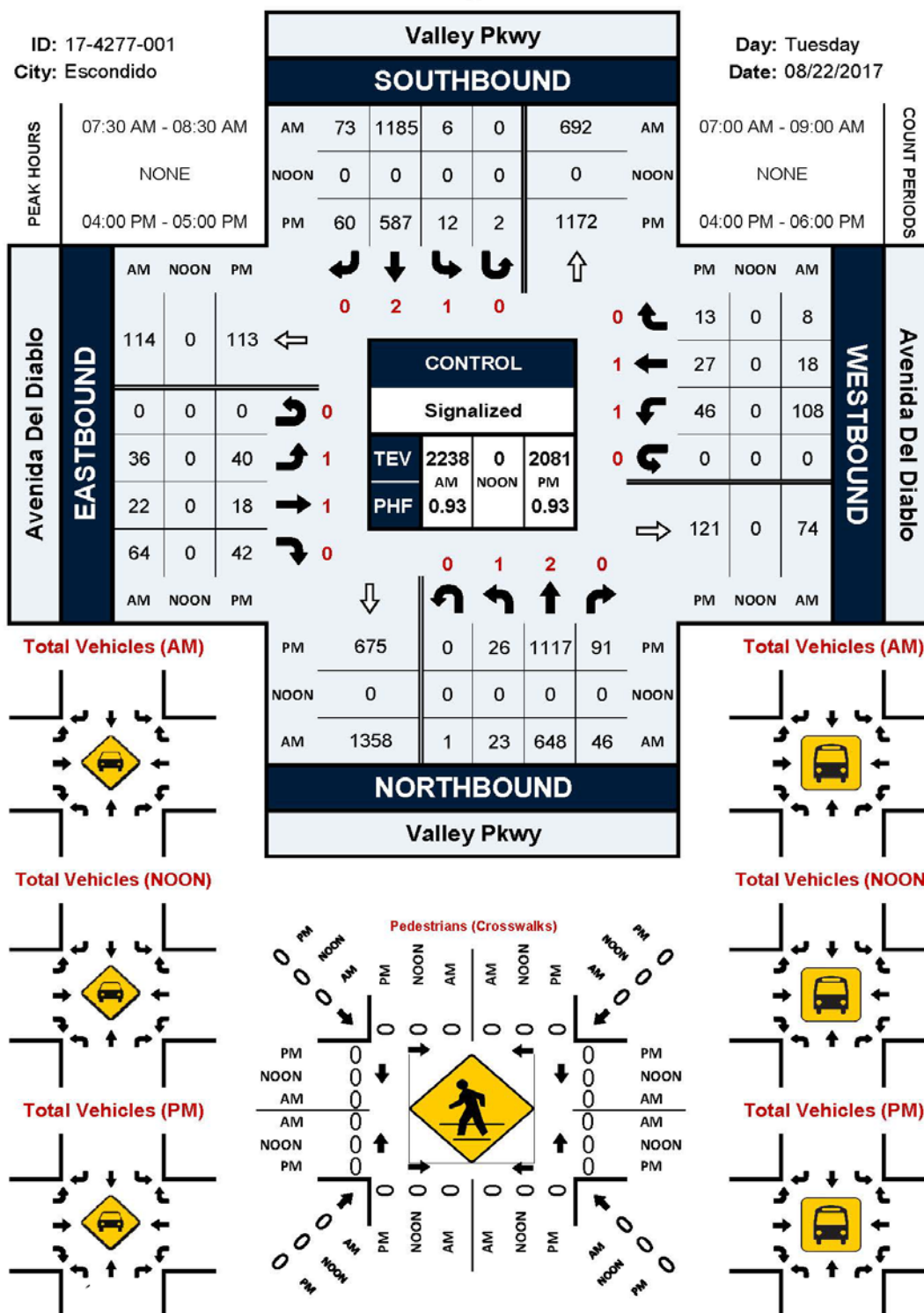
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	←	←	→	→	←	→	→	←	→	→
Traffic Volume (veh/h)	36	22	64	46	27	8	24	872	46	6	1374	73
Future Volume (veh/h)	36	22	64	46	27	8	24	872	46	6	1374	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Q <sub>0</sub> ) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ,pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	39	24	70	50	29	9	26	948	50	7	1480	79
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	50	147	182	164	51	40	2070	126	13	2019	122
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.02	0.69	0.69	0.01	0.69	0.69
Sat Flow, veh/h	1364	420	1226	1297	1305	420	1774	3420	180	1774	3420	180
Grp Volume(s), veh/h	39	0	94	50	0	31	25	491	507	7	770	802
Grp Sat Flow(s), veh/h	1364	0	1646	1297	0	1789	1774	1770	1521	1774	1770	1521
Q Serve(s), s	2.0	0.0	4.0	2.3	0.0	1.4	1.1	8.8	8.8	0.2	18.6	18.8
Cycle Q Clear(s), s	3.4	0.0	4.0	6.9	0.0	1.4	1.1	8.8	8.8	0.2	18.6	18.8
Prop In Lane	1.00	0.00	0.74	1.00	0.00	0.24	1.00	0.00	0.10	1.00	0.00	0.10
Lane Grp Cap(s), veh/h	223	0	197	182	0	214	40	1226	1269	13	1200	1241
V/C Ratio(s)	0.17	0.00	0.48	0.27	0.00	0.11	0.66	0.40	0.40	0.55	0.64	0.65

## Valley Pkwy &amp; Avenida Del Diablo

## Peak Hour Turning Movement Count

ID: 17-4277-001  
City: Escondido

Day: Tuesday  
Date: 08/22/2017



**RTC-L2-5**  
**ATTACHMENT C**

**VALLEY PARKWAY: CITRACADO PARKWAY TO CLAUDAN ROAD**  
**STREET SEGMENT LEVEL OF SERVICE ANALYSIS**

**RTC-L2-5 – ATTACHMENT C**  
**SUPPLEMENTAL ANALYSIS – VALLEY PARKWAY: CITRACADO PARKWAY TO CLAUDAN ROAD**  
**DAILY STREET SEGMENT LEVEL OF SERVICE OPERATIONS**

Street Segment	Jurisdiction	Capacity (LOS E) <sup>a</sup>	Existing			Existing + Project			
			ADT <sup>b</sup>	LOS <sup>c</sup>	V/C <sup>d</sup>	ADT	LOS	V/C	Δ <sup>e</sup>
Valley Parkway Citracado Parkway to Claudan Road	City of Escondido	37,000	19,687	B	0.532	20,452	C	0.553	0.021
		Capacity (LOS E) <sup>a</sup>	Existing + Cumulative Projects			Existing + Cumulative Projects + Project			
			ADT <sup>b</sup>	LOS <sup>c</sup>	V/C <sup>d</sup>	ADT	LOS	V/C	Δ <sup>e</sup>
		37,000	23,187	C	0.627	23,952	C	0.647	0.021

**Footnotes:**

- a. Capacity based on the City of Escondido Roadway Classification Table. Roadway is currently built as a four-lane road divided by a center turn lane. The curb-to-curb distance of 82 feet corresponds to a four-lane Major Road per the City's roadway design standards.
- b. Average Daily Traffic Volumes. Data collected in August 2017 while schools were in session.
- c. Level of Service.
- d. Volume to Capacity.
- e. "Δ" denotes the Project-induced increase in V/C



## VOLUME

Valley Pkwy Bet. Citracado Pkwy &amp; Claudan Rd

Day: Wednesday

Date: 8/9/2017

City: Escondido

Project #: CA17\_4268\_001

DAILY TOTALS					NB	SB	EB		WB		Total
					9,570	10,267	0		0		19,837
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	10	7			17	12:00	126	142			268
00:15	15	4			19	12:15	132	142			274
00:30	6	7			13	12:30	157	140			297
00:45	4	35	9	27	13	12:45	135	550	145	569	280
01:00	8	5			13	13:00	138	151			289
01:15	3	0			3	13:15	129	152			281
01:30	4	3			7	13:30	145	132			277
01:45	6	21	2	10	8	13:45	144	556	136	571	280
02:00	2	1			3	14:00	170	135			305
02:15	3	1			4	14:15	196	123			319
02:30	0	6			6	14:30	196	131			327
02:45	4	9	6	14	10	14:45	209	771	122	511	331
03:00	2	3			5	15:00	219	143			362
03:15	0	3			3	15:15	252	136			388
03:30	2	8			10	15:30	248	157			405
03:45	1	5	7	21	8	15:45	247	966	164	600	411
04:00	2	6			8	16:00	269	148			417
04:15	2	14			16	16:15	273	150			423
04:30	6	19			25	16:30	259	140			399
04:45	7	17	22	61	29	16:45	271	1072	146	584	417
05:00	10	35			45	17:00	257	155			412
05:15	12	62			74	17:15	257	157			414
05:30	19	98			117	17:30	245	141			386
05:45	18	59	101	296	119	17:45	241	1000	132	585	373
06:00	29	167			196	18:00	209	117			326
06:15	50	260			310	18:15	239	111			350
06:30	62	330			392	18:30	204	97			301
06:45	75	216	308	1065	383	18:45	194	846	91	416	285
07:00	62	304			366	19:00	133	65			198
07:15	84	336			420	19:15	139	47			186
07:30	114	319			433	19:30	125	73			198
07:45	128	388	294	1253	422	19:45	103	500	59	244	162
08:00	88	315			403	20:00	86	55			141
08:15	120	291			411	20:15	87	71			158
08:30	126	263			389	20:30	65	60			125
08:45	103	437	191	1060	294	20:45	75	313	40	226	115
09:00	118	172			290	21:00	61	37			98
09:15	111	208			319	21:15	48	29			77
09:30	101	166			267	21:30	50	41			91
09:45	112	442	178	724	290	21:45	45	204	37	144	82
10:00	113	144			257	22:00	36	26			62
10:15	107	133			240	22:15	36	23			59
10:30	110	150			260	22:30	31	18			49
10:45	109	439	115	542	224	22:45	22	125	20	87	42
11:00	129	153			282	23:00	26	14			40
11:15	120	151			271	23:15	19	23			42
11:30	121	138			259	23:30	23	14			37
11:45	138	508	152	594	290	23:45	23	91	12	63	35
TOTALS	2576	5667			8243	TOTALS	6994	4600			11594
SPLIT %	31.3%	68.7%			41.6%	SPLIT %	60.3%	39.7%			58.4%

DAILY TOTALS					NB	SB	EB	WB	Total
					9,570	10,267	0	0	19,837
AM Peak Hour	11:45	06:30		07:15	PM Peak Hour	16:00	15:30		15:30
AM Pk Volume	553	1278		1678	PM Pk Volume	1072	619		1656
Pk Hr Factor	0.881	0.951		0.969	Pk Hr Factor	0.982	0.944		0.979
7 - 9 Volume	825	2313	0	3138	4 - 6 Volume	2072	1169	0	3241
7 - 9 Peak Hour	07:45	07:15		07:15	4 - 6 Peak Hour	16:00	16:45		16:00
7 - 9 Pk Volume	462	1264	0	1678	4 - 6 Pk Volume	1072	599	0	1656
Pk Hr Factor	0.902	0.940	0.000	0.969	Pk Hr Factor	0.982	0.954	0.000	0.979

