

Final Report

Transportation Impact Study for Vista Canyon Transit-Oriented Development



Prepared for: Vista Canyon Ranch, LLC



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EXECUTIVE SUMMARY

This report analyzes the transportation impacts of the proposed Vista Canyon Transit-Oriented Development (TOD) located in unincorporated Los Angeles County directly adjacent to the City of Santa Clarita, CA. The project is located south of State Route (SR) 14 between the Via Princessa and Sand Canyon Road interchanges. The project applicant is proposing to annex the project into the City of Santa Clarita. The following provides an overview of the project's expected impacts to the transportation system.

Project Description

The project includes the following mix of land uses plus a new Metrolink commuter rail station, a City bus transfer station, and a water reclamation plant (water factory):

- 1,021 attached, condominium units¹, and 96 single-family dwelling units
- 646,000 square-feet of office space,
- 164,000 square-feet of general retail space (including a ten-screen movie theater)
- 200-room hotel

The project also includes the annexation by the City of Santa Clarita of the project site. Vehicular access to the Vista Canyon project would be provided as follows:

- Lost Canyon Road (to Via Princessa)
- Jakes Way (to Canyon Park Boulevard)
- Vista Canyon Road (to Soledad Canyon Road)
- Lost Canyon Road (to Sand Canyon Road)

The first phase of the project (Phase 1) would consist of 680 attached, multi-family units, 25,000 square feet of retail space², and the water factory. The proposed Metrolink Station, the Vista Canyon Road Bridge over the Santa Clara River, and the easterly extension of Lost Canyon Road to La Veda Avenue would not be constructed or operational with Phase 1. However, the other street connections would be made.

Existing Conditions

Fehr & Peers conducted traffic counts at the 23 study intersections and various study segments of SR 14 in November 2008. The following study facilities currently operate unacceptably (based on the policies of the applicable agency):

- Soledad Canyon Road/Bouquet Canyon Road (LOS E during PM peak hour)
- Placerita Canyon Road/SR 14 SB Ramps (LOS F during both peak hours)
- SB SR 14 from Sand Canyon Road to Golden Valley Road (LOS F during AM peak hour)

^{2. 430} of the 680 attached, condominium units are assumed to be for-lease units



^{1.} For purposes of this traffic study, 579 of the attached, condominium units are assumed to be for-lease units

The Sand Canyon Road/Lost Canyon Road intersection has been observed to operate in the LOS E/F range during the peak 15-minutes prior to classes starting at the Pinecrest and Sulphur Springs schools. However, when considering the entire peak hour, existing operations are at an acceptable LOS D.

Analysis Methods

The impacts of the proposed project were analyzed for the following scenarios:

- 2012 Plus Phase 1 Project Conditions
- Interim (Project Buildout) Conditions
- Cumulative (Project Buildout) Conditions

Background traffic forecasts for all scenarios were developed using a version of the Santa Clarita Valley Consolidated Travel Demand Model (SCVCTDM) enhanced by Fehr & Peers to provide improved forecasting accuracy in the study area. Figure 11 shows the assumed roadway improvements under interim conditions.

Project Travel Characteristics

Fehr & Peers coordinated with the City on the level of internal trip-capture (10 percent) and transit mode share (7 percent) to be assumed for analysis purposes. The resulting 17 percent internal/transit trip reduction is considered conservative given recent research and findings on TOD travel behavior characteristics. This assumption ensures that the analysis of potential off-site traffic impacts is not understated and rather is likely overstated. In fact, Fehr & Peers' analysis of the TOD travel research suggests that a greater level of internal trip-capture and transit mode share, perhaps in the range of 25 percent, could occur at Vista Canyon.

The analysis of project impacts on the surrounding roadway network considers both external vehicle (and bus) trips generated by the project as well as the trips entering/exiting the site to use the Metrolink station. The assumed level of auto travel to/from the rail station represents a substantial increase in park-and-ride ridership over the existing Via Princessa station, which the proposed station would replace.

Phase 1 Impacts under 2012 Conditions

Phase 1 of the project would cause significant impacts at the following five study intersections:

- Soledad Canyon Road/SR 14 SB Ramps
- Sand Canyon Road/Lost Canyon Road
- Via Princessa/SR 14 SB Ramps
- Via Princessa/SR 14 NB Ramps
- Via Princessa/Lost Canyon Road



Recommended mitigation at the Soledad Canyon Road/SR 14 SB Ramps intersection consists of converting the westbound left-turn lane onto the SB SR 14 on-ramp from a permitted to protected signal phase, and retiming this signal and the adjacent Sand Canyon Road/Soledad Canyon Road signal. Recommended improvements at the Via Princessa/SR 14 ramp intersections consist of traffic signal timing modifications. The recommended mitigation at the Via Princessa/Lost Canyon Road intersection consists of installing a right-turn overlap arrow on the westbound Lost Canyon Road approach.

Phase 1 of the project would further degrade LOS F operations at the Sand Canyon Road/Lost Canyon Road intersection even though Phase 1 does not include an easterly connection to Lost Canyon Road at La Veda Avenue. Phase 1 does include completion of the multi-use path along the Santa Clara River that would enable Vista Canyon residents to walk/bike to adjacent Sulphur Springs Elementary School. Phase 1 has a minimal contribution of traffic to the intersection (15 AM peak hour trips, which is a 1 percent increase) and therefore, the project does not include improvements to this intersection as part of Phase 1. The project would have a "temporary" significant unavoidable impact that would be mitigated upon completion of Intersection Design Option No. 2, 3 or 4 (see below) and the Lost Canyon Road improvements. From a traffic operational standpoint, Design Option No. 3 (Roundabout) is preferred.

Project Buildout Impacts under Interim Conditions

Project Buildout would cause significant impacts at the following study intersections:

- 2) Sand Canyon Road/Soledad Canyon Road
- 3) Soledad Canyon Road/SR 14 SB Ramps
- 5) Sand Canyon Road/Lost Canyon Road
- 7) Soledad Canyon Road/Lost Canyon Road
- 8) Sierra Highway/Soledad Canyon Road
- 14) Via Princessa/SR 14 SB Ramps
- 15) Via Princessa/SR 14 NB Ramps
- 16) Via Princessa/Lost Canyon Road

Figure ES-1 illustrates the physical improvements identified for these intersections. The identified mitigations are considered feasible and would reduce the impact to a less-than-significant level. Construction of the improvements illustrated in Figure ES-1 by the applicant would entitle the applicant to a credit under the Eastside Bridge and Major Thoroughfare (B&T) District in an amount equal to all costs expended to construct the improvements.

Project impacts were analyzed at the three Congestion Management Program (CMP) monitoring intersections and one freeway segment within the study area. An impact was identified at the Soledad Canyon Road/Sierra Highway intersection. A mitigation was identified, which would reduce the impact to less than significant. The project will be paying Eastside B&T fees or constructing eligible District improvements, and as such contributing its fair share to mitigate impacts within the District.



Project Impacts on Bicycle/Pedestrian Systems

The project would add a substantial amount of bicycle and pedestrian facilities within the project site. The project would not adversely affect an existing bicycle/pedestrian facility, nor cause an inconsistency with relevant policies in the City's *Non-Motorized Transportation Plan* (adopted in 2008). Therefore, impacts to the bicycle and pedestrian systems would be less-than-significant.

Project Impacts on Transit System

The proposed project would replace the existing Via Princessa Metrolink rail station with a new on-site rail station. The new station would help relieve parking shortages at other existing stations in the Valley and draw new riders to Metrolink commuter rail. The project also includes a bus transfer center that would connect with Metrolink service. The applicant would contribute funding toward the new Metrolink Station and Bus Transfer Station as required by the City's Transit Mitigation Fee. The project would not conflict with any transit policies in the City's *Transportation Development Plan* (adopted 2006). Therefore, project impacts to the transit system are considered less-than-significant.

Lost Canyon Road Improvements (Project Site Easterly to Sand Canyon Road)

Buildout of the proposed project would include improvements to the segment of Lost Canyon Road between the project site and Sand Canyon Road. This segment presently has one lane in each direction with a posted speed limit of 30 mph (25 mph when children are present). A continuous sidewalk is provided on the south side of the street, from the project site to Sand Canyon Road. Sulphur Springs Elementary School and Pinecrest School both take vehicular access from this segment of Lost Canyon Road. Presently, this segment of Lost Canyon Road is congested when school is in session during the morning when students are being dropped off and in the afternoon when students are being picked up. The proposed improvements include:

- Pavement widening and striping of this segment of Lost Canyon Road to accommodate
 one travel lane in each direction with a median turn lane, a trail along the north side of
 the roadway, a roundabout at the intersection of La Veda Avenue and Lost Canyon Road
 and on-street parallel parking on the south side of Lost Canyon Road. These
 improvements would be completed within the existing right-of-way.
- Restricting the outbound-only driveways at each school to right-turns to minimize conflicting turning movements, provided that a roundabout (versus a traffic signal) is constructed at the Lost Canyon Road/Sand Canyon Road intersection.
- Constructing a narrow raised median at the easterly Pinecrest School driveway and posting a sign that prohibits u-turns.



Sand Canyon Road/Lost Canyon Road Intersection Design Options

As part of buildout, the proposed project would implement one of the following four design options for the Sand Canyon Road/Lost Canyon Road intersection, all of which are analyzed in this study:

- Option 1 (Four-Way Stop) this design option is presently in place at the intersection.
 Under this design option, the operation of this intersection in the future would worsen to
 LOS F with or without the Vista Canyon project. If this option is selected by the City, the
 project would result in a significant unavoidable impact at the intersection.
- Option 2 (Signalized Intersection with "Look Ahead Signal") this design option would result in a signalized intersection, with a "look ahead" signal head at the southwest corner to address northbound "line of sight" requirements. Minimal widening of the intersection would occur with this design option, with right-of-way necessary at the northwest and southeast corners. Encroachment within the protected zone of the heritage oak tree located along the eastern edge of Sand Canyon Road would remain similar to the existing condition. A fence, located within the right-of-way, would have to be removed to adhere to "line of sight" requirements. Option 2 would result in the improved operation of the intersection in the future (LOS D) even with future growth (including Vista Canyon), as compared to the existing four-way stop design.
- Option 3 (Roundabout) this design option would include the installation of a "roundabout" or traffic circle at the intersection. This option would involve the relocation of the intersection to the north and west to adhere to northbound "line of sight" requirements. Right-of-way acquisition would be necessary on all four corners; most of it would come from the northwest corner (which is presently vacant). Encroachment within the protected zone of the heritage oak tree located along the eastern edge of Sand Canyon Road would still occur, consistent with the existing condition. From a traffic operational standpoint, this design option would be the best of the four, improving the future LOS F under the existing design to an LOS C in the AM peak hour and LOS B in the PM peak hour even with future growth (including the Vista Canyon project).
- Option 4 (Signalized Intersection Standard Configuration) this design option improves the Lost Canyon Road/Sand Canyon Road intersection with a fully signalized intersection complying with all of the City's standard intersection design criteria. This option would require the acquisition of right-of-way on the northwest and southeast corner. A "line of sight" easement would be needed from three properties located east of Sand Canyon Road and south of the intersection. All vegetation and fencing within this easement would need to be removed, including the heritage oak tree located along the eastern edge of Sand Canyon Road. Similar to the "Look Ahead Signal" design option, this option would result in the improved operation of the intersection (LOS D), as compared to the existing design, even with future growth (including the Vista Canyon project).



Project Impacts Under Cumulative Conditions

The project would cause the following two significant impacts to roadways in the City under cumulative conditions:

- Soledad Canyon Road between Sierra Highway and Whites Canyon Road LOS E to F (v/c ratio increases from 0.99 to 1.02)
- Soledad Canyon Road between Whites Canyon Road and Golden Valley Road LOS E maintained (v/c ratio increases from 0.94 to 0.97)

No feasible improvements are available as this arterial is already constructed to its ultimate width of six lanes. The project would result in a net increase of 1,500 to 1,800 vehicles per day on these impacted segments, which are expected to carry between 52,000 and 55,000 vehicles per day under cumulative conditions (i.e., project trips would be about 3 percent of the total volume). Although these impacts are considered significant and unavoidable, it is worth noting that the project is a transit-oriented development, and as such, generates fewer vehicle trips and miles of travel than traditional developments. The project will also be paying B&T fees or constructing eligible improvements that serve to mitigate or minimize impacts within the District boundaries.

The City of Santa Clarita General Plan Circulation Element states, "Existing street improvements are in some cases, not able to be modified to accommodate additional traffic or circulation improvements due to right-of-way limitations and existing development." This language recognizes that in some cases it is not feasible to construct certain roadway improvements in light of potential time and cost of actions that may be necessary to acquire the property, the physical and economic costs to businesses and residents along the affected roadways, and the social costs that could occur if businesses or residents were forced to relocate. The draft One Valley-One Vision (OVOV) Plan also acknowledges the tradeoff between improving roadway operations in light of right-of-way constraints and pedestrian mobility.

Additionally, project buildout would increase traffic on SR 14 resulting in significant impacts on the segment between Sand Canyon Road and Soledad Canyon Road under interim and cumulative conditions. Project trips are estimated at 3.8 percent of future traffic growth for on this segment. The majority of the future traffic growth on SR 14 comes from areas east and north of the Santa Clarita Valley.

There presently are no improvements for SR 14 planned and programmed by Caltrans that would mitigate the identified project impacts under interim and cumulative conditions, nor is there an established funding program in place to collect developer fees to implement any such improvements. Notwithstanding, the project applicant and Caltrans have negotiated a Traffic Mitigation Agreement that requires the applicant to pay an in-lieu fee to Caltrans for future improvements to SR 14 based upon the project's fair share. The Traffic Mitigation Agreement would be signed by both parties upon project approval. However, because there are presently no planned and programmed improvements for SR 14, nor is there an established funding program, the project's payment of an in-lieu fee would not fully mitigate the identified significant



impacts. Therefore, mitigation is considered infeasible and the identified impacts would remain significant and unavoidable.

Impacts due to Modified Roadway System

The Vista Canyon project would result in a slightly different roadway system in the project vicinity than the circulation plan contemplated in the City's General Plan and Draft OVOV plan. The City's circulation plan would extend Lost Canyon Road northeasterly from Jakes Way as a major highway to Sand Canyon Road. The Vista Canyon project would construct Vista Canyon Road as a two-lane secondary highway across the Santa Clara River to Soledad Canyon Road. With the Vista Canyon project, Lost Canyon Road would be four lanes between Jakes Way and Vista Canyon Road, and two lanes between Vista Canyon Road and Sand Canyon Road.

Based on analysis using the Santa Clarita Valley Consolidated Travel Demand Model, the Vista Canyon street system would not cause any street segments to worsen from an acceptable to an unacceptable level. In fact, the Vista Canyon Road connection to Soledad Canyon Road would result in a net reduction in traffic at several intersections (Lost Canyon Road/Sand Canyon Road, Sand Canyon Road/Soledad Canyon Road, and Lost Canyon Road/Via Princessa) that were shown as operating unacceptably under interim (2015) conditions. Therefore, the proposed Vista Canyon circulation system would not cause any adverse circulatory impacts when compared to the City's Existing General Plan and the Draft OVOV circulation plan.

Vehicle Miles of Travel (VMT) Estimation

Chapter 10 of this report evaluates the project's estimated daily Vehicle Miles of Travel (VMT), which is an important input to the project's climate change and greenhouse gas emissions analysis. The analysis revealed the following conclusions:

- The residential component of Vista Canyon is estimated to generate an average of 58 VMT per household per day, which is in the low-end of the estimated state-wide average of 55 to 65 daily VMT per household, and likely much less than the VMT for most households in the Santa Clarita Valley. Given that internal trip-capture and transit use will likely be greater than what was assumed in this study (based on academic research and findings), the residential component will likely generate less than 58 VMT per day. If the project site was developed under its draft One Valley One Vision residential land use designation (without immediate transit access or supporting non-residential), 71 VMT per household would be expected.
- The provision of on-site office, retail, and other supporting uses along with public transit provides Vista Canyon residents the option to bike or walk, make shorter trips within the site if necessary, and longer trips by transit instead of automobile.
- The project would provide a significant amount of professional office space, which
 provides opportunities for more residents to live and work within Santa Clarita Valley.
 Although the travel benefits of this are difficult to quantify, it is expected based on past



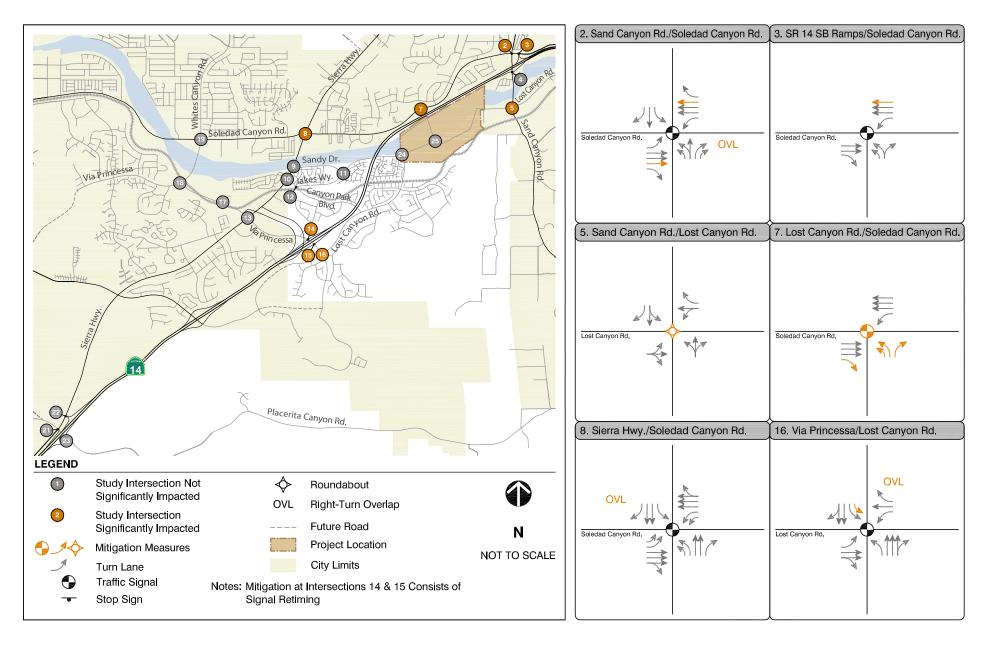
commute trends, some residents of the Santa Clarita and Antelope Valleys who currently commute into Burbank, Glendale, or Los Angeles, will instead work in Vista Canyon.

Evaluation of Local Circulation

Fehr & Peers assisted in refinements to the project site plan including layouts/lane markings for roundabouts, width/number of lanes on Vista Canyon Road, and permitted turning movements at project access intersections along Lost Canyon Road.

As indicated above, Fehr & Peers recommended improvements along Lost Canyon Road between the project site and Sand Canyon Road to improve access to Sulphur Springs Elementary School and Pinecrest School, while also providing additional capacity to accommodate project trips (refer to Figure 20 for illustration of recommended improvements).







RECOMMENDED MITIGATION MEASURES FOR PROJECT IMPACTS UNDER INTERIM CONDITIONS

1. INTRODUCTION

This report analyzes the transportation impacts associated with the proposed Vista Canyon Transit-Oriented Development (TOD) located in unincorporated Los Angeles County adjacent to the City of Santa Clarita, CA. The project proponent is proposing annexation of the project to the City of Santa Clarita. As shown on Figure 1a, the project is situated in the southeast area of Santa Clarita Valley directly south of State Route (SR) 14 between the Via Princessa and Sand Canyon Road interchanges. The project includes a mix of residential and non-residential land uses and a new Metrolink commuter rail station.

The analysis contained in this report will form the basis of the transportation chapter for the project Environmental Impact Report (EIR). Therefore, the assumptions and methodologies used in the study are intended to comply with applicable California Environmental Quality Act (CEQA) guidelines and requirements.

STUDY APPROACH

Fehr & Peers met with City of Santa Clarita staff in July 2008 to discuss the approach to this study. A detailed scope of work was developed by Fehr & Peers in October 2008. It was reviewed and approved by the City's Traffic Division. The scope of work was developed in consideration of the following important factors:

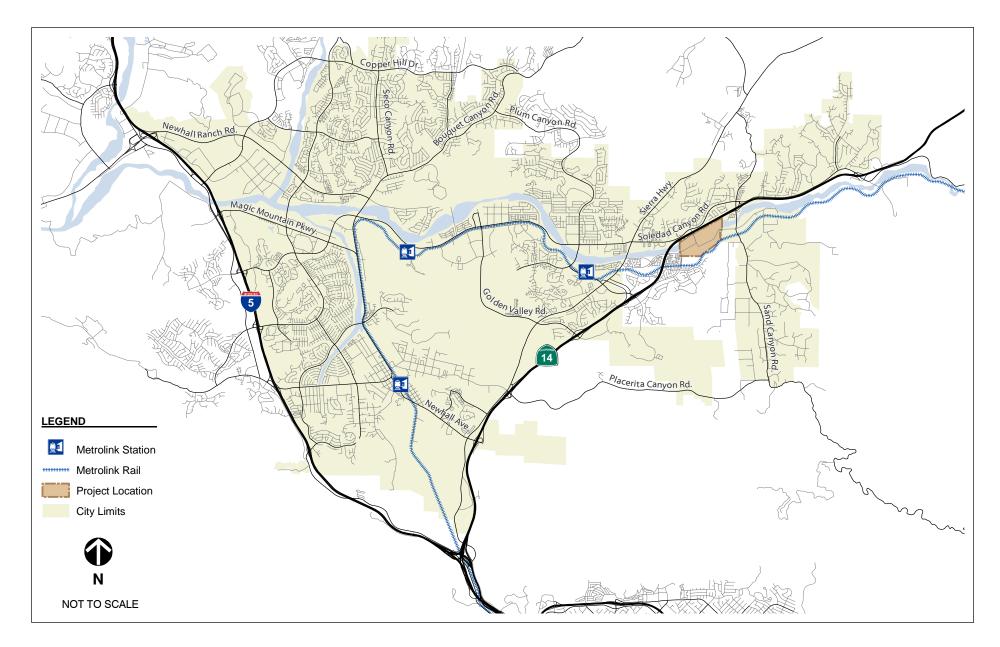
- 1. Operations should be analyzed at intersections using a methodology that produces results that match field observations.
- 2. The study should make appropriate assumptions regarding reductions in vehicle trips due to the mixed-use nature of the project and its immediate proximity to a new Metrolink station and bus transfer station.
- Additional roadway and land use detail should be added to the Santa Clarita Valley Consolidated Travel Demand Model (SCVCTDM) to better predict traffic levels in the project vicinity.
- Improvements to Lost Canyon Road west of Sand Canyon Road should be identified to improve access to the Sulphur Springs Elementary School and Pinecrest School, while also accommodating project traffic.

The following describes the study area, analysis scenarios, and analysis periods.

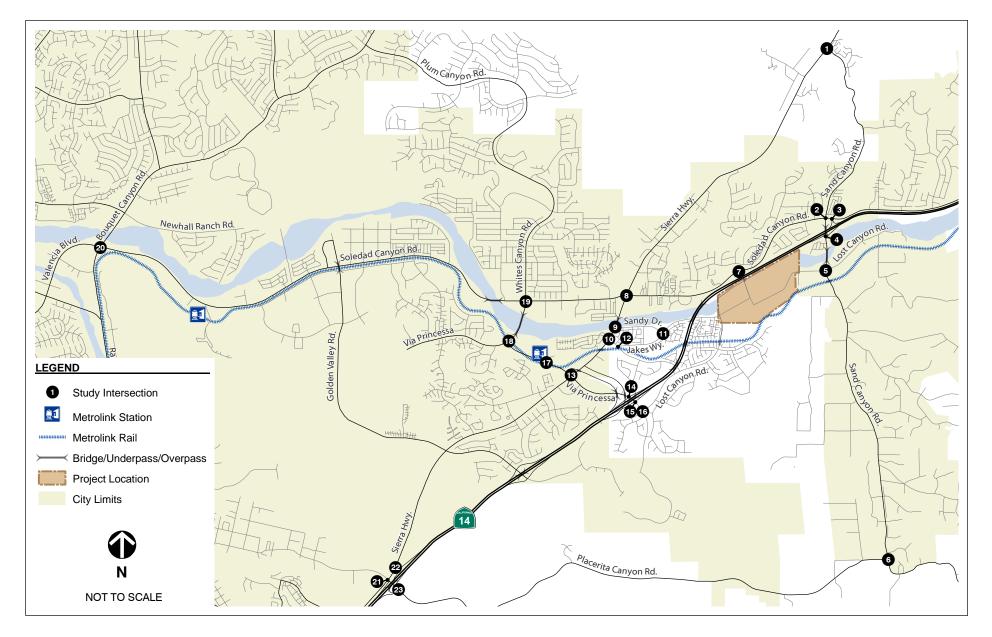
Study Area

The study area shown on Figure 1b was selected based on the project's expected travel characteristics (i.e., location and amount of project-added trips) as well as facilities susceptible to being impacted by the project. In addition, a project-only traffic assignment of the SCVCTDM was performed during the scoping phase to identify general directions of project-related travel and intersections that should be studied for potential impacts. The list of study facilities was reviewed by the City prior to beginning the impact analysis.













The study area is generally bounded by Sand Canyon Road on the east, Bouquet Canyon Road on the west, Sierra Highway on the north, and Placerita Canyon Road on the south. Three freeway interchanges on SR 14 are analyzed, as is SR 14 from Interstate 5 (I-5) to north of Sand Canyon Road. A total of 23 intersections were selected for analysis. These locations are shown on Figure 1.

Intersections 1, 11, 12, 15, 16, and 23 are located within unincorporated Los Angeles County. The remaining intersections are within the City of Santa Clarita. Intersections 3, 4, 14, 15, 22, and 23 are maintained by Caltrans.

Analysis Scenarios

The following scenarios are analyzed in this study:

- 1) Existing Conditions
- 2) 2012 No Project Conditions
- 3) 2012 Plus Phase 1 Project Conditions
- 4) Interim (2015) No Project Conditions
- 5) Interim (2015) Plus Project Buildout Conditions
- 6) Cumulative (2030) No Project Conditions
- 7) Cumulative (2030) Plus Project Buildout Conditions

The "2012 plus Phase 1 project" scenario evaluates the first phase of the project under assumptions that the Metrolink station is not built or operational, Vista Canyon Road is not extended across the Santa Clara River to Soledad Canyon Road and Lost Canyon Road is not extended easterly from the project to La Veda Avenue. The interim scenario is commonly analyzed for traffic studies in Santa Clarita. The cumulative scenario is required both by the City and CEQA.

Analysis Periods

The existing, 2012, and interim conditions scenarios focus on weekday AM and PM peak hour operations at intersections and freeways. The cumulative condition scenarios focus on average daily roadway operations on City streets.

This forecasting approach is reasonable given the difficulty of developing accurate peak hour turning movement projections at intersections 20 years in the future. Instead, daily traffic projections are developed for roadways to determine whether the proposed roadway right-of-way and cross-sections are adequate.



2. ANALYSIS METHODS

This chapter describes the analysis methodologies for intersections, freeway facilities, and arterial roads used in the following chapters.

INTERSECTIONS

For this study, the City of Santa Clarita Traffic Division required that signalized intersections in the City or directly adjacent to the City be analyzed using HCM procedures either through Synchro or SimTraffic (a micro-simulation component of the Synchro program). HCM procedures include: cycle length, green splits, pedestrian crossings, lane widths, grade, truck traffic, signal coordination, turn lane blockages, and effects caused by upstream or downstream intersections. These factors are considered in the Synchro/SimTraffic software program, which employs procedures described in the *Highway Capacity Manual (HCM)*, Transportation Research Board, 2000. Synchro or SimTraffic was also used to analyze ramp terminal intersections under the jurisdiction of Caltrans. The ICU method was selected for the other signalized intersections, all of which are located in Los Angeles County, consistent with their requirements. The ICU method is a planning-level tool that assigns a level of service (LOS) grade to an intersection based on its volume-to-capacity (v/c) ratio.

SimTraffic was selected in place of Synchro to analyze signalized intersections that are oversaturated or adversely affected by adjacent intersections. Per standard practice, 10 SimTraffic model runs are performed with the average results reported.

The ICU method assigns an overall LOS grade to the intersection. LOS by approach is not applicable. Conversely, Synchro and SimTraffic calculate the average control delay of all vehicles passing through an intersection, and assign the LOS based on the average delay. Table 1 shows the v/c ratio thresholds (for ICU) and average delay thresholds associated with each LOS grade.



TABLE 1:
INTERSECTION LOS CRITERIA

116	Signalized	Unsignalized Intersections	
Level of Service	ICU Method ¹ (V/C Ratio)	Synchro/SimTraffic (HCM) Average Delay	Average Delay
А	<u><</u> 0.60	≤ 10 sec/veh	≤ 10 sec/veh
В	0.61 to 0.70	> 10 to 20 sec/veh	> 10 to 15 sec/veh
С	0.71 to 0.80	> 20 to 35 sec/veh	> 15 to 25 sec/veh
D	0.81 to 0.90	> 35 to 55 sec/veh	> 25 to 35 sec/veh
Е	0.91 to 1.00	> 55 to 80 sec/veh	> 35 to 50 sec/veh
F	> 1.00	> 80 sec/veh	> 50 sec/veh

Note: ¹ Assumed to have a saturation flow rate of 1,600 vehicles per hour per lane with a 0.10 clearance interval. Source: *Highway Capacity Manual* (Transportation Research Board, 2000), and ICU Methodology.

Unsignalized intersections were analyzed using the *HCM* methodology. The LOS at all-way stop intersections is based on the average delay of all vehicles. The LOS at side-street stop intersections is reported for the minor street movement with the greatest delay. Table 1 shows the average delay thresholds associated with each LOS grade for unsignalized intersections.

FREEWAYS

This study analyzes several mainline segments of SR 14 as well as ramp merge/diverge operations. These facilities are analyzed in accordance with procedures described in the *HCM*. The density in passenger cars per hour per lane is calculated for the mainline and ramp junctions and then compared to thresholds in the *HCM* to identify the corresponding LOS.

Because the observed traffic volumes for a given freeway segment reflect traffic that is able to be served (not the demand), additional descriptions of travel times and congestion are provided to ensure that reported operations match field conditions.

ARTERIAL ROADS

The City of Santa Clarita Draft General Plan Circulation Element Update (2008) contains average daily traffic (ADT) volume LOS ranges for various roadway types. Table 2 shows the ADT range for each LOS grade for various roadway cross-sections.



TABLE 2:
ARTERIAL ROADWAY LOS CRITERIA

	Number of Maximum Average Daily Traffic (ADT) at					
Facility Type	Through Lanes	LOS A	LOS B	LOS C	LOS D	LOS E
Limited Secondary Highway	2 lanes	12,000	13,500	15,000	16,500	18,000
Secondary Highway	4 lanes	24,000	27,000	30,000	33,000	36,000
Secondary Highway (Limited Access)	4 lanes	28,000	32,000	36,000	40,000	44,000
Major Highway	6 lanes	36,000	40,400	45,000	49,500	54,000
Major Highway	8 lanes	48,000	54,000	60,000	66,000	72,000
Source: City of Santa Clarita Draft General Plan Circulation Element Update (2008).						

CMP ANALYSIS

A Congestion Management Program (CMP) analysis was conducted in accordance with procedures described in Appendix B - Guidelines for CMP Transportation Impact Analyses presented in the 2004 Congestion Management Program for Los Angeles County. Appendix B specifies the following analysis methods for qualifying intersections and freeways:

- Qualifying CMP arterial monitoring signalized intersections should be analyzed using the ICU methodology.
- Qualifying freeway mainline segments are to be analyzed using a simplified demand-tocapacity calculation, in which the freeway has a capacity of 2,000 vehicles per hour per lane.

The qualifying intersections are Sierra Highway/Sand Canyon Road, Sierra Highway/Soledad Canyon Road, and Sierra Highway/Placerita Canyon Road. The qualifying freeway segment is the segment of SR 14 north of I-5 to Newhall Avenue.



3. IMPACT SIGNIFICANCE CRITERIA

This chapter presents the thresholds of significance to be used in identifying project-specific and cumulative impacts. Separate criteria are identified for the roadway, bicycle, pedestrian, and transit systems using policies of the City of Santa Clarita (*Local CEQA Guidelines* adopted by City Council in April 2005) and other responsible agencies.

SIGNIFICANCE CRITERIA – ROADWAY SYSTEM

The project would cause a significant impact if it would:

- Worsen an intersection maintained by the City of Santa Clarita from LOS D or better to LOS E or F.
- Cause the following increase in delay at an intersection maintained by the City of Santa Clarita that operates (with the project) at LOS D or worse:³
 - LOS D with the project: more than 4-second increase in delay is significant.
 - LOS E or F with the project: more than 2-second increase in delay is significant.
- Cause the following increase in volume-to-capacity (v/c) ratio under cumulative conditions on a roadway in the City of Santa Clarita:
 - LOS D with the project: more than 0.02 increase in v/c ratio is significant.
 - LOS E or F with the project: more than 0.01 increase in v/c ratio is significant.
- Cause the following increase in volume-to-capacity (v/c) ratio at an intersection or twolane roadway in unincorporated Los Angeles County:
 - LOS C pre-project: 0.04 or greater increase in v/c ratio is significant.
 - LOS D pre-project: 0.02 or greater increase in v/c ratio is significant.
 - LOS E or F pre-project: 0.01 or greater increase in v/c ratio is significant.
- Cause a facility maintained by Caltrans to worsen from LOS E or better to LOS F.
- Exacerbate LOS F operations on a facility maintained by Caltrans, causing the traffic demand to increase by 2 percent of capacity or more.

^{3.} Delay threshold calculated by converting the City's v/c ratio threshold into a corresponding delay threshold based on HCM delay range for given LOS category.



 Cause an intersection or two-lane roadway maintained by Los Angeles County to be significantly impacted in accordance with analysis procedures and thresholds set forth by the County.

SIGNIFICANCE CRITERIA – TRANSIT SYSTEM

The project would cause a significant impact if it would:

- Interfere with existing or planned transit system service or facilities.
- Cause an inconsistency with a policy related to transit in the City's *Transportation Development Plan* (adopted in 2006).

SIGNIFICANCE CRITERIA – BICYCLE/PEDESTRIAN SYSTEM

The project would cause a significant impact if it would:

- Eliminate or adversely affect an existing bikeway or pedestrian facility in a way that would discourage its use.
- Cause an inconsistency with a relevant policy in the City's *Non-Motorized Transportation Plan* (adopted in 2008).

SIGNIFICANCE CRITERIA - CMP ANALYSIS

The project would cause a significant impact if it would increase the traffic demand by 2 percent of capacity at a CMP intersection or freeway facility, thereby resulting in or exacerbating LOS F conditions.

CMP transportation analysis also includes a review of transit impacts. This includes evidence that the transit operators received the Notice of Preparation (NOP) of an EIR, identification of existing transit services near the project, estimation of the number of project-related transit trips, information on facilities and/or programs that encourage public transit, and an analysis of project impacts on transit service.



4. EXISTING CONDITIONS

This chapter presents the existing condition of the roadway, transit, bicycle, and pedestrian circulation in the study area.

ROADWAY SYSTEM

This section describes the freeways, arterials, and local streets that would provide access to the proposed project. The existing roadway system including roadway designations and number of lanes is shown on Figure 2.

Freeways

SR 14 (Antelope Valley Freeway) – is a north-south freeway that extends from I-5 in northern Los Angeles County through Santa Clarita and into the Antelope Valley. It gradually narrows from 11 lanes just north of I-5 to six lanes north of Sand Canyon Road. It has a posted speed limit of 65 miles per hour (mph). SR 14 has a continuous High Occupancy Vehicle (HOV) lane in each direction throughout the study area. The HOV lane is 2+ and operates southbound from 5:00 to 9:00 a.m. and northbound from 3:00 to 7:00 p.m. Outside of those hours, it functions as a general purpose lane. The following describes the cross-sections of SR 14 in the study area.

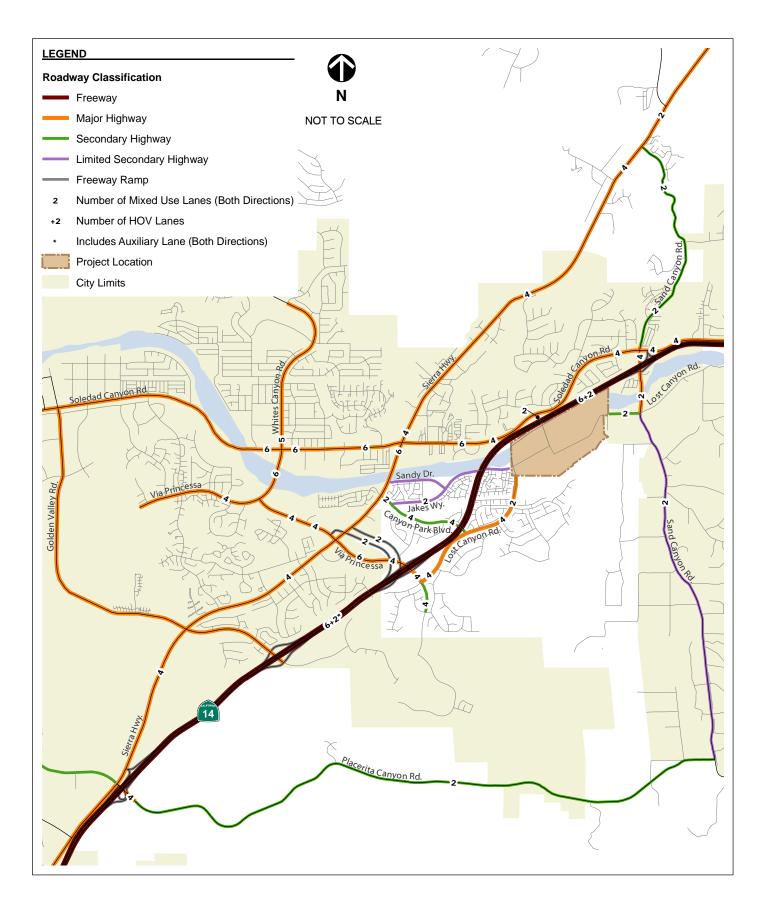
- North of I-5 (PM⁴=24.8) Northbound: 5 mixed-use and 1 HOV lane; Southbound: 4 mixed-use and 1 HOV lane. Average Annual Daily Traffic (AADT) is 169,000 vehicles.⁵
- North of Newhall Avenue (formerly San Fernando Road) (PM=27.0) 3 mixed-use lanes and 1 HOV lane in each direction. AADT is 156,000 vehicles.
- Between Golden Valley Road (PM=29.7) and Via Princessa/Sierra Highway (PM=30.8) interchanges 3 mixed-use lanes, 1 HOV lane, and 1 auxiliary lane in each direction. AADT is 148,000 vehicles.
- Between Via Princessa/Sierra Highway and Sand Canyon Road (PM=33.4) interchanges
 3 mixed-use lanes and 1 HOV lane in each direction. AADT is 118,000 vehicles.
- North of Sand Canyon Road interchange 2 mixed-use lanes and 1 HOV lane in each direction. AADT is 107,000 vehicles.

The Caltrans' counts indicate that traffic levels on SR 14 diminish as the freeway extends to the north. Likewise, the number of travel lanes is also reduced.

^{5.} Source: Caltrans 2007 traffic counts available at: http://www.dot.ca.gov/hg/traffops/saferesr/trafdata/



^{4.} PM = PostMile is a numerical value (in miles) assigned by Caltrans to a given point on a highway





According to the 2007 Average Annual Daily Truck Traffic on California State Highways (Caltrans, September 2008), trucks were estimated to represent about 5.5 percent of the daily traffic volume on SR 14 north of I-5. Truck percentages were not available at any other locations on SR 14 within the study area. Truck traffic during weekday peak hours is often lower due to the effects of commuting. Thus, for analysis purposes, a heavy vehicle percentage of four percent is used for SR 14 for peak hour analysis.

The Caltrans 2007 Highway Congestion Monitoring Program (HICOMP) indicates that segments of SR 14 between I-5 and Via Princessa/Sierra Highway are congested (defined as travel speeds below 35 mph for at least 15 consecutive minutes) for multiple hours of the morning commute period in the southbound direction and for multiple hours of the evening commute period in the northbound direction.

SR 14 Travel Time Surveys

On November 16-18, 2008, Fehr & Peers performed vehicle travel time surveys in the peak direction of SR 14 using global positioning system (GPS) equipment. Two AM peak hour surveys were conducted on southbound SR 14 and two PM peak hour surveys were conducted on northbound SR 14. The GPS equipment calculates the location of the GPS transponder every second. Simple data manipulation can then be used to calculate average speed from the distance and time measurements.

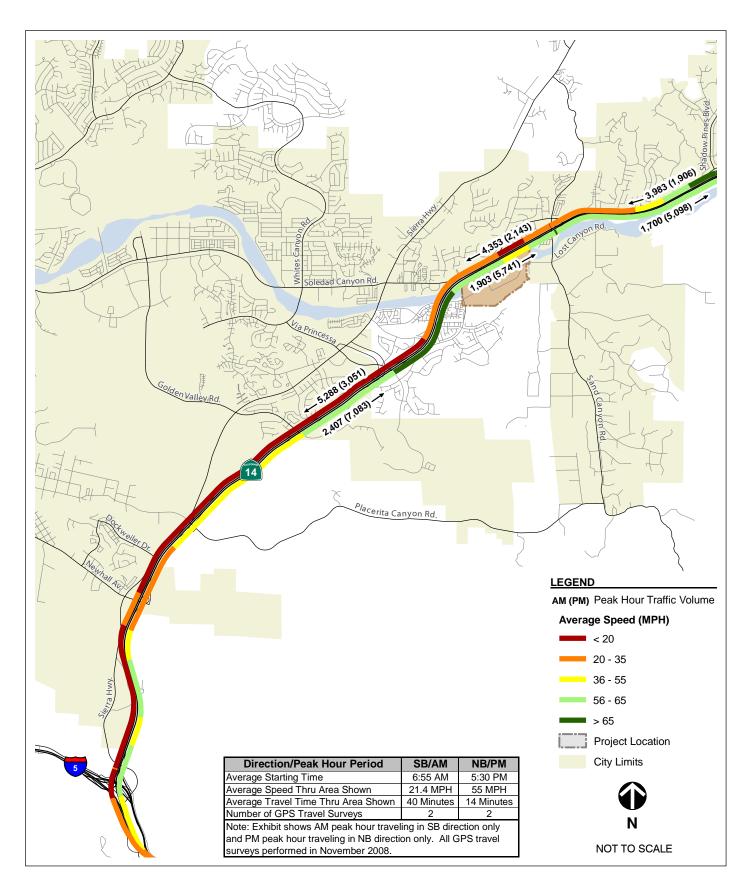
Figure 3 displays the average travel speed on SR 14 in the peak direction based on the GPS travel survey. During the morning peak hour, the GPS equipment recorded congestion on southbound SR 14 beginning near the Sand Canyon Road interchange and extending southerly to I-5. The average travel speed through the corridor was 21 miles per hour (mph). The northbound SR 14 PM peak hour travel time runs revealed some minor slowing near the Newhall Avenue interchange, but an overall travel speed of 55 mph. These results generally match field observations by Fehr & Peers staff.

Major Highways

Major highways are six or more lane arterials designed for high mobility and limited vehicular access to driveways and cross streets. The following roadways within the study area are designated as major highways according to the *City of Santa Clarita General Plan Update Draft Circulation Element* (October, 2008):

Soledad Canyon Road – parallels SR 14 in the eastern area of Santa Clarita as a four-lane major highway with a posted speed limit of 50 mph. It continues in a westerly direction into central Santa Clarita, widening to six lanes at Galeton Road with a posted speed limit of 45 to 50 mph. It continues as a six-lane arterial to Bouquet Canyon Road where it becomes Valencia Boulevard. The posted speed limit west of Sierra Highway ranges from 35 to 50 mph. The segment east of Galeton Road, which is closest to the project site, carried 24,500 ADT in November 2008.







SR 14 TRAFFIC VOLUMES AND AVERAGE TRAVEL SPEEDS - EXISTING CONDITIONS

Lost Canyon Road (Via Princessa to Jakes Way) – is a four-lane divided major highway with a posted speed limit of 35 mph from Via Princessa to Medley Ridge Drive. East of this street, it has the same cross-section but is striped for only one lane in each direction. A bridge (of sufficient width to ultimately provide six lanes) across the Metrolink railroad tracks is constructed and provides a temporary access connection to the Colony Townhomes located on Jakes Way. West of Via Princessa, it has a posted speed limit of 35 mph and extends in a southwesterly direction to connect with Golden Valley Road. In November 2008, Lost Canyon Road carried 8,900 ADT east of Via Princessa and 6,300 ADT east of Canyon Park Boulevard.

Sand Canyon Road (Soledad Canyon Road to Lost Canyon Road) – is a north-south major highway featuring two continuous travel lanes (plus turn lanes) in each direction south of Soledad Canyon Road and on the SR 14 overcrossing. South of the NB SR 14 ramp intersection, it gradually narrows to two lanes and is a two-lane bridge over the Santa Clara River. It has a posted speed limit of 45 mph. In November 2008, Sand Canyon Road carried 11,100 ADT north of Lost Canyon Road.

Via Princessa (Lost Canyon Road to current western terminus) – is a four- to six-lane major highway. It is four lanes with a posted speed limit of 35 mph from Lost Canyon Road to Jason Drive, six lanes from north of Jason Drive to north of Sierra Highway, narrowing to four lanes as it continues in a northwesterly direction. It heads in a westerly direction west of Whites Canyon Road, terminating about 2/3 of a mile from Golden Valley Road. The posted speed limit ranges from 40 to 50 mph. In November 2008, Via Princessa carried 12,600 ADT south of SR 14.

Sierra Highway – is a generally north-south regional travel route that parallels SR 14 from Palmdale/Lancaster southerly to I-5 where it becomes San Fernando Road. It is four lanes south of Via Princessa, six lanes between Via Princessa and Soledad Canyon Road, and four lanes north of Soledad Canyon Road, narrowing to two lanes north of Sand Canyon Road. Sections of Sierra Highway within the northerly portion of the study area are undivided (i.e., left-turns are made from the inside through lane). The posted speed limit is 45 mph. The segment south of Soledad Canyon Road carried 35,000 ADT in November 2008.

Secondary Highways

Secondary highways are arterials planned for an ultimate of four lanes and designed for high mobility and limited vehicular access to driveways and cross streets.

Sand Canyon Road (Soledad Canyon Road to Sierra Highway) – is a two-lane north-south arterial street. The southerly portion of this segment is separated by a two-way left-turn lane. The northerly portion is undivided. It has a posted speed limit of 45 mph. This segment carried 7,100 ADT in 2005.

Canyon Park Boulevard – begins at Lost Canyon Road and extends under SR 14 to Sierra Highway. It is generally a four-lane divided arterial with a posted speed limit of 45 mph, with the exception of the segment between Sierra Highway and Jakes Way, which is two lanes with onstreet parking. The Metrolink railroad tracks cross Canyon Park Boulevard at-grade less than



100 feet south of Jakes Way. This segment carries approximately 5,100 ADT (estimated from peak hour counts).

Lost Canyon Road (west of Sand Canyon Road) – is a two-lane undivided roadway with a posted speed limit of 30 mph (25 mph when children are present). It currently terminates just west of La Veda Avenue. Sulphur Springs Elementary School and Pinecrest School are accessed from this street and described in more detail later in this chapter.

Placerita Canyon Road (Sierra Highway to Sand Canyon Road) – is a four-lane divided arterial from Sierra Highway to just east of SR 14, where it becomes a two-lane undivided road. The segment east of SR 14 has a posted speed limit of 50 mph. This segment carries approximately 4,000 ADT (estimated from peak hour counts).

Via Princessa (Lost Canyon Road to Golden Valley Road) – is a recently constructed four-lane arterial with a posted speed limit of 35 mph. This segment carries approximately 3,600 ADT (estimated from peak hour counts).

Limited Secondary Highways

Limited secondary highways are two-lane streets with more limited mobility and greater access to adjacent land uses. These roadways are typically undivided and may include on-street parking.

Jakes Way – extends easterly from Canyon Park Boulevard under SR 14 to provide access to the Colony Townhomes. It is a wide street with one lane in each direction (a center left-turn lane in some sections), and on-street parking. It has a posted speed limit of 40 mph. The segment east of Canyon Park Boulevard carried 5,500 ADT in November 2008.

Sand Canyon Road (Lost Canyon Road to Placerita Canyon Road) – is a two-lane north-south undivided roadway. It has a posted speed limit of 45 mph. The northerly portion of this segment carried 9,300 ADT in November 2008.

Traffic Volumes

Fehr & Peers retained National Data Services to collect weekday morning (6:30 to 9:00 a.m.) and evening (4:00 to 6:30 p.m.) peak period traffic counts in early and mid November 2008 at all study locations. Counts were conducted on a Tuesday, Wednesday, or Thursday, and avoided the National Election (November 4th) and Veterans Holiday (November 11th). Weather conditions were generally dry, and no unusual traffic conditions were present. Local schools were in session at the time of the counts.

Fehr & Peers also collected average daily traffic (tube) counts on two mid-week days at seven locations near the project site for the Traffic Model Validation exercise described in Chapter 5. These daily counts, which were presented on the previous pages, varied by two percent or less from one day to the next. Since a similarly modest level of variability would also occur in the



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peak hour intersection counts, performing two sets of intersection turning movement counts and then averaging the results was unnecessary.

Figure 4 displays the existing AM and PM peak hour traffic volumes at the study intersections. This figure also displays the existing lane configurations and traffic control devices. As shown, 15 of the 23 study intersections are controlled by traffic signals.

AM and PM peak period traffic counts were conducted in November 2008 on SR 14 at the Sand Canyon Road and Golden Valley Road interchanges. Figure 3 shows the observed traffic flows in each direction for segments of SR 14 from north of Golden Valley Road to north of Sand Canyon Road. It should be noted that the AM peak hour southbound traffic volumes do not balance between segments and interchanges due to congestion that extended as far north (on the count day) as the Via Princessa interchange.

The peak hours of travel on Soledad Canyon Road generally occurred from 7:30 to 8:30 a.m. and from 5 to 6 p.m. The peak hours of travel in the peak direction of SR 14 occurred from 7:30 to 8:30 a.m. and from 4:30 to 5:30 p.m.

Usage of the peak direction HOV lane was also observed. During the AM peak hour, the southbound HOV lane carried approximately 1,375 vehicles south of the Via Princessa interchange, which represents about 26 percent of the total southbound hourly traffic flow. During the PM peak hour, the northbound HOV lane in this segment carried approximately 1,440 vehicles, which represents about 20 percent of the total northbound hourly traffic flow.

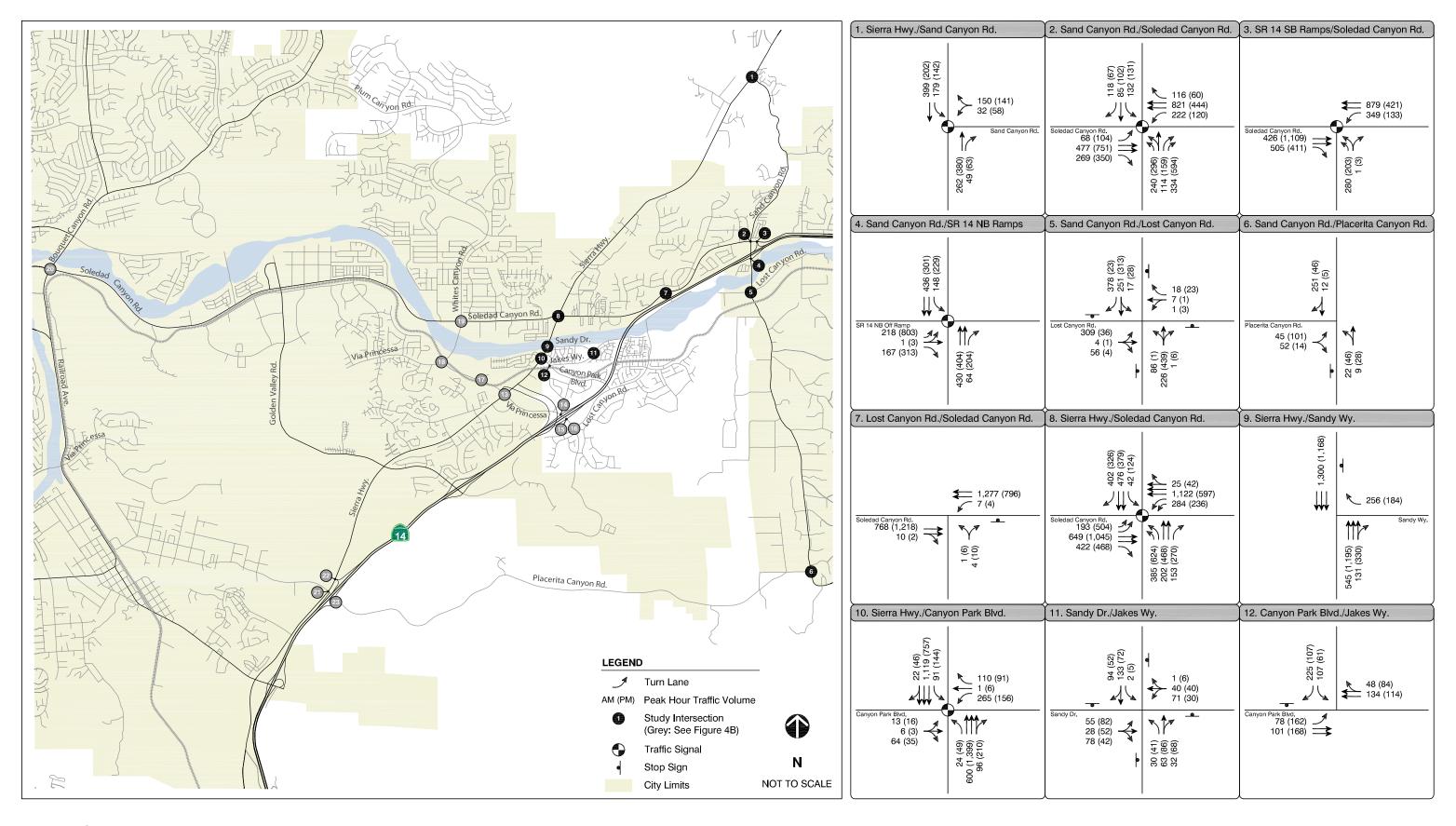
Intersection Operations

The following data was collected and used to analyze the study intersections:

- 1) Traffic volumes, lane configurations, and traffic control devices shown on Figure 4
- 2) Existing traffic signal phasing and timings (from the City and field-verified)
- 3) Presence of crosswalks, bicyclists, and pedestrians.

Table 3 displays the average delay and LOS for intersections analyzed using HCM procedures and v/c ratio and LOS for intersections analyzed using the ICU methodology (refer to separately bound Appendix A for technical calculations).







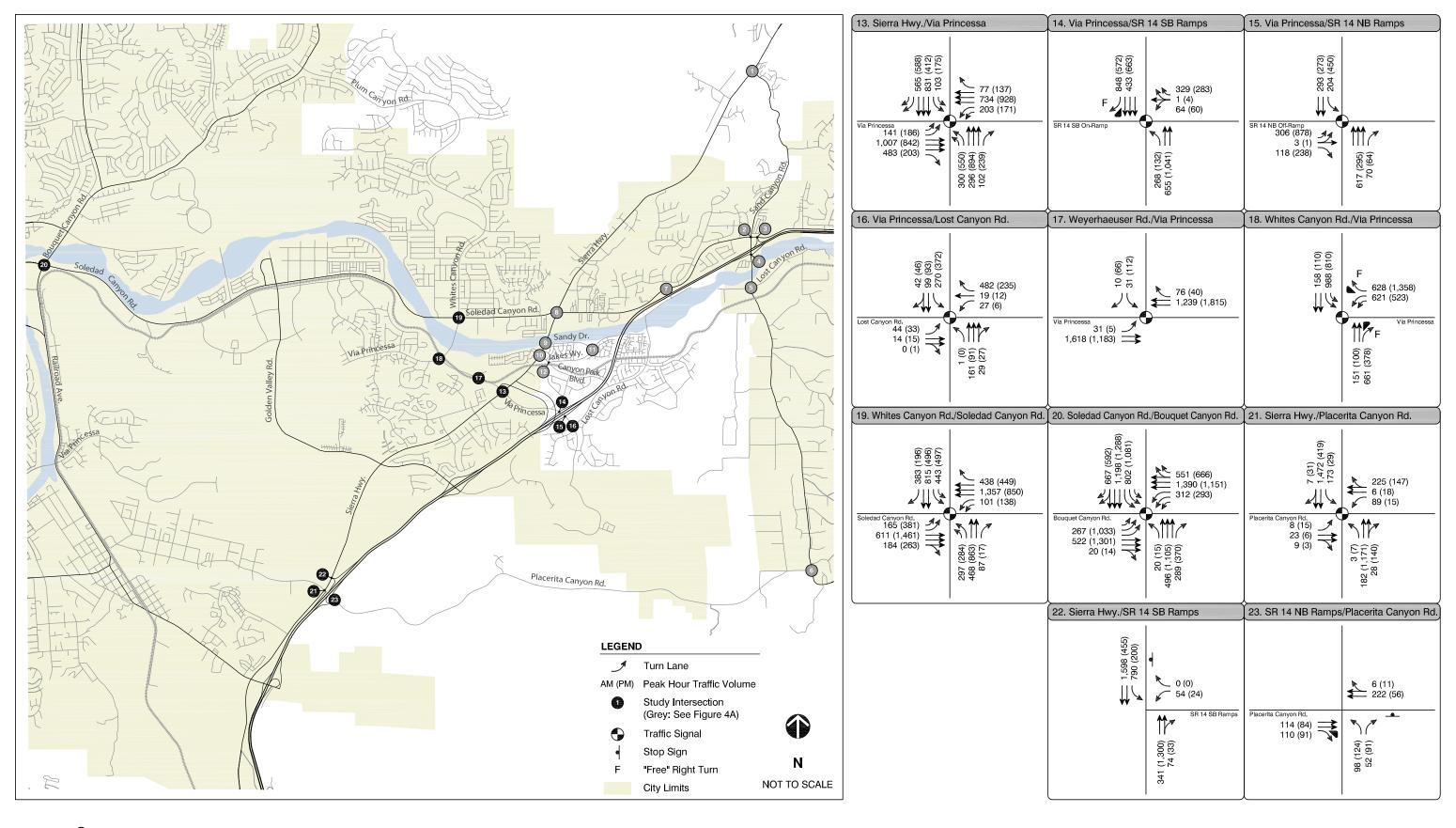




TABLE 3: INTERSECTION OPERATIONS – EXISTING CONDITIONS

		Traffic Control		AM Peak Hour	PM Peak Hour
#	Intersection			Delay or V/C Ratio – LOS	Delay or V/C Ratio – LOS
1	Sand Canyon Road/Sierra Highway	Traffic Signal	ICU	0.49 - A	0.55 - A
2	Sand Canyon Road/Soledad Canyon Road	Traffic Signal	HCM/ SimTraffic	32 - C	34 - C
3	Soledad Canyon Road/SR 14 SB Ramps	Traffic Signal	HCM/ SimTraffic	23 - C	16 - B
4	Sand Canyon Road/SR 14 NB Ramps	Traffic Signal	HCM/ SimTraffic	12 - B	20 - C
5	Sand Canyon Road/Lost Canyon Road	All-Way Stop	HCM/ SimTraffic	27 - D	10 - A
6	Sand Canyon Rd./Placerita Canyon Road	Side-Street Stop	НСМ	11 - B	11 - B
7	Soledad Canyon Road/Lost Canyon Road	Side-Street Stop	НСМ	19 - C	33 - D
8	Sierra Highway/Soledad Canyon Road	Traffic Signal	НСМ	37 - D	45 - D
9	Sierra Highway/Sandy Way	Side-Street Stop	НСМ	17 - C	13 - B
10	Sierra Highway/Canyon Park Boulevard	Traffic Signal	НСМ	21 - C	20 - C
11	Sandy Way/Jakes Way	All-Way Stop	НСМ	11 - B	9 - A
12	Canyon Park Boulevard/Jakes Way	Side-Street Stop	НСМ	14 - B	14 - B
13	Sierra Highway/Via Princessa	Traffic Signal	НСМ	33 - C	38 - D
14	Via Princessa/SR 14 SB Ramps	Traffic Signal	HCM/ SimTraffic	18 - B	13 - B
15	Via Princessa/SR 14 NB Ramps	Traffic Signal	HCM/ SimTraffic	23 - C	28 - C
16	Via Princessa/Lost Canyon Road	Traffic Signal	ICU	0.64 - B	0.53 - A
17	Via Princessa/Weyerhaueser Way	Traffic Signal	НСМ	4 - A	16 - B
18	Via Princessa/Whites Canyon Road	Traffic Signal	НСМ	8 - A	8 - A
19	Soledad Canyon Road/Whites Canyon Road	Traffic Signal	НСМ	40 - D	51 - D



TABLE 3: INTERSECTION OPERATIONS – EXISTING CONDITIONS

		Traffic	Analysis	AM Peak Hour	PM Peak Hour
#	Intersection	Control	Analysis Method	Delay or V/C Ratio – LOS	Delay or V/C Ratio – LOS
20	Soledad Canyon Road/Bouquet Canyon Road	Traffic Signal	НСМ	38 - D	70 - E
21	Placerita Canyon Road/Sierra Highway	Traffic Signal	НСМ	20 - B	16 - B
22	Placerita Canyon Road/SR 14 SB Ramps	Side-Street Stop	НСМ	>50 - F	>50 - F
23	Placerita Canyon Road/SR 14 NB Ramps	Side-Street Stop	НСМ	11 - B	10 - B

Notes:

ICU methodology was used for signalized intersections that are located in Los Angeles County, not directly adjacent to the City, pursuant to County requirements. HCM methodology was used for all unsignalized intersections and signalized intersections maintained by City of Santa Clarita or directly adjacent to the City and all Caltrans maintained signalized intersections.

Table 3 indicates that the following intersections operate at LOS D or worse during one or both peak hours:

- 5) Sand Canyon Road/Lost Canyon Road (LOS D during AM peak hour) 6
- 7) Soledad Canyon Road/Lost Canyon Road (LOS D during PM peak hour) 7
- 8) Sierra Highway/Soledad Canyon Road (LOS D during both peak hours)
- 13) Sierra Highway/Via Princessa (LOS D during PM peak hour)
- 19) Soledad Canyon Road/Whites Canyon Road (LOS D during both peak hours)
- 20) Soledad Canyon Road/Bouquet Canyon Road (LOS E during PM peak hour)
- 22) Placerita Canyon Road/SR 14 SB Ramps (LOS F during both peak hours)

All of the above intersections are located within the City of Santa Clarita. Intersection 22 is a Caltrans maintained intersection. Although the City considers LOS D to be acceptable, a significance threshold for project impacts when intersections are at LOS D is also applied.

^{7.} Intersection LOS reported for minor street movement with greatest delay. This movement is 50 vehicles per hour or less. Majority of movements at intersection experience little or no delay.



^{6.} Operations are at LOS E or F during the peak 15-minutes when adjacent schools begin session. However, intersection operates at an overall LOS D for the entire 60-minute AM peak hour.

Two-Lane Roadways (Los Angeles County)

Los Angeles County Traffic Impact Analysis Report Guidelines (Los Angeles County Department of Public Works, 1997) specifies that project impacts be evaluated on two-lane roadways. Thus, this report evaluates the following two-lane roadway segments in accordance with standards and methodologies set forth in the guidelines:

- 1) Sand Canyon Road south of Sierra Highway
- 2) Lost Canyon Road east of Medley Ridge Drive
- 3) Jakes Way east of Canyon Park Boulevard
- 4) Sandy Drive east of Sierra Highway
- 5) Placerita Canyon Road east of SR 14

Each of these segments currently operates at LOS C or better according to the methodology described in the Los Angeles County Traffic Impact Analysis Report Guidelines.

Freeway Operations

Fehr & Peers analyzed freeway mainline operations and ramp merge/diverge (ramp junction) operations using procedures described in Chapter 2. Table 4 summarizes the results. Refer to separately bound Appendix A for technical calculations.

TABLE 4: FREEWAY OPERATIONS – EXISTING CONDITIONS						
Francov Facility	Analysis Method	AM Peak Hour	PM Peak Hour			
Freeway Facility	Analysis Method	Density – LOS	Density – LOS			
Freeway	Mainline Sections					
NB SR 14: Between Golden Valley Road and Via Princessa/Sierra Highway (Weave)	HCM AM Peak Hour: HI-Comp Report and average of two travel time surveys PM Peak Hour: HCM	А	E			
NB SR 14: Between Via Princessa/Sierra Highway and Sand Canyon Road		8 - A	24 - C			
NB SR 14: Between Sand Canyon Road and Soledad Canyon Road		10 - A	33 - D			
SB SR 14: Between Soledad Canyon Road and Sand Canyon Road		24 - C	10 - A			
SB SR 14: Between Sand Canyon Road and Via Princessa		F	9 - A			
SB SR 14: Between Via Princessa/Sierra Highway and Golden Valley Road (Weave)		F	В			



TABLE 4:						
FREEWAY OPERATIONS – EXISTING CONDITIONS						

Francisco Facility	Analysis Mathed	AM Peak Hour	PM Peak Hour	
Freeway Facility	Analysis Method	Density – LOS	Density – LOS	
Free	way Ramps			
SR 14 NB Off-Ramp/Sand Canyon Road	HCM (Lane Drop)	10 - B	28 - C	
SR 14 NB On-Ramp/Sand Canyon Road	14 NB On-Ramp/Sand Canyon Road HCM		34 - D	
SR 14 SB Off-Ramp/Sand Canyon Road/Soledad Canyon Road	НСМ	27 - C	13 - B	
SR 14 SB On-Ramp/Sand Canyon Road/Soledad Canyon Road	НСМ	24 - C	8 - A	
SR 14 NB Off-Ramp/Via Princessa	HCM	11 - B	30 - D	
SR 14 SB On-Ramp/Via Princessa	НСМ	> 43 – F	14 - B	

Notes:

- See discussion below for rationale for using HCM techniques versus field observations/travel time surveys.
- Ramps selected for analysis limited to those that would be used by the project to a significant degree.

Page 23-1 of the *HCM* specifies that the basic freeway segment analysis methodology does not apply or take into account demand conditions in excess of capacity and the influence of downstream queuing (as occurs on SR 14). Therefore, field observations and results of the two GPS travel time surveys were used to describe operations in the peak-direction for each peak hour. According to Exhibit 23-3 in the *HCM*, average passenger car speeds of less than 50 mph are associated with LOS F operations on a freeway segment. Thus, the southbound direction of SR 14 from south of Sand Canyon Road to Golden Valley Road is reported as operating at LOS F during the AM peak hour (i.e., GPS travel speed on this segment was less than 20 mph).

TRANSIT SYSTEM

This section describes existing public transportation services in the study area. Transit consists primarily of the Metrolink commuter rail line and City of Santa Clarita bus service.

Metrolink Commuter Rail

Metrolink is a commuter rail service that operates in Southern California. The major hub is Union Station in downtown Los Angeles, where seven lines radiate outward from this terminus station. Metrolink provides service between Lancaster and Union Station on the Antelope Valley line, with three stops in the Santa Clarita area, including the Via Princessa station.

The Antelope Valley line primarily runs a peak period schedule with limited midday and evening service. On weekdays, the Via Princessa Station receives 11 Union Station—bound and 11 Lancaster—bound trains. For trains to Los Angeles, service spans from 4:52 a.m. (first train to



stop at Via Princessa) to 6:49 p.m. (last train to stop at Via Princessa). For trains to Lancaster, service spans from 7:35 a.m. to 9:54 p.m. Weekend service is less frequent. During the peak weekday periods, five Union Station-bound trains stop at Via Princessa in the AM compared to one in the PM. Two Lancaster bound trains stop at Via Princessa in the AM peak period while three stop in the PM peak period. Headways vary, but trains can be as frequent as every 30 minutes in the AM and every 40 minutes in the PM (peak direction only).

Metrolink charges time and distance-based fares, which vary by origin/destination and day of week (weekday versus weekend). For instance, the one-way fare to Union Station is \$7.75 during the week and \$5.75 during the weekend. To Lancaster, the one-way fare is \$8.25 during the week and \$6.25 during the weekend. Prepaid monthly passes are also available.

Via Princessa Metrolink Station

The Via Princessa station provides commuter rail access to the eastern and northeastern portions of Santa Clarita and adjacent areas of unincorporated Los Angeles County. The Santa Clarita and Newhall stations serve the western, southern, and northern areas of the City. This station preference is evidenced by the spatial distribution of home ZIP codes of Via Princessa Metrolink riders. On November 20, 2008, Fehr & Peers staff surveyed Metrolink riders boarding trains at Via Princessa during the AM peak period. Riders were asked their home and work ZIP codes. Figure 5a illustrates the spatial distribution of home ZIP codes among the surveyed riders. As shown, over 80 percent of surveyed riders reside in ZIP codes located north or east of the station. The data demonstrated that Via Princessa Metrolink riders typically come from nearby residential locations. Long distance commuting to the station, except in isolated cases, which included two riders traveling to the station from the Antelope Valley, was not observed.

Figure 5b illustrates the spatial distribution of work ZIP codes among the surveyed riders. Downtown Los Angeles and its environs (54%) were the most common work destinations, followed by Burbank (38%) and Glendale (8%).

The Via Princessa station has 392 parking spaces (378 regular, 14 disabled). Parking is free. Fehr & Peers conducted a parking survey at the station on November 12, 2008. The number of occupied parking spaces was 302 at 7:00 a.m., 338 at 8:00 a.m., and 362 at 9:00 a.m.

Via Princessa ridership data was obtained from Metrolink for June, July, and August, 2008. Because of the functionality of Metrolink service, only AM peak period boardings and alightings are recorded on a station-by-station basis. Southbound trains depart the station at 4:52, 6:02, 6:42, 7:15, 7:47, and 8:47 a.m. As noted above, by 9:00 a.m. the majority of the parking lot is full. During the weekday AM peak period, an average of 359 boardings and 16 alightings occur at the station.

During the AM peak period, southbound trains pick up a significant number of additional passengers at the Santa Clarita (531), Newhall (389), and Slymar (361) stations. These three downstream stations all add riders that cause certain trains to be at or near capacity. Metrolink



has indicated that they are currently experiencing capacity issues on three AM trains (the 6:02 a.m., 6:42 a.m., and 7:15 a.m. trains that stop at Via Princessa) and two PM trains. In the AM peak period, alightings are greater than boardings at the Burbank station where capacity issues are alleviated. There are no weekend capacity issues.

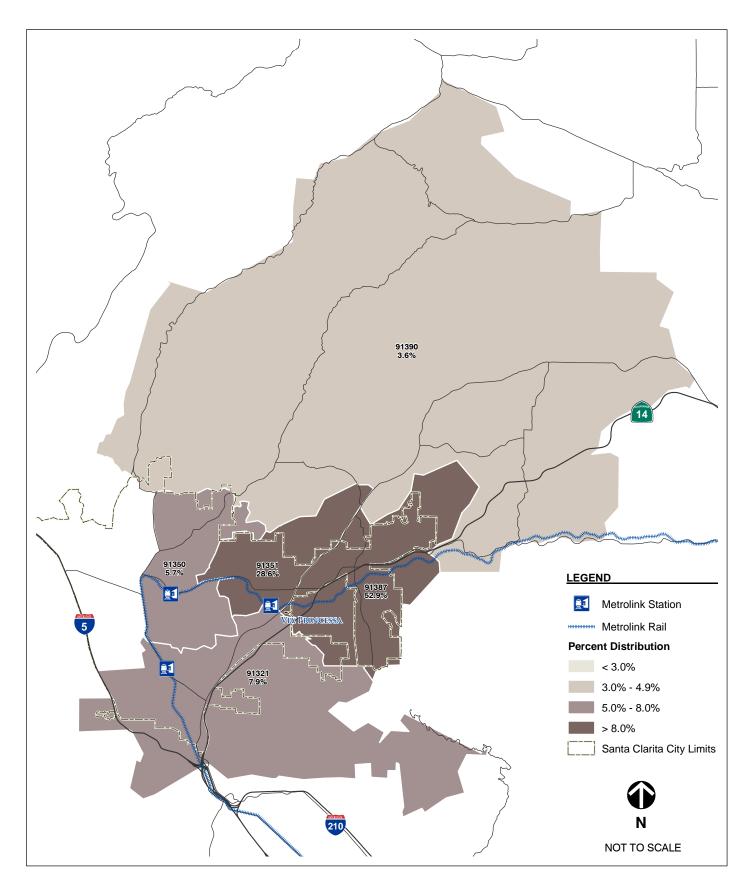


View of Metrolink Train Traveling Northbound

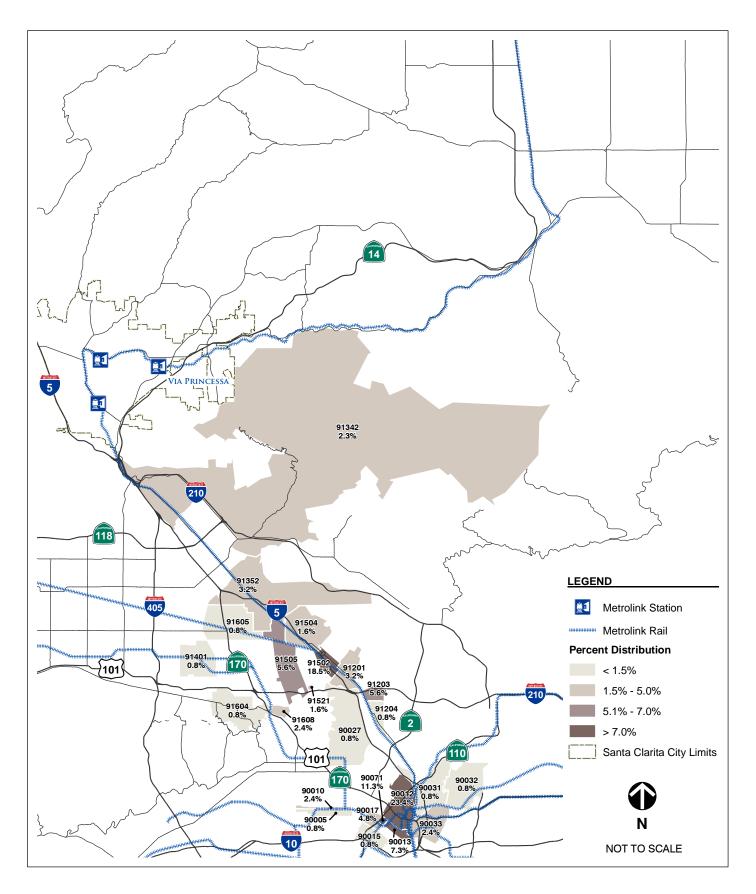
Metrolink train capacity varies, but it is typically between 405 and 685 seated passengers. According to Metrolink, during the weekday AM peak period, the first southbound train to stop at Via Princessa has a seated capacity of 405 passengers, the next three trains have seated capacities of between 545 and 560 passengers, and the final train has a seated capacity of 685 passengers.

Reverse (trains traveling opposite the peak direction) rider capacity is not measured by Metrolink. However, it can be assumed that sufficient reverse rider capacity is available during both the AM and PM peak periods.











VIA PRINCESSA METROLINK RIDER SURVEY -WORK ZIP CODE DISTRIBUTION

Metrolink Versus Auto Travel Time Comparison

Fehr & Peers retained National Data Services to conduct GPS travel time runs on SR 14 on two weekdays (in the peak-period, peak-travel direction) in November 2008. No unusual traffic incidents were reported during any of the surveys. The following summarizes each route and the findings:

- Route #1: Southbound SR 14 beginning at the Palmdale Metrolink station at 6:30 a.m., stopping at the SR 14/Sand Canyon Road interchange, and then continuing to the Burbank Metrolink station.
 - <u>Finding</u>: The 25-mile first leg of this trip took an average of 32 minutes, while the 28-mile second leg took an average of 66 minutes.
- Route #2: Northbound SR 14 beginning at the Burbank Metrolink station at 5:00 p.m., stopping at the SR 14/Sand Canyon Road interchange, and then continuing to the Palmdale Metrolink station.
 - <u>Finding</u>: The first leg of this trip took an average of 57 minutes, while the second leg took an average of 31 minutes.

Using the Metrolink Web site scheduling page as a starting point, Fehr & Peers estimated that a Metrolink train would take 42 minutes to travel between the proposed station and the Burbank station. Travel from the proposed station to the Palmdale station would take about 44 minutes.

This evaluation shows that Metrolink would provide a 15 to 25 minute travel time savings during the peak hour of the peak travel direction between the proposed station and the Burbank station. The time required to travel to/from the station and wait for the train would consume a portion of this travel time savings. Nonetheless, this evaluation shows that the Metrolink transit service would provide a time-competitive alternative to the automobile for peak-period, peak-direction commuting to/from the south on SR 14.

This conclusion does not presently hold for travel between the proposed station and the Palmdale station given the lack of freeway congestion that would otherwise increase travel times. Although relative travel time savings is an important factor in the decision to select transit over the automobile, other factors such as cost, convenience, and free time during ride also influence the mode selection and therefore it is anticipated that the Metrolink system would be utilized by some Antelope Valley residents employed in the Santa Clarita Valley, including the Vista Canyon corporate center. It is also worth noting that under cumulative conditions, the segment of SR 14 between Palmdale and Vista Canyon will become more congested, making travel via Metrolink more time competitive.

City of Santa Clarita Bus Service

Santa Clarita Transit provides fixed route transit service throughout the City and in adjacent unincorporated areas. The system encompasses eight local-serving routes as well as four "Station Link" routes that serve the Santa Clarita Metrolink station. Commuter express bus

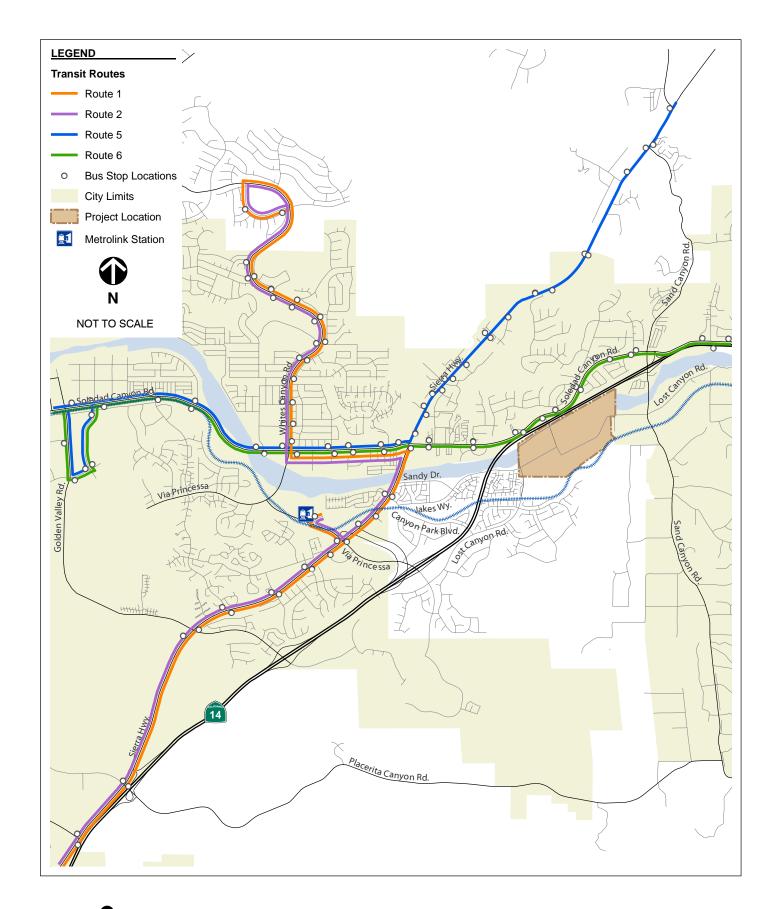


service to Los Angeles employment destinations is also provided. One-way local fares are \$1.00 with no fare for seniors, disabled, or children under five. A monthly pass costs \$25.00.

Figure 6 shows that Routes 1, 2, 5, and 6 operate in the vicinity of the project site. Currently, no bus stops exist within ¼ mile of the project site. The closest existing stop (Route 6) is at the Soledad Canyon Road/Lost Canyon Road intersection. Routes 1, 2, and 5 stop at the Sierra Highway/Soledad Canyon Road intersection. The following describes each of these transit routes:

- Routes 1 and 2 offer a connection to the Via Princessa Metrolink station. This dual route provides service every 20 to 30 minutes along Sierra Highway in the vicinity of the Via Princessa Metrolink station from approximately 4:00 a.m. to 11:00 p.m on weekdays; 30 minute service from approximately 7:00 a.m. to 11:00 p.m on Saturdays; and 30 minute service from approximately 8:00 a.m. to 9:00 p.m on Sundays and holidays. These routes serve McBean Regional Transit Center, Industrial Center, Commerce Center, Newhall Metrolink, City Hall, Valencia Town Center, River Oaks Shopping Center, Canyon High School, Sierra Vista Jr. High, and Plum Canyon. For the period of October through December, 2007, average weekday ridership on these combined routes was about 3,100 boardings (City of Santa Clarita).
- Route 5 offers a schedule and route structure similar to Route 6 except for a split in the
 eastern portion of the service area. In this area, Route 5 travels along Sierra Highway
 instead of Soledad Canyon Road and also serves the College of the Canyons Canyon
 Country Campus. From October through December, 2007, average weekday ridership
 on this route was about 1,025 boardings (City of Santa Clarita).
- Route 6 provides service closest to the project site along Soledad Canyon Road. This route provides 30- to 40-minute peak and 40- to 50-minute off-peak service from approximately 4:30 a.m. to 11:00 p.m. on weekdays; 30- to 60-minute service from approximately 7:00 a.m. to 10:30 p.m. on Saturdays; and 30- to 60-minute service from 7:00 a.m. to 8:30 p.m. on Sundays. The route serves Shadow Pines, Aquatics Center, Bowman High School, Santa Clarita Metrolink, McBean Regional Transit Center, Valencia Town Center, Henry Mayo Newhall Memorial Hospital, Hart High School, Placerita Junior High, Newhall Metrolink, Valencia Market Place, Stevenson Ranch, and Sunset Pointe. From October through December, 2007, average weekday ridership on this route was about 2,370 boardings (City of Santa Clarita).







BICYCLE/PEDESTRIAN SYSTEM

The City of Santa Clarita is an active promoter of non-motorized transportation modes, as is evidenced by its adoption in June 2008 of a *Non-Motorized Transportation Plan*. Bicycle and pedestrian facilities are part of the existing transportation environment and continue to play a key role in future development. Figure 7 shows the existing bicycle facilities in the vicinity of the project site.

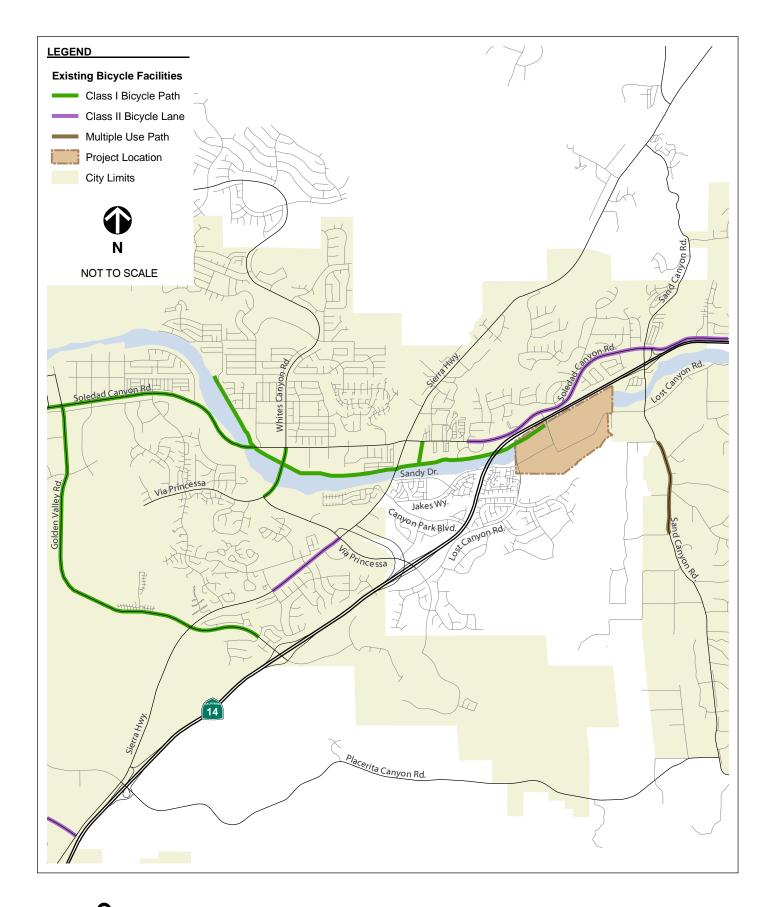
The following describes the different classifications of bicycle facilities:

- Class I Bike Path an exclusive, two-way path for bicycles that is completely separated from a street or highway.
- Class II Bicycle Lane signed and striped one-way lanes on streets or highways, typically at the edge of the pavement. Bike lanes provide a demarcated space for bicyclists within the roadway right-of-way.
- Class III Bike Route share the right-of-way with vehicles; they may be signed, but are not exclusively striped for use by cyclists.

The Santa Clara River Trail bike path (Class I) begins at the northern boundary of the project and parallels the Santa Clara River westerly to Whites Canyon Road and beyond. Class I paths are also provided along segments of Soledad Canyon Road, Golden Valley Road, and Sand Canyon Road. Class II bicycle lanes are present on Soledad Canyon Road west of Sand Canyon Road.

Santa Clarita's existing pedestrian network is comprised of sidewalks, paseos, and multi-use trails. Within the immediate project vicinity, pedestrian facilities are limited to sidewalks on portions of streets and crosswalks at intersections.







5. SUBAREA TRAVEL DEMAND MODEL VALIDATION

This chapter describes the process undertaken by Fehr & Peers to update the Santa Clarita Valley Consolidated Travel Demand Model's (SCVCTDM) ability to produce improved peak hour and daily traffic forecasts in the study area. This task is important in that inaccuracies in the base year model, if not corrected, could affect the quality of the interim and cumulative traffic forecasts.

This chapter describes the base year (2004) model's performance against standards set forth in the *Travel Forecasting Guidelines* (Caltrans, 1992), *Travel Model Improvement Program (TMIP) Model Validation and Reasonableness Checking Manual*, 1997, and Fehr & Peers' internal standards. The following sections describe the validation parameters, standards, and results.

VALIDATION PARAMETERS AND STANDARDS

For a model to be considered accurate and appropriate for use in traffic forecasting, it must replicate actual conditions to within a certain level of accuracy and demonstrate sufficient sensitivity to changes in the model's input variables. Since it is impossible for any model to precisely replicate all counts, validation guidelines have been established. The following describes four parameters and performance standards for evaluating the model accuracy.

- 1. **Model/Count Ratio**: Model/Count ratio is computed by dividing the volume assigned by the model and the actual traffic count for individual roadways model-wide.
 - <u>Standard</u>: Model/count ratios should be close to 1.00 for both directions of the roadway links.
- 2. **Deviation**: Deviation is the difference between the model volume and the actual count divided by the actual count.
 - <u>Standard</u>: A minimum of 75 percent of the roadway links should be within their maximum desirable deviation, which ranges from approximately 5 to 60 percent, depending on the total volume on the link.
- 3. **Correlation Coefficient**: The correlation coefficient estimates the correlation between the actual traffic counts and the estimated traffic volumes from the model.
 - Standard: The model-wide correlation coefficient is suggested to be greater than 0.88.
- 4. The Percent Root Mean Square Error (PRMSE): PRMSE is the square root of the model volume minus the actual count squared divided by the number of counts. It is a measure similar to standard deviation in that it assesses the accuracy of the entire model.
 - <u>Standard</u>: Less than 30 percent is suggested for an appropriate aggregate PRMSE for all links with counts or by facility type and area type.



VALIDATION RESULTS

The process of validation started with the evaluation of the base year model obtained from the City of Santa Clarita. The initial model output was compared to the roadway traffic counts (collected between 2004 and 2008) and validation statistics were computed for the sub-area. These results are summarized in Table 5.

The model's roadway network was examined for accuracy and several link attributes, including posted speed limits, roadway lanes, functional classification and capacities were updated based on field observations. Traffic Analysis Zones (TAZs) within the sub-area were examined for appropriate loadings onto roadway links and corrected based on field information and aerial imagery. Land use data for these TAZs was also checked for accuracy and several changes were made to reflect the base year conditions. No modifications were made to the functionality of the traffic model (i.e., trip generation inputs, friction factors, assignment routines, etc.).

Validation statistics were calculated for the "enhanced" model and are shown in Table 5 (refer to separately bound Appendix B for detailed validation statistics). For the vast majority of time periods and validation parameters, the enhanced model validated better than the original model. As a result, the enhanced SCVCTDM was selected for use in the development of interim and cumulative traffic forecasts. The roadway and land use changes made to the base year model were also applied to the interim and cumulative model horizon years.

TABLE 5:
SCVCTDM SUB-AREA VALIDATION RESULTS

Time Model/Count Ratio ¹		Percent within Maximum Deviation ²		Percent	t RMSE ³	Average Correlation Coefficient ⁴			
Period	Original Model	Enhanced Model	Original Model	Enhanced Model	Original Model	Enhanced Model	Original Model	Enhanced Model	
Daily	1.07	0.99	46%	65%	25%	16%	0.93	0.97	
AM Peak Hour	0.97	0.89	69%	76%	39%	30%	0.90	0.95	
PM Peak Hour	1.15	1.08	69%	74%	35%	28%	0.94	0.96	

Notes:

- ¹ Standard is to have ratio be close to 1.0
- ² Standard is to have at least 75 percent of roadway links within their maximum desirable deviation.
- ³ Standard is to have lower than 30 percent aggregate percent RMSE.
- ⁴ Standard is to have correlation coefficient greater than 0.88.

The outcome of this model improvement exercise is a more reliable set of traffic forecasts, which translates into a more accurate assessment of the project's potential impacts on the surrounding roadway system.



6. PROJECT LAND USE AND TRAVEL CHARACTERISTICS

This chapter presents the following:

- 1) A discussion of current travel behavior and socio-economic characteristics of residents and workers in the City of Santa Clarita.
- 2) A summary of relevant research studies of TOD travel characteristics.
- 3) The proposed project's land use and circulation improvements.
- 4) The expected travel characteristics of the proposed project.

SANTA CLARITA TRAVEL BEHAVIOR AND SOCIO-ECONOMIC CHARACTERISTICS

According to the 2006 American Community Survey (ACS) from the US Census Bureau, 92 percent of Santa Clarita residents who work outside their residences indicated that they drove alone or carpooled to work. Approximately 5 percent took public transportation. The average travel time to work was 32 minutes.

According to information developed in conjunction with the Land Use element of the City's Draft General Plan update, over half of employed Valley residents travel out of the Valley to work, with the majority of those trips being to the south. The jobs-to-household ratio in the Valley has steadily increased from 0.88 in 2000 to a current ratio of 1.3 to 1.5 jobs per household. The City and County plan to adopt a goal of achieving at least 1.5 jobs per household to reduce the total number of vehicle trips on the road network and provide greater quality of life for residents.

About 65 percent of employed Santa Clarita residents are classified as being in management, professional, sales, and office occupations. The remaining 35 percent consist of service, construction, maintenance, production, and related occupations. The City's median household income was \$76,000, and 33 percent of households earned \$100,000 or more.

According to the 2006 ACS, about 45 percent of jobs within the City were classified as educational services, health care, social assistance, professional, scientific, management, retail/wholesale trade, and related occupations. Though the overall ratio of jobs to housing in the Santa Clarita Valley is fairly balanced, the area does not appear to have sufficient jobs to meet residents' salary needs. As a result, a significant proportion of City residents commute to jobs outside the Santa Clarita Valley (principally to the south).

Santa Clarita Trip Generation Surveys

In September 2008, Fehr & Peers conducted AM and PM peak period traffic counts for three consecutive mid-week days at the Valencia Town Center (portion west of McBean Parkway) and at the Newhall Creekside community located west of McBean Parkway and south of Decoro Drive in Valencia. The count data was used to calculate the internalization of trips for a mixed-use project



(Valencia Town Center) that is similar to the proposed project, and to compare residential trip rates in Creekside with ITE rates. The results, which are summarized in Appendix C, reveal the following:

- Valencia Town Center is a mixed-use project featuring residential, retail, office, a health club, and a hotel. During the PM peak hour, these uses generated 23 percent fewer trips than typical ITE rates assuming no internalization. When external walk trips (16 percent of total external trips) are considered, the project is estimated to have a PM peak hour internalization percentage of 15 to 20 percent.
- Newhall Creekside consists of a mix of single-family and attached homes totaling 709
 units. The PM peak hour trip rate observed at this community was 10 percent lower than
 the ITE rate.

The implications of these findings are two-fold. First, the proposed project is expected to have an equivalent or greater level of internalization than at Valencia Town Center due to the project's greater size, greater diversity of on-site land uses and its accessibility to transit. Second, the use of ITE residential trip rates for the PM peak hour analysis would be conservative given the data at Creekside, which suggests that ITE rates overestimate PM peak hour trips by 10 percent.

GENERAL TRAVEL BEHAVIOR AND SOCIO-ECONOMIC CHARACTERISTICS OF TODS

A substantial amount of research has been conducted on the topic of TOD travel behavior. This section highlights the key findings of several recent research studies that are applicable to the proposed project's travel characteristics. Although a substantial amount of analysis at TODs has been conducted, this review focuses on those TODs located on transit lines similar to Metrolink (in terms of transit service headways and land uses at nearby stations). Below are findings summarized by topic area.

Transit Mode Share by User

A 2004 research paper entitled "*Travel Characteristics of Transit-Oriented Development in California*" by Cervero, Lund, and Willson analyzed travel behavior of TOD residents, employees, and retail patrons at various TODs located on rail transit lines in Northern and Southern California. The following summarizes some key findings from that research:

- Of <u>residents</u> surveyed on the Metrolink, Coaster, and Caltrain commuter rail lines (5 different locations), approximately 16 percent took rail transit and 2 percent took the bus for their work trip.
- Of workers at office buildings near rail stations, 12 percent traveled to work by rail transit.
- Of <u>hotel workers</u> at two hotels near rail stations, 41 percent traveled to work by rail transit, whereas no hotel guests did.



 Of 1,259 <u>retail patrons</u> surveyed at three shopping facilities near rail stations in California, 13 percent had arrived by rail transit.

The Cervero, Lund, and Willson (2004) research found that levels of transit usage varied significantly by region and rail type. In general, TODs located closer to central business district or adjacent to rail systems with more frequent headways tended to have greater levels of ridership.

A 2004 study entitled *Reconnecting America's Center for Transit-Oriented Development* by the Center for Transit Oriented Development (CTOD) found that commuters in transit zones are much more likely to use transit, and the size and speed of the rail systems is a significant determinant of whether TOD households use cars or transit. In Southern California, 16 percent of work trips in transit zones were made by transit, whereas 5 percent of work trips were made by transit in the metro area.

Effects of Transit Service Headways

Many researchers believe that transit service headways of 10 to 15 minutes during most of the day are ideal to support a transit lifestyle. However, in recognition of capital and operating costs associated with such frequencies, peak headways of 20 minutes and off-peak headways of 30 minutes are often recommended.

A study entitled *Peak and Off-Peak Frequencies, Out of Pocket Costs* (EcoNorthwest, 1991) estimated that a 10 percent increase in off-peak transit frequencies would cause an average increase in ridership of 7 percent.

Importance of Travel Times on TOD Commuting Habits

Not surprisingly, a number of different studies have concluded that the relative travel time provided by transit versus auto is a significant factor in the mode share decision. This travel time comparison is more important than other measures such as system connectivity, "track miles," and number of stations.

Benefits of Connecting Bus Service

Thompson & Matoff (2000) concluded that TODs with robust connecting bus service improves ridership. The provision of connecting bus service enlarges a rail system's catchment area.

Changes in Travel Patterns over Time Within TODs

According to the Cervero, Lund, & Willson research paper, those that live in TODs longer tend to use transit most often. Of those living in TODs for 10 or more years, 29 percent used transit for their "main" home-based work trip; residents living in TODs less than 5 years used transit only 17 percent for their "main" home-based work trip.



Auto Ownership Levels

Research shows that car ownership levels in TODs are significantly lower than region-wide averages. However, the need to use a car for some trips remains. Some TODs have used carsharing as a means to reduce the need for parking in the TOD while providing the option to drive if needed. Transit agencies have played an important role in setting up and advocating for car sharing.

TOD Household Sizes

TODs often have smaller household sizes and fewer children than comparable developments in the same region. The Center for Transit-Oriented Development reports that in 2025, about 32 percent of households will have one or more children. However, in TODs this proportion will be closer to 21 percent. As evidence, a CTOD study of 5,304 residents in 26 housing projects near rail stations found that 83 percent of respondents lived in 1 or 2 person households.

Other Factors Affecting Transit Usage

The aforementioned literature reviews indicated that a TOD resident's or employee's decision to use transit is influenced by transit service headways, transit versus auto travel times, provision of robust connecting bus service, and age of the TOD. The decision to use transit is also influenced by a number of other variables such as the transit system's reliability, cost, safety, walk distance to the station, demand management strategies, provision of car sharing policies, and parking cost.

According to a published paper entitled "Effects of TOD on Housing, Parking, and Travel" (Transit Cooperative Research Program 128, Arrington and Cervero, 2008), research findings indicate that transit travel times are far stronger predictors of rail usage for TOD commuters than land use, urban design, and demand-management variables. Residents often rate community design, orientation, parks, town center, etc. as the "best aspects" of their community.

A June 2009 article in the ITE Journal entitled *New Transit Cooperative Research Program Research Confirms Transit-Oriented Developments Produce Fewer Auto Trips* (Arrington & Sloop) built off the TCRP 128 research results. The article concluded from observations at existing TODs that they generate approximately 50 percent fewer automobile trips than conventional developments. People living and working in TODs were found to walk and use transit more and own fewer cars.

Observed Trip Rates at TODs

A handful of studies have quantified auto trip generation rates at TODs. However, the majority of these studies are not applicable to the proposed project because they are based on data collected from transit lines in the San Francisco Bay Area, Portland, Washington DC, and Chicago. The transit service frequencies and higher density land uses surrounding these TODs is quite different from the densities in the proposed project.



TCRP 128 presents trip generation studies at two apartment TODs in lower-density settings in the Pennsylvania (Philadelphia) and New Jersey (Newark) regions. Both apartment complexes are located within ¼ mile of a commuter rail line and varied in height from 2 to 4 stories; much more similar to what is proposed with the project. These multi-family complexes were observed to generate an average of five auto trips per day per dwelling unit, with 0.38 trips per unit during the AM peak hour and 0.51 trips per unit during the PM peak hour. These rates are 25 percent lower than the ITE (LU Category 220 Low Rise Apartments) rate for daily and AM peak hour conditions, and 18 percent lower than the corresponding PM peak hour rate.

IMPLICATIONS OF LITERATURE REVIEW FINDINGS FOR THE PROPOSED PROJECT

The above literature findings offer several conclusions that are relevant to this study. They are summarized below:

- Current Metrolink service frequencies will support moderate levels of ridership during peak periods (12 to 18 percent for TOD residents, employees, and retail patrons), but lower levels during off-peak periods.
- 2. The proposed Metrolink station will attract ridership not only from the Vista Canyon TOD, but also from adjacent residential uses located on Jakes Way and Lost Canyon Road, which are within a ½ mile walk of the station.
- 3. The provision of a bus transfer center within the project will tend to increase rail ridership at the proposed station and decrease external vehicle trips.
- 4. Metrolink will provide a time-competitive alternative to the automobile for peak hour (directional) travel between the project site and destinations in Burbank, Glendale, and Union Station. Based on calculated auto versus transit travel times, Metrolink would provide a 15- to 25-minute travel time savings during the peak hour of the peak travel direction between the proposed station and the Burbank station.
- 5. Higher levels of transit usage are expected 10 or more years after the project is constructed versus opening day.
- Even if bus or rail service was not provided to the project site, the proposed project's
 density, diversity of land uses, and design (to accommodate non-auto travel modes) will
 result in reductions in vehicle trips when compared to the "standard trip rates" used in the
 SCVCTDM and *Trip Generation* (ITE, 2008).

PROJECT DESCRIPTION

Figure 8 displays the project site plan as provided in April 2010 by Alliance Land Planning and Engineering. Full buildout of the project would include the following land uses:



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- 1,021 attached, condominium units⁸
- 96 single-family dwelling units
- 646,000 square-feet of office space
- 164,000 square-feet of general retail space (including a ten-screen movie theater)
- 200-room hotel

In addition, the project would include a new Metrolink rail station, an adjacent bus transfer center, and a water reclamation plant (water factory). Figure 8 shows that Class I bicycle/pedestrian trails would be provided along the Santa Clara River, southern project boundary, and at various locations within the project. Parks, paseos, open space areas, and other amenities would also be provided. Figure 8 shows the proposed roadway system that would serve the project. As shown, access would be provided by the following four routes:

- 1) Lost Canyon Road (to Via Princessa)
- 2) Jakes Way (to Canyon Park Boulevard)
- 3) Vista Canyon Road (to Soledad Canyon Road)
- 4) Lost Canyon Road (to Sand Canyon Road)

Lost Canyon Road would be a four- to six-lane major highway south of Jakes Way, a four-lane limited highway between Jakes Way and Vista Canyon Road, and a two-lane limited secondary (collector) street between Vista Canyon Road and Sand Canyon Road. Vista Canyon Road would be a two-lane limited highway.

Phase 1

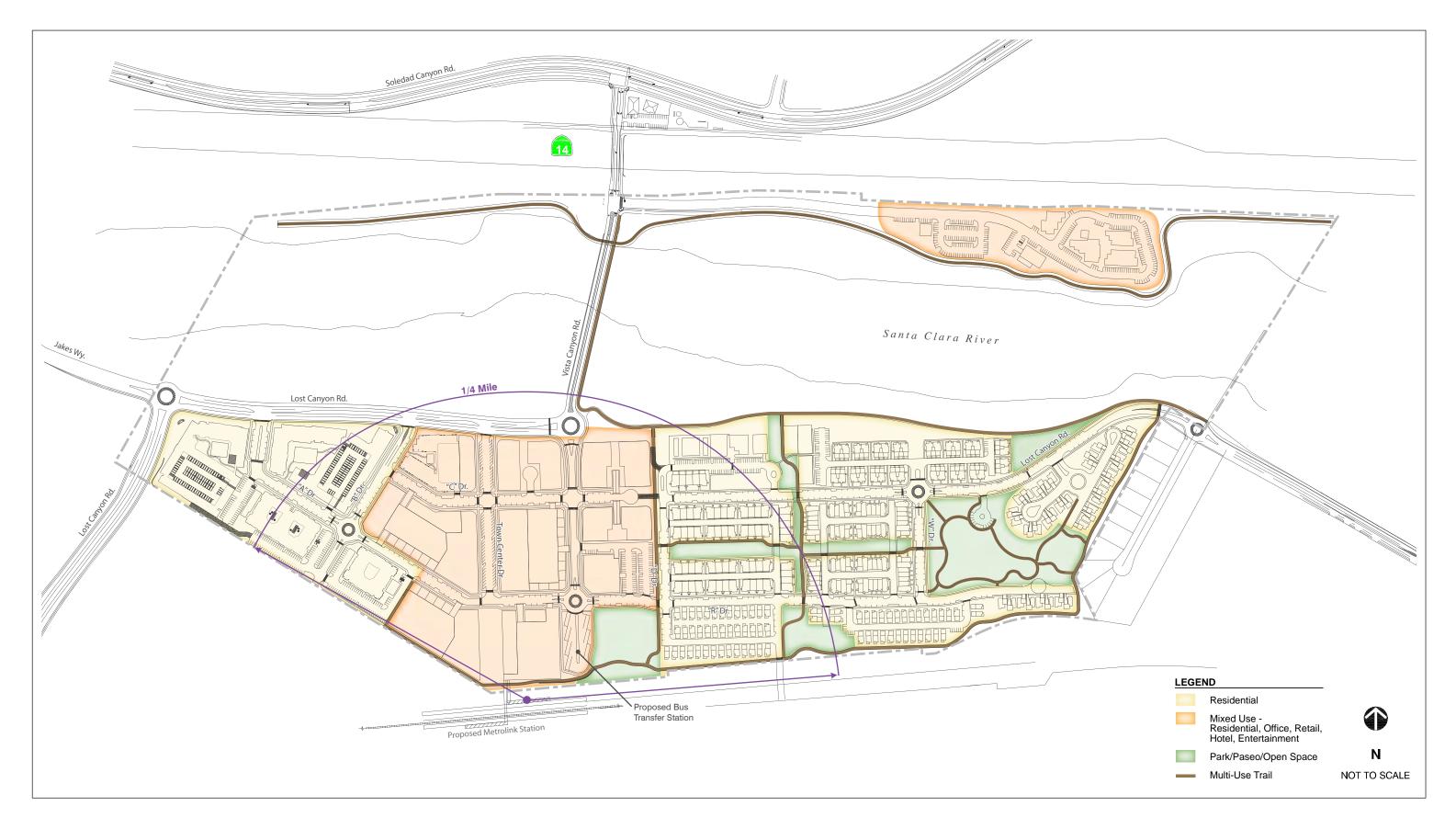
Phase 1 of the project would consist of 680 multi-family units⁹, 25,000 square feet of retail, and the water factory. The proposed Metrolink Station, the Vista Canyon Road Bridge over the Santa Clara River, and the easterly extension of Lost Canyon Road to La Veda Avenue would not be constructed or operational with Phase 1.

The project would alter travel patterns within the study area by virtue of adding new land uses, relocating the Metrolink station from the Via Princessa site to the project site, creating several new roadway connections, and modifying the school attendance boundaries for the Sulphur Springs Elementary School. Separate analytical processes are used to quantify changes in traffic patterns associated with each of these activities.

^{9. 430} of the 680 multi-family, attached condominiums are assumed to be for-lease (apartment) units.



^{8.} For purposes of this study, 579 of the attached, condominium units are assumed to be for-lease (apartment) units.





PROJECT TRAVEL CHARACTERISTICS - PROPOSED LAND USES

This section describes the estimated travel characteristics of the proposed land uses. The focus is on estimating the project's external vehicle trip generation and determining the expected spatial distribution of those trips. Internal trip making and travel by rail and bus is also considered.

Trip Generation

The first step in estimating the project's gross, internal, and external trip generation is to obtain trip generation rates from *Trip Generation*, 8th *Edition* (Institute of Transportation Engineers, 2008). The land use quantities and trip rates for daily, AM and PM peak hour conditions were entered into the detailed spreadsheet in Table C-1 of separately bound Appendix C.

The project has a good diversity of land uses that complement each other. The following shows how the project compares to two land use diversity ratios often recommended by economists:

- The project provides about 120 square feet of retail space per dwelling unit, with much of
 this retail being local-serving, such as a market, restaurants, and banks. This is within
 the generally accepted "balanced" amount of 60 to 125 square feet of retail space per
 household. This suggests that much of the retail will serve the local area, but that some
 patrons will also come from surrounding areas.
- The project is likely to have a ratio of at least 2.5 jobs per household due to the substantial amount of office space (646,000 square feet) on-site. The professional office space is intended to satisfy many Santa Clarita residents' desire for locally-based management, professional, sales, and related occupations. However, since a regionally balanced ratio is about 1.2 jobs per household, a substantial percentage of office trips are expected to be external.

To estimate the project's internal-trip making, assumptions regarding internally paired trips were made for complementary land uses¹⁰. These assumptions are shown in the spreadsheets in Table C-1. It should be noted that no pass-by trip reductions were taken for the retail uses. This is because the majority of the retail uses will be "local-serving," and they are not located on existing streets from which "pass-by" can be taken.

Table 6 provides a summary of the gross trips, internal trips, transit trips, and external vehicle trips under "interim (project buildout)" conditions.

^{10.} Although an internal trip calculation methodology is contained in *Trip Generation Handbook* (ITE, 2004), it was not used in this instance because the procedure is based on only a handful of studies in Florida and has been found by Fehr & Peers through other applications to be unreliable.



TABLE 6: PROJECT TRIP GENERATION – INTERIM CONDITIONS

		Trip Rate				Trips	
Land Use	Quantity	Daily	AM Peak Hour	PM Peak Hour	Daily	AM Peak Hour	PM Peak Hour
Condominiums/Townhomes	442 du's	5.81	0.44	0.52	2,568	194	230
For-Lease Units (Apartments)	579 du's	6.65	0.51	0.62	3,850	295	359
Single-family dwelling units	96 du's	9.57	0.75	1.01	919	72	97
Business Professional	646 ksf	11.05	1.56	1.37	7,140	1,009	884
Retail	131 ksf	61.46	1.37	5.79	8,174	182	770
Multiplex Movie Theater	10 screens	150	0	13.6	1,500	0	136
Hotel	200 rooms	8.17	0.48	0.59	1,634	97	118
			(Gross Trips	25,785	1,849	2594
Internal Trips					2,544	170	259
External Trips – All Modes					23,241	1,679	2,335
External Transit (Metrolink/Bus) Trips						144	182
			External Ve	hicle Trips	21,382	1,535	2,153

Notes: du's= dwelling units. ksf = thousand square feet.

Refer to Table C-1 in Appendix C for detailed assumptions and methodologies.

The following is a break-down of external daily vehicle trips to be generated by the various land uses contemplated as part of the proposed project:

Residential uses: 6,100 daily trips

• Non-residential uses: 15,300 daily trips

Metrolink (auto travel to/from station): 1,430 daily trips

Bus Transfer Station: 50 daily trips

About two-thirds of trips to the office, retail, and entertainment uses in Vista Canyon are expected to come from locations within a 6-mile drive (i.e., from residences in the east side of the Valley). Many of these would be "replacement trips" otherwise made to other destinations in the west Valley or to the south.



According to Table 6, the combined effects of internalized trips and transit trips would cause the gross trip generation estimate to be reduced by about 17 percent for each analysis period. The project would generate approximately 1,540 external AM peak hour vehicle trips and 2,150 external PM peak hour vehicle trips under interim conditions. About 65 percent of AM peak hour trips would be inbound and 62 percent of PM peak hour trips would be outbound.

Table 6 is considered a conservative assessment of the project's external vehicular trip generation. The following "checks" confirm this conclusion:

- Appendix Table C-1 indicates that approximately 80 percent of gross residential trips enter/exit the project by automobile. The level of internalization and transit mode share (20 percent) is slightly lower than the observed trip rate reductions of 25 percent for the two apartment TODs located on commuter rail lines in the Philadelphia, PA and Newark, NJ regions.
- According to Table C-1, the analysis concluded that 10 percent of PM peak hour trips are
 expected to remain internal to the site, which is less than the range of 15 to 20 percent
 internal trips observed at Valencia Town Center (West), which is similar in land use mix
 to the proposed project.
- Mixed-Use (MXD) Trip Generation Spreadsheet Fehr & Peers worked with several academic researchers to develop a state-of-the-art mixed-use trip generation spreadsheet. The spreadsheet estimates the percentage of daily trips that remain internal to a project site as well as external transit, walk, and vehicle mode splits. The spreadsheet is based on surveys of residents and employees in 240 mixed-use projects in six major metropolitan areas (Sacramento, Houston, Boston, Atlanta, Portland, and Seattle) in the United States. A set of 15 independent mixed use sites that were not included in the initial model were tested to validate the model. Appendix C contains the MXD trip generation model inputs and results for Vista Canyon. The model calculates the identical gross daily trip generation as shown in Table 6, and estimates that trip reductions (through internal trips, walk trips, and transit trips) will reduce the gross trip generation by 25 percent. The MXD model, which has been submitted to ITE for consideration of being included in a future update to the *Trip Generation Handbook*, predicts significantly more internal, walk, and transit trips than is assumed in this study.
- The 2010 Vista Canyon Parking Demand Analysis (Willson) study also presents mode share data at five residential projects located in commuter rail TODs. These stations were an average of 1,300 feet from the station, and exhibited an average of 11.9 percent rail/bus mode share. The rail/bus mode share for the Wilshire Promenade Apartments, located at a Metrolink station in Fullerton, was 16.7 percent. This study assumes 11 percent transit mode share for the residential uses.



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Table 7 shows the same information for the cumulative year horizon scenarios. The only difference between Tables 6 and 7 is the percentage of external project trips made by transit under cumulative conditions (transit mode share assumed to increase by 25 percent over interim conditions). Transit trips are expected to represent a greater percentage of trips for the cumulative year scenario due to research findings that show greater transit patronage among 10-year or longer residents, likely increases in Metrolink service frequency, and increasing congestion on regional freeways.

The project includes a residential overlay zone, which could replace up to 250,000 square feet of office space with 233 multi-family residential units. As shown in Appendix C, the residential overlay would generate fewer trips than the proposed uses. When compared to the number of external trips shown in Table 6, the project with the overlay in place would generate 15 percent fewer AM peak hour trips, 8 percent fewer PM peak hour trips, and 5 percent fewer daily trips.

Table 8 displays the expected trip generation of Phase 1 of the project. As shown, Phase 1 would generate approximately 350 external AM peak hour vehicle trips and 500 external PM peak hour vehicle trips.



TABLE 7:
PROJECT TRIP GENERATION – CUMULATIVE CONDITIONS

		Trip Rate			_	Trips	
Land Use	Quantity	Daily	AM Peak Hour	PM Peak Hour	Daily	AM Peak Hour	PM Peak Hour
Condominiums/Townhomes	442 du's	5.81	0.44	0.52	2,568	194	230
For-Lease Units (Apartments)	579 du's	6.65	0.51	0.62	3,850	295	359
Single-family dwelling units	96 du's	9.57	0.75	1.01	919	72	97
Business Professional	646 ksf	11.05	1.56	1.37	7,140	1,009	884
Retail	131 ksf	61.46	1.37	5.79	8,174	182	770
Multiplex Movie Theater	10 screens	150	0	13.6	1,500	0	136
Hotel	200 rooms	8.17	0.48	0.59	1,634	97	118
	Gross Trips						2594
Internal Trips						170	259
External Trips – All Modes						1,679	2,335
External Transit (Metrolink/Bus) Trips						180	228
			External Ve	hicle Trips	20,918	1,499	2,107

Notes: du's = dwelling units. ksf = thousand square feet.

Refer to Table C-1 in Appendix C for detailed assumptions and methodologies.

Trip Distribution/Assignment

The distribution of project trips was estimated for 2012 and interim conditions based on project-only traffic assignments from the SCVCTDM, travel time survey results, review of existing travel patterns, and locations of complementary land uses. The project-only SCVCTDM traffic assignment predicts that approximately 20 percent of external project trips will have one trip end (either origin or destination) within a couple of miles of the project. The remainder will be medium to longer distance trips, with commute trips being the most lengthy.



TABLE 8: PHASE 1 TRIP GENERATION – YEAR 2012 CONDITIONS

		Trip Rate			Trips		
Land Use	Quantity	Daily	AM Peak Hour	PM Peak Hour	Daily	AM Peak Hour	PM Peak Hour
Condominiums/Townhomes	250 du's	5.81	0.44	0.52	1,453	110	130
Apartments	430 du's	6.65	0.51	0.62	2,860	219	267
Retail	25 ksf	61.46	1.37	5.79	1,536	34	145
Gross Trips						363	542
Internal Trips ¹						10	44
	5,388	353	498				

Notes:

du's= dwelling units. ksf = thousand square feet.

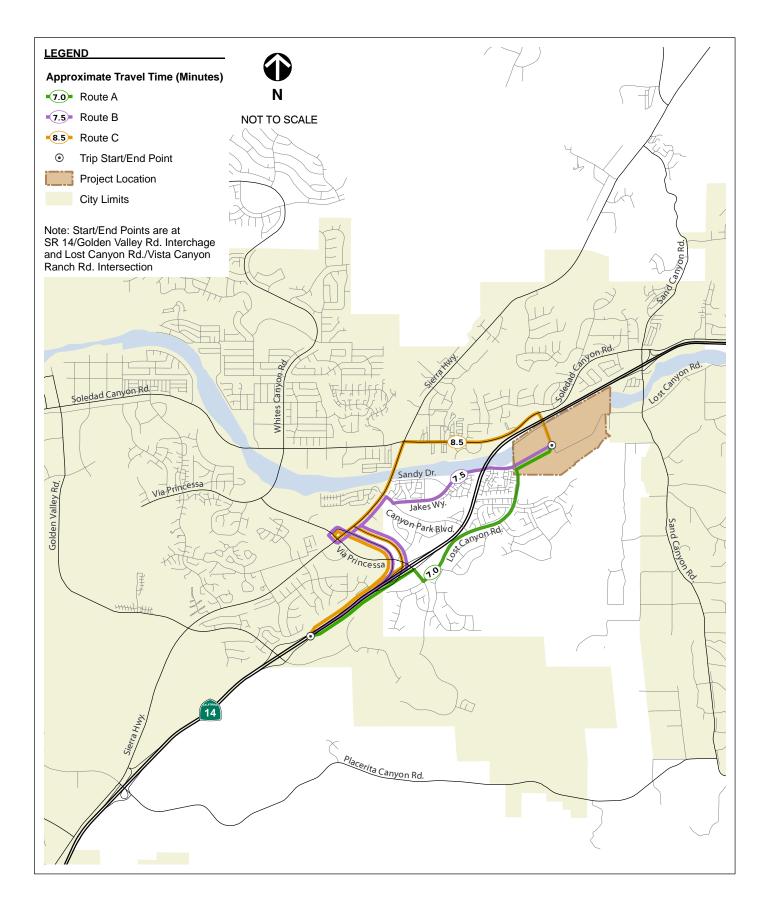
In November 2008, Fehr & Peers conducted in-vehicle surveys of several alternate routes to assess each route's relative travel time. Figures 9a, 9b, and 9c displays the approximate travel times between the project site and destinations to/from the south, west, and north, respectively. Refer to these figures for specific routes, start/end points, and travel times. This information was used in the assignment process of external project (vehicular) trips.

Figure 10 displays the expected distribution of external project trips under interim conditions. Of the four project accesses, the Lost Canyon Road access (to/from Via Princessa) and Vista Canyon Road access (to/from Soledad Canyon Road) are each expected to be used by 37-38 percent of project trips. The Jakes Way and Lost Canyon Road (to/from Sand Canyon Road) accesses would each serve 12 to 13 percent of project trips.

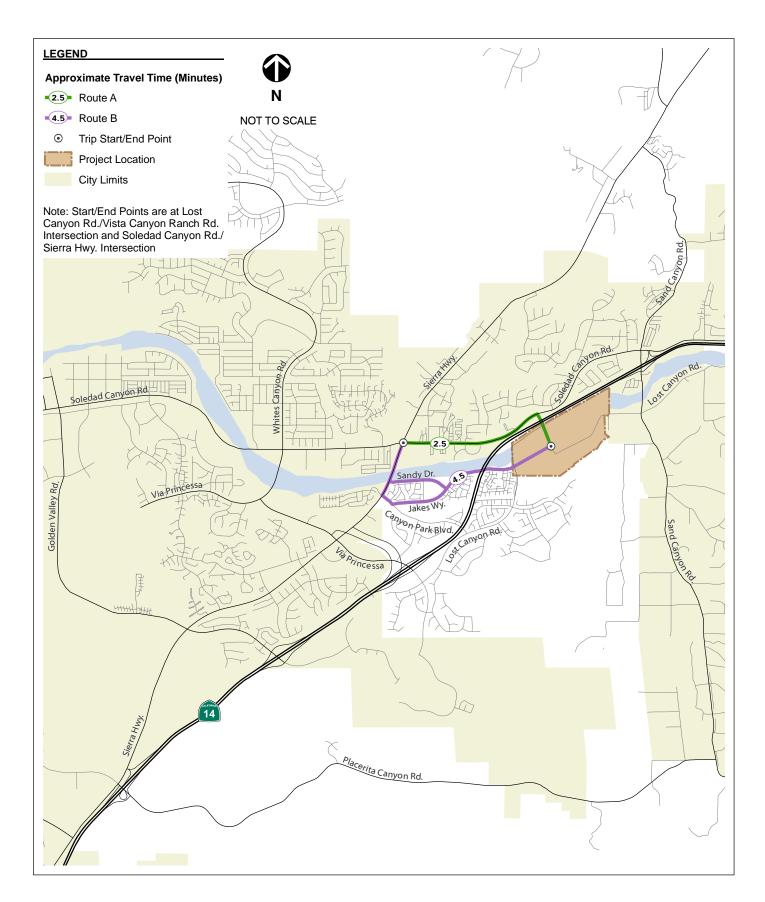


¹ Assumes that 15 percent of retail trips will be internal to project site.

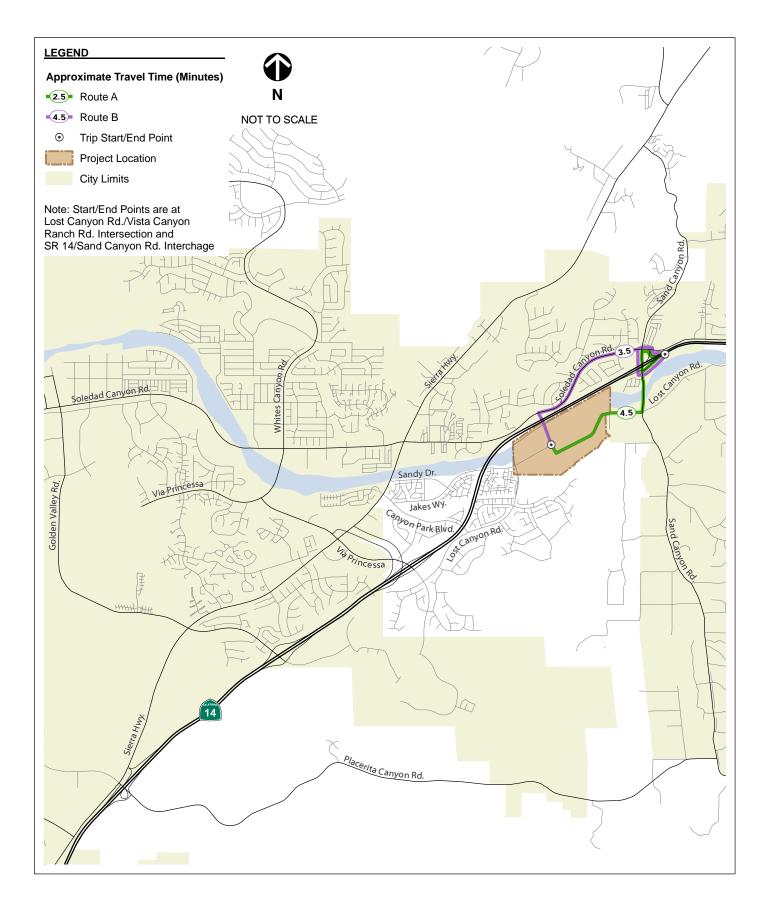
² Since Phase I of the project does not include the Metrolink station or bus transfer center, all external trips are assumed to be made by vehicle.



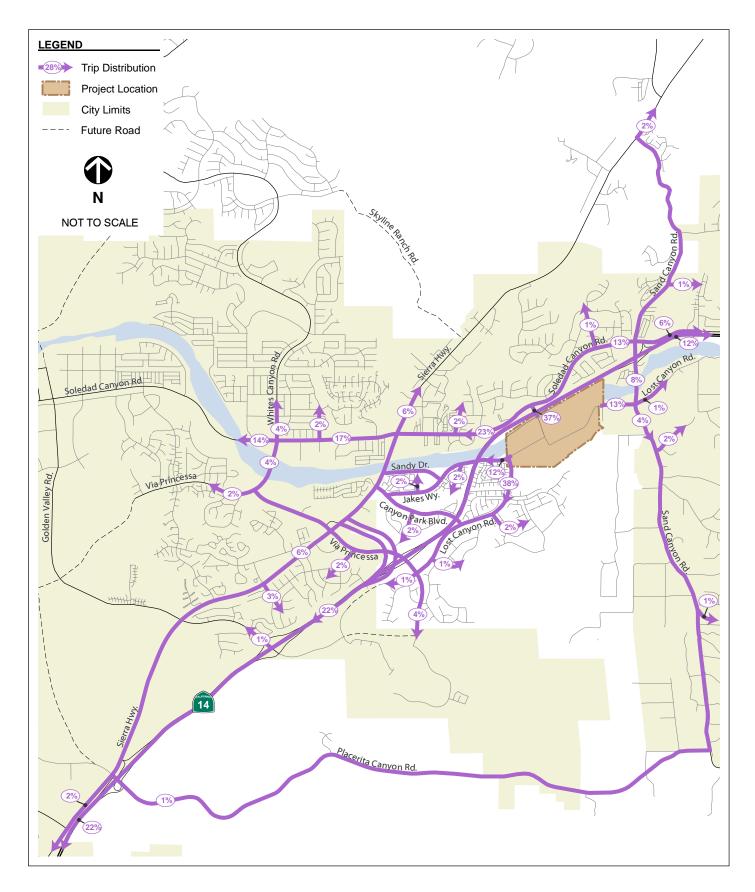














PROJECT TRAVEL CHARACTERISTICS – NEW METROLINK STATION AND BUS TRANSFER STATION

This section estimates the number of new vehicle trips that would enter/exit the new Metrolink Station on the project site, which would replace the existing Via Princessa Metrolink Station.

A number of factors will affect the expected number of external trips to/from the new Metrolink station under interim conditions. These include:

- The SCVCTDM assumes a 22 percent increase in households in the study area from 2005 to 2015, which implies a greater number of potential riders under interim conditions.
- The proximity of the station to regional travel routes (SR 14 and Soledad Canyon Road, and Sierra Highway) and worsening congestion on SR 14 and I-5 will attract new riders.
- Approximately 30 percent of trips at the Via Princessa Station are to/from the west on Via Princessa. It is likely that some of these riders may choose to instead use the Santa Clarita station instead of traveling to the new station.
- Other factors such as increased service frequency, fares, greater train capacity and reliability, and new TODs at other Metrolink stops could also affect ridership.

Given the above factors, the new station was assumed for analysis purposes to have a 50 percent increase in peak parking demand over the existing Metrolink station. This implies that approximately 72 percent of the 750 planned parking spaces will be occupied under interim conditions.

Data from the Via Princessa station indicates that the majority of commuters arrive at the station before the beginning of the AM peak hour. By 7:00 a.m., 302 spaces are already occupied; at 9:00 a.m., an additional 60 more are occupied. Fehr & Peers surveyed 140 people waiting to board trains during a weekday morning in November 2008. Approximately 75 percent reported that they drove to the station, 20 percent were dropped off, and 5 percent took transit, biked, or walked. Based on this data and traffic counts, the existing Via Princessa Station is estimated to generate approximately 70 vehicle trips during the AM peak hour with approximately 80 percent being inbound. Since the proposed station is assumed to have a 50 percent increase in parking demand (with comparable increases in kiss-and-ride activity), it is assumed to generate approximately 110 vehicle trips during the AM peak hour.

Based on the parking survey results, the Via Princessa station experiences the greatest level of exiting vehicles from 5:30 to 6:30 p.m. During this hour, one northbound train stops at 5:56 p.m., and no southbound trains stop during this time. Observations of parking at 6:00 p.m. and at 7:00 p.m. showed 154 fewer parked vehicles. The existing Via Princessa Station is estimated to generate approximately 200 vehicle trips during the PM peak hour with approximately 85 percent being outbound. The proposed station is assumed to generate approximately 300 vehicle trips based on the assumed 50 percent increase in peak parking demand.



Based on parking occupancy and AM peak period boardings/alightings, the Via Princessa station is estimated to have approximately 800 daily combined boardings/alightings, 750 of which arrived by vehicle. Of those arriving by vehicle, approximately 75 percent drove to the station and 25 percent were dropped-off/picked-up. Accordingly, these two trip types are estimated to generate approximately 940 daily trips. With the addition of 10 inbound and 10 outbound connecting City buses, the existing trip generation is estimated to be approximately 960 daily trips. The proposed station is assumed to generate approximately 1,430 external vehicle trips based on the assumed 50 percent increase in peak parking demand.

Table 9 summarizes the expected external vehicle trip generation of the proposed station at Vista Canyon for the "interim plus project" scenario.

TABLE 9: NEW METROLINK STATION TRIP GENERATION – INTERIM CONDITIONS								
Land use	External Vehicle Trips							
Lanu use	Quantity	Daily AM Peak Hour PM Peak Hour						
Metrolink Station	750 parking spaces	1,430 110 300						
Note: Refer to above text for methodology for estimating trip generation.								

The reasonableness of these results was checked against assumptions made in the *Westgate Metrolink Station Draft EIR* (City of Placentia, 2006). The proposed station in Placentia would provide 500 parking spaces and was estimated to generate 1,180 external daily vehicle trips, which equates to a ratio of 2.36 daily trips per parking space. The proposed station's trip generation equates to a ratio of 1.91 daily trips per parking space. However, the 20 percent reduction in the rate is attributable to the assumption that only 72 percent of the 750 parking spaces are occupied under interim conditions. Under cumulative conditions, the vast majority of the spaces dedicated to the proposed Metrolink station are expected to be occupied, and the resulting trip generation would be 1,800 daily external vehicle trips.

REDISTRIBUTION EFFECTS OF CONNECTING ROADWAYS

The project would connect Lost Canyon Road between its current southern and northern termini. It would also create new connections with Jakes Way and Vista Canyon Road as described previously. These new connections would have the potential to cause a redistribution of interim and cumulative no project scenario traffic volumes.

To test the expected redistribution of background traffic due to these new streets, the street connections were added to the interim year version of the SCVCTDM but excluding all project land uses. The model estimates a modest amount of redistributed traffic to these streets. Specifically, about 350 ADT is added to the segment of Lost Canyon Road between Jakes Way and Vista Canyon Road. Vista Canyon Road and Lost Canyon Road east of Vista Canyon Road are each projected to accommodate less than 300 ADT. This is about 30 vehicles on a peak-



hour basis. The "interim plus project" forecasts will incorporate these modest levels of redistributed traffic.

REDISTRIBUTION EFFECTS OF CHANGES IN ATTENDEES AT SULPHUR SPRINGS ELEMENTARY SCHOOL

Students in kindergarten through sixth grade who would reside in Vista Canyon are expected to attend Sulphur Springs Elementary School, which is a short walk to the east of the project. Presently, it is estimated that approximately 50 percent of the students who attend Sulphur Springs Elementary School come from residential neighborhoods north of SR 14. The Mitigation Agreement between Vista Canyon and the Sulphur Springs School District will require Vista Canyon to provide funding for the construction of a new school north and east of the project in the Spring Canyon development. Once the Spring Canyon School is completed, it is anticipated that the majority of future students residing north of SR14 and attending Sulphur Springs Elementary School will be relocated to the new Spring Canyon Elementary School, allowing future Vista Canyon students to attend Sulphur Springs Elementary School. For the purposes of this traffic study, 30 percent of future students who would attend Sulphur Springs Elementary School were assumed to be relocated to the Spring Canyon School and replaced by students who reside in Vista Canyon. Changes in traffic patterns associated with these shifts are accounted for in the analysis.



7. 2012 AND INTERIM (2015) BACKGROUND CONDITIONS

This chapter describes expected travel conditions in the study area under 2012 and interim (2015) conditions assuming the proposed project is not constructed. The process employed to develop forecasts is first described. Year 2012 and interim forecasts are then presented. This is followed by analysis of study locations under 2012 and interim conditions.

ROADWAY AND LAND USE ASSUMPTIONS

Fehr & Peers used the modified version of the interim year SCVCTDM to develop weekday AM and PM peak hour forecasts at the study locations. Fehr & Peers coordinated with City of Santa Clarita Traffic Division to identify and confirm General Plan roadway improvements anticipated by the interim year. These roadway improvements were included in the model.

The traffic forecasts and analysis for 2012 and the interim conditions not only includes certain roadway improvements but also takes into consideration all development projects that have been submitted and approved within the study area.

The interim year model also assumes the project roadway improvements. These improvements were excluded from the model for the no project scenario. Figure 11 illustrates the interim roadway improvements assumed in the study.

Fehr & Peers compared the 2004 and 2015 land use databases associated with the SCVCTDM to identify potential errors in inputs in the 2015 land use assumptions and general growth trends. In a couple instances, 2004 residential land uses were inadvertently placed in a different residential land use category in the 2015 land use database. These errors were corrected.

According to the SCVCTDM, the area south of SR 14 between Sand Canyon Road and Golden Valley Road is expected to gain approximately 1,300 dwelling units and 690,000 square feet of retail space between the base year and interim year models. The area located north of Soledad Canyon Road from east of Sierra Highway to west of Sand Canyon Road is expected to gain approximately 1,000 dwelling units and 150,000 square feet of non-residential space. Land use growth directly west of SR 14 and south of Soledad Canyon Road is expected to be more modest given that much of the area is already built-out. These growth trends are used to assess the reasonableness of expected traffic growth.

TRAFFIC FORECASTS

Fehr & Peers used existing traffic counts and the base year and interim year versions of the SCVCTDM to develop interim traffic forecasts. The procedure used to develop the forecasts, which is referred to as the "difference method," is calculated as follows:

Adjusted Interim Year Forecast = Existing Traffic Volume + 0.64(Interim - Base Model Forecast)



This method accounts for potential inaccuracies in the base year model by adding the difference in traffic between the base and interim year models to the existing volume. Only 64 percent of the change in traffic is added to the existing volume because existing conditions represents four of the 11 years between base (2004) and interim (2015) model years. Due to the number of major new street connections assumed in the interim model, reductions in turning movements to below existing volumes were allowed to the extent they made sense.

The 2012 (No Project) forecasts were developed by applying linear interpolation between the existing and adjusted interim forecasts. These forecasts are shown on Figures 12a and 12b. Figures 13a and 13b display the Interim (No Project) traffic forecasts at the study intersections. These figures also illustrate the assumed lane configurations at the study intersections, which are unchanged with the exception of a third through lane in each direction on the major street at intersections 7, 17, and 21. The other planned roadways will act to divert traffic away from the study intersections, but do not increase the capacity at these locations.

Table 10 displays the AM and PM peak hour traffic volumes on the study segments of SR 14 for these scenarios.

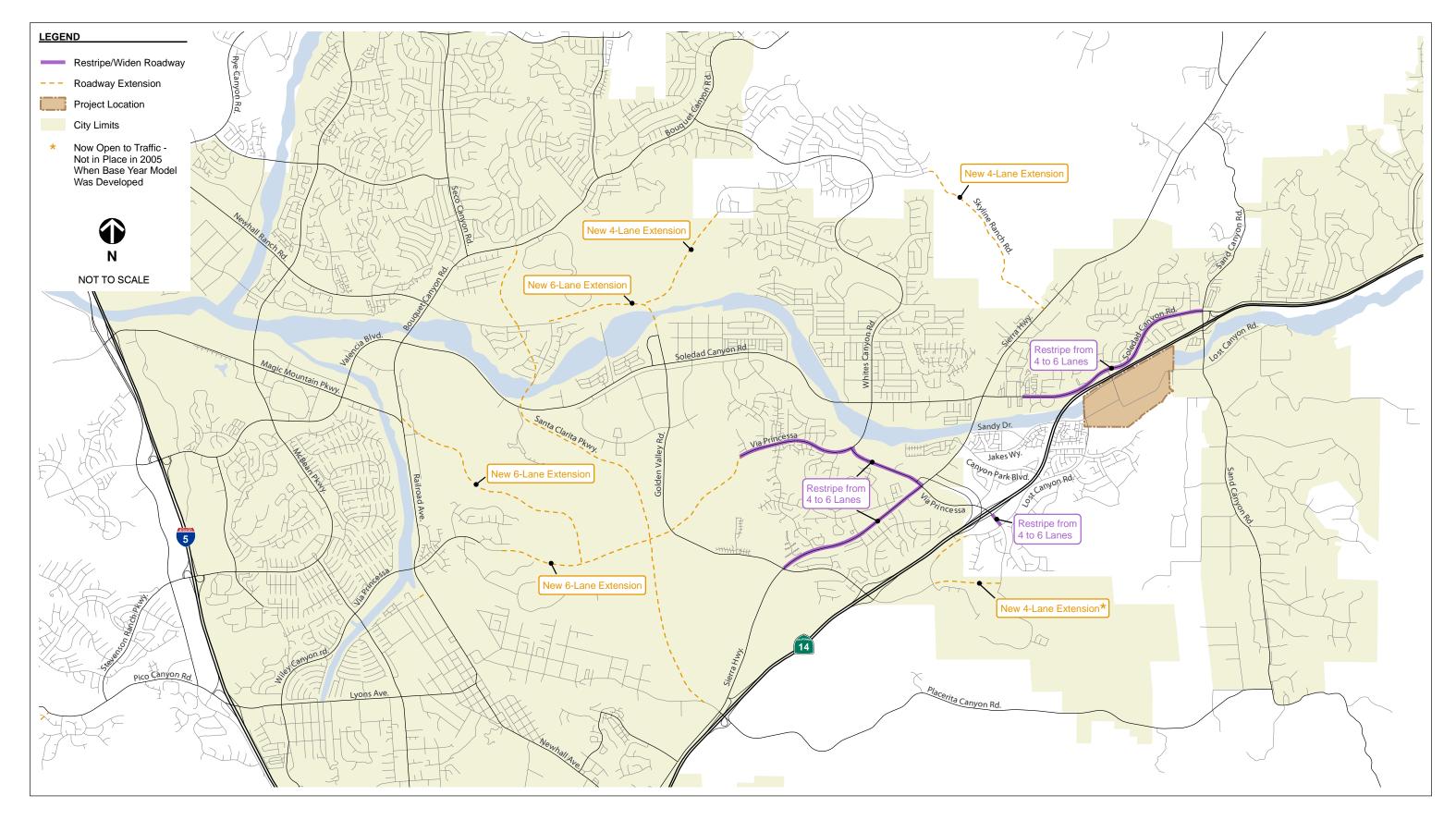
The *Draft 2008 Regional Transportation Plan* (Metro) includes direct carpool lane connector ramps at the I-5/SR 14 interchange in its recommended plan for highway improvements. The connector ramps would be open in 2013 according to the plan and are presently under construction. These improvements are likely to increase the corridor's capacity. However, the improvements (absent any changes in mode split from single-occupant to carpooling) would not appreciably improve operations in the mixed-use travel lanes. As a result, significant levels of congestion are anticipated to remain on SR 14.

TABLE 10: SR 14 FREEWAY TRAFFIC FORECASTS – INTERIM (NO PROJECT) CONDITIONS

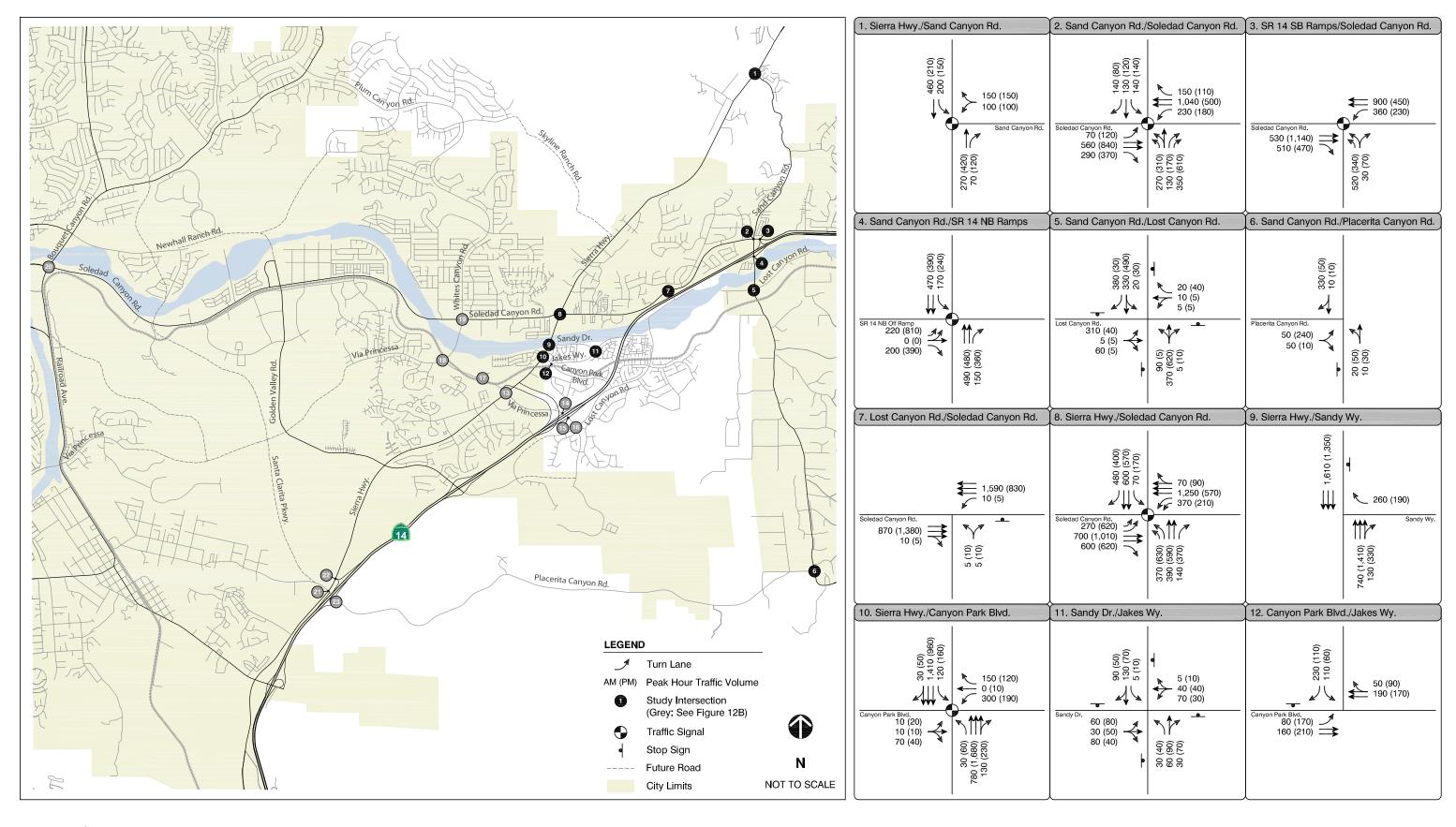
	Existing C	onditions	Interim (No Project) Conditions		
Freeway Segment	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
NB SR 14 north of Golden Valley Road	2,407	7,083	2,860	8,670	
NB SR 14 north of Via Princessa	1,903	5,741	2,320	7,950	
NB SR 14 north of Sand Canyon Road	1,700	5,098	2,250	7,380	
SB SR 14 north of Sand Canyon Road	3,983	1,906	6,040	2,940	
SB SR 14 south of Sand Canyon Road	4,353	2,143	6,160	3,190	
SB SR 14 south of Via Princessa	5,288	3,051	7,225	4,050	

Note: These forecasts represent the demand for peak-hour travel through each segment. However, upstream and downstream bottlenecks may result in these demand numbers not being achieved within the peak hour.

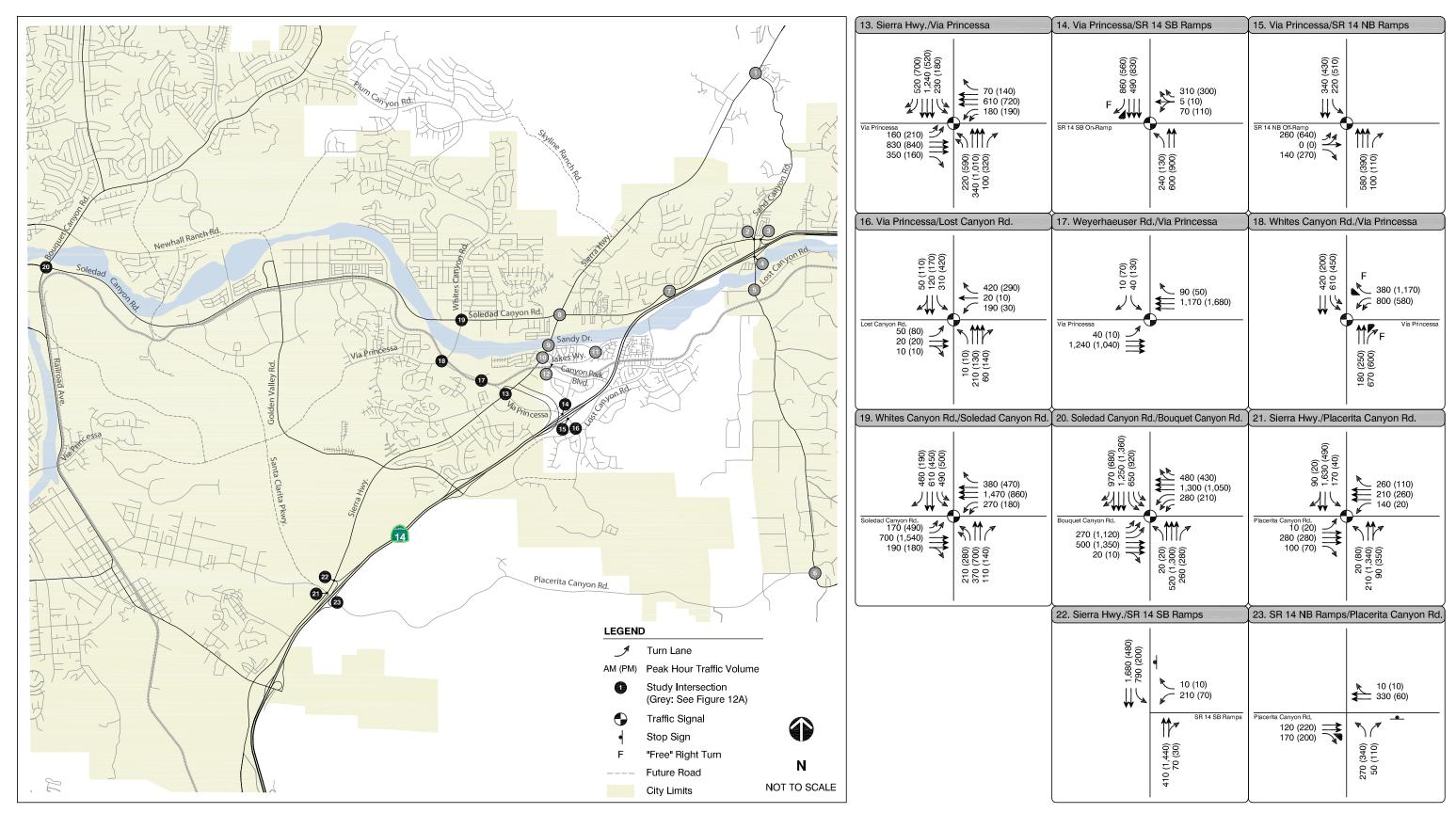




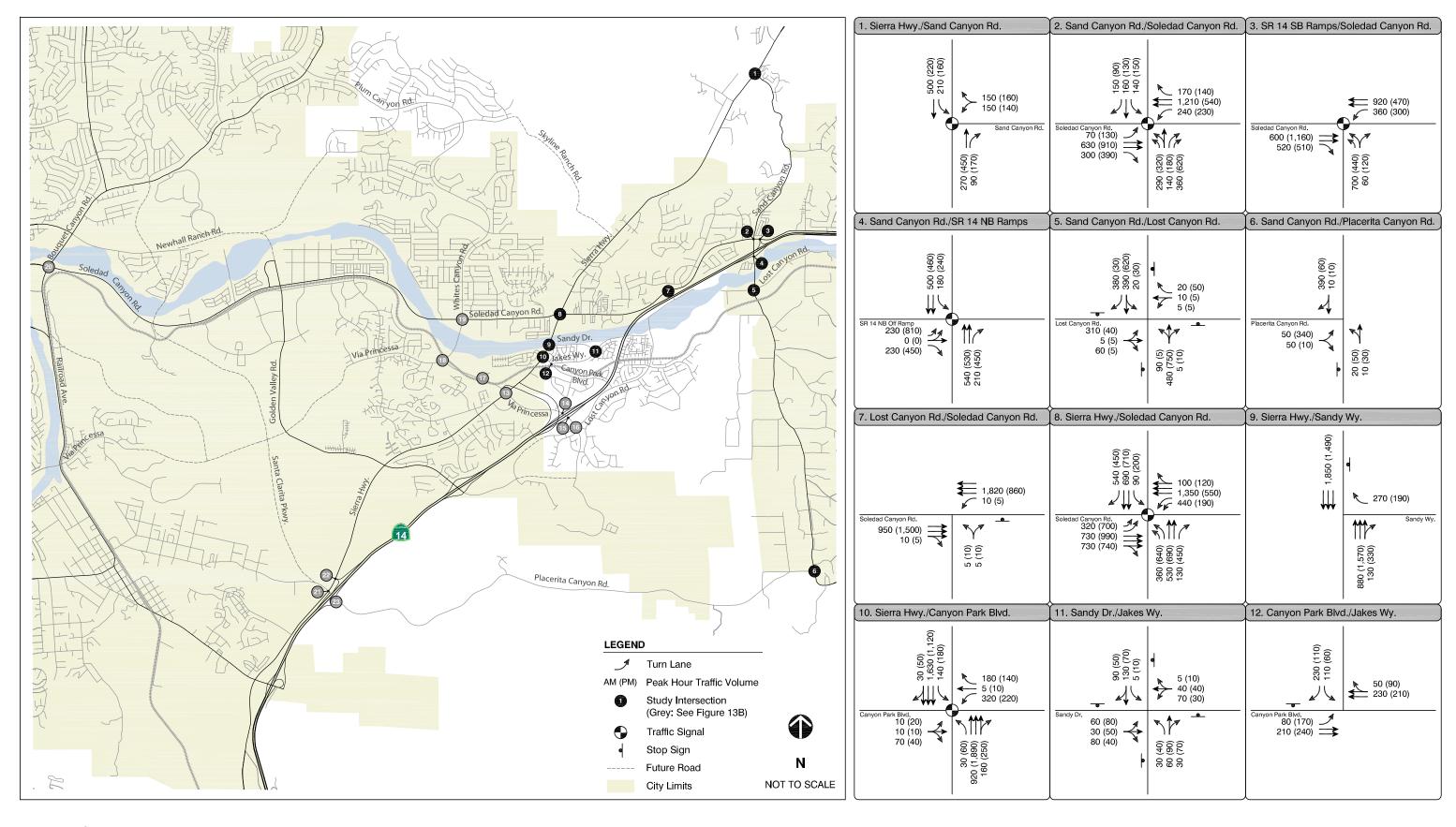






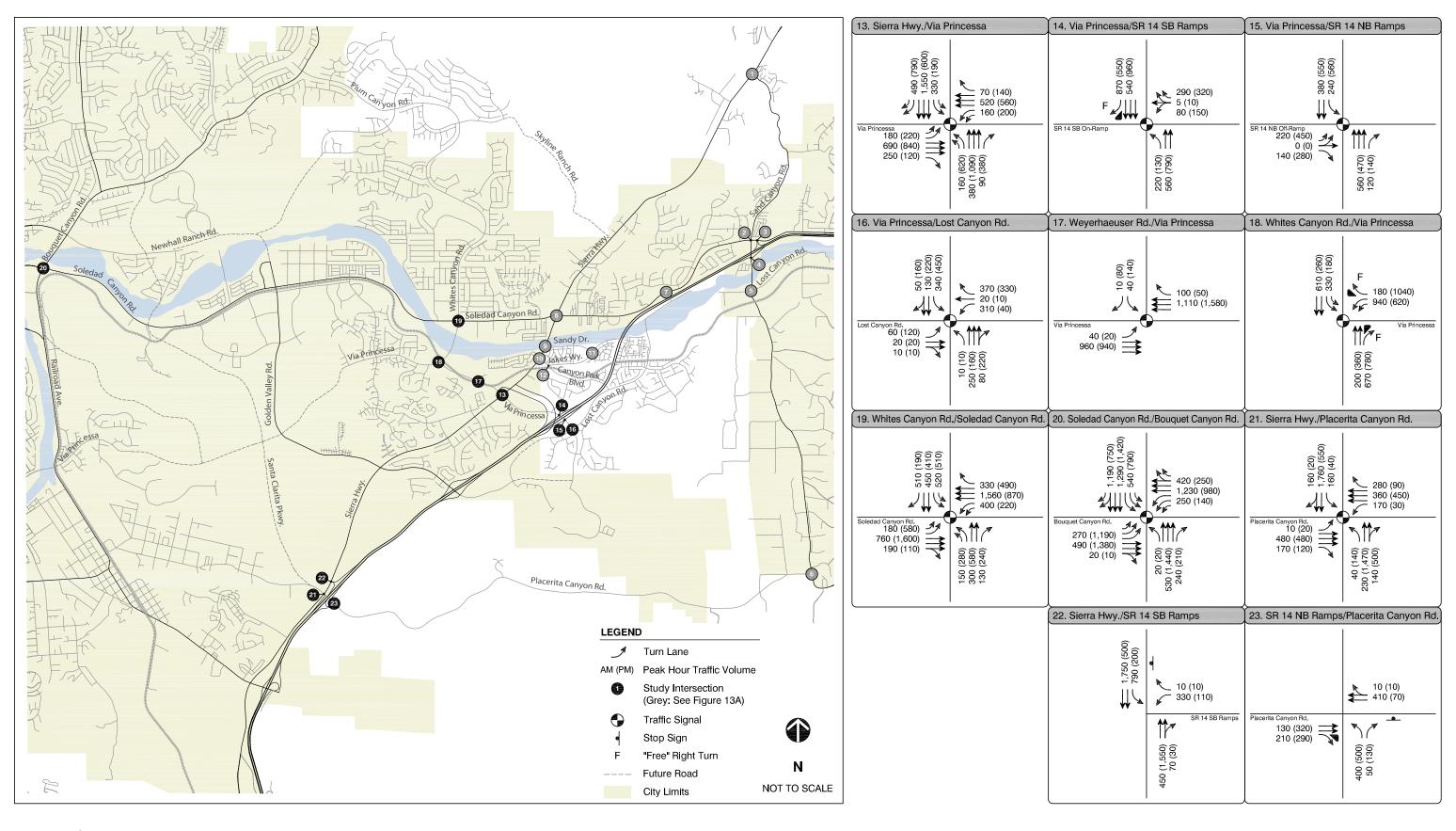








PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS -2015 (NO PROJECT) CONDITIONS





INTERSECTION OPERATIONS

Fehr & Peers analyzed the study intersections using the procedures described in Chapter 2. The results are summarized in Table 11 (refer to separately bound Appendix D for technical calculations). Table 11 shows that five of the 23 intersections operate unacceptably under 2012 (No Project) conditions. Under Interim (No Project conditions, a total of nine intersections would operate unacceptably.

Degraded AM peak hour operations at the SR 14 SB Ramps/Soledad Canyon Road and Sand Canyon Road/Soledad Canyon Road intersections are the result, in part, of traffic diverting off SR 14 in response to worsening congestion.

FREEWAY OPERATIONS

Table 12 displays freeway mainline operations and ramp merge/diverge (ramp junction) operations under 2012 and Interim (No Project) conditions using procedures described in Chapter 2. Refer to separately bound Appendix D for technical calculations.

.According to Table 10, the AM peak hour travel demand on southbound SR 14 south of Sand Canyon Road is expected to increase from 4,350 vehicles under existing conditions to 6,160 vehicles under Interim (No Project) conditions, which is a 42 percent increase. Since no additional capacity improvements are anticipated under interim conditions, the added vehicles will cause southbound vehicle queues to extend northerly beyond the Sand Canyon Road interchange. The results in Table 12 reflect this expected operating condition.

Reported PM peak operations on northbound SR 14 assume that the travel demand for each segment can be delivered by the system. However, bottlenecks on I-5 and SR 14 will not allow the entire predicted increase to reach this segment within the peak hour. As such, reported operations on northbound SR 14 during the PM peak hour are considered conservative.



TABLE 11: INTERSECTION OPERATIONS – 2012 AND INTERIM (NO PROJECT) CONDITIONS

			AM (PM) Peak Hour 2012 Conditions Interim Conditions Delay or V/C Ratio – LOS 0.55 - A (0.61 - B)	
#	Intersection	Traffic Control	2012 Conditions	Interim Conditions C Delay or V/C Ratio — LOS B) 0.60 - A (0.67 - B) C) 36 - D (68 - E) C) 151 - F (132 - F) C) 14 - B (20 - C) C) 209 - F (64 - F) B) 11 - B (15 - C) E) 42 - E (59 - F) E) 44 - D (73 - E) B) 16 - C (12 - B) C) 25 - C (28 - C) A) 10 - B (9 - A) C) 18 - C (18 - C) C) 30 - C (39 - D) B) 19 - B (23 - C) C) 34 - C (30 - C) B) 0.62 - B (0.77 - C) C) 9 - A (6 - A) C) 9 - A (6 - A) C) 42 - D (48 - D) E) 65 - E (71 - E)
n e	intersection	Traine Control	_	<u> </u>
1	Sand Canyon Road/Sierra Highway	Traffic Signal	0.55 - A (0.61 - B)	0.60 - A (0.67 - B)
2	Sand Canyon Road/Soledad Canyon Road	Traffic Signal	33 - C (37 - D)	36 - D (68 - E)
3	Soledad Canyon Road/SR 14 SB Ramps	Traffic Signal	51 - D (48 - D)	151 - F (132 - F)
4	Sand Canyon Road/SR 14 NB Ramps	Traffic Signal	13 - B (21 - C)	14 - B (20 - C)
5	Sand Canyon Road/Lost Canyon Road	All-Way Stop	76 - F (19 - C)	209 - F (64 - F)
6	Sand Canyon Rd./Placerita Canyon Road	Side-Street Stop	11 - B (13 - B)	11 - B (15 - C)
7	Soledad Canyon Road/Lost Canyon Road	Side-Street Stop	32 - D (45 - E)	42 - E (59 - F)
8	Sierra Highway/Soledad Canyon Road	Traffic Signal	40 - D (56 - E)	44 - D (73 - E)
9	Sierra Highway/Sandy Way	Side-Street Stop	16 - C (11 - B)	16 - C (12 - B)
10	Sierra Highway/Canyon Park Boulevard	Traffic Signal	23 - C (25 - C)	25 - C (28 - C)
11	Sandy Way/Jakes Way	All-Way Stop	10 - B (9 - A)	10 - B (9 - A)
12	Canyon Park Boulevard/Jakes Way	Side-Street Stop	16 - C (16 - C)	18 - C (18 - C)
13	Sierra Highway/Via Princessa	Traffic Signal	31 - C (37 - D)	30 - C (39 - D)
14	Via Princessa/SR 14 SB Ramps	Traffic Signal	15 - B (18 - B)	19 - B (23 - C)
15	Via Princessa/SR 14 NB Ramps	Traffic Signal	21 - C (27 - C)	34 - C (30 - C)
16	Via Princessa/Lost Canyon Road	Traffic Signal	0.60 - B (0.65 - B)	0.62 - B (0.77 - C)
17	Via Princessa/Weyerhaeuser Way	Traffic Signal	4 - A (19 - B)	5 - A (22 - C)
18	Via Princessa/Whites Canyon Road	Traffic Signal	8 - A (6 - A)	9 - A (6 - A)
19	Soledad Canyon Road/Whites Canyon Rd.	Traffic Signal	40 - D (49 - D)	42 - D (48 - D)
20	Soledad Canyon Road/Bouquet Canyon Rd.	Traffic Signal	45 - D (66 - E)	65 - E (71 - E)
21	Placerita Canyon Road/Sierra Highway	Traffic Signal	39 - D (41 - D)	48 - D (50 - D)
22	Placerita Canyon Road/SR 14 SB Ramps	Side-Street Stop	>50 - F (>50 - F)	>50 - F (>50 - F)
23	Placerita Canyon Road/SR 14 NB Ramps	Side-Street Stop	15 - C (18 - C)	29 - D (63 - F)

Notes:

Shaded and bolded cells indicate unacceptable operation.

- ICU methodology used for signalized intersections that are located in Los Angeles County.
- HCM methodology used for all unsignalized intersections and signalized intersections maintained by City of Santa Clarita or Caltrans. SimTraffic micro-simulation model used to evaluate closely spaced, coordinated intersections.



TABLE 12: FREEWAY OPERATIONS – 2012 AND INTERIM (NO PROJECT) CONDITIONS

	AM (PM) F	Peak Hour
Freeway Facility	Density – LOS	
	2012	Interim
Freeway Mainline Sections		
NB SR 14: Between Golden Valley Road and Via Princessa/Sierra Highway (Weave)	A (F)	A (F)
NB SR 14: Between Via Princessa/Sierra Highway and Sand Canyon Rd	9-A (31-D)	10-A (40-E)
NB SR 14: Between Sand Canyon Road and Soledad Canyon Road	12-B (F)	13-B (F)
SB SR 14: Between Soledad Canyon Road and Sand Canyon Road	F (14-B)	F (16-B)
SB SR 14: Between Sand Canyon Road and Via Princessa	F (11-B)	F (13-B)
SB SR 14: Between Via Princessa/Sierra Highway and Golden Valley Road (Weave)	F (B)	F (C)
Freeway Ramps		
SR 14 NB Off-Ramp/Sand Canyon Road	11 - B (33 - D)	12 - B (36 - E)
SR 14 NB On-Ramp/Sand Canyon Road	14 - B (43 - F)	15 - B (50 - F)
SR 14 SB Off-Ramp/Sand Canyon Road/Soledad Canyon Road	32 - D (17 - B)	41 - F (19 - B)
SR 14 SB On-Ramp/Sand Canyon Road/Soledad Canyon Road	28 - C (12 - B)	34 - F (14 - B)
SR 14 NB Off-Ramp/Via Princessa	11 - B (33 - D)	11 - B (35 - D)
SR 14 SB On-Ramp/Via Princessa	28 - C (16 - B)	>43- F (17- B)

Notes:

- Results calculated using HCM procedures report density in passenger cars per hour per mile per lane. Leisch
 methodology used to analyze freeway weave sections presents LOS only. Density not provided where freeway or
 ramp is in LOS F condition based on field observations and/or GPS travel time survey.
- Ramps selected for analysis limited to those that would be used by the project to a significant degree.
- Cells that are shaded and bolded represent unacceptable operations.



8. 2012 (PHASE 1) CONDITIONS

This chapter analyzes the impacts of the Phase 1 of Vista Canyon on Year 2012 background transportation conditions. This analysis focuses on the impacts of this initial phase of the project at the study intersections and freeway facilities. Chapter 9 addresses the impacts of the full project at all study intersections, freeway facilities, and CMP facilities. It also covers project impacts to the transit, bicycle, and pedestrian systems.

As described in Chapter 6, Phase 1 consists of 680 multi-family dwelling units and 25,000 square feet of retail space. The proposed Metrolink Station, the Vista Canyon Road Bridge over the Santa Clara River, and the easterly extension of Lost Canyon Road to La Veda Avenue would not be constructed or operational with Phase 1.

TRAFFIC FORECASTS

Fehr & Peers assigned trips associated with Phase 1 to the study locations in accordance with the assumptions described in Chapter 6. These trips were then added to the Year 2012 (No Project) background volumes to yield the 2012 (Phase 1) forecasts. Figures 14a and 14b display the peak hour traffic forecasts at the study intersections for this scenario.

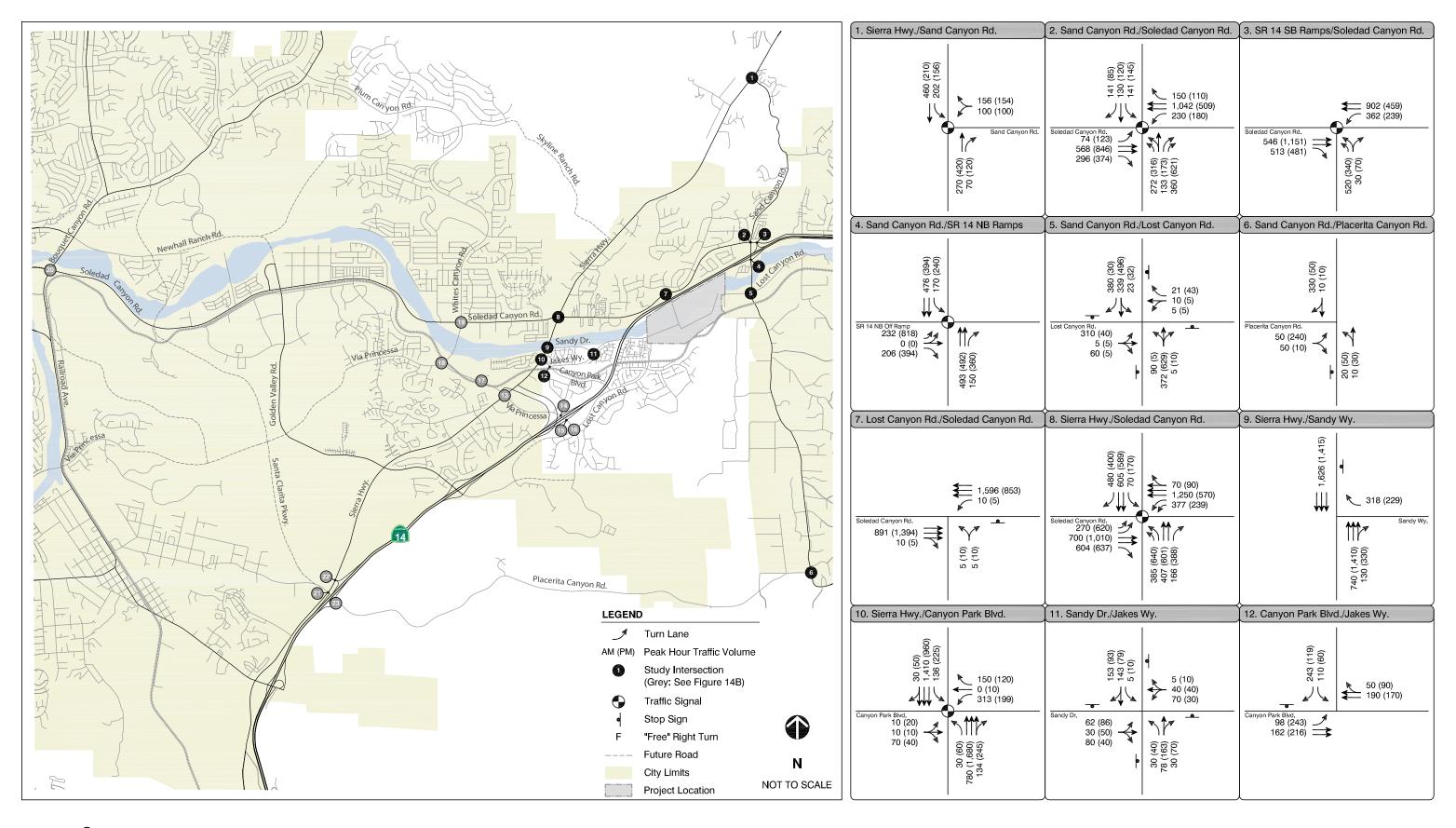
INTERSECTION OPERATIONS

Fehr & Peers analyzed the study intersections under 2012 (Phase 1) conditions. Table 13 summarizes the results (refer to Appendix E for technical calculations). According to Table 13, the project would cause the number of study intersections operating at unacceptable levels to increase from five to nine. More specifically, Phase 1 of the project would cause a significant impact at five of these intersections.

FREEWAY OPERATIONS

Fehr & Peers analyzed the study freeway segments and ramps under 2012 (Phase 1) conditions. Table 14 summarizes the results (refer to Appendix E for technical calculations). According to Table 14, the project would further degrade unacceptable operations at several mainline segments and ramps of SR 14. However, no facilities would degrade from an acceptable to unacceptable level.







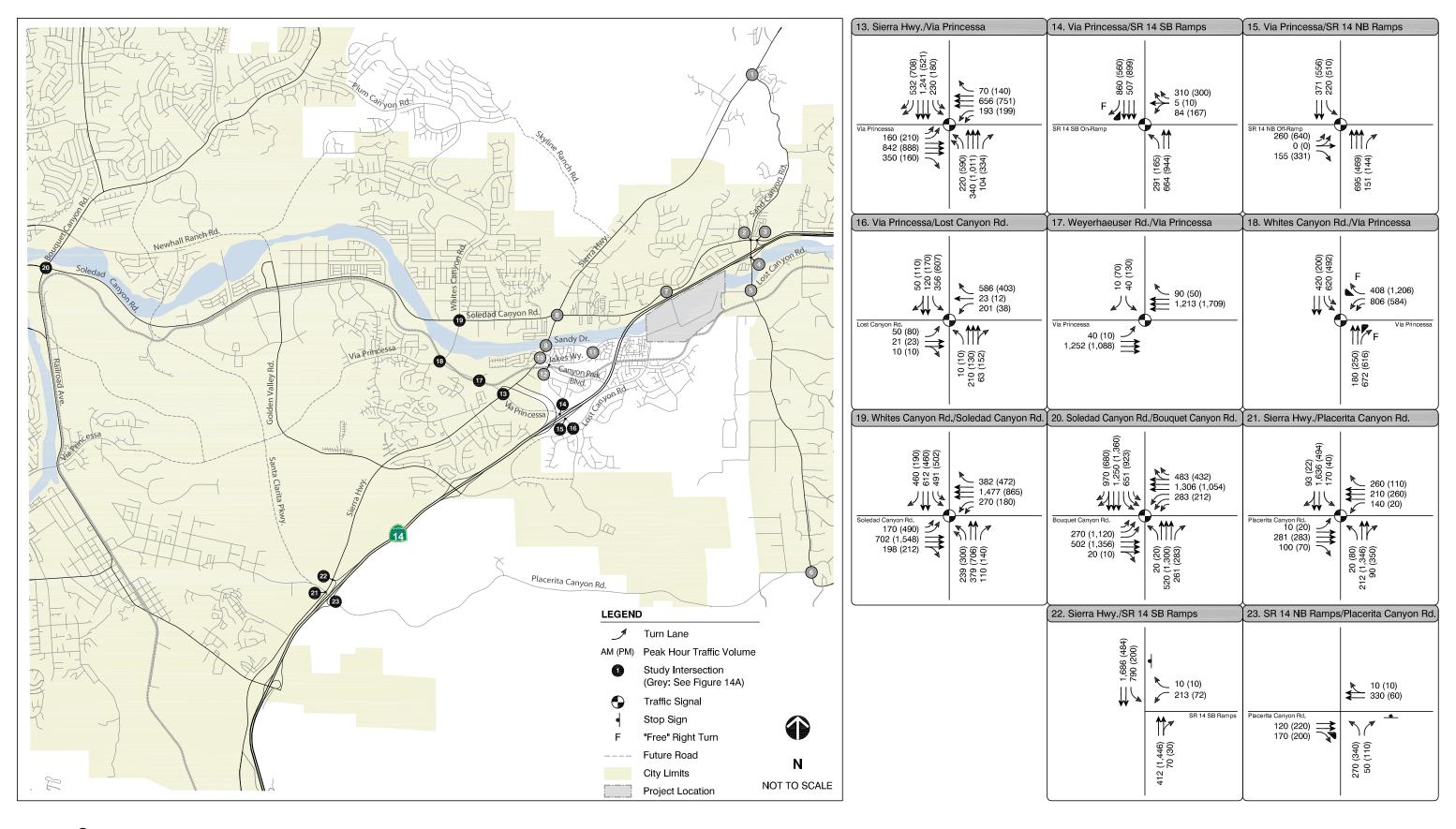




TABLE 13: INTERSECTION OPERATIONS – 2012 (PHASE 1) CONDITIONS

			AM (PM) F	Peak Hour
#	Intersection	•		2012 (Phase 1) Conditions
			Delay or V/C Ratio - LOS	Delay or V/C Ratio – LOS
1	Sand Canyon Road/Sierra Highway	Traffic Signal	0.55 - A (0.61 - B)	0.56 - A (0.62 - B)
2	Sand Canyon Road/Soledad Canyon Rd.	Traffic Signal	33 - C (37 - D)	33 - C (38 - D)
3	Soledad Canyon Road/SR 14 SB Ramps	Traffic Signal	51 - D (48 - D)	57 - E (64 - E)
4	Sand Canyon Road/SR 14 NB Ramps	Traffic Signal	13 - B (21 - C)	14 - B (22 - C)
5	Sand Canyon Road/Lost Canyon Road	All-Way Stop	76 - F (19 - C)	96 - F (18 - C)
6	Sand Canyon Rd./Placerita Canyon Road	Side-Street Stop	11 - B (13 - B)	11 - B (13 - B)
7	Soledad Canyon Road/Lost Canyon Road	Side-Street Stop	32 - D (45 - E)	33 - D (47 - E)
8	Sierra Highway/Soledad Canyon Road	Traffic Signal	40 - D (56 - E)	41 - D (58 - E)
9	Sierra Highway/Sandy Way	Side-Street Stop	16 - C (11 - B)	19 - C (12 - B)
10	Sierra Highway/Canyon Park Boulevard	Traffic Signal	23 - C (25 - C)	24 - C (29 - C)
11	Sandy Way/Jakes Way	All-Way Stop	10 - B (9 - A)	13 - B (10 - B)
12	Canyon Park Boulevard/Jakes Way	Side-Street Stop	16 - C (16 - C)	18 - C (21 - C)
13	Sierra Highway/Via Princessa	Traffic Signal	31 - C (37 - D)	31 - C (38 - D)
14	Via Princessa/SR 14 SB Ramps	Traffic Signal	15 - B (18 - B)	47 - D (140 - F)
15	Via Princessa/SR 14 NB Ramps	Traffic Signal	21 - C (27 - C)	85 - F (>180 - F)
16	Via Princessa/Lost Canyon Road	Traffic Signal	0.60 - B (0.65 - B)	0.72 - C (0.84 - D)
17	Via Princessa/Weyerhaueser Way	Traffic Signal	4 - A (19 - B)	4 - A (19 - B)
18	Via Princessa/Whites Canyon Road	Traffic Signal	8 - A (6 - A)	8 - A (6 - A)
19	Soledad Canyon Road/Whites Canyon Rd.	Traffic Signal	40 - D (49 - D)	41 - D (50 - D)
20	Soledad Canyon Road/Bouquet Canyon Rd.	Traffic Signal	45 - D (66 - E)	45 - D (66 - E)
21	Placerita Canyon Road/Sierra Highway	Traffic Signal	39 - D (41 - D)	39 - D (42 - D)
22	Placerita Canyon Road/SR 14 SB Ramps	Side-Street Stop	>50 - F (>50 - F)	>50 - F(>50 - F)
23	Placerita Canyon Road/SR 14 NB Ramps	Side-Street Stop	15 - C (18 - C)	15 - C (18 - C)

Notes:

- Delay at intersection 22 shown as "> 50" because volume inputs exceed software program's ability to produce reasonable delay estimates.
- ICU methodology used for signalized intersections that are located in Los Angeles County.
- HCM methodology used for all unsignalized intersections and signalized intersections maintained by City of Santa Clarita or Caltrans. SimTraffic micro-simulation model used to evaluate closely spaced, coordinated intersections.
- Shaded and bolded cells indicate unacceptable operation.



TABLE 14: FREEWAY OPERATIONS – 2012 (PHASE 1) CONDITIONS

	AM (PM) i	Peak Hour
Freeway Facility	2012 No Project Conditions	2012 (Phase 1) Conditions
	Density – LOS	Density – LOS
Freeway Mainline Sections		
NB SR 14: Between Golden Valley Road and Via Princessa/Sierra Highway (Weave)	A (F)	A (F)
NB SR 14: Between Via Princessa/Sierra Highway and Sand Canyon Road	9-A (31-D)	9-A (31-D)
NB SR 14: Between Sand Canyon Road and Soledad Canyon Road	12-B (F)	12-B (F)
SB SR 14: Between Soledad Canyon Road and Sand Canyon Road	F (14-B)	F (14-B)
SB SR 14: Between Sand Canyon Road and Via Princessa	F (11-B)	F (12-B)
SB SR 14: Between Via Princessa/Sierra Highway and Golden Valley Road (Weave)	F (B)	F (B)
Freeway Ramps		
SR 14 NB Off-Ramp/Sand Canyon Road	11 - B (33 - D)	11 - B (33 - D)
SR 14 NB On-Ramp/Sand Canyon Road	14 - B (43 - F)	14 - B (43 - F)
SR 14 SB Off-Ramp/Sand Canyon Road/Soledad Canyon Road	32 - D (17 - B)	32 - D (17 - B)
SR 14 SB On-Ramp/Sand Canyon Road/Soledad Canyon Road	28 - C (12 - B)	28 - C (12 - B)
SR 14 NB Off-Ramp/Via Princessa	11 - B (33 - D)	11 - B (33 - D)
SR 14 SB On-Ramp/Via Princessa	28 - C (16 - B)	28 - C (16 - B)

Notes:

- See discussion below for rationale for using HCM techniques versus field observations/travel time surveys.
- Ramps selected for analysis limited to those that would be used by the project to a significant degree.
- Shaded and bolded cells indicate unacceptable operation.



IMPACTS AND MITIGATIONS

According to the significance criteria and above results, Phase 1 would cause significant impacts at several study intersections. Each impact is described below followed by a proposed mitigation measure that would reduce the significance of the impact.

Impact TR-1 Phase 1 would degrade AM and PM peak hour operations at the SR 14 SB Ramps/Soledad Canyon Road intersection from an acceptable to unacceptable level under 2012 (Phase 1) conditions.

Phase 1 would worsen AM and PM peak hour operations at the SR 14 SB Ramps/Soledad Canyon Road intersection from LOS D to E. This is considered a **significant** impact.

- Mitigation TR-1 Construction of the following improvements is recommended to restore operations to LOS D or better at the intersection (see Table 15):
 - Convert the westbound left-turn lane on Soledad Canyon Road onto the SR 14 southbound on-ramp from a permitted to protected signal phase, and retime this traffic signal and the adjacent Sand Canyon Road/Soledad Canyon Toad signal to optimize traffic flow.

This mitigation would restore this impact to less-than-significant.

Impact TR-2 Phase 1 would degrade AM and PM peak hour operations at the Via Princessa/SR 14 SB ramps and Via Princessa/SR 14 NB ramps intersections from an acceptable to unacceptable level under 2012 (Phase 1) conditions.

Phase 1 would worsen AM and PM peak hour operations at the Via Princessa/SR 14 SB ramps and Via Princessa/SR 14 NB ramps intersections from LOS C or better to LOS F. This is considered a **significant** impact.

- Mitigation TR-2 Implementation of the following would restore operations to LOS C or better at each intersection (see Table 15):
 - retime traffic signals to optimize traffic flow.

This mitigation would restore this impact to *less-than-significant*.

Impact TR-3 Phase 1 would degrade PM peak hour operations at the Via Princessa/Lost Canyon Road intersection to a significant degree under 2012 (Phase 1) conditions.

Phase 1 would worsen PM peak hour operations at the Via Princessa/Lost Canyon Road intersection from LOS B to D. The corresponding increase in the v/c ratio of 0.19 is considered a **significant** impact.



- Mitigation TR-3 Implementation of the following would restore PM peak hour operations to LOS B (see Table 15):
 - install westbound right-turn overlap arrow.

This mitigation would restore this impact to *less-than-significant*.

Impact TR-4 Phase 1 would worsen unacceptable AM peak hour operations at the Sand Canyon Road/Lost Canyon Road intersection under 2012 (Phase 1) conditions.

Phase 1 would increase delays during the AM peak hour at the Sand Canyon Road/Lost Canyon Road intersection, which is expected to operate at LOS F under no project conditions. This is considered a **significant** impact. Phase 1 of the project does not include a connection to Lost Canyon Road at La Veda Avenue. However, Phase 1 does include completion of the multi-use path along the Santa Clara River that would enable Vista Canyon residents to walk/bike to adjacent Sulphur Springs Elementary School. Phase 1 would create a minimal contribution of traffic to the intersection (15 AM peak hour trips, which is a one percent increase). Therefore improvements at the intersection would be completed in conjunction with buildout of the project, resulting in a temporary, unavoidable significant impact.

The above mitigations are also recommended for project buildout impacts under interim conditions. As shown in Table 15, the above mitigations would improve operations at the respective intersection to an acceptable level under 2012 conditions.

Phase 1 would add fewer than 100 new peak hour trips to any particular segment of SR 14. Since this level of added traffic represents less than a 2 percent increase in capacity, traffic from Phase 1 would not exceed this threshold. Therefore, impacts to SR 14 are considered less than significant.



TABLE 15: INTERSECTION OPERATIONS – 2012 (PHASE 1) CONDITIONS WITH MITIGATION

		AM (PM) Peak Hour		
Intersection	General Description of	No Project	Phase 1	Phase 1 with
	Mitigation	Conditions	Conditions	Mitigations
		Avg. D	elay or V/C Ratio	– LOS
Soledad Canyon Road/SR 14 SB Ramps	Convert WB left-turn onto SR 14 to a protected phase and retime signal to optimize traffic flow	51 - D (48 - D)	57 - E (64 - E)	45 - D (24 - C)
Via Princessa/SR 14	Detine treffic simple	15 - B	47 - D	13 - B
SB Ramps		(18 - B)	(140- F)	(15 - B)
Via Princessa/SR 14	Retime traffic signals	21 - C	85 - F	16 - B
NB Ramps		(27 - C)	(>180- F)	(23 - C)
Via Princessa/Lost	Install right-turn overlap	0.60 – B	0.72 - C	0.55 – B
Canyon Road	arrow	(0.65 - B)	(0.84 - D)	(0.63 - B)
	Soledad Canyon Road/SR 14 SB Ramps Via Princessa/SR 14 SB Ramps Via Princessa/SR 14 NB Ramps Via Princessa/Lost	Soledad Canyon Road/SR 14 SB Ramps Via Princessa/SR 14 SB Ramps Via Princessa/SR 14 NB Ramps Wia Princessa/SR 14 NB Ramps Via Princessa/SR 14 NB Ramps Via Princessa/Lost Install right-turn overlap	Convert WB left-turn onto SR 14 to a protected phase and retime signal to optimize traffic flow	Intersection General Description of Mitigation No Project Conditions Phase 1 Conditions Soledad Canyon Road/SR 14 SB Ramps Convert WB left-turn onto SR 14 to a protected phase and retime signal to optimize traffic flow 51 - D (48 - D) (64 - E) 57 - E (64 - E) Via Princessa/SR 14 SB Ramps Retime traffic signals 15 - B (18 - B) (140 - F) 47 - D (140 - F) Via Princessa/SR 14 NB Ramps Retime traffic signals 21 - C (27 - C) (>180 - F) 85 - F (27 - C) Via Princessa/Lost Install right-turn overlap 0.60 - B 0.72 - C

Notes: Shaded and bolded cells indicate unacceptable operation.



9. INTERIM (PROJECT BUILDOUT) CONDITIONS

This chapter analyzes the impacts of buildout of Vista Canyon under interim conditions, and recommends mitigations to reduce the significance of those impacts.

TRAFFIC FORECASTS

Fehr & Peers assigned trips associated with project buildout to the study locations in accordance with the assumptions described in Chapter 6. Figures 15a and 15b display trips associated with project buildout at the study intersections. Project-only trips also include traffic entering/exiting the project to access the new Metrolink station. These trips were then added to the interim background volumes to yield Interim (Project Buildout) forecasts. Figures 16a and 16b display the peak hour traffic forecasts at the study intersections for this scenario.

Table 16 shows the peak hour volumes on SR 14 under interim conditions, without and with the proposed project.

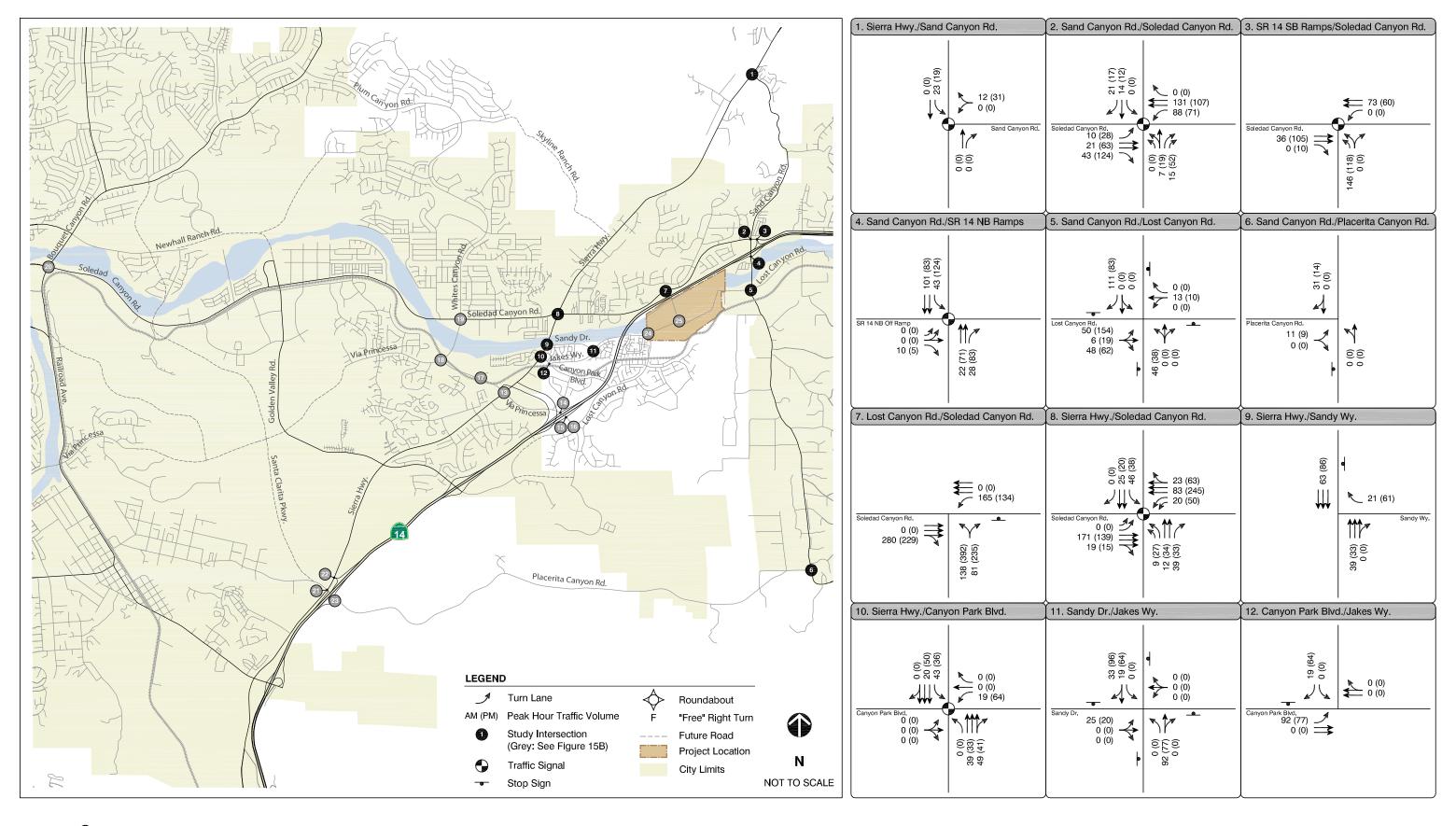
TABLE 16: SR 14 FREEWAY TRAFFIC FORECASTS – INTERIM (PROJECT BUILDOUT) CONDITIONS

Erzewey Segment	•	o Project) itions		(Project Conditions	Project Trips	
Freeway Segment	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
NB SR 14 north of Golden Valley Road	2,860	8,670	3,080	8,707	220	37
NB SR 14 north of Via Princessa	2,320	7,950	2,330	7,955	10	5
NB SR 14 north of Sand Canyon Road	2,250	7,380	2,321	7,573	71	193
SB SR 14 north of Sand Canyon Road	6,040	2,940	6,175	3,058	135	118
SB SR 14 south of Sand Canyon Road	6,160	3,190	6,160	3,200	0	10
SB SR 14 south of Via Princessa	7,225	4,050	7,259	4,333	34	283

Note: These volumes represent the travel demand as predicted by the SCVCTDM. Due to various capacity constraints within the system, not all of the travel demand expected in each segment can be served within a single peak-hour.

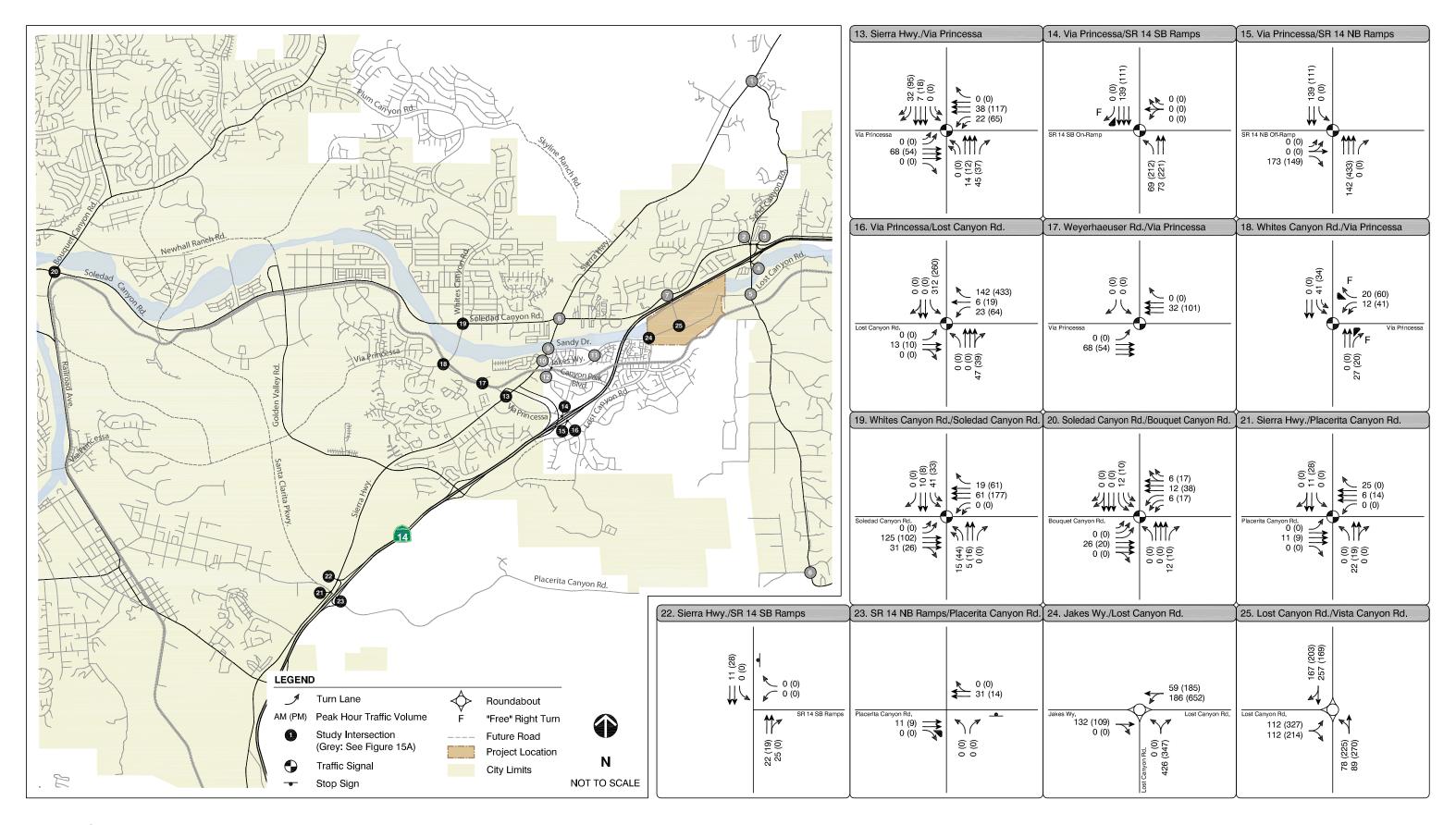
Project trips reflect new vehicle trips generated by proposed land uses with adjustments for reductions in auto travel on SR 14 due to new Metrolink station and bus transfer station (see Chapter 10 for more information).



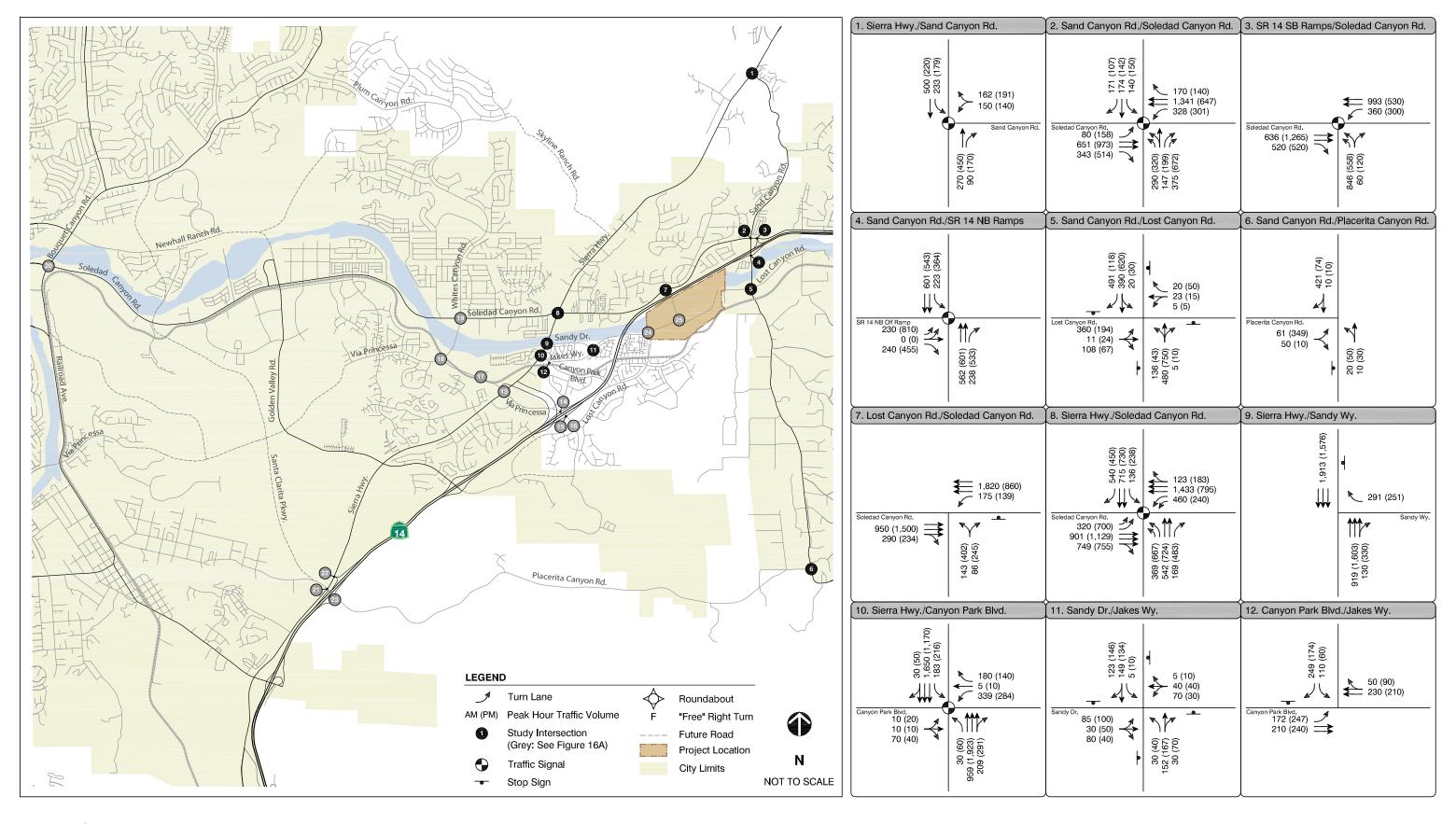




PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS -INTERIM (PROJECT BUILDOUT) TRIPS

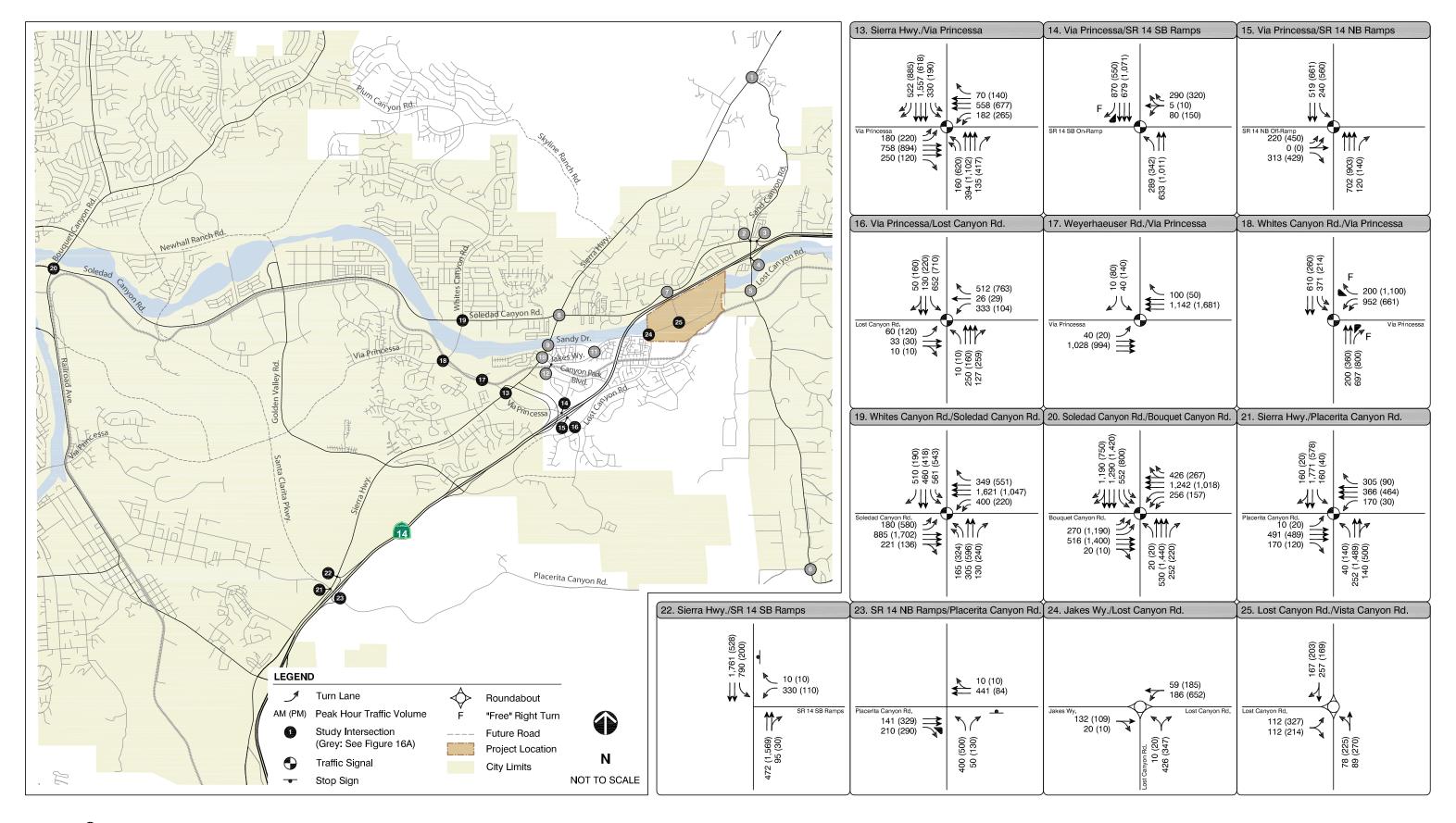








PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS -INTERIM (PROJECT BUILDOUT) CONDITIONS





INTERSECTION OPERATIONS

Fehr & Peers analyzed the study intersections under Interim (Project Buildout) conditions. Table 17 summarizes the results (refer to separately bound Appendix E for technical calculations). According to Table 18, the project would cause three study intersections to worsen from acceptable to unacceptable levels and would further degrade conditions at nine intersections that are projected to operate unacceptably under interim no project conditions.

TABLE 17: INTERSECTION OPERATIONS – INTERIM (PROJECT BUILDOUT) CONDITIONS

			AI	M (PM) Peak Hour	
#	Intersection	Traffic Control	No Project Conditions	Interim Plus Project Conditions	Percent Increase in Traffic Due
			Delay or V/C	Ratio – LOS	to Project
1	Sand Canyon Road/Sierra Highway	Traffic Signal	0.60 - A (0.67 - B)	0.61 - B (0.70 - C)	3% (4%)
2	Sand Canyon Road/Soledad Canyon Rd.	Traffic Signal	36 - D (68 - E)	38 - D (140 - F)	9% (13%)
3	Soledad Canyon Road/SR 14 SB Ramps	Traffic Signal	151 - F (132 - F)	347 - F (350 - F)	8% (9%)
4	Sand Canyon Road/SR 14 NB Ramps	Traffic Signal	14 - B (20 - C)	26 - C (62 - E)	10% (12%)
5	Sand Canyon Road/Lost Canyon Road	All-Way Stop	209 - F (64 - F)	470 - F (404 - F)	15% (23%)
6	Sand Canyon Rd./Placerita Canyon Road	Side-Street Stop	11 - B (15 - C)	12 - B (16 - C)	8% (5%)
7	Soledad Canyon Road/Lost Canyon Road	Side-Street Stop	42 - E (59 - F)	>50 - F (>50 - F)	24% (41%)
8	Sierra Highway/Soledad Canyon Road	Traffic Signal	44 - D (73 - E)	50 - D (82 - F)	7% (10%)
9	Sierra Highway/Sandy Way	Side-Street Stop	16 - C (12 - B)	15 - C (14 - B)	4% (5%)
10	Sierra Highway/Canyon Park Boulevard	Traffic Signal	25 - C (28 - C)	27 - C (35 - C)	5% (6%)
11	Sandy Way/Jakes Way	All-Way Stop	10 - B (9 - A)	13 - B (12 - B)	27% (44%)
12	Canyon Park Boulevard/Jakes Way	Side-Street Stop	18 - C (18 - C)	33 - D (33 - D)	12% (16%)
13	Sierra Highway/Via Princessa	Traffic Signal	30 - C (39 - D)	30 - C (40 - D)	5% (7%)
14	Via Princessa/SR 14 SB Ramps	Traffic Signal	19 - B (23 - C)	>180 - F (>180- F)	11% (19%)
15	Via Princessa/SR 14 NB Ramps	Traffic Signal	34 - C (30 - C)	>180 - F (>180- F)	28% (29%)
16	Via Princessa/Lost Canyon Road	Traffic Signal	0.62 - B (0.77 - C)	0.90 – D (1.19 - F)	34% (48%)



TABLE 17: INTERSECTION OPERATIONS – INTERIM (PROJECT BUILDOUT) CONDITIONS

			AI	AM (PM) Peak Hour		
#	Intersection	Traffic Control	No Project Conditions	Interim Plus Project Conditions	Percent Increase in Traffic Due	
			Delay or V/C	Ratio – LOS	to Project	
17	Via Princessa/Weyerhaeuser Way	Traffic Signal	5 - A (22 - C)	5 - A (19 - B)	4% (6%)	
18	Via Princessa/Whites Canyon Road	Traffic Signal	9 - A (6 - A)	9 - A (6 - A)	3% (5%)	
19	Soledad Canyon Road/Whites Canyon Rd.	Traffic Signal	42 - D (48 - D)	45 - D (51 - D)	6% (8%)	
20	Soledad Canyon Road/Bouquet Canyon Rd.	Traffic Signal	65 - E (71 - E)	65 - E (72 - E)	1% (1%)	
21	Placerita Canyon Road/Sierra Highway	Traffic Signal	48 - D (50 - D)	49 - D (52 - D)	2% (2%)	
22	Placerita Canyon Road/SR 14 SB Ramps	Side-Street Stop	>50 - F (>50 - F)	>50 - F (>50 - F)	2% (2%)	
23	Placerita Canyon Road/SR 14 NB Ramps	Side-Street Stop	29 - D (63 - F)	34 - D (71 - F)	3% (2%)	
24	Lost Canyon Road/Jakes Way	Roundabout	Does not exist	5 - A (9 - A)	100% (100%)	
25	Lost Canyon Road/Vista Canyon Rd.	Roundabout	Does not exist	5 - A (7 - A)	100% (100%)	

Notes:

Shaded and bolded cells indicate unacceptable operation (refer to following pages for identification of impacts).

- ICU methodology used for signalized intersections that are located in Los Angeles County.
- HCM methodology used for all unsignalized intersections and signalized intersections maintained by City of Santa Clarita or Caltrans. SimTraffic micro-simulation model used to evaluate closely spaced, coordinated intersections.
- Percent increase in traffic due to project calculated as project trips divided by total traffic under "no project" conditions.

FREEWAY OPERATIONS

Fehr & Peers analyzed the study freeway segments under "Interim Plus Project Buildout" conditions. Table 18 summarizes the results (refer to separately bound Appendix E for technical calculations). This table indicates that the project would contribute to further degraded operations on several mainline segments and ramps on SR 14.

Consistent with assumptions in the CMP, freeway facilities were assumed to have hourly capacities of 2,000 passenger cars per lane for mixed-flow lanes and 1,600 passenger cars per lane for HOV lanes. Based on these assumptions, SR 14 has a capacity of 7,600 passenger cars per hour in each direction between Golden Valley Road and Sand Canyon Road and 5,600 passenger cars per hour in each direction north of Sand Canyon Road. Two percent of capacity represents 152 vehicles per hour per direction for segments south of Sand Canyon Road and 112 vehicles per hour per direction north of Sand Canyon Road. According to Tables 16 and 18, project buildout would add traffic representing two percent or more of the capacity of the



following freeway segments, which are projected to operate at LOS F under certain peak hour interim conditions:

- SB SR 14 north of Sand Canyon Road AM peak hour
- NB SR 14 north of Sand Canyon Road PM peak hour

TABLE 18:
FREEWAY OPERATIONS – INTERIM (PROJECT BUILDOUT) CONDITIONS

	AM (PM) I	Peak Hour	
Freeway Facility	No Project Conditions	Project Buildout Conditions	
	Density – LOS	Density – LOS	
Freeway Mainline Sections			
NB SR 14: Between Golden Valley Road and Via Princessa/Sierra Highway (Weave)	A (F)	A (F)	
NB SR 14: Between Via Princessa/Sierra Highway and Sand Canyon Road	10-A (40-E)	10-A (40-E)	
NB SR 14: Between Sand Canyon Road and Soledad Canyon Road	13-B (F)	13-B (F)	
SB SR 14: Between Soledad Canyon Road and Sand Canyon Road	F (16-B)	F (17-B)	
SB SR 14: Between Sand Canyon Road and Via Princessa	F (13-B)	F (13-B)	
SB SR 14: Between Via Princessa/Sierra Highway and Golden Valley Road (Weave)	F (C)	F (C)	
Freeway Ramps			
SR 14 NB Off-Ramp/Sand Canyon Road	12 - B (36 - E)	12 - B (36 - E)	
SR 14 NB On-Ramp/Sand Canyon Road	15 - B (50 - F)	16 - B (52 - F)	
SR 14 SB Off-Ramp/Sand Canyon Road/Soledad Canyon Road	41 - F (19 - B)	42 - F (20 - C)	
SR 14 SB On-Ramp/Sand Canyon Road/Soledad Canyon Road	34 - F (14 - B)	34 - F (15 - B)	
SR 14 NB Off-Ramp/Via Princessa	11 - B (35 - D)	13 - B (36 - E)	
SR 14 SB On-Ramp/Via Princessa	> 43 - F (17 - B)	> 43 - F (18 - B)	

Notes: Shaded and bolded cells indicate unacceptable operation (refer to following pages for identification of impacts).

- See discussion below for rationale for using HCM techniques versus field observations/travel time surveys.
- Ramps selected for analysis limited to those that would be used by the project to a significant degree.

TWO-LANE ROADWAYS IN LOS ANGELES COUNTY

Fehr & Peers analyzed operations of the five two-lane roadway segments located in Los Angeles County that would potentially be impacted by the proposed project. Table 19 summarizes the results. Each of these segments would continue to operate at LOS A with the project.



TABLE 19: OPERATIONS OF TWO-LANE ROADWAYS IN LOS ANGELES COUNTY -**INTERIM (PROJECT BUILDOUT) CONDITIONS**

	AM (PM) Peak Hour					
Freeway Segment	Interim No Project Conditions		Interim Plus Project Buildout Conditions			
	Traffic Volume	V/C Ratio – LOS	Traffic Volume	V/C Ratio – LOS		
Sand Canyon Road south of Sierra Highway	600 (630)	0.21 – A (0.23 – A)	635 (680)	0.22 - A (0.24 - A)		
Lost Canyon Road east of Medley Ridge Drive	620 (470)	0.22 – A (0.17 – A)	1,252 (1,539)	0.47 – A (0.58 – A)		
Jakes Way east of Canyon Park Boulevard	470 (430)	0.19 – A (0.16 – A)	581 (570)	0.24 - A (0.22 - A)		
Sandy Drive east of Sierra Highway	400 (520)	0.16 – A (0.20 – A)	421 (581)	0.17 – A (0.22 – A)		
Placerita Canyon Road east of SR 14	630 (530)	0.25 – A (0.23 – A)	672 (553)	0.27 – A (0.24 – A)		

CMP ANALYSIS

Fehr & Peers analyzed operations at the three CMP study intersections and one CMP freeway segment on SR 14 under interim conditions, without and with the proposed project. Table 20 summarizes the results (refer to separately bound Appendix E for technical calculations). Table 20 indicates that the project would exacerbate LOS E or F operations at the Sierra Highway/Soledad Canyon Road and Sierra Highway/Placerita Canyon Road intersections.

Immediately north of I-5, SR 14 consists of six total northbound lanes and five total southbound lanes. Per CMP analysis methods, each lane is assumed to have a capacity of 2,000 vehicles per hour. The southbound direction operates at LOS F in the AM peak hour and the northbound direction operates at LOS F in the PM peak hour. According to the data in Table 20, the project would increase the v/c ratio during the AM peak hour in the southbound direction by 0.009. Similarly, the project would increase the v/c ratio during the PM peak hour in the northbound direction by 0.013.



TABLE 20: CMP ANALYSIS – INTERIM (PROJECT BUILDOUT) CONDITIONS

	AM (PM) Peak Hour				
CMP Facility		o Project itions	Interim Plus Project Conditions		
	Traffic V/C Ratio – Volume LOS		Traffic Volume	V/C Ratio – LOS	
Sierra Highway/Sand Canyon Road Intersection	N/A	0.600 - A (0.669 - B)	N/A	0.609 - A (0.700 - B)	
Sierra Highway/Soledad Canyon Road Intersection	N/A	1.019 – F (1.103 – F)	N/A	1.037 – F (1.137 – F)	
Sierra Highway/Placerita Canyon Road Intersection	N/A	0.965 – E (0.934 – E)	N/A	0.983 – E (0.945 – E)	
SR 14 north of I-5 to Newhall Avenue (Northbound)	3,150 (8,970)	N/A	3,333 (9,124)	N/A	
SR 14 north of I-5 to Newhall Avenue (Southbound)	7,105 (4,200)	N/A	7,199 (4,422)	N/A	

Note: N/A = Not Applicable.

Capacities used to calculate v/c ratios based on Los Angeles County Traffic Impact Analysis Report Guidelines.

PROJECT IMPACTS ON BICYCLE/PEDESTRIAN SYSTEM

The project would add a substantial amount of bicycle and pedestrian facilities within the project site. New facilities would also be provided along Lost Canyon Road between the project site and Sand Canyon Road. The project would not adversely affect an existing bicycle/pedestrian facility, nor cause an inconsistency with relevant policies in the City's *Non-Motorized Transportation Plan* (2008). This plan includes a number of strategies and policies that are intended to promote biking and walking. Therefore, project impacts to the bicycle and pedestrian systems are considered **less-than-significant**.

PROJECT IMPACTS ON TRANSIT SYSTEM

The proposed project would replace the existing Via Princessa Metrolink rail station with a new on-site rail station. The new station would help relieve parking shortages at other existing stations in the Valley and draw new riders to Metrolink commuter rail. The project also includes a bus transfer center that would connect with Metrolink service. The applicant would contribute funding toward the new Metrolink Station and Bus Transfer Station as required by the City's Transit Mitigation Fee. The project would not cause an inconsistency with a policy related to transit in the City's *Transportation Development Plan* Therefore, project impacts to the transit system are considered **less-than-significant**.



BRIDGE AND THOROUGHFARE FEE DISTRICTS

The City of Santa Clarita and County of Los Angeles have established a fee program to fund construction of new significant transportation infrastructure improvements. This program consists of six Bridge & Major Thoroughfare (B&T) Fee Districts, which provide an equitable financing mechanism by which new development within an identified area will share the cost of providing full mitigation improvements by payment of appropriate fees. Each of the B&T Districts within the study area is considered a full-improvement district, meaning that the collected fees, combined with other sources have been calculated to cover all needed improvements.

The proposed project is located within the Eastside B&T District. The Eastside and Via Princessa B&T Districts include a number of major infrastructure improvements within the study area. Specific improvements are listed during the discussion of impacts and mitigations. If a developer constructs District-identified improvements, that developer becomes eligible for District credit which can be used to offset District fee payments.

LOST CANYON ROAD IMPROVEMENTS (PROJECT SITE TO SAND CANYON ROAD)

Appendix H (Lost Canyon Road School Access Memo) to the Vista Canyon Transportation Impact Study evaluates circulation on the above referenced segment of Lost Canyon Road. The purpose of the evaluation is to 1) describe the circulation in this segment; 2) estimate travel changes in travel patterns from the construction of Vista Canyon; and, 3) identify recommendations to improve circulation and access on this segment.

This segment presently has one lane in each direction with a posted speed limit of 30 mph (25 mph when children are present). A continuous sidewalk is provided on the south side of the street, from the project site to Sand Canyon Road. Sulphur Springs Elementary School and Pinecrest School both take vehicular access from this segment of Lost Canyon Road. Presently, this segment of Lost Canyon Road is congested when school is in session during the morning when students are being dropped off and in the afternoon when students are being picked up.

Fehr and Peers conducted field observations on this segment in September 2008. All trips accessing the two schools must pass through the Lost Canyon Road/Sand Canyon Road intersection. Vehicle queues on Lost Canyon Road approaching this intersection spill back a considerable distance blocking inbound and outbound traffic to the Pinecrest School and hindering vehicles exiting Sulphur Springs Elementary School's drop off driveway. Since exclusive left-turn pockets are not provided on Lost Canyon Road, queued vehicles waiting to enter the two school driveways frequently block through vehicles on Lost Canyon Road, impacting La Veda Avenue and Sand Canyon Road.

Traffic counts were conducted on Wednesday, October 8, 2008 from 7-9 a.m. and from 2-4 p.m. The morning peak hour occurred from 8-9 a.m. and the afternoon peak hour occurred from 2-3 p.m. This segment of Lost Canyon Road carried approximately 850 morning peak hour vehicles and 550 afternoon peak hour vehicles. This roadway was busiest during the morning peak hour.



To alleviate existing congestion on this roadway and to accommodate project generated traffic, Fehr and Peers is recommending that the following improvements be implemented. The improvements include:

- Pavement widening and striping of this segment of Lost Canyon Road to accommodate
 one travel lane in each direction with a median turn lane, a trail along the north side of
 the roadway, a roundabout at the intersection of La Veda Avenue and Lost Canyon Road
 and parallel parking on the south side of Lost Canyon Road. These improvements
 would be completed within the existing right-of-way.
- Restricting the outbound-only driveways at each school to right-turns to minimize conflicting turning movements, provided that a roundabout (versus a traffic signal) is constructed at the Lost Canyon Road/Sand Canyon Road intersection.
- Constructing a narrow raised median at the easterly Pinecrest School driveway and posting a sign in the median prohibiting u-turns.

Finally, this memorandum also includes a recommendation that the City and project applicant work with the Sulphur Springs School District on potentially creating an on-site pick-up/drop-off area in the parking area directly east of the School buildings, which would, if implemented, further alleviate congestion on this roadway during the peak hours.

At the request of surrounding residents and for comparison purposes, Fehr & Peers conducted traffic counts on June 4, 2009 (a Thursday evening) during evening hours before and after the Sulphur Springs Elementary School open-house. The peak hour occurred from 6:45 to 7:45 p.m. During this hour, the two-way volume on Lost Canyon Road was 585 vehicles. These peak hour volumes were lower than the typical morning peak hour volumes (approximately 850 vehicles) and comparable to the typical afternoon peak hour volumes (approximately 550). Therefore, the improvements recommended above for this roadway segment would also accommodate traffic generated from school related special events, such as an open house.

SAND CANYON ROAD/LOST CANYON ROAD INTERSECTION DESIGN OPTIONS

As part of buildout, the proposed project would implement one of the four design options for the Sand Canyon Road/Lost Canyon Road intersection. Refer to Appendix H for exhibits of each design option. The four options include:

- Option 1 (Four-Way Stop) this design option is presently in place at the intersection.
 Under this design option, the operation of this intersection in the future would worsen to
 LOS F with or without the Vista Canyon project. If this option is selected by the City, the
 project would result in a significant unavoidable impact at the intersection.
- Option 2 (Signalized Intersection with "Look Ahead Signal") this design option would result in a signalized intersection, with a "look ahead" signal head at the southwest



corner to address northbound "line of sight" requirements. Minimal widening of the intersection would occur with this design option, with right-of-way necessary at the northwest and southeast corners. Encroachment within the protected zone of the heritage oak tree located along the eastern edge of Sand Canyon Road would remain similar to the existing condition. A fence, located within the right-of-way, would have to be removed to adhere to "line of sight" requirements. Option 2 would result in the improved operation of the intersection in the future (LOS D) even with future growth (including Vista Canyon), as compared to the existing four-way stop design.

- Option 3 (Roundabout) this design option would include the installation of a "roundabout" or traffic circle at the intersection. This option would involve the relocation of the intersection to the north and west to adhere to northbound "line of sight" requirements. Right-of-way acquisition would be necessary on all four corners; most of it would come from the northwest corner (which is presently vacant). Encroachment within the protected zone of the heritage oak tree located along the eastern edge of Sand Canyon Road would still occur, consistent with the existing condition. From a traffic operational standpoint, this design option would be the best of the four, improving the future LOS F under the existing design to an LOS C in the AM peak hour and LOS B in the PM peak hour even with future growth (including the Vista Canyon project).
- Option 4 (Signalized Intersection Standard Configuration) this design option improves the Lost Canyon Road/Sand Canyon Road intersection with a fully signalized intersection complying with all of the City's standard intersection design criteria. This option would require the acquisition of right-of-way on the northwest and southeast corner. A "line of sight" easement would be needed from three properties located east of Sand Canyon Road and south of the intersection. All vegetation and fencing within this easement would need to be removed, including the heritage oak tree located along the eastern edge of Sand Canyon Road. Similar to the "Look Ahead Signal" design option, this option would result in the improved operation of the intersection (LOS D), as compared to the existing design, even with future growth (including the Vista Canyon project).

PROJECT IMPACTS AND MITIGATIONS

According to the significance criteria and results presented thus far in this chapter, implementation of the full project would cause significant impacts at several study intersections, freeway facilities, and CMP facilities. Each impact is described below followed by a proposed mitigation measure that would reduce the significance of the impact. Technical calculations associated with the proposed mitigations are included in Appendix E.

The end of this chapter includes Figure 17, which illustrates the proposed mitigation measures at the significantly impacted study intersections. Table 21 summarizes the resulting traffic operations at the impacted study intersections with implementation of the proposed mitigations.



Impact TR-5

The project would further degrade unacceptable operations at the Sand Canyon Road/Soledad Canyon Road and SR 14 SB Ramps/Soledad Canyon Road intersections under interim (Project Buildout) conditions.

The project would worsen the PM peak hour LOS from E to F at the Sand Canyon Road/Soledad Canyon Road intersection. The project would also exacerbate LOS F conditions at the SR 14 SB Ramps/Soledad Canyon Road intersection. This is considered a significant impact.

Mitigation TR-5 Implement Mitigation TR-1 (convert the left-turn lane from westbound Soledad Canyon Road onto the SR 14 southbound on-ramp from permitted to protected signal phasing) and construct the following improvements to restore operations to LOS E or better at both intersections:

- Restripe Soledad Canyon Road to include a third through lane in each direction from east of the SR 14 ramp intersection to west of the Sand Canyon Road intersection (see Figure 17).
- Install a right-turn overlap arrow on the northbound Sand Canyon Road approach to Soledad Canyon Road.
- Retime and optimize operations of both traffic signals based on the revised lane geometrics and signal phasings.

The restriping of Soledad Canyon Road to include a third through lane in each direction through these intersections is feasible and can be accommodated within the existing right-of-way. As shown in Table 21, both intersections would improve to an acceptable level with these improvements. Therefore, this mitigation would restore this impact to *less-than-significant*.

Impact TR-6

The project would further degrade unacceptable operations at the Sand Canyon Road/Lost Canyon Road intersection under interim (Project Buildout) conditions.

The project would worsen LOS F conditions at the Sand Canyon Road/Lost Canyon Road intersection during the AM and PM peak hours. considered a *significant* impact.

Mitigation TR-6 Construct the following improvements:

- Complete the improvements to Lost Canyon Road between La Veda Avenue and Sand Canyon Road.
- Construct Intersection Design Option No. 2, 3, or 4 at the Lost Canyon Road/Sand Canyon Road intersection.



From a traffic operational standpoint, construction of Option 2 (Roundabout) is recommended. However, implementation of any of these three options would restore operations to an acceptable level; therefore this impact is considered *less-than-significant* after mitigation.

Impact TR-7

The project would further degrade unacceptable operations at the Soledad Canyon Road/Lost Canyon Road (Vista Canyon Road) intersection under interim (Project Buildout) conditions.

The project would worsen this minor-street stop-controlled intersection from LOS E to F during the AM peak hour. The project would further degrade LOS F operations during the PM peak hour. Since these increases exceed the threshold of significance, this is considered a *significant* impact.

Mitigation TR-7

Construction of the following improvements is recommended to restore operations to an acceptable level during the AM and PM peak hours:

- Install a traffic signal with signal equipment placed in locations that accommodates the planned restriping of the road to six lanes.
- Construct an exclusive right-turn lane on the eastbound Soledad Canyon Road approach consistent with the condition of approval previously placed on the undeveloped parcel adjacent to this intersection.
- Construct two left-turn lanes and one right-turn lane (with a right-turn overlap phase) on the Vista Canyon Road approach. Each lane should provide 125 feet of storage. Provision of additional storage is limited by an existing office driveway, which if all turning movements are to be permitted, limits the turn lane lengths. The dual left-turn lanes are estimated to have a 95th percentile vehicle queue of 200 feet. This suggests that queued vehicles will occasionally block this driveway during several instances of the PM peak hour.
- Lengthen the westbound left-turn lane on Soledad Canyon Road from 140 feet to 200 feet to accommodate the projected 95th percentile vehicle queue of 140 feet and to provide opportunities for deceleration.

Since the above improvements would restore operations to an acceptable level, this impact is considered *less-than-significant* after mitigation.

Impact TR-8

The project would further degrade unacceptable operations at the Soledad Canyon Road/Sierra Highway intersection under interim (Project Buildout) conditions.



According to Table 17, this intersection would operate at LOS D during the AM peak hour and LOS E during the PM peak hour under interim conditions using the HCM analysis method recommended by the City. According to Table 20, the ICU analysis method, which is more conservative at large intersections such as this that have coordinated traffic signal timing, indicates that this intersection would operate at LOS F, without or with the proposed project.

The addition of project traffic would cause average delay increases and v/c ratio increases that exceed the significance thresholds for City and CMP impacts. Therefore, this is considered a **significant** impact.

Mitigation TR-8 Install a right-turn overlap phase on the southbound Sierra Highway approach.

This mitigation would improve intersection operations. Although operations would remain at LOS E during the PM peak hour under interim plus project buildout conditions, the average delay would be reduced to less than "no project" levels. Similarly, the v/c ratio (based on the ICU method for the CMP analysis) would be reduced to below "no project" levels. Since this mitigation would restore intersection operations to "no project" levels, this impact is considered *less-than-significant* after mitigation.

Impact TR-9 The project would worsen operations at the Via Princessa/Lost Canyon Road intersection to an unacceptable level under interim (Project Buildout) conditions.

The addition of project traffic would worsen operations at this intersection from LOS B to E during the AM peak hour and from LOS C to F during the PM peak hour. The project adds a significant amount of southbound left-turn and westbound right-turn traffic. This is considered a **significant** impact.

- Mitigation TR-9 Implement Mitigation TR-3 (install a right-turn overlap phase on the westbound approach) and construct the following improvement to improve operations:
 - Restripe the southbound approach to include a second left-turn lane.

The improvements would restore operations to LOS A during the AM peak hour and LOS D during the PM peak hour. Since this intersection will be annexed into the City if the project is approved and LOS D is considered acceptable in the City, this impact is considered *less-than-significant* after mitigation.

Impact TR-10 The project would worsen operations at the SR 14 NB Ramps/Via Princessa and SR 14 SB Ramps/Via Princessa intersections to an unacceptable level under interim (Project Buildout) conditions.

The addition of project traffic would worsen operations at these intersections from LOS C to F during the AM and PM peak hours. The degraded operations



are caused by extensive queuing in the southbound left-turn lane at the Via Princessa/Lost Canyon Road intersection, which extends into the interchange. This is considered a *significant* impact.

Mitigation TR-10 Implement each of the previously identified mitigation measures:

- Mitigation Measure TR-2 (retime traffic signals at SR 14/Via Princessa interchange)
- Mitigation Measure TR-3 (install westbound right-turn arrow at Via Princessa/Lost Canyon Road intersection)
- Mitigation Measure TR-9 (install a second southbound left-turn lane at Via Princessa/Lost Canyon Road intersection).

Results of the SimTraffic micro-simulation model analysis of the SR 14/Via Princessa interchange and Via Princessa/Lost Canyon Road intersection indicate that the above improvements will eliminate the excessive queuing that affects interchange operations. With the recommended improvements in place, operations at each ramp intersection are restored to acceptable levels (see Table 21). Therefore, this impact is considered *less-than-significant*.

Impact TR-11 Buildout of the project would further degrade unacceptable operations on portions of SR 14 under interim (Project Buildout) conditions.

The following segments of SR 14, which are projected to operate at LOS F without the project, would experience a project-added traffic increase that is two or more percent of the facility's capacity:

- NB SR 14 north of Sand Canyon Road to Soledad Canyon Road (PM peak hour)
- SB SR 14 north of Sand Canyon Road to Soledad Canyon Road (AM peak hour)

The NB on-ramp and SB off-ramp at the SR 14/Sand Canyon Road interchange would also be significantly impacted. This is considered a **significant** impact.

Mitigation TR-11 None Available.

There presently are no improvements for the SR 14 planned and programmed by Caltrans that would mitigate the identified impacts, nor is there an established funding program in place to collect developer fees to implement any such improvements. Notwithstanding, the project applicant and Caltrans have negotiated a Traffic Mitigation Agreement that requires the applicant to pay an in-lieu fee to Caltrans for future improvements to SR 14 based upon the project's fair

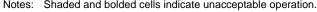


share. However, because there are presently no planned and programmed improvements for SR 14, nor is there an established funding program, the project's payment of an in-lieu fee would not fully mitigate the identified significant impacts. Therefore, mitigation is considered infeasible and the identified impacts would remain significant and unavoidable.

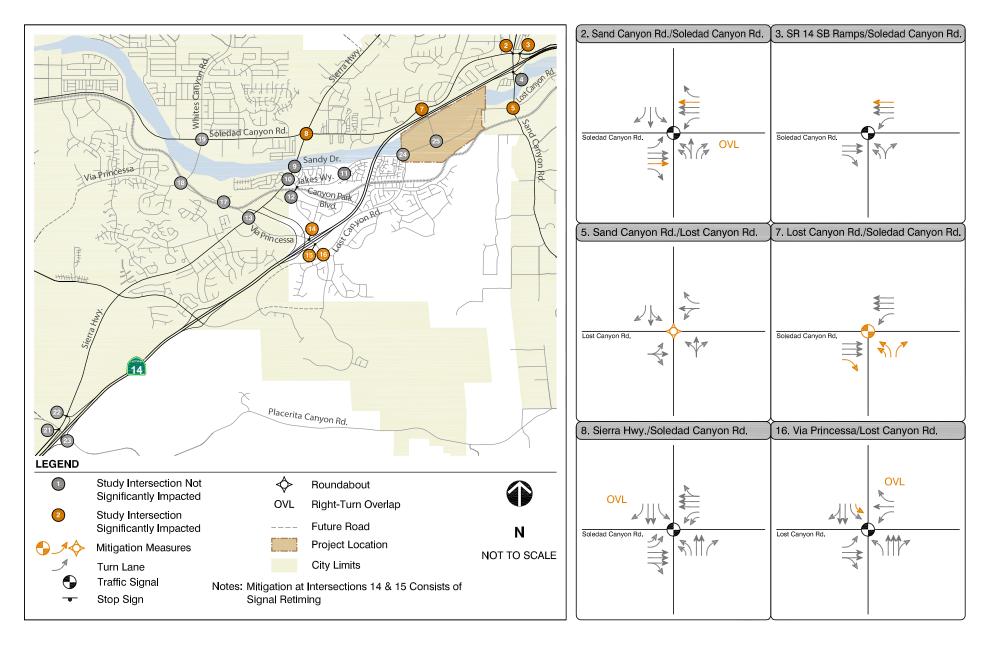
Project impacts were less than significant at several study intersections that are expected to operate unacceptably because the project-related increase in average delay or capacity use did not exceed a level of significance. Similarly, project impacts on the two-lane highway segments in Los Angeles County and on CMP freeway facilities are less-than-significant.

TABLE 21: INTERSECTION OPERATIONS - INTERIM (PROJECT BUILDOUT) CONDITIONS WITH MITIGATION

			AM (PM) Peak Hour		
#	Intersection	General Description of Mitigation	No Project Conditions	Plus Project Conditions	Plus Project w/ Mitigations
			Delay or V/C Ratio – LOS		
2	Sand Canyon Rd./ Soledad Canyon Rd.	Restripe Soledad Canyon to 3 TH Lanes, Add NB right-turn overlap arrow	36 – D (68 - E)	38 - D (140 - F)	37 - D (57 - E)
3	Soledad Canyon Road/SR 14 SB Ramps	Restripe Soledad Canyon to 3 TH Lanes, Convert WB left-turn onto SR 14 to protected phase	151 – F (132 - F)	347 - F (366 - F)	57 - E (80 - E)
5	Sand Canyon Road/ Lost Canyon Road	Install roundabout	209 – F (64 - F)	407 - F (373 - F)	22 - C (12 - B)
7	Soledad Canyon Road/ Lost Canyon Road	Install traffic signal	42 – E (59 - F)	>50 - F (>50 - F)	14 - B (20 - B)
8	Sierra Highway/Soledad Canyon Road	Install SB RT overlap phase	44 - D (73 - E)	50 - D (82 - F)	48 - D (72 - E)
14	Via Princessa/SR 14 SB Ramps		19 – B (23 - C)	>180 - F (>180- F)	15 - B (40 - D)
15	Via Princessa/SR 14 NB Ramps	Add 2 nd SB LT lane and WB RT overlap phase	34 – C (30 - C)	>180 – F (>180- F)	19 - B (28 - C)
16	Via Princessa/Lost Canyon Road		0.65 – B (0.80 - C)	0.90 - E (1.19 - F)	0.60 - A (0.81 - D)









RECOMMENDED MITIGATION MEASURES FOR PROJECT IMPACTS UNDER INTERIM CONDITIONS

10. CUMULATIVE (2030) CONDITIONS

This chapter describes the effects of the proposed project under cumulative conditions. Per City practice, the analysis of the roadway system under cumulative conditions focuses on daily roadway segment operations. This chapter also evaluates the project's cumulative impacts on CMP facilities. Finally, a description of the project's expected daily Vehicle Miles of Travel (VMT) for use in the greenhouse gas emissions analysis is presented.

The Draft EIR addresses the annexation by the City of Santa Clarita of the Vista Canyon project site and various properties in the site vicinity. The annexation area includes Vista Canyon (approximately 185 acres), Fair Oaks Ranch (approximately 1,082 acres), the Jakes Way multifamily area (approximately 260 acres), and the unincorporated Sand Canyon area (approximately 1,723 aces). The majority of the annexation area outside of the Vista Canyon site is built out and, therefore, the City's annexation of these properties generally would not result in additional future development nor in the addition of new vehicle trips. There are, however, three remaining undeveloped areas within the annexation area that could result in additional traffic: (i) the as yet unbuilt portion of the approved Fair Oaks Ranch (approximately 500 approved dwelling units which remain to be built); (ii) the undeveloped or underutilized areas of Sand Canyon, which could add 150 residential units to that area; and (iii) the Jakes Way area, which, for purposes of this analysis, was assumed could be developed with up to 436,000 square feet of business park related uses under the City's General Plan.

Excluding the approved Fair Oaks Ranch, none of the areas are expected to be developed prior to buildout of the Vista Canyon project and, therefore, no additional vehicle trips attributable to these areas were considered in the 2012 or Interim (2015) analyses. Other than Fair Oaks Ranch, no development has yet been proposed or approved for the undeveloped areas. However, for purposes of this cumulative analysis, it was assumed that in addition to the remainder of the Fair Oaks Ranch development, the remaining annexation property ultimately would be developed with 150 dwelling units and 436,000 square feet of business park uses by year 2030. Accordingly, the vehicle trips generated by the corresponding traffic analysis zones include these potential land uses.

LAND USE AND ROADWAY NETWORK ASSUMPTIONS

Fehr & Peers used the 2030 version of the SCVCTDM to develop "Cumulative No Project" and "Cumulative Plus Project" daily traffic forecasts. No changes to the model's land use inputs were made other than to reflect no development on the project site for "no project' conditions and the proposed land uses for "plus project" conditions. The following roadway improvements, in addition to those assumed under interim conditions, were assumed in place for cumulative conditions:

• Sierra Highway is widened to six lanes from Soledad Canyon Road north beyond Sand Canyon Road and from Golden Valley Road south to beyond Placerita Canyon Road



- Sand Canyon Road is widened to four lanes from Sierra Highway south to Soledad Canyon Road
- Sand Canyon Road is widened to six lanes from SR 14 south to Lost Canyon Road
- Whites Canyon Road is widened to six lanes north of Soledad Canyon Road
- SR 14 is assumed to have one additional mixed-use travel lane in each direction plus a
 reversible HOV lane beginning at I-5 and extending throughout the study area

The "no project" scenario assumes that the roadways within the project site are not constructed.

TRAFFIC FORECASTS

Fehr & Peers used the same traffic forecasting procedures as described in the previous chapter to develop the "Cumulative No Project" traffic forecasts. Changes in travel associated with the proposed project (including its land uses, Metrolink station, and connecting roadways) were estimated using the SCVCTDM. This is different than the interim scenario, in which project trips were "layered on top of" the interim no project forecasts. Since the cumulative scenario represents a "snapshot" of conditions in 2030, it is reasonable to expect area residents and workers to alter their home, work, shopping, and mode choice preferences in response to changes in land uses. This is accomplished by using the model to estimate cumulative plus project traffic volumes.

Since the SCVCTDM does not have a mode share component, Fehr & Peers performed an iterative process to identify the percentage of project land uses that should be included in the model to match the expected external vehicle trip generation of approximately 21,000 trips per day (per Table 7). Through trial and error, it was determined that entering 90 percent of the project land uses resulted in an external trip generation total that matched Table 7.

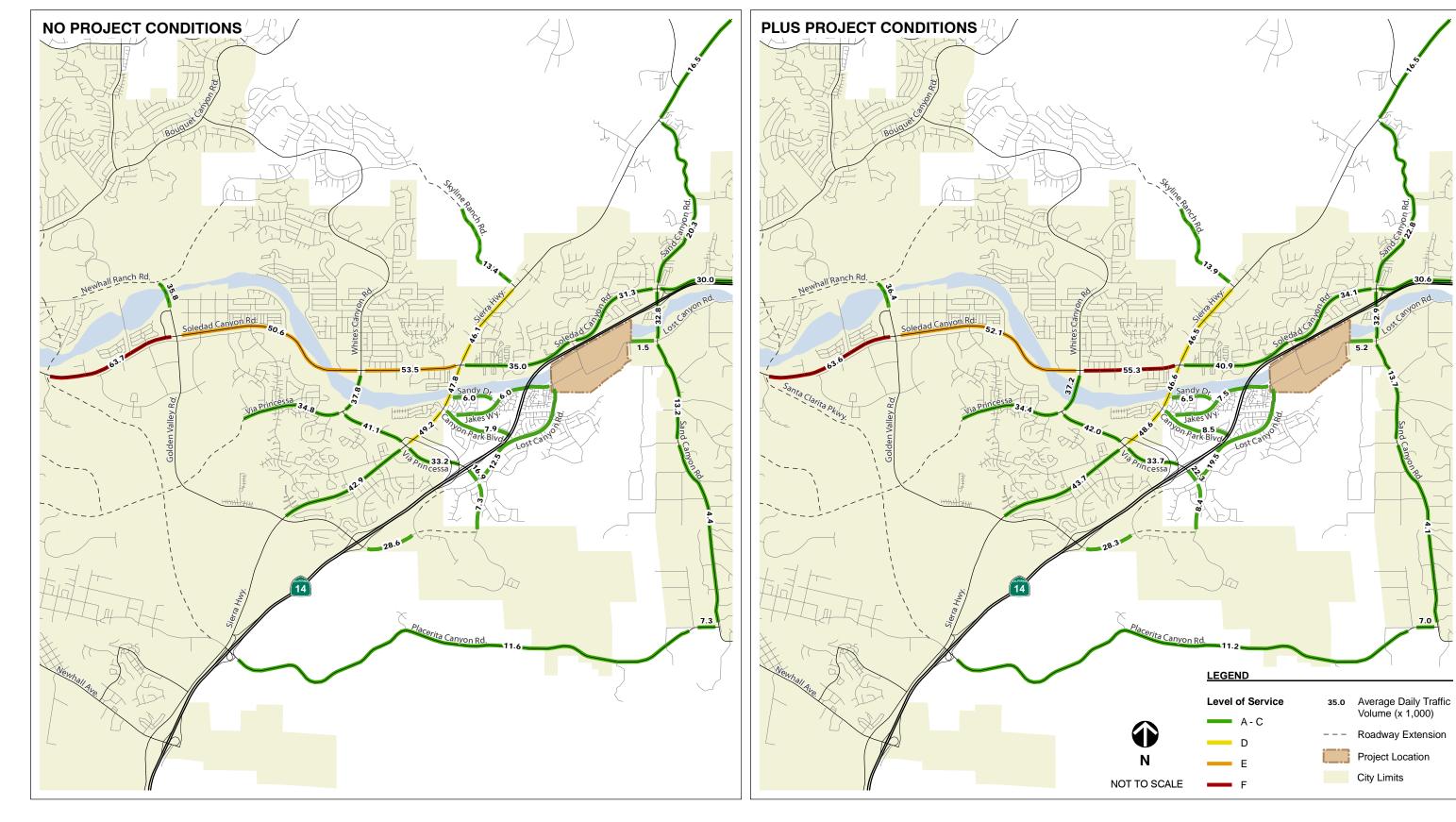
Figure 18 displays the average daily traffic volumes on the study roadways under cumulative no project and with project conditions.

FAIR SHARE CALCULATIONS

A significant percentage of the overall growth in traffic on SR 14 can be attributed to additional travel to and from the Antelope Valley. This trend is illustrated by the following comparison of existing volumes and cumulative (2030) travel demand projections in the peak direction of SR 14 north of Sand Canyon Road.

- AM Peak Hour (Southbound): Existing = 3,980 vehicles. Cumulative = 7,750 vehicles
- PM Peak Hour (Northbound): Existing = 5,100 vehicles. Cumulative = 9,130 vehicles







AVERAGE DAILY TRAFFIC VOLUMES AND ROADWAY LEVEL OF SERVICE -**CUMULATIVE CONDITIONS**

Project Location

The project's fair share traffic contribution to the two impacted segments of SR 14 was calculated in accordance with Caltrans' standard methodology (as described in their *Guide for the Preparation of Traffic Impact Studies*, 2002). With the exception of analysis of SR 14, the project impact analysis did not account for the following beneficial aspects of the project:

- Contributing financially to construction of a new on-site Metrolink station that is more convenient and provides more parking than the existing Via Princessa station, thereby providing additional Metrolink commuter capacity.
- Contributing financially to construction of a new on-site bus transfer station with new express commuter bus service, thereby providing alternatives to single occupant vehicle travel on SR 14.
- 3. Providing new office space in the eastern Santa Clarita Valley, which will provide employment opportunities for Santa Clarita and Antelope Valley residents without requiring lengthy commutes to/from the south on SR 14 (e.g., downtown Los Angeles, Burbank, Glendale), thereby contributing to the removal of peak hour traffic from SR 14.

In discussions with Caltrans staff, they recommended that the fair share calculations consider some of the other beneficial aspects (i.e., specifically items No. 1 and 2 listed above) of the project that were not otherwise considered in the previous chapter. The following is an analysis of the estimated vehicle trip reductions attributable to the new Metrolink station and new bus transfer station/commuter service.

Effects of New Metrolink Station

In-person rider surveys, parking data, and transit patronage data collected at the Via Princessa Metrolink station revealed the following important characteristics:

- Over 80 percent of Via Princessa Metrolink riders reside in nearby residential areas to
 the north or east of the station. Most of the riders work in downtown Los Angeles,
 Burbank, or Glendale. Travel to the station from the Antelope Valley was uncommon.
 <a href="mailto:limble
- Over 90 percent of the 392 parking spaces at the Via Princessa station are occupied during typical weekdays. Parking shortfalls have been observed at the two other Metrolink stations in the Santa Clarita Valley, which suggests there may be some unmet demand for commuter rail service.
 - <u>Implication</u>: The additional parking to be provided at the new station is expected to serve some of the latent demand for commuter rail service. Since Metrolink provides a time-competitive alternative to traveling by automobile for destinations to/from the south, some shifts in travel mode from auto to transit are expected.



• The vast majority of parking spaces at the Via Princessa station are occupied by 7 a.m., which suggests that many transit patrons arrive prior to the beginning of the AM peak hour. Conversely, the largest decrease in occupied parking spaces at the Via Princessa Station occurs from 5:30 to 6:30 p.m., which suggests many riders exit the train during the PM peak hour.

<u>Implication</u>: The new Metrolink station will result in shifts in mode choice from auto to transit during both peak hours; a greater number of drivers will shift from auto to transit during the PM peak hour versus the AM peak hour given Metrolink train schedules.

The Via Princessa station data showed a net increase of 36 parked vehicles between 7 and 8 a.m. According to rider surveys, 75 percent of riders drove to the station with the remainder using transit, walking/biking, or being dropped-off. Accordingly, about 50 persons boarded trains to travel southbound between 7 and 8 a.m. Given the new station's additional parking supply and convenient location, it is reasonable to assume an additional 25 persons would use Metrolink instead of driving south on SR 14 during the AM peak hour.

The Via Princessa station was estimated to generate 200 PM peak hour trips. The new station is estimated to cause about 100 additional persons to use Metrolink instead of driving north on SR 14 during the PM peak hour. Since most Metrolink riders originate from the Santa Clarita Valley, these reductions in travel on SR 14 apply primarily to the segment south of Via Princessa. The resultant traffic removed from SR 14 during the AM and PM peak hours would be 125 trips south of Via Princessa and 13 trips north of Sand Canyon Road.

Effects of New Bus Transfer Station and Express Commuter Bus Service

The number of riders that may use express commuter bus service from the new bus transfer station at Vista Canyon was estimated by first reviewing ridership levels for existing commuter bus service for Santa Clarita residents. Four routes to the south (routes 757, 796, 797, and 799) and one route to the north (795) are currently available and operate with headways ranging from 15 to 30 minutes during peak periods. Several reasonable assumptions were then made to arrive at the expected number of express commuter bus riders departing and returning to the Vista Canyon station. These assumptions include:

- When a current route has a headway of 30 minutes or more, assume one bus per hour.
- When a current route has a headway of 20 minutes or less, assume two buses per hour.
- Assume "per bus ridership" levels for new service routes departing from Vista Canyon that are comparable to the existing routes that depart the western Santa Clarita Valley).
- Using the ridership numbers in the attachment and the above assumptions, the five new
 express bus routes (six total buses per hour) at Vista Canyon were assumed to have
 approximately 200 AM peak hour riders and 175 PM peak hour riders. However,
 because Vista Canyon may have a smaller catchment area of potential riders, it was
 assumed that only two-thirds of these ridership estimates will occur.



To determine how many vehicles would be eliminated from SR 14, it was assumed that 50 percent of the new express commuter bus riders were previously commuting on SR 14. The new bus riders that were not previously driving on SR 14 may have instead traveled by auto via other routes (e.g., I-5), been traveling by Metrolink, or not have made the trip at all. Based on the above methodology, the new express commuter bus service at the Vista Canyon bus transfer station would eliminate a combined 113 AM and PM peak hour vehicles from SR 14 south of Via Princessa. A more modest reduction of 12 AM and PM peak hour vehicles would occur on SR 14 north of Sand Canyon Road because the overwhelming directionality of express commuter bus riders is toward the south.¹¹

Table 22 shows the resulting SR 14 freeway fair share calculations. Since the fair share is based on cumulative traffic growth, the project's cumulative trip generation (less reductions for eliminated trips on SR 14 due to Metrolink and the bus transfer station) was used for this calculation. Project trips are estimated at 3.8 percent of future traffic growth for the impacted segment north of Sand Canyon Road to Soledad Canyon Road. The majority of the future traffic growth on SR 14 comes from areas east and north of the Santa Clarita Valley.

TABLE 22: SR 14 FREEWAY FAIR SHARE CALCULATIONS												
Freeway Segment Traffic Growth (Cumulative Plus Project Minus Existing Conditions) Project Buildout Trips Fair Share Percentage SR 14 north of Sand Canyon Road 12,231 470 3.8%												
SR 14 north of Sand Canyon Road	12,231	470	3.8%									
SR 14 south of Sand Canyon Road	14,946	16	0.1%									
SR 14 south of Via Princessa 15,237 555 3.6%												
SR 14 south of Golden Valley Road	12,889	519	4.0%									
Note: Refer to previous pages for discussion	n of methodologies used to calculate fa	air share percentages.										

TRAFFIC OPERATIONS

Fehr & Peers calculated the LOS for each study roadway segment by comparing the ADT to the daily volume LOS threshold table in Chapter 2. The resulting LOS is shown on Figure 18. This figure indicates that all study roadways are expected to operate at LOS C or better under cumulative no project conditions with the exception of portions of Sierra Highway (north of Via Princessa) and Soledad Canyon Road (west of Sierra Highway).

The addition of project traffic worsens the segment of Soledad Canyon Road between Sierra Highway and Whites Canyon Road from LOS E to F. Although the net increase in trips is only

^{11.} Calculation is as follows: 375 AM and PM riders x 67% (for reduced catchment area) x 50% (for portion of riders otherwise driving on SR 14) = 125 vehicles. This equals the combined reductions on SR 14 south of Via Princessa (113 vehicles) and north of Sand Canyon Road (12 vehicles).



1,800 ADT, it causes the LOS E/F threshold to be exceeded. In addition, project traffic would increase the V/C ratio from 0.94 to 0.97 on Soledad Canyon Road between Whites Canyon Road and Golden Valley Road.

According to the SCVCTDM output, SR 14 is expected to continue having directional peak-period congestion under cumulative conditions despite the assumed addition of one mixed-flow lane in each direction plus a reversible HOV lane within the study area. In addition, significant increases in traffic in the currently non-peak directions of SR 14 are also anticipated. The assumed SR 14 improvements would increase the per direction capacity of SR 14 to 11,200 passenger vehicles per hour south of Sand Canyon Road and 9,200 passenger vehicles per hour north of Sand Canyon Road.

Impacts are considered significant if a project contributes trips representing two percent or more of the capacity of an LOS F segment of SR 14. Two percent represents 224 peak hour trips on a segment of SR 14 south of Sand Canyon Road and 184 peak hour trips on a segment of SR 14 north of Sand Canyon Road. According to Table 16, project traffic would exceed these thresholds during the PM peak hour on northbound SR 14 north of Sand Canyon Road, which is expected to operate at LOS F. Although traffic conditions on this segment will be dictated by the extent to which upstream improvements (i.e., I-5/SR 14 interchange improvements) enable more peak hour traffic to reach it is assumed for analysis and traffic impact purposes to be operating at LOS F under cumulative conditions.

EFFECTS OF MODIFIED ROADWAY SYSTEM

The Vista Canyon project would result in a slightly different roadway system in the project vicinity than the circulation plan contemplated in the City's General Plan and Draft OVOV plan. The City's circulation plan would extend Lost Canyon Road northeasterly from Jakes Way as a four-lane major highway to Sand Canyon Road. The Vista Canyon project would construct Vista Canyon Road as a two-lane secondary highway across the Santa Clara River to Soledad Canyon Road. With Vista Canyon project, Lost Canyon Road would be four lanes between Jakes Way and Vista Canyon Road, and two lanes between Vista Canyon Road and Sand Canyon Road.

Fehr & Peers analyzed the effects of the modified circulation system under "Cumulative Plus Vista Canyon" conditions using the SCVCTDM. The results are summarized in Table 23.



TABLE 23:
COMPARISON OF CUMULATIVE DAILY TRAFFIC VOLUMES

Segment	Cumulative F	Plus Vista Canyon Co	onditions
	Existing City Circulation Plan	Vista Canyon Circulation Plan	Difference
Lost Canyon Road – east of Via Princessa	21,000 / A	19,500 / A	- 1,500
Lost Canyon Road – west of Sand Canyon Road	8,300 / A	5,200 / A	- 3,100
Sand Canyon Road – south of Lost Canyon Road	13,800 / C	13,700 / C	- 100
Sand Canyon Road – north of Lost Canyon Road	35,900 / A	32,900 / A	- 3,000
Soledad Canyon Road – west of Sand Canyon Road	33,800 / A	34,100 / A	+ 300
Soledad Canyon Road – east of Sierra Highway	38,300 / B	40,900 / C	+ 2,600
Soledad Canyon Road – west of Sierra Highway	55,000 / F	55,300/ F	+ 300
Sierra Highway – north of Soledad Canyon Road	46,200 / D	46,500 / D	+ 300
Sierra Highway – south of Soledad Canyon Road	48,600 / D	46,600 / D	- 2,000
Via Princessa – south of SR 14	23,900 / A	22,300 / A	- 1,600
Jakes Way – west of Lost Canyon Road	8,100 / A	7,500 / A	- 600
Vista Canyon Road – south of Soledad Canyon Road		9,100 / A	+ 9,100
		Total:	+ 700

Notes: 20,000 / A = Average Daily Traffic / Level of Service

The proposed Vista Canyon street system would cause a modest redistribution of cumulative traffic when compared to volumes under the existing City circulation plan. The Vista Canyon street system would not cause any street segments to worsen from an acceptable (i.e., LOS D or better) to an unacceptable (i.e., LOS E or F) level.

The Vista Canyon Road connection to Soledad Canyon Road would result in a net reduction in traffic at several intersections (Lost Canyon Road/Sand Canyon Road, Sand Canyon Road/Soledad Canyon Road, and Lost Canyon Road/Via Princessa) that were shown as operating unacceptably under interim (2015) conditions. Therefore, based on the above results, it can be concluded that the proposed Vista Canyon circulation system would not cause any adverse circulatory impacts when compared to the City's Existing General Plan and the Draft OVOV circulation plan.



^{1.} The City's plan would extend/expand Lost Canyon Road to be a four-lane major highway from the terminus of Jakes Way to Sand Canyon Road.

The Vista Canyon project would construct a two-lane secondary highway across the Santa Clara River to Soledad Canyon Road. Lost Canyon Road would be four lanes between Jakes Way and Vista Canyon Road, and two lanes between Vista Canyon Road and Sand Canyon Road.

CMP ANALYSIS

Fehr & Peers analyzed the three CMP study intersections and CMP freeway segment under cumulative conditions. The results are summarized in Table 24 (refer to separately bound Appendix F for technical calculations). As shown, the project would further worsen unacceptable operations at the Sierra Highway/Soledad Canyon Road and Sierra Highway/Placerita Canyon Road intersections. However, in neither case would the v/c ratio increase by 0.02. Therefore, these increases are not considered significant.

TABLE 24: CMP ANALYSIS – CUMULATIVE CONDITIONS

		AM (PM) F	Peak Hour			
CMP Facility		No Project	Cumulative Plus Project Conditions			
	Traffic Volume	V/C Ratio – LOS	Traffic Volume	V/C Ratio – LOS		
Sierra Highway/Sand Canyon Road Intersection	N/A	0.53 – A (0.57 – A)	N/A	0.56 – A (0.59 – A)		
Sierra Highway/Soledad Canyon Road Intersection	N/A	1.14 – F (1.03 – F)	N/A	1.13 – F (1.02 – F)		
Sierra Highway/Placerita Canyon Road Intersection	N/A	1.19 – F (1.02 – F)	N/A	1.20 – F (1.03 – F)		
SR 14 north of I-5 (Northbound)	6,220 (14,620)	N/A	6,300 (14,600)	N/A		
SR 14 north of I-5 (Southbound)	14,250 (8,300)	N/A	14,200 (8,340)	N/A		

Note: N/A = Not Applicable.

Capacities used to calculate v/c ratios based on Los Angeles County Traffic Impact Analysis Report Guidelines.

IMPACTS AND MITIGATIONS

Based on the standards of significance and results on Figure 18, the project would cause the following two significant impacts to roadways in the City under cumulative conditions:

- Soledad Canyon Road between Sierra Highway and Whites Canyon Road LOS E to F (v/c ratio increases from 0.99 to 1.02)
- Soledad Canyon Road between Whites Canyon Road and Golden Valley Road LOS E maintained (v/c ratio increases from 0.94 to 0.97)

As these roadways are already constructed to their ultimate width of six lanes, no feasible mitigation measures are available to mitigate these impacts.



The project would result in a net increase of 1,500 to 1,800 vehicles per day on the impacted segments of Soledad Canyon Road under cumulative conditions. According to the City's website, these segments carried about 46,000 to 50,000 ADT in 2004-2005. Based on the SCVCTDM, these segments are expected to carry between 52,000 and 55,000 ADT under cumulative conditions. Thus, the cumulative levels of traffic projected on these facilities will be similar to today.

It is important to note that the project will be providing complementary land uses adjacent to a transit station to provide opportunities for internal trip-making and external trips made by transit. In addition, the project will be paying B&T fees or constructing eligible improvements that help fund major roadways, which provide parallel capacity to Soledad Canyon Road. The project would also provide a significant amount of office space, which would enable more City residents to work in the City versus traveling south to work.

The project would cause significant impacts during the PM peak hour on northbound SR 14 north of Sand Canyon Road and on southbound SR 14 south of Via Princessa. There presently are no improvements for the SR 14 planned and programmed by Caltrans that would mitigate the identified impacts, nor is there an established funding program in place to collect developer fees to implement any such improvements. Notwithstanding, the project applicant and Caltrans have negotiated a Traffic Mitigation Agreement that requires the applicant to pay an in-lieu fee to Caltrans for future improvements to SR 14 based upon the project's fair share. However, because there are presently no planned and programmed improvements for SR 14, nor is there an established funding program, the project's payment of an in-lieu fee would not fully mitigate the identified significant impacts. Therefore, mitigation is considered infeasible and the identified impacts would remain significant and unavoidable.

VMT CALCULATION

Fehr & Peers estimated the average weekday daily Vehicle Miles of Travel (VMT) associated with the residential portion of the project. This information has been used by Environ to conduct an analysis of the project's potential effects on climate change and greenhouse gas emissions. The VMT associated with residents of Vista Canyon can be broadly classified into three groups:

- Part A Home-Based Trips by project residents
- Part B Non-Home-Based Trips by project residents¹²
- Part C Trips Attracted to residential units¹³

To estimate each component of VMT, the spreadsheet contained in Appendix G was developed. The spreadsheet employs a number of assumptions from various resources including the SCVCTDM, NCHRP Report 365, the OVOV Land Use Element update, and the project's trip generation estimate.

^{13.} An example of this type of trip is a truck delivery to a project residence.



^{12.} As an example, a trip made by a resident from an off-site employment center to an off-site deli would be a non-home-based trip.

According to the spreadsheet, each household in Vista Canyon is expected to generate an average of 58 VMT per day. It is important to note that this estimate includes both VMT associated with home-based and non-home-based travel by Vista Canyon residents. This distinction is important in that some VMT estimates in other studies and documents consider only home-based trips.

The following offers some perspective on this estimate:

- According to data from the Metropolitan Transportation Commission (MTC), the ninecounty San Francisco Bay Area generated an average of 58 miles of travel per household per day in 2006. The Sacramento Area Council of Governments estimates that the seven-county Sacramento region has an average daily VMT of about 52 miles per household. Comparable data for the Southern California region was not available.
- Given the above data and the fact that rural areas are known to generate greater VMT
 per household than urban areas, it is believed that the state-wide average VMT per
 household ranges from 55 to 65 miles per day. It is worth noting that an exact average is
 not known given that VMT is currently difficult to measure directly.
- The VMT per household within a geographic area can vary substantially depending on the household location (i.e., distance from regional attractions), household size, number of vehicles, number of employed persons, availability of transit, presence of bicycle/pedestrian facilities, and other factors. For instance, according to a 2001 survey by from the US Energy Information Administration, households with children drove an average of 29,000 miles per year, while households without children drove an average of 20,000 miles per year.

The project's estimated average daily VMT of 58 miles per household does not explicitly consider the following factors, which tend to reduce VMT. As a result, the VMT estimate for Vista Canyon is considered conservative.

- 1) Research shows that auto ownership levels in TODs are lower than region-wide averages; fewer vehicles/drivers per household are linked to reduced levels of VMT.
- 2) TODs often have smaller household sizes and fewer children than comparable developments in the same region. Again, these factors are linked to reduced VMT.
- 3) Research suggests that developments that are dense and have supportive nonmotorized design elements (e.g., connections to bicycle paths, grid streets, etc.) generate less VMT per household than traditional low-density projects.

As noted previously, this study assumed fairly low levels of transit use and internal trip-capture to ensure that project impacts on the surrounding roadways are not understated. These assumptions result in greater numbers of off-site vehicle trips each day, which translate into greater amounts of VMT. Fehr & Peers' analysis of the TOD travel research suggests that a



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higher level of internal trip-capture and transit mode share, perhaps in the range of 25 percent, is likely for Vista Canyon. If achieved, this would translate into 54 VMT per household.

VMT per Household Under Draft OVOV Land Use Designation

Fehr & Peers estimated the average daily VMT per household associated with the draft OVOV residential land use designation for the site. The analysis was conducted assuming the site yields 700 dwelling units with the same mix of single-family, condominiums, and apartment units as that of the proposed project for comparison purposes. The site would not have any non-residential uses and would not have a Metrolink Station or bus transfer center. According to the spreadsheet in Appendix G, the draft land use designation would result in an average of 71 VMT per day per household.



11. INTERNAL CIRCULATION

This chapter describes the analyses conducted by Fehr & Peers to assist the applicant and Alliance Land Planning and Engineering in refining the project site plan. It also evaluates the planned haul routes for adding fill to the project site in order to facilitate project construction.

The latest project site plan (shown on Figure 8) reflects a number of recommendations provided by Fehr & Peers including:

- Layout and lane markings of on-site roundabouts including adequacy to accommodate school buses, public buses, and delivery vehicles.
- Permitted turning movements for project streets that intersect Lost Canyon Road west of Vista Canyon Road.
- Width and number of lanes on Vista Canyon Road.
- Improvements along Lost Canyon Road between project site and Sand Canyon Road to improve access to Sulphur Springs Elementary School and Pinecrest School, while also providing additional capacity to accommodate project trips (see Figure 20).

INTERNAL STREET ADT ESTIMATES

Fehr & Peers estimated the ADT on the primary project roadways including Lost Canyon Road, Vista Canyon Road, A Street, B Street, and Town Center Drive (Vista Square). The estimated ADTs, shown on Figure 19, are based on the project's expected vehicular trip generation, number of Metrolink and Santa Clarita bus trips, and redistributed background traffic associated with the new street connections. The results in Figure 19 suggest the following:

- Lost Canyon Road between Jakes Way and Vista Canyon Road is expected to carry between 11,000 and 12,000 ADT, which is within the capacity of the four travel lanes that will be provided. The recommended number of circulating lanes at the roundabouts on each end of this segment has been developed based on these volumes and directional movements at these locations.
- Vista Canyon Road is expected to carry approximately 9,200 ADT between Soledad Canyon Road and Lost Canyon Road. The two-lane limited highway designation for this street will accommodate this amount of traffic.
- Traffic volumes will be less than 3,000 ADT on the two-lane segment of Lost Canyon Road between the project's easterly boundary and D Street. This amount of traffic will be accommodated with the typical cross-section of on-street parallel parking and two 13foot travel lanes. Roundabouts and pedestrian bulbouts have been placed along this roadway as traffic calming measures.



Traffic volumes are fairly balanced on the internal street accesses to the mixed-use area
of the project. Projected volumes range from 2,800 ADT on B Drive, 3,700 ADT on A
Drive, 4,100 ADT on Town Center Drive (Vista Square), and 8,200 ADT on Vista Canyon
Road all of which can accommodate those projected volumes.

TRAFFIC EFFECTS OF TRANSPORTING FILL TO PROJECT SITE

Up to 500,000 cubic yards of dirt are anticipated to be moved to the project site from two off-site locations. These two sites are located on Golden Valley Road between Soledad Canyon Road and Sierra Highway. For approximately six months, an average of 600 loaded trucks per day (1,200 total trips) will transport materials from these two locations to the project site. Materials will be transported during off-peak hours (generally 9 to 3:30) to avoid contributing to peak hour congestion. Trucks will use Golden Valley Road-to-Sierra Highway-to-Via Princessa-to-Lost Canyon Road to haul the materials.

This temporary condition would not cause any significant impacts to the surrounding roadway system because truck trips will be made outside of the weekday AM and PM peak hours. According to the November 2008 traffic counts on Sierra Highway, hourly traffic volumes between 9 and 3 p.m. were an average of 40 percent lower than the PM peak hour volume. Truck trips would pass through four study intersections, each of which currently operates at LOS D or better during the AM and PM peak hours. Given that traffic volumes are lower during off-peak hours, operations are in the LOS A – C range.

This evaluation has concluded that the roadway system has adequacy capacity to accommodate these trips during the off-peak hours. Therefore, no temporary construction-related traffic impacts were identified.



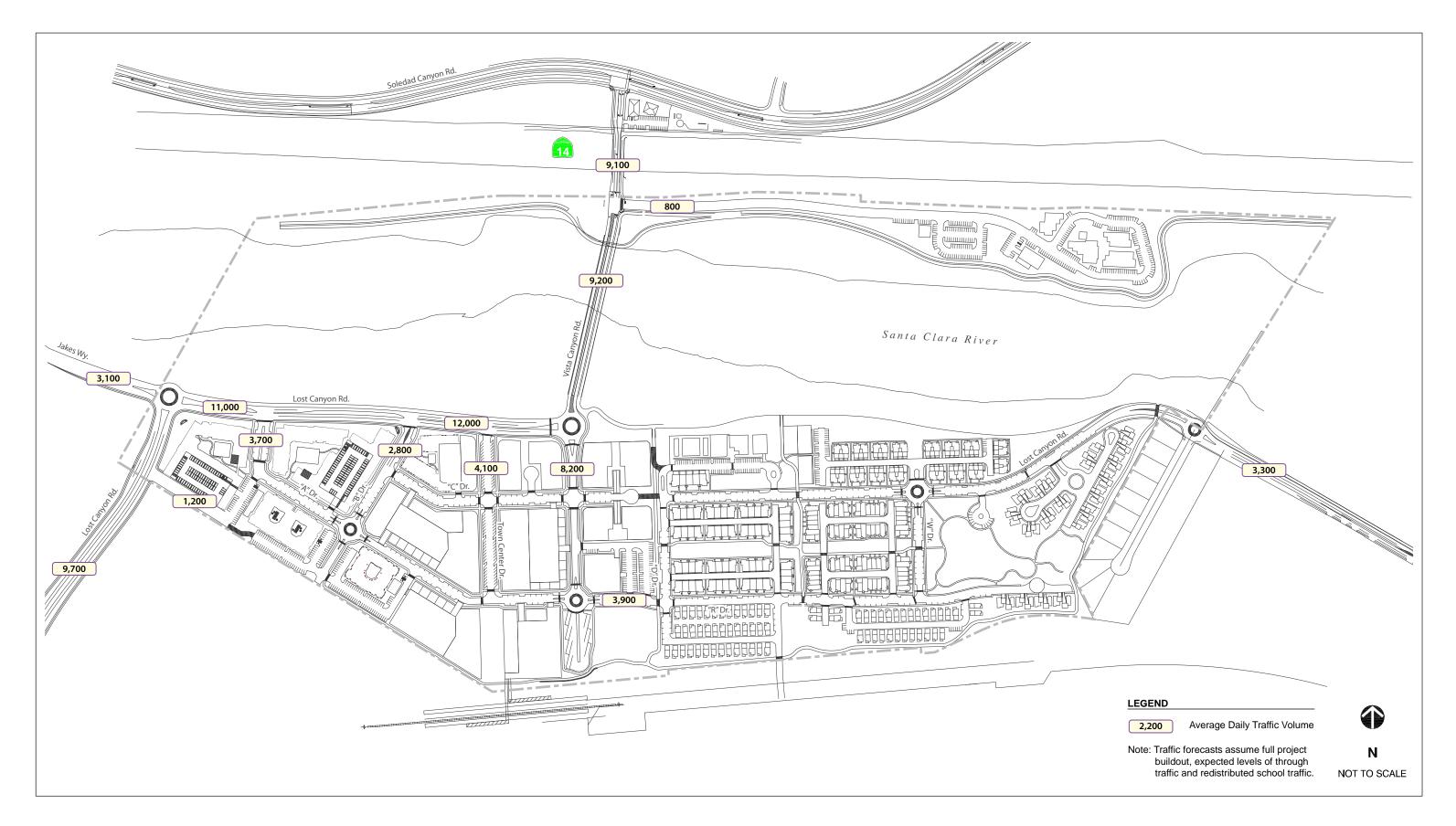
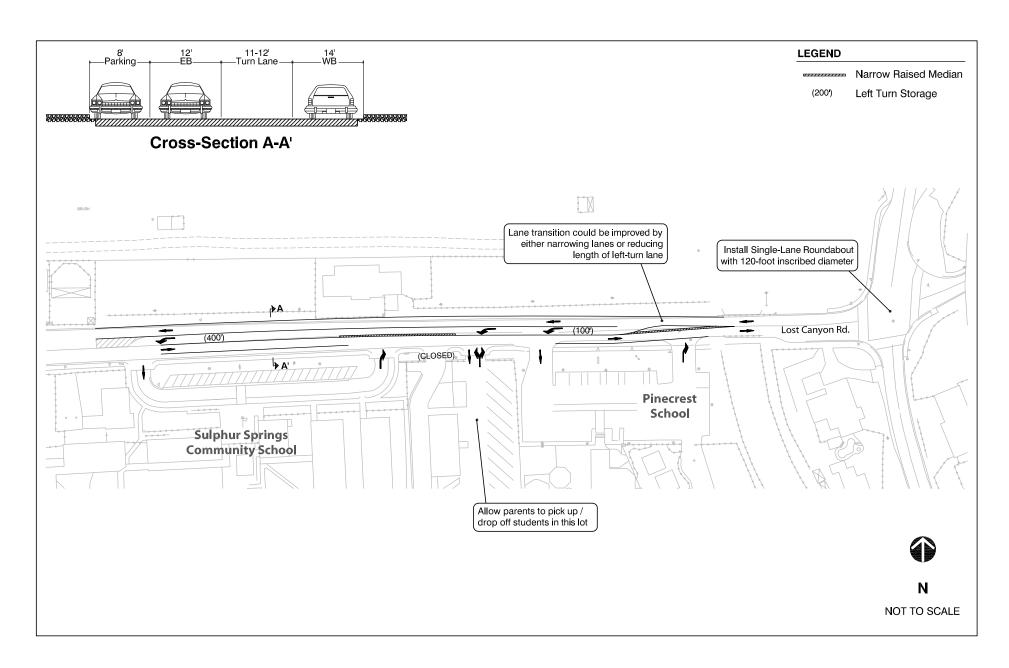




FIGURE 19





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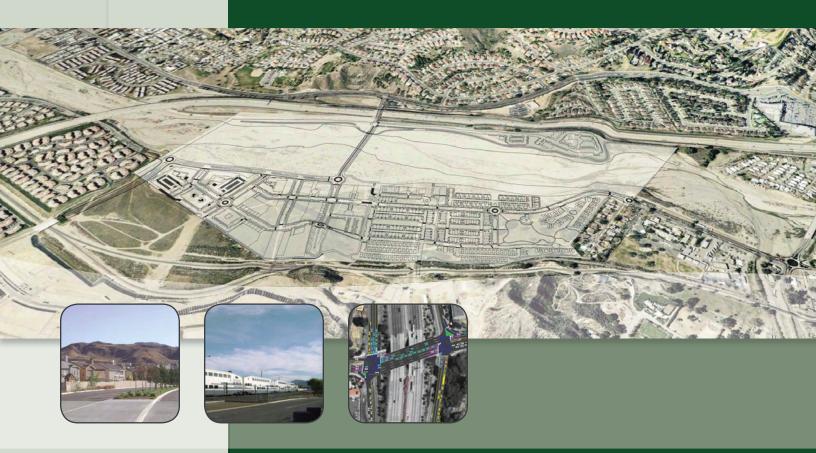
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Technical Appendix

Transportation Impact Study for Vista Canyon Transit-Oriented Development



Prepared for: Vista Canyon Ranch, LLC



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APPENDIX A:

TECHNICAL CALCULATIONS FOR EXISTING CONDITIONS

	۶	*	1	†	ţ	1	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Ϋ́			4	4		
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Volume (veh/h)	45	52	22	9	12	251	
Peak Hour Factor	0.55	0.55	0.80	0.80	0.90	0.90	
Hourly flow rate (vph) Pedestrians	82	95	28	11	13	279	
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None						
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	219	153	292				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol vCu, unblocked vol	219	153	292				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)	J1	0.2	7.1				
tF (s)	3.5	3.3	2.2				
p0 queue free %	89	89	98				
cM capacity (veh/h)	753	893	1269				
Direction, Lane #	EB 1	NB 1	SB 1			SU 1	TYRE - PAR SOLD IN THE SPAN TAY IT SOLD
Volume Total	176	39	292				
Volume Left	82	28	0				
Volume Right	95	0	279				
cSH	822	1269	1700				
Volume to Capacity Queue Length 95th (ft)	0.21 20	0.02 2	0.17 0				
Control Delay (s)	10.6	5.7	0.0				
Lane LOS	10.0	3. <i>1</i>	0.0				
Approach Delay (s)	10.6	5.7	0.0				
Approach LOS	В						
Intersection Summary	Se Phil	a ling all l	100	358 J/W	dist.		
Average Delay			4.1				
Intersection Capacity Ut	ilization		32.2%	IC	U Leve	l of Service	ce A
Analysis Period (min)			15				

Vista Canyon Ranch
7: Soledad Canyon Rd. & Lost Canyon Rd.

:	→	•	•	-	4	-	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations Sign Control Grade	↑↑ Free 0%		ሻ	↑↑ Free 0%	Stop 0%		
Volume (veh/h) Peak Hour Factor Hourly flow rate (vph)	768 0.85 904	10 0.85 12	7 0.90 8	1277 0.90 1419	1 0.40 2	4 0.40 10	
Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh)	30 4	12	J	1410		10	
Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked					None		
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol			915		1634	458	
vCu, unblocked vol tC, single (s) tC, 2 stage (s)			915 4 .1		1634 6.8	458 6.9	
tF (s) p0 queue free %			2.2 99		3.5 97	3.3 98	
cM capacity (veh/h)			741		91	550	
Direction, Lane #	EB 1	EB 2	WB 1	WB2	WB3	NB1	
Volume Total	602	313	8	709	709	12	
Volume Left	0 0	0 12	8 0	0 0	0 0	2 10	
Volume Right cSH	1700	1700	741	1700	1700	274	
Volume to Capacity	0.35	0.18	0.01	0.42	0.42	0.05	
Queue Length 95th (ft)	0.00	0.10	1	0	0.12	4	
Control Delay (s)	0.0	0.0	9.9	0.0	0.0	18.8	
Lane LOS			Α			С	
Approach Delay (s) Approach LOS	0.0		0.1			18.8 C	
Intersection Summary	- CON	18 -	UNIC SE	12.24			
Average Delay Intersection Capacity Uti Analysis Period (min)	ilization		0.1 45.3% 15	10	CU Leve	el of Servi	ice A

	۶	→	*	•	4	4	1	1	~	1	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1,1	ተተ	řř	ሽቪ	ተተው		1,1	^	ř*	Ŋ	ተተ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor Frpb, ped/bikes	0.97	0.95	1.00	0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Flpb, ped/bikes	1.00 1.00	1.00 1.00	0.93 1.00	1.00 1.00	1.00 1.00		1.00 1.00	1.00	0.98 1.00	1.00	1.00	0.94
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00 1.00	0.85	1.00 1.00	1.00 1.00	1.00 0.85
Fit Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1480	3433	5064		3433	3539	1546	1770	3539	1489
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1480	3433	5064		3433	3539	1546	1770	3539	1489
Volume (vph)	193	649	422	284	1122	25	385	202	153	42	476	402
Peak-hour factor, PHF	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. Flow (vph)	193	649	422	284	1122	25	385	202	153	42	476	402
RTOR Reduction (vph)	0	0	215	0	2	0	0	0	102	0	0	272
Lane Group Flow (vph)	193	649	207	284	1145	0	385	202	51	42	476	130
Confl. Peds. (#/hr)			49			22			8			39
Confl. Bikes (#/hr)			2			4			2			6
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	40.0		2	40.0					8			4
Actuated Green, G (s)	10.8	44.4	44.4	13.9	47.5		18.6	38.1	38.1	4.6	24.1	24.1
Effective Green, g (s)	10.3 0.09	46.4	46.4	13.4	49.5		18.1	40.1	40.1	4.1	26.1	26.1
Actuated g/C Ratio Clearance Time (s)	3.5	0.39 6.0	0.39 6.0	0.11 3.5	0.41 6.0		0.15 3.5	0.33 6.0	0.33 6.0	0.03	0.22	0.22
Vehicle Extension (s)	2.0	4.5	4.5	2.0	4.5		2.5	4.5	4.5	3.5 1.0	6.0 4.5	6.0
Lane Grp Cap (vph)	295	1368	572	383	2089		518	1183	517	60	770	4.5 324
v/s Ratio Prot	0.06	0.18	512	c0.08	c0.23		c0.11	0.06	517	0.02	c0.13	324
v/s Ratio Perm	0.00	0.10	0.14	CO.00	60.25		CO. 1 1	0.00	0.03	0.02	CO. 13	0.09
v/c Ratio	0.65	0.47	0.36	0.74	0.55		0.74	0.17	0.10	0.70	0.62	0.40
Uniform Delay, d1	53.1	27.6	26.2	51.6	26.8		48.7	28.2	27.5	57.3	42.4	40.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.96	0.90	1.48	1.00	1.00	1.00
Incremental Delay, d2	3.9	1.2	1.8	6.6	1.0		5.4	0.1	0.1	25.9	1.9	1.4
Delay (s)	57.1	28.8	28.0	58.3	27.8		51.9	25.4	40.9	83.2	44.4	41.7
Level of Service	Е	С	С	E	С		D	С	D	F	D	D
Approach Delay (s)		32.9			33.8			42.4			45.0	
Approach LOS		С			C			D			D	
Intersection Summary	J 1775	- 12		ku li	FULL	The second	100	Sinia.		A STATE	THE Y	12 W.S.
HCM Average Control D			37.4	F	ICM Lev	el of Se	rvice		D			
HCM Volume to Capacit			0.63									
Actuated Cycle Length (120.0			ost time			16.0			
Intersection Capacity Ut	ilization		83.5%	I	CU Leve	el of Ser	vice		E			
Analysis Period (min)			15									
c Critical Lane Group												

	•	*	↑	-	-	1								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		7/5	- 113	-1-18	TOT	370,0	2 300	N 13
Lane Configurations Sign Control Grade	Stop 0%	7"	ተተሱ Free 0%			↑↑↑ Free 0%								
Volume (veh/h)	0	256	545	131	0	1300								
Peak Hour Factor	0.75	0.75	0.90	0.90	0.95	0.95								
Hourly flow rate (vph)	0	341	606	146	0	1368								
Pedestrians	72													
Lane Width (ft)	12.0													
Walking Speed (ft/s)	4.0													
Percent Blockage	6													
Right turn flare (veh)	None													
Median type Median storage veh)	None													
Upstream signal (ft)			702											
pX, platoon unblocked	0.99	0.99	702		0.99									
vC, conflicting volume	1206	347			823									
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	1181	309			792									
tC, single (s)	6.8	6.9			4.1									
tC, 2 stage (s)														
tF (s)	3.5	3.3			2.2									
p0 queue free %	100	46			100									
cM capacity (veh/h)	170	637			764									
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	4 B.				وتبلة	(f) 17	
Volume Total	341	242	242	267	456	456	456							
Volume Left	0	0	0	0	0	0	0							
Volume Right cSH	341	1700	1700	146	1700	1700	1700							
Volume to Capacity	637 0.54	1700 0.14	1700 0.14	1700 0.16	1700 0.27	1700 0.27	1700 0.27							
Queue Length 95th (ft)	80	0.14	0.14	0.10	0.27	0.27	0.27							
Control Delay (s)	17.0	0.0	0.0	0.0	0.0	0.0	0.0							
Lane LOS	C	0.0	9.5	0,0	0.0	0.0	0.0							
Approach Delay (s)	17.0	0.0			0.0									
Approach LOS	С													
Intersection Summary							Y Talen		10111		we ti		818	-VIV
Average Delay			2.4											
Intersection Capacity Ut	ilization		36.9%	IC	CU Leve	of Ser	vice			Α				
Analysis Period (min)			15											

			,									
	۶	→	\rightarrow	•	←	*	1	1	1	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		٦	†	ř	19	ተተው		ሻ	ተተ _ጉ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00		1.00	1.00	0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.90		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1656		1770	1863	1471	1770	4953		1770	5068	
Flt Permitted		0.97		0.68	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1618		1267	1863	1471	1770	4953		1770	5068	
Volume (vph)	13	6	64	265	1	110	24	600	96	91	1119	22
Peak-hour factor, PHF	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. Flow (vph)	13	6	64	265	1	110	24	600	96	91	1119	22
RTOR Reduction (vph)	0	49	0	0	0	84	0	14	0	0	1	0
Lane Group Flow (vph)	0	34	0	265	1	26	24	682	0	91	1140	0
Confl. Peds. (#/hr)						46			18			1
Confl. Bikes (#/hr)						1_						
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)		28.2		28.2	28.2	28.2	4.0	67.7		10.1	73.8	
Effective Green, g (s)		28.7		28.7	28.7	28.7	3.5	69.7		9.6	75.8	
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.03	0.58		0.08	0.63	
Clearance Time (s)		4.5		4.5	4.5	4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		387		303	446	352	52	2877		142	3201	
v/s Ratio Prot					0.00		0.01	0.14		c0.05	c0.22	
v/s Ratio Perm		0.02		c0.21		0.02						
v/c Ratio		0.09		0.87	0.00	0.07	0.46	0.24		0.64	0.36	
Uniform Delay, d1		35.5		43.9	34.8	35.4	57.3	12.2		53.5	10.5	
Progression Factor		1.00		1.00	1.00	1.00	1.18	0.69		1.03	1.09	
Incremental Delay, d2		0.1		23.2	0.0	0.1	2.3	0.2		6.2	0.3	
Delay (s)		35.6		67.2	34.8	35.5	70.0	8.6		61.1	11.7	
Level of Service		D		E	C	D	E	A		Е	В	
Approach LOS		35.6			57.8			10.6			15.4	
Approach LOS		D			E			В			В	
Intersection Summary	88 VH V		LABOR SY			F1000	SWASTLE	- 177	11.50	- III	w line	ital di
HCM Average Control D	elay		21.3	Н	CM Lev	el of Se	rvice		С			
HCM Volume to Capacity	y ratio		0.51									
Actuated Cycle Length (s			120.0	S	um of lo	st time	(s)		8.0			
Intersection Capacity Uti	lization	- 5	58.4%	IC	U Leve	of Sen	vice		В			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		∢} Stop			4 } Stop		ď	∱ Stop		ľ	ी≱ Stop	
Volume (vph)	55	28	78	71	40	1	30	63	32	2	133	94
Peak Hour Factor	0.75	0.75	0.75	0.85	0.85	0.85	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	73	37	104	84	47	1	33	70	36	3	177	125
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	Tay U			- 57.50	12.78	. 2 . 1
Volume Total (vph)	215	132	33	106	3	303						
Volume Left (vph)	73	84	33	0	3	0						
Volume Right (vph)	104	1	0	36	0	125						
Hadj (s)	-0.19	0.16	0.53	-0.20	0.53	-0.26						
Departure Headway (s)	5.1	5.6	6.4	5.7	6.2	5.4						
Degree Utilization, x	0.31	0.20	0.06	0.17	0.00	0.45						
Capacity (veh/h)	649	586	521	586	549	637						
Control Delay (s)	10.4	10.0	8.6	8.6	8.0	11.6						
Approach Delay (s)	10.4	10.0	8.6		11.6							
Approach LOS	В	В	Α		В							
Intersection Summary	-VIETR		Major pe	TOTAL ST		11500	a 120	li File T	5750	- 3 - 01	N. ETIC	
Delay			10.5									
HCM Level of Service			В									
Intersection Capacity Uti Analysis Period (min)	lization		37.0% 15	IC	CU Leve	el of Ser	vice		Α			

	۶	→	-	•	1	4						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	Cisigo V	St. JE u	: 2 file	2 2 E	Tipor	The sales
Lane Configurations	*5	^	1 1		۲,	7						
Sign Control		Free	Free		Stop							
Grade	70	0%	0%	40	0%	005						
Volume (veh/h) Peak Hour Factor	78	101	134	48	107	225						
Hourly flow rate (vph)	0.80 98	0.80 126	0.90 149	0.90 53	0.90 11 9	0.90 250						
Pedestrians	90	120	143	55	119	200						
Lane Width (ft)		12.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		0										
Right turn flare (veh)												
Median type					None							
Median storage veh)		500										
Upstream signal (ft)		580										
pX, platoon unblocked vC, conflicting volume	202				434	102						
vC1, stage 1 conf vol	202				404	102						
vC2, stage 2 conf vol												
vCu, unblocked vol	202				434	102						
tC, single (s)	4.1				6.8	6.9						
tC, 2 stage (s)												
tF (s)	2.2				3.5	3.3						
p0 queue free %	93				77 544	73						
cM capacity (veh/h)	1367		METCAT ITS VI		511	932						
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2		No participation	Sir al		
Volume Total Volume Left	98 98	63	63	99	103	119 119	250 0					
Volume Right	0	0 0	0 0	0 0	0 53	0	250					
cSH	1367	1700	1700	1700	1700	511	932					
Volume to Capacity	0.07	0.04	0.04	0.06	0.06	0.23	0.27					
Queue Length 95th (ft)	6	0	0	0	0	22	27					
Control Delay (s)	7.8	0.0	0.0	0.0	0.0	14.2	10.3					
Lane LOS	Α					В	В					
Approach Delay (s)	3.4			0.0		11.5						
Approach LOS						В						
Intersection Summary		14.70		1 8 7	100	F THE				TO V	7 U I	
Average Delay	:I:A!		6.3		0111 -	1560-			•			
Intersection Capacity Ut Analysis Period (min)	ilization		25.9% 15	10	CU Leve	el of Sen	vice		Α			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	14.54	ተተተ	ř	ሻሻ	ተተተ	7*	ليراير	ተተተ	7	ሾሾ	ተተተ	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Volume (vph)	141	1007	483	203	734	77	300	296	102	103	831	565
Peak-hour factor, PHF	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. Flow (vph)	141	1007	483	203	734	77	300	296	102	103	831	565
RTOR Reduction (vph)	0	0	178	0	0	51	0	0	61	0	0	257
Lane Group Flow (vph)	141	1007	305	203	734	26	300	296	41	103	831	308
Turn Type Protected Phases	Prot 7	4	Perm	Prot		Perm	Prot	•	Perm	Prot	•	Perm
Permitted Phases	,	4	4	3	8	0	5	2	2	1	6	^
Actuated Green, G (s)	8.2	36.7	4 36.7	10.4	38.9	8 38.9	13.7	46.3	2 46.3	6.6	20.2	6
Effective Green, g (s)	8.2	38.7	38.7	10.4	40.9	40.9	13.7	48.3	48.3	6.6 6.6	39.2 41.2	39.2 41.2
Actuated g/C Ratio	0.07	0.32	0.32	0.09	0.34	0.34	0.11	0.40	0.40	0.06	0.34	0.34
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	235	1640	511	298	1733	540	392	2047	637	189	1746	957
v/s Ratio Prot	0.04	c0.20	011	c0.06	0.14	370	c0.09	0.06	037	0.03	c0.16	951
v/s Ratio Perm	0.01	00.20	0.19	00.00	0.14	0.02	00.00	0.00	0.03	0.00	00.10	0.11
v/c Ratio	0.60	0.61	0.60	0.68	0.42	0.05	0.77	0.14	0.06	0.54	0.48	0.32
Uniform Delay, d1	54.3	34.3	34.1	53.2	30.5	26.5	51.6	22.7	22.0	55.2	30.9	29.1
Progression Factor	1.07	0.93	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.07	0.79	0.73
Incremental Delay, d2	2.6	0.8	2.2	5.0	0.3	0.1	7.8	0.1	0.2	1.6	0.9	0.8
Delay (s)	60.9	32.8	30.6	58.2	30.8	26.6	59.4	22.9	22.2	60.6	25.2	22.0
Level of Service	Е	С	С	Е	С	С	Е	С	С	E	C	C
Approach Delay (s)		34.6			35.9			38.5			26.4	
Approach LOS		С			D			D			С	
Intersection Summary		10 C 4 III	Dec 1	3 M TO	N - 19	200			1C-v1	785	900	(Maria
HCM Average Control D	elay		32.9	Н	CM Lev	el of Se	ervice		С			
HCM Volume to Capacit	y ratio		0.58									
Actuated Cycle Length (s			120.0			st time			16.0			
Intersection Capacity Uti	lization		63.2%	IC	CU Leve	of Ser	vice		В			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	teti ota filmak Salah pakasi filmati
Lane Configurations	ħ	ተተ	† †	7	ሻ	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583	
Fit Permitted	0.20	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	365	3539	3539	1583	1770	1583	
Volume (vph)	31	1618	1239	76	31	10	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	31	1618	1239	76	31	10	
RTOR Reduction (vph)	0	0	0	15	0	9	
Lane Group Flow (vph)	31	1618	1239	61	31	1	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	101.4	101.4	94.5	94.5	8.1	8.1	
Effective Green, g (s)	103.4	103.4	96.5	96.5	8.6	8.6	
Actuated g/C Ratio	0.86	0.86	0.80	0.80	0.07	0.07	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
Lane Grp Cap (vph)	348	3049	2846	1273	127	113	
v/s Ratio Prot	0.00	c0.46	0.35		c0.02		
v/s Ratio Perm	0.07			0.04		0.00	
v/c Ratio	0.09	0.53	0.44	0.05	0.24	0.01	
Uniform Delay, d1	2.0	2.1	3.5	2.4	52.6	51.7	
Progression Factor	1.00	1.00	0.90	0.56	1.00	1.00	
Incremental Delay, d2	0.1	0.7	0.4	0.1	0.4	0.0	
Delay (s)	2.1	2.8	3.6	1.4	53.0	51.7	
Level of Service	Α	Α	Α	Α	D	D	
Approach Delay (s)		2.8	3.5		52.7		
Approach LOS		Α	Α		D		
Intersection Summary	ili a		1-79	W	Alles	AL VIEW	
HCM Average Control D	Delay		3.8	F	ICM Lev	vel of Ser	vice A
HCM Volume to Capaci			0.51				
Actuated Cycle Length (•		120.0	S	um of le	ost time (s	s) 8.0
Intersection Capacity Ut			54.7%			el of Servi	
Analysis Period (min)			15				
c Critical Lane Group							

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	16.56	74	ተተ	7	ሻሻ	^	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	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	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.44	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1574	3539	
Volume (vph)	621	628	151	661	988	158	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	621	628	151	661	988	158	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	621	628	151	661	988	158	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		1	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	18.2	53.5	7.9	53.5	27.3	27.3	
Effective Green, g (s)	18.2	53.5	7.9	53.5	27.3	27.3	
Actuated g/C Ratio	0.34	1.00	0.15	1.00	0.51	0.51	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1168	1583	523	1583	1338	1806	
v/s Ratio Prot	c0.18		0.04		c0.21	0.04	
v/s Ratio Perm		0.40		0.42	c0.16		
v/c Ratio	0.53	0.40	0.29	0.42	0.74	0.09	
Uniform Delay, d1	14.2	0.0	20.3	0.0	9.3	6.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.7	0.5	0.8	1.9	0.0	
Delay (s)	14.9	0.7	20.8	0.8	11.1	6.8	
Level of Service	В	Α	С	Α	В	Α	
Approach Delay (s)	7.8		4.5			10.5	
Approach LOS	Α		Α			В	
Intersection Summary			II. W		W FU		
HCM Average Control D			8.0	H	ICM Lev	el of Service	ce A
HCM Volume to Capacit			0.64				
Actuated Cycle Length (53.5			st time (s)	
Intersection Capacity Uti	lization	6	30.9%	IC	CU Leve	of Service	е В
Analysis Period (min)			15				
c Critical Lane Group							

(Action)	۶	→	*	•	4	4	1	1	~	>	Į.	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	ተተኩ	4000	1,1	ተተተ	7	ሻሻ		7	ሻሻ	ተተ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s) Lane Util. Factor	4.0 0.97	4.0 0.91		4.0 0.97	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Frpb, ped/bikes	1.00	1.00		1.00	0.91 1.00	1.00 0.98	0.97 1.00	0.95 1.00	1.00 0.98	0.97 1.00	0.95 1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98 1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4886		3433	5085	1554	3433	3539	1554	3433	3539	1551
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4886		3433	5085	1554	3433	3539	1554	3433	3539	1551
Volume (vph)	165	611	184	101	1357	438	297	468	87	443	815	383
Peak-hour factor, PHF	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. Flow (vph)	165	611	184	101	1357	438	297	468	87	443	815	383
RTOR Reduction (vph)	0	41	0	0	0	31	0	0	59	0	0	100
Lane Group Flow (vph)	165	754	0	101	1357	407	297	468	28	443	815	283
Confl. Peds. (#/hr)			6			11			7			6
Confl. Bikes (#/hr)									2			
Turn Type	Prot	^		Prot		pm+ov	Prot		om+ov	Prot		Perm
Protected Phases Permitted Phases	5	2		1	6	7	3	8	1	7	4	
Actuated Green, G (s)	11.9	48.5		7.4	44.0	6 61.8	12.5	26.3	8 33.7	17.8	31.6	4
Effective Green, g (s)	11.9	50.5		7.4	46.0	63.8	12.5	28.3	35. <i>1</i> 35.7	17.8	33.6	31.6 33.6
Actuated g/C Ratio	0.10	0.42		0.06	0.38	0.53	0.10	0.24	0.30	0.15	0.28	0.28
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	340	2056		212	1949	826	358	835	514	509	991	434
v/s Ratio Prot	c0.05	0.15		0.03	c0.27	0.07	c0.09	0.13	0.00	0.13	c0.23	
v/s Ratio Perm						0.19			0.01			0.18
v/c Ratio	0.49	0.37		0.48	0.70	0.49	0.83	0.56	0.05	0.87	0.82	0.65
Uniform Delay, d1	51.2	23.8		54.4	31.1	17.8	52.7	40.4	30.1	50.0	40.4	38.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	0.5		0.6	2.1	0.2	14.0	1.2	0.0	14.6	6.1	4.2
Delay (s)	56.0	24.3		55.0	33.2	18.0	66.7	41.6	30.1	64.5	46.5	42.3
Level of Service	Е	C		Е	C	В	Е	D	С	Ε	D	D
Approach Delay (s) Approach LOS		29.8 C			30.9 C			49.2 D			50.4	
					C			U			D	
Intersection Summary		177	No.						1148	la ince		de in
HCM Average Control D			39.6	Н	ICM Lev	el of Se	ervice		D			
HCM Volume to Capacit			0.73									
Actuated Cycle Length (120.0		um of lo				16.0			
Intersection Capacity Ut Analysis Period (min)	wzation		75.3%	_10	CU Leve	er of Ser	vice		D			
c Critical Lane Group			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻሻ 4000	† †	4000	4000	*	4000	1000	^	4000	777	ተቀኈ	7
Ideal Flow (vphpl) Total Lost time (s)	1900 4.0	1900 4.0	1900	1900 4.0	1900 4.0	1900 4.0	1900 4.0	1900 4.0	1900 4.0	1900 4.0	1900 4.0	1900 4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot) Flt Permitted	4990 0.95	5057 1.00		4990 0 . 95	4806 1.00	1362 1.00	1770 0 .95	5085 1. 00	1574 1.00	4990	4777 1.00	1348 1.00
Satd. Flow (perm)	4990	5057		4990	4806	1362	1770	5085	1574	0.95 4990	4777	1348
Volume (vph)	267	522	20	312	1390	551	20	496	289	802	1198	667
Peak-hour factor, PHF	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. Flow (vph)	267	522	20	312	1390	551	20	496	289	802	1198	667
RTOR Reduction (vph)	0	2	0	0	0	45	0	0	12	0	2	114
Lane Group Flow (vph)	267	540	0	312	1390	506	20	496	277	802	1242	507
Confl. Peds. (#/hr) Confl. Bikes (#/hr)									3 1			1
Turn Type	Prot			Prot		pm+ov	Prot		om+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	рш+о v 7
Permitted Phases				_	_	8	_	_	2	•		6
Actuated Green, G (s)	12.3	19.8		38.7	46.2	73.9	2.5	20.3	59.0	27.7	45.5	57.8
Effective Green, g (s)	13.3	21.8		39.7	48.2	76.9	3.5	22.3	62.0	28.7	47.5	60.8
Actuated g/C Ratio	0.10	0.17		0.31	0.38	0.60	0.03	0.17	0.48	0.22	0.37	0.47
Clearance Time (s) Vehicle Extension (s)	5.0 1.5	6.0 3.5		5.0 1.5	6.0 4.5	5.0 1. 5	5.0 1. 5	6.0 4.5	5.0 1. 5	5.0 1.5	6.0 4.5	5.0 1. 5
Lane Grp Cap (vph)	516	858		1542	1803	815	48	882	808	1114	1766	680
v/s Ratio Prot	0.05	0.11		0.06	c0.29	0.14	0.01	c0.10	0.11	0.16	0.26	c0.08
v/s Ratio Perm						0.23	0.0.		0.07	0.10	0.20	0.30
v/c Ratio	0.52	0.63		0.20	0.77	0.62	0.42	0.56	0.34	0.72	0.70	0.75
Uniform Delay, d1	54.6	49.6		32.7	35.3	16.5	61.5	48.6	20.6	46.2	34.5	27.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2 Delay (s)	0.4 54 .9	1.5 51 .1		0.0 32.8	2.4 37.7	1.1 17.6	2.1 63 .6	1.2	0.1	1.9	1.5 36.0	3.9
Level of Service	04.9 D	D D		32.0 C	37.7 D	17.0 B	03.0 E	49.8 D	20.7 C	48.1 D	30.0 D	31.5 C
Approach Delay (s)	_	52.4		Ŭ	32.1		_	39.7	J		38.6	O
Approach LOS		D			С			D			D	
Intersection Summary	V - 19		V Jan	0130		19 12 0	AWD III	13.7m	1 - 5	2000	31/2 VI	P1 (A)
HCM Average Control D			38.2	⊢	ICM Lev	el of Se	rvice		D			
HCM Volume to Capacity	•		0.76									
Actuated Cycle Length (s			128.5			st time			12.0			
Intersection Capacity Utili Analysis Period (min)	lization	8	30.8%	10	JU Leve	of Serv	/ice		D			
c Critical Lane Group			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	Λħ		15	†		ሻ	† 1>	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.85		1.00	0.98		1.00	1.00	
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3392		1770	3022		1770	3470		1770	3537	
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3392		1770	3022		1770	3470		1770	3537	
Volume (vph)	8	23	9	89	6	225	3	182	28	173	1472	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	26	10	105	7	265	3	192	29	182	1549	7
RTOR Reduction (vph)	0	9	0	0	228	0	0	10	0	0	0	0
Lane Group Flow (vph)	9 Colit	27	0	105	44	0	3	211	0	182	1556	0
Turn Type Protected Phases	Split	6		Split	2		Prot 3			Prot		
Permitted Phases	6	. 0		2	2		3	8		7	4	
Actuated Green, G (s)	6.2	6.2		10.3	10.3		0.6	31.3		40.4	44.4	
Effective Green, g (s)	6.2	6.2		10.3	10.3		0.6	31.3		10.4 10.4	41.1 41.1	
	0.01	00.01		00.00	0.01		0.00	0.00		CO. 10	CU.77	
	0.06	0.09		0.43	0.10		0.21	0.14		0.73	0.79	
• •												
•												
•												
Level of Service	С						D					
				_			_			_		
Approach LOS		С			С			В			В	
Intersection Summary	1111-10-1	79310	100			in in the little	N TO T		13 W/ 15	O NI W	11 (11 24)	
	elav	2010	19 7	H	CM Lev	el of Se	rvice		B		NI TO O	
					J LO	5, 5, 56	. 7.00					
	,			S	um of lo	st time	(s)		12.0			
		1										
									•			
c Critical Lane Group												
Actuated g/C Ratio Clearance Time (s) Vehicle Extension (s) Lane Grp Cap (vph) v/s Ratio Prot v/s Ratio Perm v/c Ratio Uniform Delay, d1 Progression Factor Incremental Delay, d2 Delay (s) Level of Service Approach Delay (s) Approach LOS Intersection Summary HCM Average Control Del HCM Volume to Capacity Actuated Cycle Length (s) Intersection Capacity Util Analysis Period (min)	0.08 4.0 3.0 148 0.01 0.06 31.3 1.00 0.2 31.5 C	0.08 4.0 3.0 283 c0.01 0.09 31.4 1.00 0.1 31.6 C	19.7 0.63 74.2 65.8% 15	0.14 4.0 3.0 246 c0.06 0.43 29.2 1.00 1.2 30.4 C	0.14 4.0 3.0 419 0.01 0.10 27.9 1.00 0.1 28.0 C 28.7 C	rel of Se est time	0.01 4.0 3.0 14 0.00 0.21 36.6 1.00 7.6 44.1 D	0.42 4.0 3.0 1464 0.06 0.14 13.2 1.00 0.0 13.3 B 13.7	B 12.0 C	0.14 4.0 3.0 248 c0.10 0.73 30.6 1.00 10.7 41.3 D	0.55 4.0 3.0 1959 c0.44 0.79 13.2 1.00 2.3 15.5 B 18.2	

	•	*	†	1	-	Į.					
Movement	WBL	WBR	NBT	NBR	SBL	SBT	71 013	8.111 V. TU	75711	cas Vii	
Lane Configurations	۲,	ř	ተ ጉ		ሻ	† †					
Sign Control	Stop		Free			Free					
Grade	0%	•	0%		700	0%					
Volume (veh/h)	54	0	341	74	790	1598					
Peak Hour Factor Hourly flow rate (vph)	0.65 83	0.65 0	0.90 379	0.90 82	0.90 878	0.90 1776					
Pedestrians	03	U	319	02	0/0	1770					
Lane Width (ft)											
• •											
Percent Blockage											
Right turn flare (veh)											
¥ -	None										
•			700								
			768								
	3063	231			461						
	0000	201			701						
vC2, stage 2 conf vol											
vCu, unblocked vol	3063	231			461						
tC, single (s)	6.8	6.9			4.1						
	0.5										
			MB	NID O		00.0	00.0				
									4 34 0	1170	The Balling
	43.57	0.00	0.15	0.12	0.80						
Queue Length 95th (ft)	Err	0	0	0	226	0	0				
Control Delay (s)	Err	0.0	0.0	0.0	20.0	0.0	0.0				
		Α									
			0.0		6.6						
Approach LOS	F										
Intersection Summary		4 4 9	&X	91 14		177. 118	10	CEALURE IN		2,-610	
	ilina#a-			14	SII I	1 -6 0			•		
	IIIZALION			IC	o reve	ı or ser	vice		C		
Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol tC, single (s) tC, 2 stage (s) tF (s) p0 queue free % cM capacity (veh/h) Direction, Lane # Volume Total Volume Left Volume Right cSH Volume to Capacity Queue Length 95th (ft) Control Delay (s) Lane LOS Approach Delay (s) Approach LOS	6.8 3.5 0 2 WB 1 83 83 0 2 43.57 Err Err F	6.9 3.3 100 772 WB 2 0 0 0 1700 0.00 0 0.00 A	0	0.0	4.1 2.2 20 1096 SB 1 878 878 0 1096 0.80 226	0.0	0.0		C		

					-				_			
	۶	→	•	•	←	•	4	†	~	-	†	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		↑↑ Free 0%	ř		↑ ↑ Free 0%			र्दी Stop 0%	7		Stop 0%	
Volume (veh/h)	0	114	110	0	222	6	98	8	52	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage	0	127	122	0	247	7	115	9	61	0	0	0
Right turn flare (veh)									30			
Median type Median storage veh) Upstream signal (ft)		718						None			None	
pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	253			127			250	380	63	349	377	127
vCu, unblocked vol	253			127			250	380	63	349	377	127
tC, single (s) tC, 2 stage (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			83	98	94	100	100	100
cM capacity (veh/h)	1309			1457			683	551	988	538	553	900
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1			B N. S.		1 N - 1	95 8 8
Volume Total	63	63	122	164	89	186						
Volume Left	0	0	0	0	0	115						
Volume Right	0	0	122	0	7	61						
cSH	1700	1700	1700	1700	1700	1003						
Volume to Capacity	0.04	0.04	0.07	0.10	0.05	0.19						
Queue Length 95th (ft)	0	0	0	0	0	17						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.7						
Lane LOS Approach Delay (s) Approach LOS	0.0			0.0		В 10.7 В						
Intersection Summary	F 250	132			- 10 10 1	Li.	0.01		MILITARY I			
Average Delay Intersection Capacity Uti Analysis Period (min)	ilization		2.9 18.8% 15	10	CU Leve	of Sen	vice		Α	22.1		

Vista Canyon Ranch 6: Placerita Canyon Rd. & Sand Canyon Rd.

	۶	-	1	1	1	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR	- Carlo	19	1	3 200	
Lane Configurations Sign Control Grade	Stop 0%			र्दी Free 0%	Free 0%						
Volume (veh/h)	101	14	46	28	5	46					
Peak Hour Factor Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage	0.90 112	0.90 16	0.75 61	0.75 37	0.80 6	0.80 58					
Right turn flare (veh) Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked	None										
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	195	35	64								
vCu, unblocked vol tC, single (s) tC, 2 stage (s)	195 6.4	35 6 .2	64 4 .1								
tF (s)	3.5	3.3	2.2								
p0 queue free % cM capacity (veh/h)	85 7 62	99 1038	96 1 539								
Direction, Lane#	EB 1	NB 1	SB 1	l'mile?	101,588	ZUL 1871 17	STATE OF STREET	18 Page 19		N 10.00 F	
Volume Total Volume Left	128 112	99	64								
Volume Right	16	61 0	0 58								
cSH	788	1539	1700								
Volume to Capacity	0.16	0.04	0.04								
Queue Length 95th (ft)	14	3	0								
Control Delay (s)	10.5	4.7	0.0								
Lane LOS	В	Α									
Approach Delay (s) Approach LOS	10.5 B	4.7	0.0								
Intersection Summary	HE IN		11/25	Mod l		8 8	17.37	12 (1)	VI 350	HIN II	
Average Delay Intersection Capacity Uti Analysis Period (min)	lization	_ :	6.2 23.8% 15	IC	U Level	of Servic	е		Α		

	-	•	•	←	1	1	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations Sign Control Grade	↑ ↑ Free 0%		, j	↑↑ Free 0%	Stop 0%		
Volume (veh/h)	1218	2	4	796	6	10	
Peak Hour Factor	0.95	0.95	0.90	0.90	0.50	0.50	
Hourly flow rate (vph)	1282	2	4	884	12	20	
Pedestrians				1	1		
Lane Width (ft) Walking Speed (ft/s)				12.0	12.0 4.0		
Percent Blockage				4.0 0	4.0		
Right turn flare (veh)				U			
Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked					None		
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol			1285		1735	644	
vCu, unblocked vol			1285		1735	644	
tC, single (s) tC, 2 stage (s)			4.1		6.8	6.9	
tF (s)			2.2		3.5	3.3	
p0 queue free %			99		85	95	
cM capacity (veh/h)			535		78	415	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	
Volume Total	855	429	4	442	442	32	
Volume Left	0	0	4	0	0	12	
Volume Right	0	2	0	0	0	20	
cSH	1700	1700	535	1700	1700	158	
Volume to Capacity	0.50 0	0.25 0	0.01	0.26	0.26	0.20	
Queue Length 95th (ft) Control Delay (s)	0.0	0.0	1 11.8	0. 0	0 0 .0	18 33.4	
Lane LOS	0.0	0.0	В	0.0	0.0	33.4 D	
Approach Delay (s)	0.0		0.1			33.4	
Approach LOS	3.3		.			D	
Intersection Summary	G wajtali	91	V-V-Y	74.18	old ogti	S 50 18 18	
Average Delay Intersection Capacity Uti Analysis Period (min)	lization	:30	0.5 44.1% 15	10	CU Leve	l of Serv	vice A

	۶	-	•	•	—	4	1	1	~	>		4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	77	^	7	1,1	ተተኩ		ሻሻ	ተተ	7	ሻ	† †	ř
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s) Lane Util. Factor	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Frpb, ped/bikes	0.97 1.00	0.95 1.00	1.00 0.90	0.97 1.00	0.91 1.00		0.97 1.00	0.95 1.00	1.00	1.00	0.95	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.96 1.00	1.00 1.00	1.00 1.00	0.93 1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1429	3433	5027		3433	3539	1521	1770	3539	1473
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1429	3433	5027		3433	3539	1521	1770	3539	1473
Volume (vph)	504	1045	468	236	597	42	624	468	270	124	379	326
Peak-hour factor, PHF	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. Flow (vph)	504	1045	468	236	597	42	624	468	270	124	379	326
RTOR Reduction (vph)	0	0	206	0	6	0	0	0	199	0	0	280
Lane Group Flow (vph)	504	1045	262	236	633	0	624	468	71	124	379	46
Confl. Peds. (#/hr)			70			9			17			48
Confl. Bikes (#/hr)	Deat		7	D1		2			5			
Turn Type Protected Phases	Prot 5	2	Perm	Prot 1	6		Prot	•	Perm	Prot		Perm
Permitted Phases	3	2	2	ı	6		3	8	8	7	4	à
Actuated Green, G (s)	38.0	55.2	55.2	13.0	30.2		28.3	32.5	32.5	12.3	16.5	4 16.5
Effective Green, g (s)	37.5	57.2	57.2	12.5	32.2		27.8	34.5	34.5	11.8	18.5	18.5
Actuated g/C Ratio	0.28	0.43	0.43	0.09	0.24		0.21	0.26	0.26	0.09	0.14	0.14
Clearance Time (s)	3.5	6.0	6.0	3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5	4.5	2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	975	1534	619	325	1226		723	925	398	158	496	206
v/s Ratio Prot	0.15	c0.30		c0.07	0.13		c0.18	0.13		0.07	c0.11	
v/s Ratio Perm			0.18						0.05			0.03
v/c Ratio	0.52	0.68	0.42	0.73	0.52		0.86	0.51	0.18	0.78	0.76	0.22
Uniform Delay, d1	39.6	30.1	25.9	58.1	43.2		50.3	41.5	37.8	58.9	54.6	50.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	2.5	2.1	6.7	1.6		10.3	0.8	0.4	20.6	7.7	0.9
Delay (s) Level of Service	41.6 D	32.5 C	28.1 C	64.8 E	44.7 D		60.6 E	42.3	38.1	79.4	62.4	51.3
Approach Delay (s)		33.8	C	E	50.1		_	D 49.8	D	E	E 60.6	D
Approach LOS		33.0 C			D D			49.0 D			60.6 E	
Intersection Summary	/581 /S	C.30. [8]	-27	VIII 2 II	2 W		I Kura Su	SILUTE OF			W	
HCM Average Control Do	elav		45.3	Н	CM Lev	el of Se	rvice		D			v - 12
HCM Volume to Capacity			0.74		0111 201	0, 0, 00	11100					
Actuated Cycle Length (s			132.0	s	um of lo	st time	(s)		16.0			
Intersection Capacity Util	lization		94.6%			l of Sen			F			
Analysis Period (min)			15									
c Critical Lane Group												

	•	4	1	~	1	ţ					
Movement	WBL	WBR	NBT	NBR	SBL	SBT	. 100 B 17	. Sec. 317.1	VIII V		
Lane Configurations		ř	ተተ _ጉ			ተተተ					
Sign Control	Stop		Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	0	184	1195	330	0	1168					
Peak Hour Factor	0.85	0.85	1.00	1.00	0.95	0.95					
Hourly flow rate (vph)	0	216	1195	330	0	1229					
Pedestrians	32										
Lane Width (ft)	12.0										
Walking Speed (ft/s)	4.0										
Percent Blockage	3										
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)	0.00		702								
pX, platoon unblocked	0.86	0.86			0.86						
vC, conflicting volume	1802	595			1557						
vC1, stage 1 conf vol											
vC2, stage 2 conf vol	4000	400			4044						
vCu, unblocked vol	1600	190			1314						
tC, single (s)	6.8	6.9			4.1						
tC, 2 stage (s)	2.5	2.2			0.0						
tF (s)	3.5	3.3			2.2						
p0 queue free % cM capacity (veh/h)	100 81	68 682			100						
			CONC. IVEN	110000000000000000000000000000000000000	435		= #020040410401				
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	216	478	478	569	410	410	410				
Volume Left	0	0	0	0	0	0	0				
Volume Right	216	4700	4700	330	0	0	0				
cSH	682	1700	1700	1700	1700	1700	1700				
Volume to Capacity Queue Length 95th (ft)	0.32 34	0.28	0.28	0.33	0.24	0.24	0.24				
Control Delay (s)	12.7	0. 0	0.0	0.0	0 0.0	0	0				
Lane LOS	12.7 B	0.0	0.0	0.0	0.0	0.0	0.0				
Approach Delay (s)	12.7	0.0			0.0						
Approach LOS	12.7 B	0.0			0.0						
• •											
Intersection Summary		High-life is	0.0	William	1384	11 2 1	to floren			U BILL	'hu 181'h
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization	•	0.9 49 .1% 15	10	CU Leve	l of Ser	vice		Α		

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4000	4		ኘ	^	7	ሻ	ተ ተጉ		7	ተተኈ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes Flpb, ped/bikes		1.00 1.00		1.00 1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Fit Pedroikes		0.91		1.00	1.00 1.00	1.00 0.85	1.00 1.00	1.00		1.00	1.00	
Fit Protected		0.99		0.95	1.00	1.00	0.95	0.98 1.00		1.00 0.95	0.99 1. 00	
Satd. Flow (prot)		1675		1770	1863	1538	1770	4966		1770	5035	
Flt Permitted		0.93		0.74	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1583		1374	1863	1538	1770	4966		1770	5035	
Volume (vph)	16	3	35	156	6	91	49	1399	210	144	757	46
Peak-hour factor, PHF	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. Flow (vph)	16	3	35	156	6	91	49	1399	210	144	757	46
RTOR Reduction (vph)	0	30	0	0	Ö	77	0	13	0	0	3	0
Lane Group Flow (vph)	0	24	0	156	6	14	49	1596	Ö	144	800	Õ
Confl. Peds. (#/hr)					_	11			11			1
Confl. Bikes (#/hr)						2			5			
Turn Type	Perm			Perm		Perm	Prot			Prot		====:
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)		18.0		18.0	18.0	18.0	5.1	74.3		13.7	82.9	
Effective Green, g (s)		18.5		18.5	18.5	18.5	4.6	76.3		13.2	84.9	
Actuated g/C Ratio		0.15		0.15	0.15	0.15	0.04	0.64		0.11	0.71	
Clearance Time (s)		4.5		4.5	4.5	4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		244		212	287	237	68	3158		195	3562	
v/s Ratio Prot		0.00		-0.44	0.00	0.04	0.03	c0.32		c0.08	0.16	
v/s Ratio Perm		0.02		c0.11	0.00	0.01	0.70	0.54				
v/c Ratio		0.10		0.74	0.02	0.06	0.72	0.51		0.74	0.22	
Uniform Delay, d1 Progression Factor		43.6 1.00		48.4	43.1	43.3	57.1	11.7		51.7	6.1	
Incremental Delay, d2		0.2		1.00 12.5	1.00 0.0	1.00 0.1	1.09 26.1	1. 24 0.6		1.00	1.00	
Delay (s)		43.8		60.9	43.1	43.4	20. i 88.5	15.1		11.8	0.1	
Level of Service		73.0 D		00. 9	43.1 D	43.4 D	66.5 F	15.1 B		63.6 E	6.2 A	
Approach Delay (s)		43.8		_	54.2		'	17.3		_	15.0	
Approach LOS		D			D			В			В	
Intersection Summary	27.	6 3	C CALL	151 9	S			Z 2240			111111111111111111111111111111111111111	27 11
HCM Average Control D	elay		20.2	Н	CM Lev	el of Se	rvice		С			
HCM Volume to Capacit			0.57									
Actuated Cycle Length (s			120.0	S	um of lo	st time	(s)		12.0			
Intersection Capacity Uti	lization	(37.6%			of Sen			С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		Ŋ	₽)Å	1 >	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	82	52	42	30	40	6	41	86	68	5	72	52
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	91	58	47	33	44	7	48	101	80	6	85	61
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	STEEL ST				A 157.	
Volume Total (vph)	196	84	48	181	6	146						
Volume Left (vph)	91	33	48	0	6	0						
Volume Right (vph)	47	7	0	80	0	61						
Hadj (s)	-0.02	0.07	0.53	-0.28	0.53	-0.26						
Departure Headway (s)	4.9	5.2	6.0	5.1	6.0	5.2						
Degree Utilization, x	0.27	0.12	0.08	0.26	0.01	0.21						
Capacity (veh/h)	677	631	574	664	558	645						
Control Delay (s)	9.8	8.9	8.3	8.7	7.9	8.5						
Approach Delay (s)	9.8	8.9	8.6		8.4							
Approach LOS	Α	Α	Α		Α							
Intersection Summary	Nº 3	X	ALL ISY	New State	HALL TO	18 200	S STERN	PHILIP UP	3000	10,000	3	1700
Delay			9.0									
HCM Level of Service			Α									
Intersection Capacity Uti	lization		35.6%	IC	U Leve	of Serv	ice		Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations Sign Control	آلا	↑↑ Free	↑↑		Stop		
Grade	162	0% 168	0% 114	0.4	0% 61	107	
Volume (veh/h) Peak Hour Factor	0.95	0.95	0.85	84 0.85	0.80	0.80	
Hourly flow rate (vph)	171	177	134	99	76	134	
Pedestrians			3	50		,	
Lane Width (ft)			12.0				
Walking Speed (ft/s)			4.0				
Percent Blockage			0				
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)		580					
pX, platoon unblocked	233				616	116	
vC, conflicting volume vC1, stage 1 conf vol	233				616	110	
vC2, stage 2 conf vol							
vCu, unblocked vol	233				616	116	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	87				79	85	
cM capacity (veh/h)	1332				367	914	
Direction, Lane#	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	
Volume Total	171	88	88	89	144	210	
Volume Left	171	0	0	0	0	76	
Volume Right	0	0	0	0	99	134	
cSH Valume to Canacity	1332	1700	1700	1700	1700	593	
Volume to Capacity Queue Length 95th (ft)	0.13 11	0.05	0.05	0.05	0.08 0	0.35 40	
Control Delay (s)	8.1	0 0.0	0 0.0	0. 0	0.0	14.4	
Lane LOS	Α	0.0	0.0	0.0	0.0	В	
Approach Delay (s)	4.0			0.0		14.4	
Approach LOS				0.0		В	
Intersection Summary	16 1 5	3 J#81/2	RI SK P	M PUT	PHILL.	SH TOUR	
Average Delay			5.6				
Intersection Capacity Ut	ilization		34.8%	IC	CU Leve	l of Sen	vice A
Analysis Period (min)			15				

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	ተተተ	7	J. J.	ተተተ	7	14.50	ተተተ	7	1,1	ተተተ	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s) Lane Util. Factor	4.0	4.0 0.91	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Frpb, ped/bikes	0.97 1.00	1.00	1.00 0.98	0.97 1.00	0.91 1.00	1.00 0.99	0.97 1.00	0.91 1.00	1.00 0.98	0.97 1.00	0.91 1.00	0.88
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Volume (vph)	186	842	203	171	928	137	550	894	239	175	412	588
Peak-hour factor, PHF	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. Flow (vph)	186	842	203	171	928	137	550	894	239	175	412	588
RTOR Reduction (vph)	0	0	147	0	0	98	0	0	114	0	0	195
Lane Group Flow (vph) Confl. Peds. (#/hr)	186	842	56 2	171	928	39	550	894	126 5	175	412	393
Confl. Bikes (#/hr)			2			2			1			2
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4	ı Çıııı	3	8	1 01111	5	2	1 Cilli	1	6	1 61111
Permitted Phases	-	-	4	_		8		_	2	•	•	6
Actuated Green, G (s)	8.9	31.3	31.3	9.4	31.8	31.8	21.6	49.9	49.9	9.4	37.7	37.7
Effective Green, g (s)	8.9	33.3	33.3	9.4	33.8	33.8	21.6	51.9	51.9	9.4	39.7	39.7
Actuated g/C Ratio	0.07	0.28	0.28	0.08	0.28	0.28	0.18	0.43	0.43	0.08	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	255	1411	432	269	1432	440	618	2199	673	269	1682	908
v/s Ratio Prot v/s Ratio Perm	c0.05	0.17	0.04	0.05	c0.18	0.00	c0.16	0.18	0.00	0.05	0.08	-0.44
v/c Ratio	0.73	0.60	0.04	0.64	0.65	0.02 0.09	0.89	0.41	0.08 0.19	0.65	0.24	c0.14 0.43
Uniform Delay, d1	54.4	37.5	32.5	53.6	37.9	31.7	48.0	23.4	21.0	53.7	29.2	31.4
Progression Factor	1.03	1.08	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.06	0.86	0.74
Incremental Delay, d2	7.7	0.8	0.2	3.6	1.3	0.1	14.3	0.6	0.6	4.2	0.3	1.5
Delay (s)	63.5	41.3	32.1	57.2	39.1	31.9	62.4	24.0	21.6	60.9	25.5	24.5
Level of Service	E	D	С	Е	D	С	E	С	С	E	С	С
Approach Delay (s)		43.2			40.8			36.2			30.3	
Approach LOS		D			D			D			С	
Intersection Summary	18.1 - 1	2 11		allinia L	L-186 o	JE 18 18		210 1	Y 15 4 II	9		810
HCM Average Control D			37.6	H	ICM Lev	el of Se	ervice		D			
HCM Volume to Capacit	•		0.60									
Actuated Cycle Length (120.0		ium of lo				12.0			
Intersection Capacity Ut	Ilization		82.2%	I	CU Leve	el of Ser	vice		Е			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	ሻ	ተተ	ተተ	7	Ϋ́	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583	
Flt Permitted	0.05	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	95	3539	3539	1583	1770	1583	
Volume (vph)	5	1183	1815	40	112	66	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	5	1183	1815	40	112	66	
RTOR Reduction (vph)	0	0	0	14	0	49	
Lane Group Flow (vph)	5	1183	1815	26	112	17	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	79.6	79.6	75.2	75.2	29.9	29.9	
Effective Green, g (s)	81.6	81.6	77.2	77.2	30.4	30.4	
Actuated g/C Ratio	0.68	0.68	0.64	0.64	0.25	0.25	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
Lane Grp Cap (vph)	70	2407	2277	1018	448	401	
v/s Ratio Prot	0.00	c0.33	c0.51		c0.06		
v/s Ratio Perm	0.05			0.02		0.01	
v/c Ratio	0.07	0.49	0.80	0.03	0.25	0.04	
Uniform Delay, d1	16.1	9.2	15.7	7.8	35.7	33.8	
Progression Factor	1.00	1.00	1.01	1.39	1.00	1.00	
Incremental Delay, d2	0.3	0.7	2.2	0.0	1.3	0.2	
Delay (s)	16.5	9.9	18.1	10.8	37.0	34.0	
Level of Service	В	Α	В	В	D	С	
Approach Delay (s)		10.0	17.9		35.9		
Approach LOS		Α	В		D		
Intersection Summary			ALK THE	SJRG 18			
HCM Average Control D	elay		16.0	Н	ICM Lev	el of Servi	ice B
HCM Volume to Capacit	ty ratio		0.65				
Actuated Cycle Length (s)		120.0	S	um of k	ost time (s)	12.0
Intersection Capacity Ut	ilization		63.0%			el of Servic	
Analysis Period (min)			15				
c Critical Lane Group							

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	14 14	7	十 十	7	14.54	ተተ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	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	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1554	3539	
Volume (vph)	523	1358	100	378	810	110	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	523	1358	100	378	810	110	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	523	1358	100	378	810	110	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		1	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	15.8	45.3	5.3	45.3	21.5	21.5	
Effective Green, g (s)	15.8	45.3	5.3	45.3	21.5	21.5	
Actuated g/C Ratio	0.35	1.00	0.12	1.00	0.47	0.47	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1197	1583	414	1583	1244	1680	
v/s Ratio Prot	0.15		0.03		0.18	0.03	
v/s Ratio Perm		c0.86		0.24	0.13		
v/c Ratio	0.44	0.86	0.24	0.24	0.65	0.07	
Uniform Delay, d1	11.3	0.0	18.2	0.0	8.4	6.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	6.3	0.5	0.4	0.9	0.0	
Delay (s)	11.8	6.3	18.7	0.4	9.4	6.5	
Level of Service	В	Α	В	Α	Α	Α	
Approach Delay (s)	7.8		4.2			9.0	
Approach LOS	Α		Α			Α	
Intersection Summary		51130		7. O Tour	7 97		
HCM Average Control Do			7.6	Н	CM Lev	el of Servi	ce A
HCM Volume to Capacity			0.86				
Actuated Cycle Length (s			45.3	S	um of lo	st time (s)	0.0
Intersection Capacity Util	ization	5	51.4%	IC	U Leve	l of Service	e A
Analysis Period (min)			15				
c Critical Lane Group							

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	77	ተተቡ		إراي	ተተተ	7"	ሻሻ	ተተ	7*	4,4	ተተ	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91 0.99		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes Flpb, ped/bikes	1.00 1.00	1.00		1.00 1.00	1.00 1.00	0.97 1. 00	1.00 1.00	1.00 1.00	0.95 1. 00	1.00 1.00	1.00 1.00	0.96 1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4938		3433	5085	1542	3433	3539	1511	3433	3539	1527
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4938		3433	5085	1542	3433	3539	1511	3433	3539	1527
Volume (vph)	381	1461	263	138	850	449	284	863	17	497	496	196
Peak-hour factor, PHF	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. Flow (vph)	381	1461	263	138	850	449	284	863	17	497	496	196
RTOR Reduction (vph)	0	18	0	0	0	14	0	0	7	0	0	155
Lane Group Flow (vph)	381	1706	0	138	850	435	284	863	10	497	496	41
Confl. Peds. (#/hr)			18			23			27			13
Confl. Bikes (#/hr)			3			2			2			3
Turn Type	Prot	•		Prot		pm+ov	Prot		om+ov	Prot		Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	4
Permitted Phases Actuated Green, G (s)	26.0	47.2		9.1	30.3	6 5 1.7	30.3	34.3	8 43.4	21.4	25.4	4 25.4
Effective Green, g (s)	26.0	49.2		9.1	32.3	53.7	30.3	36.3	45.4	21.4	25. 4 27.4	27.4
Actuated g/C Ratio	0.20	0.37		0.07	0.24	0.41	0.23	0.27	0.34	0.16	0.21	0.21
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	676	1841		237	1244	627	788	973	565	557	735	317
v/s Ratio Prot	0.11	c0.35		0.04	0.17	c0.11	0.08	c0.24	0.00	c0.14	0.14	
v/s Ratio Perm						0.17			0.01			0.03
v/c Ratio	0.56	0.93		0.58	0.68	0.69	0.36	0.89	0.02	0.89	0.67	0.13
Uniform Delay, d1	47.9	39.7		59.6	45.2	32.3	42.7	45.9	28.6	54.2	48.2	42.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	9.6		2.3	1.8	2.7	0.1	10.3	0.0	16.1	2.9	0.3
Delay (s)	51.3	49.2		61.9	47.0	35.0	42.8	56.2	28.6	70.3	51.1	42.9
Level of Service Approach Delay (s)	D	D 40.6		E	D	D	D	E 50.5	С	E	D 57.0	D
Approach LOS		49 .6 D			44.7 D			52.5 D			57.8 E	
								U			<u> </u>	
Intersection Summary			MY SIPS		No. 105	10.7	i i	1000	300			7. 11
HCM Average Control D			50.6	Н	CM Lev	vel of Se	rvice		D			
HCM Volume to Capacity			0.90					16.0				
Actuated Cycle Length (s Intersection Capacity Uti			132.0						16.0			
Analysis Period (min)	IIZALION		89.7% 15						Е			
c Critical Lane Group			13									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	الباليالي	ተተው		ሻሻሻ	ተተው	7	*	ተተተ	7	ليليل	ተተው	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00 1.00	1.00 1.00		1.00 1.00	1.00 1.00	0.99 1. 00	1.00 1.00	1.00	0.98 1.00	1.00	1.00	1.00
Flpb, ped/bikes Frt	1.00	1.00		1.00	0.99	0.85	1.00	1.00 1.00	0.85	1.00 1.00	1.00 1.00	1.00 0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5076		4990	4771	1344	1770	5085	1549	4990	4806	1362
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5076		4990	4771	1344	1770	5085	1549	4990	4806	1362
Volume (vph)	1033	1301	14	293	1151	666	15	1105	370	1081	1288	592
Peak-hour factor, PHF	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. Flow (vph)	1033	1301	14	293	1151	666	15	1105	370	1081	1288	592
RTOR Reduction (vph)	0	1	0	0	3	1	0	0	1	0	0	108
Lane Group Flow (vph)	1033	1314	0	293	1198	615	15	1105	369	1081	1288	484
Confl. Peds. (#/hr)			9			10			12			
Confl. Bikes (#/hr)						1			2			
Turn Type	Prot			Prot		pm+ov	Prot		om+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	00.4	40.7		45.0	05.4	8			2			6
Actuated Green, G (s)	30.1	49.7		15.8	35.4	68.5	2.7	39.3	55.1	33.1	69.7	99.8
Effective Green, g (s) Actuated g/C Ratio	31.1 0.19	51.7 0.32		16.8 0.11	37.4 0.23	71.5 0.45	3.7 0.02	41.3 0.26	58.1	34.1	71.7	102.8
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	0.36 5.0	0.21 5.0	0.45 6.0	0. 64 5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	971	1641		524	1116	635	41	1313	563	1064	2155	876
v/s Ratio Prot	c0.21	0.26		0.06	c0.25	c0.21	0.01	c0.22	0.07	c0.22	0.27	0.11
v/s Ratio Perm	00.21	0.20		0.00	00.20	0.25	0.01	00.22	0.17	00.22	0.27	0.25
v/c Ratio	1.06	0.80		0.56	1.07	0.97	0.37	0.84	0.66	1.02	0.60	0.55
Uniform Delay, d1	64.4	49.4		68.0	61.2	43.1	76.9	56.2	42.5	62.9	33.2	15.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	47.4	3.0		0.7	49.0	27.5	2.0	5.5	2.1	31.6	0.6	0.4
Delay (s)	111.8	52.4		68.8	110.2	70.6	79.0	61.7	44.7	94.5	33.8	16.2
Level of Service	F	D		Ε	F	Ε	Е	Е	D	F	С	В
Approach Delay (s)		78.5			92.9			57.6			52.5	
Approach LOS		E			F			Е			D	
Intersection Summary	10.2	Tayor.					14.0				m) IS	7 03
HCM Average Control D			69.8	H	ICM Lev	vel of Se	rvice		Е			
HCM Volume to Capacit			0.97									
Actuated Cycle Length (•		159.9			ost time			12.0			
Intersection Capacity Ut	ilization	10	05.3%	= 10	JU Leve	el of Ser	vice		G			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	† 1		ħ	∱ ∱		ሻ	ተ ጮ		ኻ	ተ ጐ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt Flt Protected	1.00	0.95		1.00	0.87		1.00	0.98		1.00	0.99	
	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot) Flt Permitted	1770	3362 1.00		1770	3066		1770	3483		1770	3502	
Satd. Flow (perm)	0.95 1770	3362		0.95 1770	1.00 3066		0.95	1.00		0.95	1.00	
			2			4.47	1770	3483	440	1770	3502	
Volume (vph) Peak-hour factor, PHF	15	6	3	15	18	147	7	1171	140	29	419	31
	0.60 25	0.60	0.60	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph) RTOR Reduction (vph)	25 0	10 5	5 0	18 0	21 152	173	7	1233	147	31	441	33
Lane Group Flow (vph)	25	10	0	18	42	0 0	0 7	8 1372	0	0 31	4 470	0
Turn Type	Split			Split	72		Prot	1012		Prot	470	
Protected Phases	6	6		2	2		3	8		7 7	4	
Permitted Phases	_	_		_	_		•	•		•	•	
Actuated Green, G (s)	6.6	6.6		8.3	8.3		1.1	35.5		1.4	35.8	
Effective Green, g (s)	6.6	6.6		8.3	8.3		1.1	35.5		1.4	35.8	
Actuated g/C Ratio	0.10	0.10		0.12	0.12		0.02	0.52		0.02	0.53	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	327		217	375		29	1824		37	1849	
v/s Ratio Prot	c0.01	0.00		0.01	c0.01		0.00	c0.39		c0.02	0.13	
v/s Ratio Perm												
v/c Ratio	0.15	0.03		0.08	0.11		0.24	0.75		0.84	0.25	
Uniform Delay, d1	28.0	27.7		26.4	26.5		32.9	12.7		33.1	8.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		0.2	0.1		4.3	1.8		84.7	0.1	
Delay (s)	28.4	27.7		26.5	26.6		37.2	14.5		117.8	8.8	
Level of Service	С	С		С	С		D	В		F	Α	
Approach Delay (s)		28.2			26.6			14.6			15.5	
Approach LOS		С			С			В			В	
Intersection Summary	1 25	140 4	1-79	- 1		y i su		ng m L -v			W - 50 2 5	0103
HCM Average Control D			16.3	Н	CM Lev	el of Se	rvice		В			
HCM Volume to Capacit	•		0.58									
Actuated Cycle Length (67.8			st time			16.0			
Intersection Capacity Uti	ilization	5	55.4%	IC	CU Leve	l of Sen	/ice		В			
Analysis Period (min)			15									
c Critical Lane Group												

	1	*	†	1	-	1						
Movement	WBL	WBR	NBT	NBR	SBL	SBT		1.70	Barn			77, 111
Lane Configurations	ሻ	7	ተ ኈ		ሻ	十 个						
Sign Control	Stop		Free			Free						
Grade	0%	_	0%			0%						
Volume (veh/h)	24	0	1300	33	200	455						
Peak Hour Factor	0.50	0.50	0.95	0.95	0.95	0.95						
Hourly flow rate (vph) Pedestrians	48	0	1368	35	211	479						
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage veh)												
Upstream signal (ft)			768									
pX, platoon unblocked	0.71	0.71			0.71							
vC, conflicting volume	2046	702			1403							
vC1, stage 1 conf vol												
vC2, stage 2 conf vol vCu, unblocked vol	2065	180			1164							
tC, single (s)	6.8	6.9			4.1							
tC, 2 stage (s)	0.0	0.5			7.1							
tF (s)	3.5	3.3			2.2							
p0 queue free %	0	100			51							
cM capacity (veh/h)	17	593			425							
Direction, Lane#	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3		198	4000	(TE)	
Volume Total	48	0	912	491	211	239	239					
Volume Left	48	0	0	0	211	0	0					
Volume Right	0	0	0	35	0	0	0					
cSH	17	1700	1700	1700	425	1700	1700					
Volume to Capacity	2.83	0.00	0.54	0.29	0.49	0.14	0.14					
Queue Length 95th (ft) Control Delay (s)	165 1291.5	0 0.0	0 0.0	0 0.0	67 21.5	0 0.0	0. 0					
Lane LOS	1291.5 F	0.0 A	0.0	0.0	21.5 C	0.0	0.0					
Approach Delay (s)	1291.5	^	0.0		6.6							
Approach LOS	F		0.0		0.0							
Intersection Summary	11 1982 1	15.189	1000				77 1181 6		18000	1 Y 14	A PARTIE	
Average Delay			31.1									
Intersection Capacity U	tilization	(61.4%	IC	CU Leve	of Ser	vice		В			
Analysis Period (min)			15									

Vista Canyon Ranch 23: Placerita Canyon Rd. & SR 14 NB Ramps

	۶	→	•	•	←	*	4	†	<i>></i>	1	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		↑↑ Free 0%	74		↑ ↑ Free 0%			र्भ Stop 0%	7		Stop 0%	
Volume (veh/h)	0	84	91	0	56	11	124	0	91	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s)	0	93	101	0	66	13	146	0 1 12.0 4.0	107	0	0	0
Percent Blockage								0				
Right turn flare (veh) Median type Median storage veh)								None			None	
Upstream signal (ft) pX, platoon unblocked	70	718		0.4			407	470				
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	79			94			127	173	48	226	167	39
vCu, unblocked vol	79			94			127	173	48	226	167	39
tC, single (s) tC, 2 stage (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			82	100	89	100	100	100
cM capacity (veh/h)	1517			1496			832	718	1010	634	724	1023
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	75 16		C 00	DOM:	
Volume Total	47	47	101	44	35	146	107					
Volume Left	0	0	0	0	0	146	0					
Volume Right	0	0	101	0	13	0	107					
cSH	1700	1700	1700	1700	1700	832	1010					
Volume to Capacity	0.03	0.03	0.06	0.03	0.02	0.18	0.11					
Queue Length 95th (ft)	0	0	0	0	0	16	9					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.2	9.0					
Lane LOS	0.0			0.0		В	Α					
Approach Delay (s) Approach LOS	0.0			0.0		9.7 A						
Intersection Summary		6 9 6	J. 39.		13780		u Street	E AN	Sun 21 00	192		123
Average Delay Intersection Capacity Uti Analysis Period (min)	lization	,	4.7 17.2% 15	I	CU Leve	of Ser	vice		Α			

Project:Vista Canyon RanchHCM:2000Scenario:Existing ConditionsPHF:1

TOD: AM Peak Hr Analysis Period: Hourly # of Runs: 10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd. Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	240	245	102	13	47.7	D	
NB	T	114	135	118	8	42.0	D	-
	R	334	345	103	9	10.0	В	77
	Subtotal	688	724	105		28.7	С	- 7
	L	132	135	102	12	51.8	D	-
SB	T	85	88	104	11	47.0	D	-
	R	118	116	98	11	14.9	В	*
	Subtotal	335	339	101	-	37.9	D	_
	L	68	69	101	8	62,1	E	==
EB	Т	477	477	100	20	38.9	D	-
	R	269	274	102	16	13.3	В	_
	Subtotal	814	821	101	-	32.3	С	-
	L,	222	210	95	12	60.3	Е	-
WB	Т	821	868	106	18	27.8	С	
	R	116	118	102	12	3.3	Α	
	Subtotal	1159	1196	103	_	31.1	C	_
	Total	2996	3079	103	-	31.6	С	

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	280	279	100	18	47.5	D	
NB	R	.1	3	300	2	30.1	С	
Subtota	Subtotal	281	282	100	_	47.3	D	_
	Т	426	485	114	19	9.2	Α	-
EB	R	505	512	101	19	3.2	Α	
	Subtotal	931	997	107		6.1	Α	-
	L	349	341	98	19	47.5	D	-
WB	T	879	888	101	16	23.8	С	-
	Subtotal	1228	1228	100	-	30.4	С	_
	Total	2440	2507	103		22.6	С	_



Analysis Period:

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

Existing Conditions

PHF:

1

TOD:

AM Peak Hr

Hourly

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

	200	Demand	٧	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Т	430	503	117	18	11.5	В	-
NB	R	64	62	97	5	4.4	Α	
	Subtotal	494	566	115	_	10.7	В	
	L	148	149	101	9	33.3	С	75.
SB	T	436	454	104	23	6.8	Α	-
	Subtotal	584	604	103	_	13.3	В	
	L	218	216	99	12	19.9	В	
EB	Т	1	2	200	1	22.0	С	
	R	167	168	101	14	3.5	Α	-
	Subtotal	386	386	100		12.7	В	_
	Total	1464	1555	106	_	12.2	В	

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd.

Type: Un-Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	86	82	95	11	16.6	С	399
NB	T	226	227	100	12	16.3	С	:
	R	1	2	200	1	14.4	В	-
	Subtotal	313	310	99		16.4	С	_
	L	17	18	106	4	22.0	С	/ee
SB	Т	251	248	99	16	22.3	С	S ==
5	R	378	378	100	30	16.5	С	:::
	Subtotal	646	644	100	_	18.8	С	
	L	309	318	103	17	52.3	F	
EB	Т	4	5	125	2	44.7	E	
	R	56	57	102	9	50.1	F	
	Subtotal	369	379	103	-	51.9	F	-
	L	1	1	100	0	7.5	Α	157
WB	Т	7	7	100	3	9.4	Α	1577
	R	18	20	111	2	6.9	Α	-
	Subtotal	26	28	108	_	7.5	A	-
	Total	1354	1361	101	_	27.3	D	



Project: Vista Canyon Ranch

HCM: 2000

Scenario:

Existing Conditions

PHF:

TOD:

AM Peak Hr

Hourly #

of Runs:

1

10

Intersection:	14: SR 14 SB Ramps & Via Princessa	Type:	Signalized

Analysis Period: __

		Demand	V	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	268	266	99	21	90.9	F	
NB	Т	655	682	104	18	4.8	Α	-
s	Subtotal	923	947	103	-	28.9	С	_
	Т	433	425	98	22	14.0	В	-
SB	R	848	852	100	34	9.7	Α	
	Subtotal	1281	1277	100	-	11.1	В	
	L	64	69	108	5	41.8	D	
WB	Т	1	1	100	ৰ	20.9	С	- tt.
	R	329	343	104	17	11,6	В	
	Subtotal	394	413	105	-	16.6	В	-
	Total	2598	2637	102		18.4	В	

Intersection: 15: SR 14 NB Ramps & Via Princessa Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Т	617	660	107	26	26.7	С	
NB	R	70	70	100	8	5.2	Α	-
	Subtotal	687	730	106		24.6	С	_
SB	L	204	202	99	18	39.6	D	
	T	293	303	103	12	7.8	Α	
	Subtotal	497	505	102	_	20.5	С	_
	L	306	317	104	11	26.4	С	
EB	Т	3	3	100	1	27.4	С	
	R	118	119	101	7	8.6	Α	
Subto	Subtotal	427	439	103	_	21.6	С	
	Total	1611	1674	104		22,6	С	_

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

Existing Conditions

PHF:

1

TOD:

PM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	296	301	102	18	41.1	D	
NB	Т	159	319	201	23	25.2	С	
	R	594	603	102	27	25.7	С	
	Subtotal	1049	1223	117		29.4	С	-
	L	131	131	100	12	48.0	D	**
SB T	Т	102	103	101	11	41.5	D	-
	R	67	71	106	8	11,3	В	-
	Subtotal	300	305	102		37.3	D	
	L	104	105	101	16	61.9	E	775.0
EB	Т	751	748	100	28	49.1	D	
	R	350	353	101	21	17.6	В	-
	Subtotal	1205	1207	100		41.0	D	
	L	120	122	102	12	61.5	Е	-
WB	Т	444	441	99	28	20.6	С	
	R	60	63	105	8	2.8	A	15.
	Subtotal	624	626	100	_	26.8	С	
	Total	3178	3361	106	_	33.8	С	_

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

		Demand	V	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Ĺ.	203	199	98	19	33.7	С	-
NB	R	3	4	133	2	16.0	В	-
Subt	Subtotal	206	203	99	_	33.3	С	
	Т	1109	1103	99	31	11.6	В	++>
EB	R	411	418	102	18	2.4	Α	-
	Subtotal	1520	1521	100	_	9.0	Α	-
	L	133	136	102	11	79.1	E	
WB	Т	421	419	100	16	12.4	В	, ;
	Subtotal	554	555	100	_	28.7	С	
	Total	2280	2279	100		16.0	В	_

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

Existing Conditions

PHF:

1

TOD:

PM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	T	404	409	101	18	22.8	С	
NB	R	244	244	100	16	8.3	Α	-
Subtotal	648	653	101	-	17.4	В		
	L.	229	228	100	15	45.8	D	
SB	T	301	349	116	23	9.6	А	-
	Subtotal	530	576	109	-	23.9	С	-
	L	803	807	100	26	25.7	С	-
EB	T	3	3	100	1	24.2	C	-
	R	313	312	100	17	5.8	A	-
Subtotal	Subtotal	1119	1121	100	- T-E	20.2	С	-
	Total	2297	2350	102	-	20.3	С	-

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd.

Type: Un-Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	1	1	100	0	11.4	В	
NB	Т	439	443	101	26	12.0	В	
	R	6	7	117	3	8.9	Α	
	Subtotal	446	451	101	_	11.9	В	-
	L	28	28	100	4	12.0	В	-
SB T R Subtotal	313	570	182	34	8.8	Α		
	R	23	22	96	4	8.1	Α	
	Subtotal	364	620	170		8.9	Α	_
	L	36	37	103	6	6.1	Α	-
EB	Ţ	1	2	200	1	8.2	Α	1000
	R	4	5	125	2	3.6	Α	
	Subtotal	41	43	105	-	5.9	Α	_
	L	3	3	67	2	5.3	Α	-
WB	Т	1	1	100	1	7,8	Α	-
	R	23	25	109	5	4,1	Α	
	Subtotal	27	29	107		4.4	Α	-
	Total	878	1143	130	-	9.9	Α	-



Analysis Period:

Project: Vista Canyon Ranch HCM: 2000

Scenario:

Existing Conditions

PHF:

TOD:

PM Peak Hr

Hourly # of Runs:

10

Intersection: 14: SR 14 SB Ramps & Via Princessa

Type: Signalized

1

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	132	125	95	8	48.8	D	
NB	Т	1041	1038	100	32	5.8	Α	
	Subtotal	1173	1163	99	_	10.4	В	-
SB	T.	663	660	100	22	19.0	В	-
	R	572	581	102	21	7.3	Α	1.55
	Subtotal	1235	1241	100		13.5	В	: .
	L	60	57	95	7	41.3	D	-
WB	Т	4	3	75	1	45.0	D	
	R	283	288	102	19	14,1	В	-
	Subtotal	347	348	100	-	18.8	В	-
	Total	2755	2752	100	7-	12.9	В	

Intersection: 15: SR 14 NB Ramps & Via Princessa Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Т	295	302	102	19	28.2	С	
NB	R	64	63	98	9	8.1	Α	
	Subtotal	359	365	102	-	24.7	С	-
	L	450	444	99	20	44.6	D	
SB	Т	273	276	101	22	10.8	В	
	Subtotal	723	720	100	_	31.7	С	
	L	878	864	98	17	29.6	С	-
EB	Т	1	1	100	1	43.3	D	-
	R	238	241	101	13	11.9	В	
	Subtotal	1117	1106	99	_	25.8	С	-
	Total	2199	2191	100		27.6	С	_

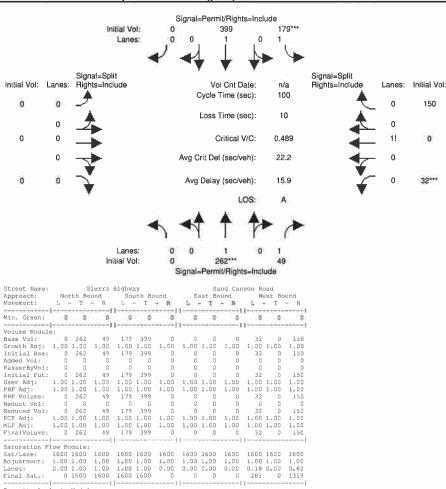
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Existing AM

150

0

32***

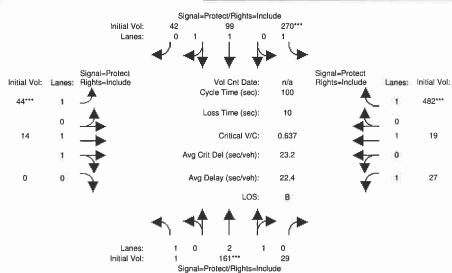
Intersection #1: Sand Canyon Road/Sierra Highway



Crit Moves:

Level Of Service Computation Report ICU 1 (Loss as Cycle Length %) (Future Volume Alternative) Existing AM

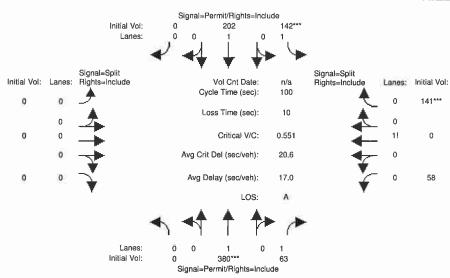
Intersection #16: Via Princessa/Lost Canyon Road



Street Name: Approach:		Lo	st Can	yon R	bac			\	/ia Pri	ncess	a	
Approach:	No	cth Bo	und	So	uth Bo	und	E	ast Bo	ound	W	est Bo	ound
Movement:												
Min, Green:												
							I					
Volume Modul	e:											
Base Vol:	1	161	29	270	99	12	4.4	14	0	27	19	482
Growth 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
Initial Bse:	1	161	29	270	99	12	4.4	14	0	27	19	482
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0		0			0
Initial Fut:	1	161	29	270	99	12	4.4	14	0	27	19	482
User 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
PHF 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
PHF Volume:	1	161	29	270	99				0			482
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	161	29	270	99	42	44	14	0	27	1.9	482
PCE 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
MLF 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
FinalVolume:									0			
****	1			j			1					
Saturation F	low M	odule:										
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1,00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.54	0.46	1,00	1.40	0.60	1.00	2.00	0.00	1.00	1.00	1.00
Final Sat.:											1600	
	1			1			1			1		1
Capacity Ana	LYSIS	Modul	.e ;									
Vol/Sat:								0.00	0.00	0.02	0.01	
Crit Moves:		4 + # #		***			****					****

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Existing PM

Intersection #1: Sand Canyon Road/Sierra Highway



Street Name: Approach:	**	5	ierra	Highwa	ay .			Sa	and Can	yon R	oad	
Movement:												
Movement:												
Min, Green:	0	D	. 0	0	0	9		0	. 0	0	.0	0
Volume Modul			-				1					
Base Vol:	0	380	63	142	202	0	0	0	0	58	0	141
Growth Adi:	1.00	1,00	1.00	1,00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	380	63	142	202	0	0	0	0	58	0	141
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	380	63	142	202	0	0	0	0	58	0	141
User 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
PHF 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
PHF Volume:	Q	380	63	142	202	0	0	0	0	58	0	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	380	63	142	202	0	0	0	0	58	0	141
PCE 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
MLF 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
FinalVolume:	0	380	63	142	202	0	0	0	G	58	0	141
Saturation F.												
Sat/Lane:				1600			1600				1600	
Adjustment:				1.00			1.00		1.00		1.00	
Lanes:			1 00				0.00				0.00	
Final Sat.:										466		1134
Capacity Ana.				1		1						
Capacity Ana. Vol/Sat: Crit Moves:	0.00	0.24	0.04	0.09	0.13	0.00	0.00	0.00	0.00	0-12	0.00	0.12

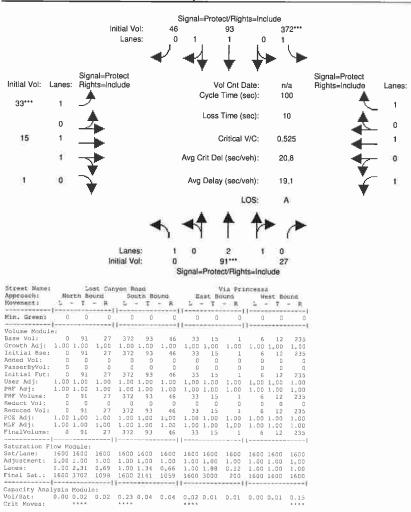
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Existing PM

Initial Vol:

235***

12

Intersection #16: Via Princessa/Lost Canyon Road



Level of service, LOS

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Overall results are not computed when free-flow speed is less than 55 mph.

Analyst:
Agency or Company: Fehr & Peers
Date Performed: 12/16/2008
Analysis Time Period: AM Peak Hour
Sreway/Direction: SR 14 NB
From/To:
Jurisdiction: Santa Clarita
Analysis Year:
Existing Conditions
Description: Vista Canyon Ranch Fax: Operational Analysis Phone: E-mail:

	Flow Inputs an	Flow Inputs and Adjustments	
Volume, V		1903	4/400
Peak-hour factor, PHF		26.0	
Peak 15-min volume, v15		512	>
Trucks and buses		ক	- 600
Recreational vehicles		0	0
Terrain type:		Level	
Grade		0.00	9/0
Segment length		0.00	E
Trucks and buses PCE, ET		10	Par ale
Recreational vehicle PCE,	65	0	
Heavy vehicle adjustment,		0.980	
Driver population factor,	τΩ	1.00	
Flow rate, vp		522	pc/h/ln
	Speed Inputs a	Speed Inputs and Adjustments	
Lane width Right-shoulder lateral clearance	earance	12.0	#
Interchange density		0.50	interchange/mi
The state of the state of		q	

Lane Width	12.0	44	
Right-shoulder lateral clearance	6.0	, <u>†</u>	
Interchange density	0.50	interchange/mi	
Number of lanes, N	4	in the second second	
Free-flow speed:	Measured		
FFS or BFFS	65.0	mi/h	
Lane width adjustment, flw	0.0	mi/h	
Lateral clearance adjustment, fLC	0.0	mi/h	
Interchange density adjustment, flD	0.0	mi/h	
Number of lanes adjustment, fN	٠. د.	mi/h	
Free-flow speed, FFS	65.0	mi/h	
	Urban Freeway		
LOS and Performance Measures	mance Measures		
Flow rate, vp	522	pc/h/ln	
Free-flow speed, FFS	65.0	m1/h	
Average passenger-car speed, S	65.0	m1/h	
Number of lanes, N	4		
Density, D	8.0	pc/mi/ln	

Level of service, LOS

N

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: E-mail:

Fax:

Operational Analysis

Analyst:
Agency or Company:
Date Performed:
Analysis Time Period:
Freeway/Direction:
From/To:

Agency or Company: Fehr & Peers
Date Performed: 12/16/2008
Analysis Time Period: AM Peak Hour
Freeway/Direction: SR 14 NB
From/To: Sand Canyon to Soledad Canyon
Jurisdiction: Santa Clarita
Analysis Year: Existing Conditions
Description: Vista Canyon Ranch

Flow Inputs and Adiustments

Volume, V	1700	rab/h	
Peak-hour factor, PHF	0.63		
Peak 15-min volume, v15	457	2	
Trucks and buses	****		
Recreational vehicles	0	o de	
Terrain type:	Level	174	
Grade	0.00	er	
Segment length	0.00	E	
Trucks and buses PCE, ET	5.1	- springs.	
	1 01		
Heavy vehicle adjustment, fHV	0.980		
lation factor,	1.00		
	622	pc/h/ln	

Lane width Right-shoulder lateral clearance 6.0 Interchange density 0.50 Interchange density 0.50 Interchange density 0.50 Free-flow speed: Measured FFS or BFFS Lane width adjustment, fLW 0.0 Lateral clearance adjustment, fLC 0.0 Interchange density adjustment, fID 0.0 Number of lanes adjustment, fN 3.0
--

Speed Inputs and Adjustments

LOS and Performance Measures	622		5 65.0	m	
1	Flow rate, vp	Free-flow speed, FFS	Average passenger-car	Number of lanes, N	Density, D

Overall results are not computed when free-flow speed is less than 55 mph.

Operational Analysis

Fax:

Phone: E-mail:

Fehr & Peers 12/16/2008 AM Peak Hour SR 14 SB Soledad Canyon to Sand Canyon From/To: Soledad Canyon to Sa Jurisdiction: Santa Clarita Analysis Year: Existing Conditions Description: Vista Canyon Ranch Agency or Company: Date Performed: Analysis Time Period: Freeway/Direction:

Flow Inputs and Adjustments

pc/h/ln veh/h 1.5 0.90 0.00 1.5 1.2 0.980 1.00 2908 Segment length
Trucks and buses PCE, ET
Recreational wehicle PCE, ER
Heavy vehicle adjustment, fHV
Driver population factor, fp
Flow rate, vp Volume, V Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type:

Measured 65.0 0.0 0.0 0.0 4.5 65.0 Urban Freeway 0.50 Lateral clearance adjustment, fLC Interchange density adjustment, fID Number of lanes adjustment, fN Free-flow speed, FFS Lane width
Right-shoulder lateral clearance
Interchange density
Number of lanes, N
Free-flow speed:
Free-flow speed:

pc/h/ln mi/h mi/h 60 Average passenger-car speed, Number of lanes, N Density, D Free-flow speed, FFS Flow rate, vp

Speed Inputs and Adjustments

ft ft interchange/mi 12.0

LOS and Performance Measures

1578 65.0 64.9 24.3

pc/mi/ln

HCS+: Basic Freeway Segments Release 5.21

		*	×
	Operational Analysis	nalysis	
Analyst: Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	PM Peak Hour		
Freeway/Direction:	SR 14 NB		
	Via Princessa	to Sand	to Sand Canvon
Jurisdiction:	Santa Clarita		
Analysis Year:	Existing Conditions	tions	

Volume, V	4367	wah/h
Peak-hour factor, PHF	20	
Peak 15-min volume, v15	0 0	,
Trucks and buses		> 4
Rarrant Long to the	r «	e c
CTEACTORE VEHICLES	0	de
rerrain type:	Level	
Grade	0.00	₩
Segment length	0.00	į
Trucks and buses PCE, ET	in H	
Recreational vehicle PCE, ER	0	
Heavy vehicle adjustment, fHV	086	
Driver population factor, fp	1.00	
	1563	pc/h/ln
Speed Inputs	Speed Inputs and Adjustments	
Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	m	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, flw	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fiD	0.0	m1/h
Number of lanes adjustment, fN	3.0	mt/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

pc/h/ln mi/h mi/h

1563 65.0 64.9 3

Flow rate, vp Free-flow speed, FFS Average passenger-car speed, S Number of lanes, N Density, D

pc/mi/ln

Level of service, LOS

Overall results are not computed when free-flow speed is less than 55 mph.

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Overall results are not computed when free-flow speed is less than 55 mph.

Fax: Operational Analysis Analyst: Agency or Company: Date Performed: Analysis Time Period: Freeway/Direction: Phone: E-mail:

Agency or Company: Fehr & Peers
Date Performed: 12/16/2008
Analysis Time Period: PM Peak Hour
SR 14 NB
Freeway/Direction: SR 14 NB
Srid Canyon to Soledad Canyon
Jurisdiction: Santa Clarita
Analysis Year: Existing Conditions
Description: Vista Canyon Ranch

Volume, V		3759	veh/h
Peak 15-min volume, v15		28.00	>
Trucks and buses		431	de
Recreational vehicles		0	de
Terrain type:		Level	
Grade		0.00	ob ob
Segment length		0.00	m
Trucks and buses PCE, ET		in the second	
	of	1.2	
Heavy vehicle adjustment, fi	FHV	0.980	
Driver population factor, fg		1.00	
Flow rate, vp		2018	pc/h/ln

ft ft interchange/mi TITITE TO THE 12.0 6.0 0.50 2 Measured 65.0 0.0 0.0 4.5 65.0 Urban Freeway Lane width
Right-shoulder lateral clearance
Interchange density
Number of lanes, N
Free-flow speed:
FFS or BFFS
Lane width adjustment, fLW
Lateral clearance adjustment, fLC
Interchange density adjustment, fLC
Number of lanes adjustment, fN
Free-flow speed, FFS

pc/h/ln mi/h mi/h pc/mi/ln LOS and Performance Measures 2018 65.0 61.1 2 Flow rate, up Free-flow speed, FFS Average passenger-car speed, S Number of lanes, N Density, D S

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HCS+: Basic Freeway Segments Release 5.21

Phone: E-mail:

X d

Operational Analysis

Analyst:

Febr & Peers 12/16/2008 PW Peak Hour SR 14 SB Soledad Canyon to Sand Canyon Santa Clarita Agency or Company:
Date Performed:
Analysis Time Period:
Freeway/Direction:

Jurisdiction: From/To:

Existing Conditions Analysis Year: Existing Description: Vista Canyon Ranch Flow Inputs and Adjustments

pc/h/ln veh/h 多道 1.5 1.2 0.980 1.00 675 Level 0.00 0.00 1906 0.96 496 ER fhV fp Trucks and buses PCE, ET
Recreational vehicle PCE, EI
Heavy vehicle adjustment, fi
Priver population factor, fi
Flow rate, vp Peak-hour factor, PHF
Peak 15-min volume, v15
Trucks and buses
Recreational vehicles Segment length Terrain type: Volume, V Grade

Speed Inputs and Adjustments

ft ft interchange/mi Urban Freeway Measured 65.0 0.0 0.0 0.0 3.0 85.0 0.50 12,0 Interchange density adjustment, fID Number of lanes adjustment, fN Free-flow speed, FFS Lateral clearance adjustment, fLC Lane width
Right-shoulder lateral clearance
Thterchange density
Number of lanes, N
Free-flow speed: FFS or BFFS Lane width adjustment, fLW

LOS and Performance Measures

pc/h/ln mi/h mi/h pc/mi/ln 675 65.0 65.0 10.4 Flow rate, vp Free-flow speed, FFS Average passenger-car speed, S Number of lanes, N Density, D

Level of service, LOS

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Overall results are not computed when free-flow speed is less than 55 mph.

Level of service, 10S

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Overall results are not computed when free-flow speed is less than 55 mph.

Fax: Phone: E-mail:

Operational Analysis

Analyst:
Agency or Company:
Date Performed:
Analysis Time Period:
Freeway/Direction:

Agency or Company: Febr & Peers
Date Performed: 12/16/2008
Analysis Time Period: PM Peak Hour
Freeway/Direction: SR 14 SB
From/To: Sand Canyon to Via Princessa
Jurisdiction: Santa Clarita
Analysis Year: Existing Conditions
Description: Vista Canyon Ranch

Volume, V	2143	toph/h
Peak-hour factor, PHF	9 9 9	
Peak 15-min volume, v15	0 00	
Trucks and buses	9) 4	· «
Recreational vehicles		e a
Terrain type:	Level	9
Grade	0.00	i de
Segment length	0.00	Ē
Trucks and buses PCE, ET	10 10 10 10 10 10 10 10 10 10 10 10 10 1	1
	2:1	
Heavy vehicle adjustment, fHV	0.980	
	1.00	
	569	pc/h/ln
Speed	Speed Inputs and Adjustments	
Lane width	12.0	44
Right-shoulder lateral clearance		14
Interchange density	0.50	interchange/mi
Number of lanes, N	**	
Free-flow speed:	Measured	
FFS OF BFFS	65.0	m1/h
Lane width adjustment, flw		mi/h
Lateral clearance adjustment, flc		m1/h
Interchange density adjustment,	fID	mI/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mt/h

LOS and Performance Measures	569 pc/h/ln 65.0 mi/h 65.0 mi/h	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
LOS ar	Flow rate, vp Free-flow speed, FFS Average passenger-car speed, S Number of lanes, N	00000

Leisch Method for Weaving Analysis

Project Information Project Information Scenario Existing Conditions - AM Freeway SR 14 NB On-ramp Golden Valley Rd W ₂) Off-ramp Sierra Hwy 352 10% 1.5	Figure Nb Sierra Hwy Capacity Analysis 1. Is the weaving section balanced (Y / N)? [If optional exit lane, then "\"." Otherwise "\".] 2. In the Weaving Speed Chart to the left, which two speed curves is the black "\" between? 45 MPH and 50 MPH If below the 50 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F. 3. Interpolated Weaving Speed (S _w , mph) 49.9 4. Weaving Intensity Factor (k) 5. Service Volume (SV, pcph) 5. Service Volume (SV, pcph) 5. Level of Service (LOS) A Capacity Analysis A 1.20 A 6. Level of Service (LOS) A
Data InputNumber of Entering Mainline LanesNb4Number of Lanes in Weaving Section (feet)N5Length of Weaving Section (V)On-ramp to Mainline (W1)Mainline to Off-ramp (W2)Total Weaving Section (V)On-ramp to Mainline (W1)Mainline to Off-ramp (W2)Volume (vph)*2,407Volume (vph)*500Volume (vph)*352Truck Percentage20%Truck Percentage20%PCE for Trucks1.5PCE for Trucks1.5PCE for TrucksPCE for Trucks1.5PCE for Trucks1.5Volume (pcph)2,888Volume (pcph)550Volume (pcph)387	4500

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections, Jack E. Leisch & Associates, September 1983. Fehr & Peers

Leisch Method for Weaving Analysis

Project Information Project Vista Canyon Ranch Scenario Existing Conditions - PM Freeway On-ramp Colden Valley Rd On-ramp 758 20% 1.5 834	Figure Nb Golden Vailey Rd Capacity Analysis 1. Is the weaving section balanced (Y / N)? If optional exit lane, then "Y". Otherwise "N".] 2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between? 45 MPH and 50 MPH If below the 50 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F. 3. Interpolated Weaving Speed (S _w , mph) 1.47 5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W ₁ , W ₂)] E. Level of Service (LOS)
Data InputNumber of Entering Mainline LanesNb3Number of Lanes in Weaving Section (feet)N4Length of Weaving Section (Weaving Section (W) *On-ramp to Mainline (W4,)Mainline to Off-ramp (W,)Total Weaving Section (V) *On-ramp to Mainline (W4,)Mainline to Off-ramp (W,)Yolume (vph)*5,643Yolume (vph)*330Yolume (vph)*758Truck Percentage40%Truck Percentage20%Truck Percentage20%PCE for Trucks1.5PCE for Trucks1.5PCE for Trucks1.5Yolume (pcph)6,772Yolume (pcph)330Yolume (pcph)834	4500 F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.
* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections, Jack E. Leisch & Associates, September 1983. Fehr & Peers

Leisch Method for Weaving Analysis

Project Information Project Information Project Vista Canyon Ranch Scenario Existing Conditions - PM Freeway SR 14 SB On-ramp On-ramp Sierra Hwy / Via Princessa Golden Valley Road 114 20% 1.5 1.5	Figure No Capacity Analysis 1. Is the weaving section balanced (Y / N)? If optional exit lane, then "Y". Otherwise "N".] 2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between? 45 MPH and 50 MPH If below the 50 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F. 3. Interpolated Weaving Speed (S _w . mph) 49.8 49.8 4. Weaving Intensity Factor (k) 5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W ₁ , W ₂)] B 6. Level of Service (LOS)
Data InputNumber of Entering Mainline LanesNb3Number of Entering Mainline Lanes in Weaving Section (feet)Nb3Length of Weaving Section (V)On-ramp to Mainline (W1)Mainline to Off-ramp (W2)Total Weaving Section (V)On-ramp to Mainline (W1)Mainline to Off-ramp (W2)Yolume (vph)*3,051Volume (vph)*1,269Volume (vph)*114Truck Percentage40%Truck Percentage20%Truck Percentage20%PCE for Trucks1.5PCE for Trucks1.5PCE for Trucks1.5Volume (pcph)3,661Volume (pcph)1,396Volume (pcph)125	4500 4000 30 MPH 40 MPH 45 MPH C C Weaving Volume (pcph) 50 MPH Balanced Section 0 500 1000 1500 2500 3000 3500 4000 4500 5000 L-Length of Weaving Section (feet)

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections , Jack E. Leisch & Associates, September 1983. Fehr & Peers

Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 542 Estimation of V12 Diverge Areas	L = (Equation 25-8 or 25-9) EQ P = 0.436 Using Equation 8 FD V = V + (V - V) P = 1216 pc/h 12 R F F R FD	Capacit Actual 2087 1545 542 435 pc/h	Is v v v > 2700 pc/h? No Is v v v > 2.5 v /2 No If yes, v = Flow Entering Diverge Influence Area Actual Max Desirable No 12 Level of Service Determination (if not F) Density, D = 4.252 + 0.0086 v - 0.009 L = 10.2 Lavel of Service for ramperseave throtton areas of termination	Speed Estimation D = 0.477 mean speed in ramp influence area, S = 54.0 mph mean speed in outer lanes, S = 71.3 mph mean speed for all vehicles, S = 60.1 mph	
HCS+: Ramps and Ramp Junctions Release 5.21	Phone: E-mail: Diverge Analysis	Analyst: Agency/Co.: Fehr & Peers Bate performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 NB Junction: Santa Canyon Rd Santa Clarita Analysis Year: Existing Conditions Description: Vista Canyon Ranch Freeway Dara	Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Volume on ramp Free-Flow speed on camp Free-Flow	No nder Base C reeway 903 93	ET 1.2 1.2

pc/mi/ln

pcph

HCS+: Ramps and	nd Ramp Junctions Release 5.21	Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 269
		Estimation of V12 Merge Areas
		L = (Equation 25-2 or 25-3)
rhone: E-mail:	:: x e _{la}	P = 0.591 Using Equation 1 FM v = v (P) = 956 no/h
	Merge Analysis	2 F FM
		Cápacity Checks
Analysis time period: AM Peak Hour Freemav/Dir of Travel: GB 14 NB		Actual Maximum 1886 7050
	NG B	ro v v 661 pc/h (Equation 25-4 o
Analysis Year: Existing Conditions Description: Vista Canyon Ranch	ditions	3 or av34 > 2700 pc/h?
22.5	Freeway Data	3 or av34 > 1.5 v /2
	Merge	If yes, v = (Equation 25-8)
Number of lanes in freeway		
Volume on freeway	85.0 mph 1474 vph	Flow Entering Merge Influence Are Actual Max Desirable
uO	On Ramp Data	
do of	140	Level of Service Determination (if not F
Number of lanes in ramp	1277	Depait v D = 5 475 + 0 00734 v ± 0 0078 v
		R 12
Volume on ramp Length of first accel/decel lane	526 vph	reas of infl
	43	Speed Estimation
Adjacent Ramp Data	mp Data (if one exists)	Intermediate speed variable, M = 0.299
Does adjacent ramp exist?	No	Space mean speed in ramp influence area, S = 58.1
Position of adjacent Ramp	,	Space mean speed in outer lanes, S = 64.4
Distance to adjacent Ramp	£t.	Space mean speed for all vehicles, S = 60.2
Conversion to pc/h Under	/h Under Base Conditions	
Junction Components	Freeway Ramp Adjacent	
Volume, V (vph) Peak-hour factor, PHF	1474 226 Kamp vph 0.93 0.85	
Peak 15-min volume, v15 Trucks and buses	396 66 4	
Recreational vehicles Terrain type:	0 Level	
Grade	or E	
Trucks and buses PCE, ET Recreational vehicle PCE, ER	1.5	

	2100	1987	Act and a second	•	- DO - DO -	
	ACCURT	* D	Maximum		24 507	
5	1886		7050	***	No	
FO					020	
3 or av34	661	pc/h	(Equation 25-4	25-4 01	or 25-5)	
Is v v v 3 or av34	4 > 2700 pc/h?		No			
Is v v v 3 or av34	> 1.5 v //2		No			
0.1			(Equation 25-8)	25-8)		
	Flow En	tering Mer	Entering Merge Influence Area	on Bras		
12		Max D 4400 ce Determi	Max Desirable 4400 termination (if	not F)	Violation? No	
Density, D = 5.	Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = Level of service for ramp-freeway junction areas of influence	+ 0.0078 ay junctio	v - 0.00627 L 12 on areas of infl	627 L A influe	* 11.8 nce B	pc/mi/ln
	ď	Speed Estimation	tion			
Intermediate speed variable,	eed variable,		M	0.299		
Space mean speed	d in ramp influence area,	nce area,	100	58.1	нфш	
Space mean speed	d in outer lanes,		#	64.4	чдш	
Space mean speed	d for all vehicles,	es,	111	60.2	чаш	

hcph

1.00

Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 3155 398	Estimation of V12 Diverge Areas	EQ (Equation 25-8 or 25-9) EQ P = 1.000 Using Equation 0 V = V + (V - V) P = 3155 pc/h 12 R F R FD	× × ×	Is v v v 2700 pc/h? No Is v av34 > 1.5 v /2 No If yes, v = (Equation 25-18)	V Actual Max Destrable Violation? 3155 Level of Service Determination (1f not F) Level of service to ramp-freeway junction areas of influence C	Intermediate speed variable, D = 0.464 Space mean speed in ramp influence area, S = 54.3 mph Space mean speed in outer lanes, S = N/A mph	mean speed for all vehicles, S = 54.3
HCS+: Ramps and Ramp Junctions Release 5.21		Phone: E-mail: Diverge Analysis	Analyst: Agency/Co.: Febr & Peers Date performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 SB Junction: Sand Canyon Rd Jurisdiction: Santa Clarita Analysis Year: Existing Conditions Description: Vista Canyon Ranch	Type of analysis Number of lanes in freeway 25.0 mph Volume on freeway 65.0 wph Olume on freeway 0ff Ramp Data	el lane cel lane Adjacent Ramp Data	Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp Conversion to pc/h Under Base Conditions	Junction Components Freeway Ramp Adjacent Volume, V (vph) 2908 355 Ramp vph Peak Hour factor, PHF 0.94 0.90 v Paak l5-min volume, v15 773 99 v Trucks and buses 4 2 * Recreational vehicles 0 0 0 Trucks and buses PCE, ET 1.5 * Trucks and buses PCE, ET 1.5 mi Recreational vehicle PCE, ER 1.2 1.2

pc/mi/ln

pcph

Qi.

HCS	HCS+: Ramps and Ramp Junctions Release 5.21	ions Release 5.21	Heavy vehicle adjustm Driver population fac Flow fate, vp
Phone: E-mail:	X C Is		23 A
	Merge Analysis		> "
	Fehr & Peers 12/16/2008		
eriod: Travel:	AM Peak Hour SR 14 SB Sand Canyon Rd		> > >
Jurisdiction: Analysis Year: Description: Vista Canyon Ranch	Santa Clarita Existing Conditions on Ranch		3 or av34 > 3 or av34
	Freeway Data		18 v v v 18 18 18 18 18 18 18 18 18 18 18 18 18
Type of analysis Number of lanes in freeway			N
Free-flow speed on freeway Volume on freeway	y 65.0	ngh Agv	
	On Ramp Data		V C.
Side of freeway	Right		
Free-flow speed on ramp	35.0	tion	Density, $D = 5.475 + ($
Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	1 lane 1500	yph ft	Level of service for
	Adjacent Ramp Data (if one exists)	ne exists)	Intermediate speed var
Does adjacent ramp exist?	No		Space mean speed in re
Volume on adjacent Ramp Position of adjacent Ramp		hph	mean speed
Distance to adjacent Ramp		it.	Space mean speed for a
Conver	Conversion to pc/h Under Base Conditions	Conditions	
Junction Components	Freeway	Ramp Adjacent	
Volume, V (vph) Peak-hour factor, PHF	2553	725 ramp vph 0.88	
Peak 15-min volume, v15 Trucks and buses	679	206	
Recreational vehicles Terrain type:	0 Level	9	
h buses PCE, ET	1.5	m, mi	
	1.2	1.2	

		2770	832	hoph
	Estimation	Estimation of V12 Merge	a Areas	
	1 1	(Equation 25-2	2 or 25-3)	
	P = 1.000	Using Equation	0 5	
	v = v (P) = 12 F FM	2770 pc/h		
	Car	Capacity Checks		
> CE	Actual 3602	Maximum 4700	NO NO	
3 or 3034	o o	pc/h (Equation	on 25-4 or 25-5)	
V V	> 2700 pc/h?	No		
or av34	> 1.5 v /2	No		
24		(Equation	on 25-8)	
	Flow Enter	Entering Merge Influence Area	uence Area	
v 12	Actual 2770	Max Desirable 4400	e Violation?	12
2	Level of Service	Determination	(if not F)	
Density, D = 5.475 + $\frac{R}{R}$ Level of service for		0.00734 v + 0.0078 v - 0.000 ramp-freeway junction areas of	- 0.00627 L = 23.8 A eas of influence C	pc/mi/ln
	Speed	Speed Estimation		
Intermediate speed	speed variable,	20 6	- 0.359	
Space mean speed in	in ramp influence area,	01	= 56.7 mph	
Space mean speed in	mean speed in outer lanes,	* o °	= N/A mph	
Space mean speed for	for all vehicles.	50	= 56 7 mph	

hcph

	1 TO	Maximum	100 00	
1 1	7 200	THE WAY OF THE PARTY OF THE PAR	103 83	
1	BC77	9400	No	
	4 4 4 4			
A 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1720	9400	No	
e es	534	2000	No	
Α .	485 00/0	/h (Founting 35_15 on 36 act	200	
3 or av34			197-67 30 61	
Is v v v is 3 or av34	> 2700 pc/h?	No		
	> 1.5 v /2	No		
3 or av34	12	i		
If yes, v = 12A		(Equation 25-18)	18)	
۸	Actual 1284	Max Destrable	Violation?	
12				
	Level of Service 1	Level of Service Determination (if not F)	t F)	
Density,	D = 4.252 + 0.0086	0.0086 v - 0.009 L	= 10.8	pc/mi/ln
evel of service	R for ramp-freeway j	R 12 D Level of service for ramp-freeway junction areas of influence	m	
	Speed	Speed Estimation		
Intermediate speed variable,	d variable,	D = 0.476	9	
pace mean speed	Space mean speed in ramp influence area,	t/s	цdш	
Space mean speed in outer lanes,	in outer lanes,	S = 71.3	щор	
pace mean speed 1	Space mean speed for all vehicles,	S = 60.3	que	

HCS+: Ramps at	HCS+: Ramps and Ramp Junctions Release 5.21	5,21	Heavy vehicle adjustment, Driver population factor, Flow rate, vp	fhv fP	0.980 1.00 4689	0.990 1.00 1256
				Estimation o	Estimation of V12 Diverge Areas	Areas
Phone: E-mail:	Fax:			0.585 USI	(Equation 25-8 o Using Equation	or 25-9) 5
TG.	Diverge Analysis		64	es Gu	£.	
Analyst: Agency/Co.: Date performed: 12/16/2008 Analysis time period: Freeway/Dir of Travel: SR 14 NB Junction: Sand Canyon Rd Jurisdiction: Existing Conditions Description: Vista Canyon Ranch	r Rd ta nditions		4 5 14	Capaci Actual 4689 3433 1256 1425 pc/h	capacity Checks Maximum 7050 7050 2000 2000 pc/h (Equation 25-15	LOS NO NO NO 25-15 or 2'
	rreeway Data		3 or av34			
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Diverge 3 65.0 mg 4367 vg	uộu Vật	Is v v > 2700 pc/h? Is v av34 > 1.5 v /2 If yes, v = 12A	pc/h? /2 12	No No (Equation 25-18)	25-18)
Side of freeway Number of lanes in ramp Free-Flow speed on ramp	Right 1 35.0	че	Flow Actu	w Entering D ual M	Flow Entering Diverge Influence Actual Max Desirable 3264 4600	nce Area Vio
Volume on ramp Length of first accel/decel lane	1119 vg	vph	Jevel of	Service Det	Service Determination (if not	f not F)
second accel/de	ne exists)		Density, B R Level of service for ramp	= 4.252 + 0.	D = 4.252 + 0.0086 v - 0.009 L = R 12 D D ramp-freeway function areas of influence	D D I = 10fluence
Does adjacent ramp exist?	No			Speed Es	Speed Estimation	
Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp	ľa.	ųďa	Intermediate speed variable,	1 .	P 0	0.541
Distance to adjacent ramp	ft	ن ن	Space mean speed in ramp	in ramp influence ar	1	52.6 mph
Conversion to pc/h Under Base	c/h Under Base Conditions		Space mean speed in outer lanes,	lanes,	1	69.6 mph
Junction Components	Freeway Ramp	Adjacent	Space mean speed for all	vehicles,	n O so	= 56.8 mph
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	4367 1119 0.95 1149 311 4 0 0.96 0.00 0.00 0.00 0.00 0.1.5 1.2					

>">"	Actual	Maximum		
* * * * * * * * * * * * * * * * * * *	11100000000	The same of the sa	LOS E2	
z	4689	7050	No	
2 ~	3433	7050	No	
~				
œ	1256	2000	No	
	1425 pc/h		(Equation 25-15 or 25-16)	
3 or av34				
	> 2700 pc/h?	No		
3 or av34				
	> 1.5 v /2	No		
3 or av34	12			
If yes, v =		(Equation 25-18)	5-18)	
12A	6			
	Actual	Max Desirable	Violations	
	4305	4600		
22			2	75
	Level of Service De	Determination (if not F)	not F)	
Density.	D = 4.252 +	# 0 0086 v = 0 009	27.9	na/mi/1n
	α	- 5		Per/ 1111 / 111
Level of service	for ram	inction areas of	Influence C	
	Speed	Speed Estimation		
Intermediate speed variable,	ed variable,	D = 0.541	541	
Space mean speed	in ramp influence area,	.60	.6 mph	
Space mean speed	in outer lanes,	8 S = 69,6	.6 mph	
Space mean speed	for all vehicles,	S 0 8		

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Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, FP 1.00 1.00 Flow rate, vp	Estimation of V12 Merge Areas EQ	00 pc/ 00 c/ / c/ c	Flow Entering Merge In Actual Max Desira 3525 Level of Service Determination D = 5.475 + 0.00734 y + 0.0078 y - R Service for ramp-freeway junction are Speed Estimation	Space mean speed in ramp influence area, S = 53.4 mph Space mean speed in outer lanes, S = N/A mph Space mean speed for all vehicles, S = 53.4 mph	
HCS+: Ramps and Ramp Junctions Release 5.21	Phone: E-mail: Maria Inalveta	Analyst: Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/bir of Travel: SR 14 MB Junction: Sand Canyon Rd Analysis Year: Existing Conditions Description: Vista Canyon Ranch Freeway Data	Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway Side of freeway Number of lanes in ramp Number of lanes in ramp Volume on ramp Volume on ramp Length of second accel/decel lane Adjacent Ramp Data (if one exists)	Does adjacent ramp exist? Volume on adjacent Ramp Fosition of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to pc/h Under Base Conditions	Volume, V (vph) Volume, V (vph) Volume, V (vph) Volume, V (vph) Ramp Vph Ramp Ramp Vph Vph Vph Ramp Vph Vph Vph Vph Vph Vph Vph V

pc/mi/ln

pcph

Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 2025 266	Estimation of V12 Diverge Areas	10 (Equation 25-8 o	FD $V = V + (V - V)$ P = 1492 pc/h	Capacit	Actu	F1 F V = V 1759 7050 No F0 F R		v v 533 pc/h (Equation 25-15 or 25-16)	5		10 m 10 m		347	, n	R 12 D D service for ramp-freeway junction areas of influence B	Speed Estimation	Intermediate speed variable, D = 0.452	Space mean speed in ramp influence area, S = 54.6 mph	Space mean speed in outer lanes, S = 71.3 mph	Space mean speed for all vehicles, S = 58.2 mph	
HCS+: Ramps and Ramp Junctions Release 5.21		Fax	Diverse Analysis		98 four	on Rd Elta	Existing Conditions on Ranch	Freeway Data	Diverge		1906 vph	Off Ramp Data	Right 1 mph 35.0 mph		Adjacent Ramp Data (if one exists)	No	rrd's	ft	Conversion to pc/h Under Base Conditions	Freeway Ramp Adjacent	1906 224 vph 0.96 0.85 4.96 66 6 0.8 6 0 1.8vel Eevel \$ 8 0.00 mi mi 1.5 1.2
HCS+: Ramps		Phone	E-mail:		Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: PM Peak Hour		Analysis Year: Description: Vista Canyon Ranch		Type of analysis	Number of lanes in freeway Free-flow speed on freeway	freeway		Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp	Length of first accel/decel lane Length of second accel/decel lane	Adjacent	Does adjacent ramp exist?	Position of adjacent ramp Type of adjacent ramp	Distance to adjacent ramp	Conversion to	Junction Components	Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER

pc/mi/ln

pcph

Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 1787 475	Estimation of V12 Merge Areas	L = (Equation 25-2 or 25-3) EQ P = 0.619 Using Equation 1	v = v (P) = 1107 pc/h 12 F FM	Capacity Checks	v 2262 7050 No F7	v v v 680 pc/h (Equation 25-4 or 25-5) Is v v v v v x > 2700 pc/h? No	3 or av34 1.5 v /2 No	If yes, $v = (Equation 25-8)$ 12A	Flow Entering Merge Influence Area Actual Max Desirable Violation?	12 Town of Carvine Dataminetics (if not E)		Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 $_{\rm L}$ = 8.2 $_{\rm R}$ Level of service for ramp-freeway junction areas of influence A		Intermediate speed variable, M = 0.235	Space mean speed in ramp influence area, S = 59.6 mph Space mean speed in outer lanes, S = 64.4 mph Space mean speed for all vehicles, S = 60.9 mph			
HCS+: Ramps and Ramp Junctions Release 5.21		Phone:	Merge Analysis		Date performed: 12/16/2008 Analysis time period: PM Peak Hour Freeway/Dir of Travel: SR 14 SB	Sand Santa Exist	- 1	Type of analysis Number of lanes in freeway	Free-flow speed on freeway 65.0 mph Volume on freeway 1682 vph	On Ramp Data	Side of freeway	of lanes in ramp low speed on ramp on ramp 461	Length of second accel/decel lane 1500 ft	Adjacent Ramp Data (if one exists)	Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	Conversion to pc/h Under Base Conditions	Junction Components Freeway Ramp Adjacent	Volume, V (vph) Peak-hour factor, PHF 0.96 0.96 0.96 Peak-hour factor, PHF 0.96 0.96 0.98 Trucks and buses v15 4 2 4 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6

pc/mi/ln

hcph

HCS+: Ramps and Ramp Junctl	amp Junctions Release 5.21	Heavy vehicle adjustment, fHV Driver population factor, fP Flow rate, vp	0.980 1.00 5280	0.990 1.00 1160
		Esti	Estimation of V12 Diver	Diverge Areas
			(Equation 25-8	or 25-9)
Fnone: E-mail:	: X et	P = 0.575	'5 Using Equation	
Diverg	Diverge Analysis	V = V + (V 12 R R	r - v) F = 3528	pc/h
Analyst: Agency/Co.: Fehr & Peers			Capacity Checks	
med: 12/10 me period: PM Pe		>	Actual Maximum 5280 7050	LOS
		Fi F v = v = v 50 F P		No
Vista Cany	Lons		2000	No
	Freeway Data	3 or av34	pc/h	(Equation 25-15 or 2
Type of analysis	Diverge		No	
Number of lanes in freeway Free-flow speed on freeway	90)	, à	No	
Volume on freeway	4918 vph		(Equati	(Equation 25-18)
Off Ra	Off Ramp Data	W27		
Side of freeway Number of lanes in ramp Free-Flow scheed on ramp	Right 1	Flow Entering Actual 9528	ering Diverge Influence Area Max Desirable 4600	uence Area Viol
Volume on ramp Length of first accel/decel lane	1091 500 Ft	12 Level of Serv	of Service Determination (if not	(if not F)
Length of second accel/decel lane		Density, D = 4.2	- 0	e 7 600.0
Adjacent Ramp Data	Data (if one exists)	Level of service for ramp-free	for ramp-freeway junction areas of influence	D of influence
Does adjacent ramp exist? Volume on adjacent ramp	No Vph		Speed Estimation	
Position of adjacent ramp Type of adjacent ramp		Intermediate speed variable,	Ω **	= 0.532
Distance to adjacent ramp	ft	Space mean speed in ramp influence area,	(n	= 52.8 mph
Conversion to pc/h Under Base	Inder Base Conditions	Space mean speed in outer lanes,	K (1)	= 68.4 mph
Junction Components	Freeway Ramp Adjacent	Space mean speed for all vehicles,	S	= 57.1 mph
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Texrain type: Grade Grade Trucks and buses PCE, ET Recreational vehicle PCE, ER	4918 1091 vph 0.95 0.95 v 1294 287 v 0 0 0 ## 1.20 mi 0.00 mi mi 1.2 1.2 1.2			

	Actual	Maximum	LOS F7	
A = >	5280	7050	C	
Fi	高 特別		2	
V = V = V	4120	7050	No	
) EE	1160	2000	No	
3 or av34	1752 pc/h	(Equation 25-15	-15 or 25-16)	
Is v v 3 or av34	> 2700 pc/h?	No		
Is v v v 3 or av34	> 1.5 v /2 12	No		
If yes, v = 12A		(Equation 25-18)	-18)	
12	Actual Nav Destrable 4600 3528 4600 Carvire Determination (17 mar)	Max Desirable 4600	Violation?	
Density, Level of service	D=4.252+0.0086~y-0.009~L=3 Service for ramp-freeway junction areas of influence D	D = 4.252 + 0.0086 v - 0.009 R 12 mp-freeway junction areas of in	0.1	pc/mi/ln
	Speed Es	Speed Estimation		
Intermediate speed variable,	d variable,	D = 0.532	25	
Space mean speed in	in ramp influence area,	(A)	udm 1	
Space mean speed	in outer lanes,	S = 68.4 0	шbh	
Space mean speed	Space mean speed for all vehicles,	S = 57.1	цаш	

pcph

1.00

HCS+: Ramps	HCS+: Ramps and Ramp Junctions Release 5.21	Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 756
		Estimation of V12 Merge Areas
Phone: E-mail:	Fax: Merge Analysis	L = (Equation 25-2 or 25-3) EQ P = 0.283 Using Equation 4 FM V P P = 0.283 pc/h
Analyst: Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: Freeway/Dir of Travel: SR 14 SB Junction: Via Princessa Santa Clarita Analysis Year: Description: Vista Canyon Ranch	eers 08 Hour cessa arits Conditions	av34 > 2700 pc/ av34 > 1.5 v /
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Merge 4 65.0 mph 1782 vph On Ramp Data	If yes, v = 757 (Equation 25-8) Flow Entering Merge Influence Area Actual Max Desirable V V N N N N N N N N N N N N N N N N N
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane Adjacent	Right 1 35.0 mph 711 vph 711 ft cel lane 500 ft Adjacent Ramp Data (if one exists)	Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L * R L2 R L2 R L2 R L2 R L2 L Evel of service for ramp-freeway junction areas of influence for speed variable, R = 0.304
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to pc/h Under	No vph ft pc/h Under Base Conditions	Space mean speed in ramp influence area, S = 58.0 mg Space mean speed in outer lanes, S = 64.8 mg Space mean speed for all vehicles, S = 60.7 mg
Volume, V (vph) Peak-hour factor, PHF Peak-hour factor, PHF Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	Freeway Ramp Adjacent 1782 711 Ramp vph 0.96 0.95 464 187 v 4 2 8 0 0 Level \$ 8 8 1.5 mi mi mi	

	Actual		Maximum	TOS	5.5	
>	2649	0	9400	No		
FO						
-	619	bc/h (Equation	(Equation 25-4 or 25-5)	-5)	
3 or av34						
٨	> 2700 pc/h?	Z	No			
3 or 4v34						
IS v v SI	> 1.5 v /2	>+	Yes			
or av34	12					
If yes, v = 757		5	(Equation 25-8)	25-8)		
	Flow Ent	Flow Entering Merge Influence Area	e Influen	ce Area		
	Actual	Max De	Max Desirable	Vio	Violation?	
× *	757	4400		No		
		Company of the Company	With the Contract of the Contr	10000		44
90	nevel of service	e Determin	Determination (if not F)	not F)		
Density, $D = 5.475$	D = 5.475 + 0.00734 v	+ 0.0078 v	12 - 0.00627 L	627 L =	13.8	pc/mi/ln
Level of service for	ramp-free	y junction	areas of	influence	m	
	Spe	Speed Estimation	lon			
Intermediate speed variable,	variable,		M = 0.304	304		
Space mean speed in ramp influence area,	ramp influer	ce area,	ii.	58.0 mph		
Space mean speed in	mean speed in outer lanes,		.11	64.8 mph		
Space mean speed fo	mean speed for all vehicles.	7.65	S == 60.7	0.7 mpb		

hapa

APPENDIX B:

SUBAREA MODEL VALIDATION SPREADSHEETS

number							NB/EB								SB/WB				
	segment	from	to	Model	Traffic	Date Collected	Model /	Allowable Deviation D	Within M Deviation C	Model D	Difference Squared	Model	Traffic	Date Collected	Model	Allowable	Within	Model	Difference
										-				name of the					ndomina.
S	Sand Canyon Rd	Lost Canyon Road	SR 14 Ramps	4,020	5,728		0.70	0.20	Wo	-1.708	2.917.264	4.315	5.255		0.82	0.00	Vac	040	883 600
S	Sand Canyon Rd	Road Runner Road	Lost Canyon Road	3,665	4,446		0.82	0.22	Yes	-781	609.961	3,970	4.890		0 84	0.23	200	000	000,000
Ja	Jake's Way	Canyon Park Blvd	Jake's Way	6,834	2,569		2.66	0.26	No	4.265	18 190 225	6.802	2 887		New Street	92.0	No.	3 0 4 5	304,040
Š	Sierra Highway	Sandy Drive	Soledad Canyon Road	15,214	17,245		0.88	0.14	Yes	-2.031	4 124 961	13.809	17.804		0 78	770		900	15,327,525,01
3	Via Princessa	South	SR-14 Ramps	4,934	6,224		0.79	0.18	200	-1.290	1.664.100	4.627	6.513		0.71	4	No.	0 0	3,556,006
कॅ	Sierra Highway	Soledad Canyon Road	North	11,301	12,671	5005	0.89	0.14	Yes	1.370	1.876.900	11.343	12.671	2005	000	2 7	Voc	000,1	4 769 684
Š	Sierra Highway	Soledad Canyon Road	South	13,809	19,446	5005	0.71	0.14	No	-5.637	31 775 769	15.214	19 446 2005	2005	0.78	7		070,1	17,000,004
S	Soledad Canyon Road Sierra Highway	Sierra Highway	East	14,768	13,425	2004	1.10	0.14	Yes	1.343	1 803 649	14 949	13 425 2004	2004	1 4 4	. 5	Voe	103,4	20,000,02
Sa	Sand Canyon Rd	Soledad Canyon Road	North	4,254	3,540	2005	1.20	0.24	Yes	714	962 609	4 297	3 540 2005	2005	12	2 2	3	757	6,522,070
Sa	Sand Canyon Rd	Soledad Canyon Road	South	10,606	13,505 2005	5005	0.79	0.14	No	-2 899	8 404 201	13 432	13 505 2005	2005	000	177	3	2 5	240,000
S	Soledad Canyon Road White's Canyon	White's Canyon	Sierra Highway	25,676	25,050 2004	5004	1.02	0 14	Yes	626	391.876	27.231	25 050	2004	00	7 7	200	2 7 0	755 754
S	SR 14 NB	South of Sand Canyon Rd		59,735	57,181 2004	2004	104	0.14	Yes	2.554	6.522.916	i			2		1	- - - - -	1,00,00
ry.	SR 14 SB	South of Sand Canyon Rd		59,303	56,136 2004	2004	1 06	0.14	Yes	3,167	10,029,889								
				255,132	256,216		dia Confidence	Model/Count Ratio =		1.00	i i	141,238	144,036			Model/Co	Model/Count Ratio =	96.0	
						Lei celli Mi	Percent Roo	verilli Calidans Maximum Deviation = Percent Root Mean Square Error =		14%	×12% ×30%			Percent W	ithin Caltrar	Percent Within Caltrans Maximum Deviation	Deviation =	%2%	>75%
							ပိ	Correlation Coefficient =		0.99	>0.88					Correlation Coefficient	nefficient =	0.94	88.04

400,252	Model/Count Ratio =	0.99	
	Percent Within Caltrans Maximum Deviation =	%59	>75%
	Percent Root Mean Square Error =	16%	<30%
	Average Correlation Coefficient =	0.967	>0.86
	Total Count 26		
	Ink Within Doulation 17		

<u>5</u> 8 4

Total Count Link Within Deviation Link Outside Deviation

<u>4</u> e c

Total Count Link Within Deviation Link Outside Deviation

6 Link Within Devlation Link Outside Deviation

Model	
Enhanced	
	ı
Validation	N GINGALIOII
Volumo	
House	2
Dook	500
MV	

184,041 96,721 94,864 2,401 54,644 48,400 23,716 259,081

429 -311 -308 -738 -738 -738 -154 -154 -509

Yes Yes

259,081 100 156,816 25,600 2,704

Yes Yes

18,769 94,864 1,509 47,961 207,025 44,400 172,900 123,904 122,801 172,900 123,904 14,001 14,161 14,161 14,161 14,161 14,161 14,161 14,161 14,161 16,163 16,1

Yes

Yes Yes Yes

number	segment	from	91	Model	Traffic	Date	Model	Allowable	Within	Model	Difference	Model	Traffic	Date	Model	Allowable
-			2	Volume	Ĭ	Collected	Count	Deviation	Deviation	- Count	Squared	Volume	Count	Collected	/Count	Deviation
Sierra	Sierra Highway	South	Sand Canyon Rd	105	311		350	0.60	190	-206	42,436	149	578		950	0.45
Sierra	Sierra Highway	Sand Canyon Rd	North	335	228		1.47	09'0	Yes	107	11 449	267	578		57.0	0.45
Sand	Sand Canyon Rd	Sierra Highway	East	209	487		0.43	090	Yes	A7C-	77 284	246	P 2 3		740	2.0
Sand	Sand Canyon Rd	South	Soledad Canvon Road	519	306		A Tree	090		2 5	26.260	200	1 4 6		0.0	4.0
Sand		Soledad Canvon Road	North	395	4 020		200	0.00		200	000,04	400	3 3		4-	0.60
Soleds	Road	Sand Canyon Rd	100	200	1040		20.0	0.37		450	907,109	325	1,063			0.36
Solog	_	Sand Carried Bar	1507	160	1,040	Ì	0.00	0.3/	Yes	/61-	24,649	1,088	868		1.25	0.39
	_	Sand Canyon Rd	West	CO D	1,048		0.92	0.37	Yes	-83	6,889	714	868		0 82	0.39
Sand		South	SR-14 NB Ramps	333	674		0.49	0.43	1	-341	116,281	314	823			0.40
Sand	Sand Canyon Rd	SR-14 NB Ramps	North	571	821		0.70	0.40	Yes	-250	62 500	370	745			0.43
SR 14	SR 14 NB Ramp	SR-14 NB	Sand Canyon Rd	415	463		080	0.60	\ \ \ \ \	000	2000	5	}			74.7
SR 14	SR 14 NB Ramo	Sand Canvon Ret	SP-14 NB	222	800		000	3 6	2 2	f	100 y					
Pues		Openity Company	2000	2000	200		000	0.00	res	ņ	2					
2		-	Lost Carlyon Road	200	324		0.83	09.0	Yes	-24	9/9	303	304		1.00	09.0
Sand		Lost Canyon Road	North	333	284		0.57	0.45	Yes	-251	63,001	314	823		-	0.40
Lost C		Sand Canyon Rd	East	14	22		0.64	09:0	Yes	φ	64	36	26		1.38	0.50
Lost C	Lost Canyon Road	Sand Canyon Rd	West	0	629		404	0.43	N.	850	134 384	3	2 6		3	00.0
Sand		Placerita Canvon Road	Zoda Zoda	4	AR		12.4	000		9 6	200	,	0 1			0.00
Placer	Poad	Sand Canyon Bd	West	900	ř		200	00.00		67-	3	en.	263			0.60
CD 44 ND		TO CONTROL OF THE O		2007	0.000		000	00.0	55	45	961.	45	76			0.60
200		South of Sally Carryon Ru		2,130	2,000,2	5004	107	0.28	Yes	130	16,900					
SK 14 SB		South of Sand Canyon Rd			74	2004						5,501	5.364		1.03	0.20
SR 14	_	SR 14 SB	Soledad Canyon Road	480	281		- 20.00	0.60	180	199	39 601	1 182	854		1 26	0.00
Soled	Soledad Canyon Road	SR 14 SB Ramps	East	425	427		1.00	0.60	Yes	3 5	A CONTRACTOR	100	107		2 4	200
Solect	Soledad Canvon Road	SR 14 SB Ramos	West	1 088	4 423		700	90.0	200	1 4		200	101,1		2 :	40.0
Colar		Some Liebuse	-	200.1	771		100	0.33	res	45-	1,135	188	931		96 0	0.38
1000		Signal lightway		141	244		690	0.40	Yes	-97	6,409	1,650	1,431		1.15	0.31
Soled	I Koad	Sierra Highway	West	2,114	1,909		11	0.28	Yes	205	42,025	608	1,264		0 64	0.33
Sierra		South	Soledad Canyon Road	745	740		101	0.42	Yes	2	25	962	1.182		0.81	0.34
Sierra		Soledad Canyon Road	North	359	420		0.85	09.0	Yes	-61	3724	978	920		90 7	38
Sierra	Sierra Highway	South	Canyon Park Blvd	202	720		0 70	0.42	Yes	213	46 360	4 207	7 440		3 6	9 6
Sierra	Sierra Highway	Canvon Park Blvd	North	745	723		100	2 2 2	2 5	2 6	200,000	1000	9 00		080	0.0
Canvo	90	Sierra Hichway	To de	0.0	203		3 5	24.0	8 5	7 !	707	796	1,232		8/0	0.33
0		Storm Highway	- Name	017	2 :		200	0.90	Yes	<i>/</i> L	588	728	376		181	0.60
- California		Sierra mignway	Webi	40	47		0 85	09:0	Yes	2-	65	95	83		114	0.60
Canyo	D/	South	Jake's Way	105	179		0 59	09:0	Yes	-74	5,475	95	359			0.60
Sierra		South	Via Princessa	778	869		111	0.43	Yes	80	6,400	1,765	1.517		1 16	0.31
Sierra	^	Via Princessa	North	252	514		0.49	0.47		-262	68.644	1.561	1 499		2	0.34
Via Pr		Sierra Highway	East	935	1,212		0.77	0.33	Yes	-277	78.799	1 025	1 014			0.37
SR 14	SR 14 SB Ramp	SR 14 SB	Via Princessa									44,4	7 7		5 6	20.0
SR 14	SR 14 SB Ramp	Via Princessa	SR 14 SB									1	200		9 0	0.33
Via Pri		SR 14 SB Ramp	Fast	513	420		4.39	080	200	60	0.00	000	070			0.44
Via Pri		SR 14 SR Ramo	West	044	4 070		0.00	9 6	S 5	2 6	200	400	907		9	0.47
SR 14	-	SB 14 NB	Via Drincessa	970	200		200	9 9	S :	80 -	107.67	DEL.'I.	1,206		66.0	0.33
000		Min Drivers	VIA FIRECOSES	0 0	176		47.0	000	Yes	-111-	12.321					
± 6		VIE Princesse	SK 14 NB	412	277		1.49	090	Yes	135	18,225					
Via Pr		SR 14 NB Ramp	East	245	403		0.61	09 0	Yes	-158	24 964	661	687		96 0	0.43
Via Pr		SR 14 NB Ramp	West	834	923		06.0	0.38	Yes	68-	7,921	513	489		105	0.60
Lost		South	Via Princessa	19	58		1.40	09.0	Yes	23	529	3	62		0.50	0.60
Lost C	Soad	Via Princessa	North	40	313		0.13	090	- Name	-273	74.529	320	528		0.61	0.46
Via Pri	Via Princessa	Lost Canyon Road	East	187	127		1.47	090	Yes	9	3 600	27.1	193		1 4 4	9
Via Pri	Via Princessa	Lost Canyon Road	West	661	588		960	0.43	Vas	22	220	346	7		- 0	9 6
Via Pri	Via Princessa	Weyerhaeuser Way	East	1.721	1.626		901	030	Yes	i o	0 0 0	4 4 2 3	1 246		8 6	0.00
Via Pri		Weverhamiser Way	West	1 467	4 249		200	2000	3	2 0	2000	254.	0.00		200	0.32
		1000														

				l				
	>75%	<30%	>0.88					
0.88	80%	32%	0.93					
Katio =	viation =	Error =	ficient =		45	36	6	
Model/Count Katio =	Percent Within Caltrans Maximum Deviation =	Percent Root Mean Square Error =	Correlation Coefficient		Total Count	Link Within Deviation	Link Outside Deviation	
72,170								
76,92								

		Total	
59,119	56,296	Model/Count Ratio = (Percent Within Caltrans Maximum Deviation =) Percent Root Mean Square Error = 3 Average Correlation Coefficient = 0	0.89 >75% >75% 30% <30% (346 >0.88
		Total Count 88 Link Within Deviation 67 Link Outside Deviation 21	

43	3	12
Total Count	Link Within Deviation	Link Outside Deviation

>75% <30% >0.88

0.90 72% 28% 0.96

Mode/Count Ratio = Percent Within Caltrans Maximum Deviation = Percent Root Mean Square Error = Correlation Coefficient =

38,126

34,198

676 576 961 43,264 6,241 6,241 13,924 13,924 4,761

24 231 231 208 208 118 118

PM Peak Hour Volume Validation - Enhanced Model

_	_	_	0.60	10	_	(0	10.	_	TD 1	0	_	_	- "		_				10			_	_			_			-	_	-		_							_		_			
	Difference	Squared	2,470	18,22	281.96	17,95	126,02	4,900	80,089	765 22		ç	96	5	1681	8	8,836		10,816	96	529	8,649	331,776	96,74	1,68	900.4	12.769	72,900	4,096	169	227,526	42,02	5,476	90'-	30,004	1 296			5,041	2.401	784	24,964	7	24 CO AC	225,625
	Model	Tunos -	. 20	135	531	134	322	2 5	-283	cre		7	<u> </u>	7	4	80	94		104	<u>ج</u> ا	R, S	9 1	2 0	2 120	4	-70	-113	270	64	÷	477	205	7.4	2 5	25.	98			-7	49	9 5	50.	٦, د	7 7	475
	Within	Deviation	- ≺es			Yes		165		į		> >	Xes X	Yes	Tão.	Yes	4		Yes	√es : ≺es	Yes	Yes	No.	× 65	2 ×	× es	You	¥	Ma	Yes		Yes	s des	S &	S &	/es			Yes	Yes	(es	\ Var	8 8	2 3	#
	Allowable		0.60	09:0	0.45	0.60	0.44	500	54.0	0		090	0 0	0.60	09.0	09:0	0.60		0.26	0.46	0.40	L 00	9 C	36.0	0.30	0.38	0.38	09:0	090	0.60	0.41	0.34	25.0	9 0	34	0 33			0.60	0.42	0.60	0.00	247	0.29	0.34
NB.	Model /	T	1 19		1	1.45	200	200	10.0			1 03	3 2	980	d	1 16	d		40	98	100	Į,	111	0.77	960	0 93	0 88			0.94		/17	9 49	2	0.98	1 03			0 80	107	1 40	1 18	2 6	108	1 40
SB/WB	Date	Collected			1,		II.																											<u>.l</u>								-			
		5	¥ 5	199	572	300	700	0091	2 2 2 2	7	_	320	364	27	-	51	115	_	2,531	24.5	100	026,1	2.017	1085	829	948	947	253	54	221	120	236	708	347	169	1,235	_		353	127	35.3	118	508	858	1,188
	Traffic	1	9 99	4	9.	T (, ,	0 0	0			0	9	0	6	6																												
	Model	2	408	8	1,10	54.5	94	14.	108	8.		33	37	7		59	8		2,63	76	5 5	44,1	2.23	83	78	87	83	523	= :	8 8	97.1	1,30	59	63	1,14	1,27			1 28		8 8	i či	20	2.01	1,663
	Model B-A Node	0738-00737	30742-00738	00767-00738	0707-00768	00/35-00/34	01243-00134	1241_007BG	00786-01241	01241-01239	01240-01241	00789-01162	01241-00789	98200-06200	01297-00788	00785-00780	00779-00780	01239-01200	01242-01254	31243-00B32	TACHO 2570H	ACZ00-0570F	30725-00728	30728-00726	01354-00728	00726-01084	00728-00726	01299-00726	00279-00726	1524-012/7	10770 CZZ01	11136 0072	727-01057	01229-01227	01228-01227	30849-01227	01228-01103	01230-01228	00783-01228	02710-12210	00761-00781	00262:00783	01228-00783	33-00679	01269-00679
Ų	- 00	I.C.	_					2.6					_	Ī			00							_	_	Ī	_						012	012									Ť		
	Squared	58 564	17,689	21,025	20,449	14.101	10.000	103 041	20,236	1521	139,876	28.224	38,025	25	625	2,116	324	292,681	485 384	0 40	114 244	348 100	131,044	6,501	17,161	27,556	3,969	227,529	1991	17,069	27.50	5			2,209	35,344	1,089	1,600	200	200	39 601	13.456	5 929	207,025	1,296
- 1	Model .	1	-133	145	7 7	<u> </u>	9 0	.321	144	39	374	-168	-195	ıΩ	-25	9	18	196-	107	7	338	280	362	19	131	166	-63	477	14	153	199	3 5	2		47	188	93	9 0	7 8	2,7	-199	116	-77	455	-36
ł	Within	+	Yes	2	6 5	200	Yes	1	Yes	Yes	- Page	Yes	Yes	Yes	2	, es	st o	102		You			Yes	Yes	Yes	Yes	Yes		Yes	£ 5	S S	, de	3		Yes	Yes	Yes	Yes	s s	, de	× ×	Į	r.	2	Yes
	Allowable		0.47	0.60	200	0.00	0.41	0.44	0.33	0.33	0.47	0.60	09.0	09.0	09.0	0.60	0.60	0.20	080	0.35	0.44	0.31	0.31	0.32	0.37	0.30	0.31	0.60	0.00	9 6	0 33	0.33		_	0.42	0.32	0.35	0.47	0.47	0.00	0.60	09:0	09.0	0.33	0 29
ij	Model A		0.74		62.	0.97	113	0.40	1.12	103	11.73	0.62	0.61	1.14	0.00	0.00	25	200	1940	00.0	120	141	123	1 06	60	0: :	980	236	000	8 6	0 86	10			1 07	114	103	800	000	14	0.52	227	0.79	135	89 (5)
ı	Collected																							_			1						_					_	_	_	_			_	
ı			521	202	323	476	290	624	1,225	1,213	512	446	498	32	52	129	26 22 2000	2004	20k	1.112	824	439	1,547	362	014	889	8	357	1 10	683	1,217	.256			22	1,320	112	0 0	1 1	49	414	8	359	292	1,851
	Count			٠	-	-	•		+	·-							4	ī		-		-	-	-	-	-	-			-		-					-							+	2
	Volume	189	388	1 102	442	1.427	830	303	1,369	1,252	886	278	303	4	0 ;	2 5	4 90 4	9	637	1,103	962	2,029	1,909	1,443	1,145	1,824	1,443	424	101	1.546	1.051	1.266			770	1,508	150	505	1 1 4 4	28	215	212	282	1,750	1,845
+		738	742	750	735	243	733	.241	766	241	240	789	,241	20	787	190	250	242	243	743	75	730	725	728	45	126	120	238	524	724	773	1.136	1,227	229	228	849	877	283	227	783	761	262	.228	633	508
ŀ	Se Node	37	8 9	9 5	3	34	8	68		_	*	2	-	124	-	20 00	-			_	63	728	58	726	+	-		27/20	•		25	*	_	_		_	103		_		. 83		Ε.	679	•
ŀ	Node	1	-		- 1-	-	2	7	12	1,2	1.2	2	_	-	_		1 266	1267		1,2	1,243	-	-	- 2	-	1,084	-	- 1	1273		100	-	10	1227	1,227	N		1.6	-	20	35	24	22	9	Ö
	g	Sand Canyon Rd	North	Soledad Canvon Road	North	st	West	SR-14 NB Ramps	Vorth	Sand Canyon Rd	5R-14 NB	ost Canyon Road	North	u 1	West.	WORLD.			Soledad Canyon Road	#	Ħ	25	#	Solitated Conyon Road	North	Canyon Park Blvd	THON WITH	West	Jake's Way	ila Princessa	Ð	14	As Princessa	SR 14 SB	tt	West	VIA PRINCESSA		West	Via Princessa	£	**	¥	***	11
ŀ		Sa	F to to	S	2	East	3	SS	2	Sa	SR	3	Ž	10 1		23		_		East	West	500	West	8	2	3 :	Nous	3	ř	VE	Morth	East	S	SS	Eller	10 0	a da	East	We	N N	North	E PS	West	ESS.	West
	from	South	Sand Canyon Rd	South	Soledad Canyon Road	Sand Canyon Rd	Sand Canyon Rd	South	SR-14 NB Ramps	SR-14 NB	Sand Canyon Rd	South	Lost Canyon Road	Sand Canyon Kd	Disperite Campon Rd	Sand Capyon Rd	South of Sand Canvon Rd	South of Sand Canyon Rd	SR 14 SB	SR 14 SB Ramps	SR 14 SB Ramps	Sierra Highway	Sierra Highway	South	Soledad Canyon Hoad	South Over Division	Canyon Park Bros	Siera Hohway	South	South	Via Princessa	Sierra Highway	SR 14 SB	Via Princetta	SR 14 SB Ramp	00 11 00 MIND	Via Princedca	SR 14 NB Ramp	SR 14 NB Ramp	South	Via Princessa	Lost Canyon Road	Lost Canyon Road	Weyerhaeuser Way	weyernaeuser way
Morriso	tegment	Sierra Highway	Serra Highway	Sand Canyon Rd	Sand Canyon Rd	Soledad Canyon Road	Soledad Canyon Road	Sand Canyon Rd	Sand Canyon Rd	SR 14 NS Ramp	SR 14 NB Ramp	Sand Canyon Rd	Sand Caryon Kd	Loss Canyon Ross	Sand Canuon Rd	Placerita Canvon Road	SR 14 NB	SR 14 SB	SR 14 SB Ramps	Soledad Canyon Road	Soledad Canyon Road	Soledad Canyon Road	Soledad Canyon Road	Sierra Highway	Very Tagnway	See See Colored	Canada David Dilat	Canyon Park Blvd	Canyon Park Blvd	Sierra Highway	Sierra Highway	Via Princessa	SR 14 SB Ramp	SK 14 SB Ramp	Via Princessa	SE 14 NB Pamp	SR 14 NB Ramp	Via Princessa	Via Princessa	Lost Canyon Road	Lost Canyon Road	Via Princessa	Via Princessa	Via Princessa	via rindersea
2000	number									anii.		-				_				-					-					"	<i>-</i> /-							_	_	_				_	
	-	_												_	_	_			_		_		_	_		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

L			_	
	>75%	<30%	>0.88	
1.05	78%	25%	0.97	
: Ratio ≖	riation =	Frror =	ficient =	2 × 5
Model/Count Ratio ≖	Percent Within Caltrans Maximum Deviation =	Percent Root Mean Square Error =	Correlation Coefficient =	Total Count Link WithIn Deviation Link Outside Devlation
39,983				
42,017				

>75% <30% >0.88

1.12 70% 31% 0.95

54 S E

Total Count Link Within Deviation Link Outside Deviation

Model/Count Ratio = Model/Count Ratio = Percent Within Caltrans Maximum Deviation = Percent Root Mean Square Error = Correlation Coefficient =

33,353

	100		
75,370	69,683 Model/Count Rutio	1.05	l
	Percent Within Caltrans Maximum Deviation	74%	>759
	Percent Root Mean Square Error	28%	<30%
	Average Correlation Coefficient	0.959	8 U.A.

Total Count 88 Link Within Deviation 65 Link Outside Deviation 23

Average Daily Traffic Validation - Original Model	
Daily Traffic Validatio	Model
Daily Traffic Validatio	- Original
Daily.	/alidatio
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	Allowabie			0 20	0.04	170	0.14	0 18		0.14	0 14	0.14		410	0.24		4 0	0.14			
SB/WB	Modei			2 30	1 23	2 4	62		0.07	100	860	1 15	2 6	800	1 22	0 7	04-	1 23			
	Date	2000000							3000	conz	5002	2004			2002	2000	2003	2004			
	Traffic			5,255	4 890	1	17,804	6.513	42 674	C002 1 70'7	13,446	13.425	40.000	000	3,540	13 EDE	20012	25.050			
	Modei			12,069	5 992	1	1/0'01	2.651	70000	006'0	021.61	15.422	12.056	010	4,327	18 950	2	30.777			
	Difference			B90'/00'00	1.520.289	2 545 605	0,010,000	12,545,764	2 502 100	200 000	100'160	1,582,564	40 475 RR1	0000000	6/0,/08	2 755 500		21,440,151	61 540 224	-	\$50°CV'+0
	Model - Count		-	200,0	1,233	4.836	0	-3,542	1 810	000	0/-	1.258	8.359	0.00	200	-1.660		4,000	7.839	1	01040
	Within			2	-	Yes	3		Yas	Yar	2	Yes	100	Van	201	Yes			Yes		
	Allowable		000	020	0 22	0.14		0 18	0.14		-	0 14	0.14	700	470	0 14	0.44	4	0 14	.,,	# 0
MONED	Model		2000	5.04	1.28	111		9	0.87	0.08		1.09	0.67	4 47	100	0.89	4.40	01.10	1.14	***	
	Collected								2005	2005		2004		Pone	2000	2002	SOUT	-	2004	SULA	1000
	Traffic		R 728	200	4,445	17.245		977'0	12.671	19 445		13,425	19,050								
	Model		11 691	-	D/8'0	19.120	4000	7007	11,061	18.677		14,683	12,681	4.153		11,845	29 681	200	65,013	R.4. 18.4	
	9		SR 14 Ramps	Total Comments	Lust Carryon Road	Soledad Canyon Road	CD: 14 Downer	School of the Country	North	South	-	il en		North		non	Sierta Highway	The same of the sa			
	from		Lost Canyon Road	Dond Dunner Dond	Logo volillei voad	Sandy Drive			Soledad Canyon Road	Soledad Canyon Road		Signa mignway		Soledad Canyon Road	Contract Con	Coad		•	South of Sand Canyon R	South of Sand Canvon RI	
	segment		Sand Canyon Rd	Sand Canuon Da	the land country	Sierra Mighway	Via Princesta		Sierra Highway	Siefra Highway	Soladad Capyon Dood Siorra Links	DECK HOLING		Sand Canyon Rd	Cond Poor	Series Carryon Ad	Soledad Canyon Road White's Canyon	- Commercial		SR 14 SB	
	number																				

46,430,596 1,214,404 762,129 14,915,044 2,859,481 106,276 3,988,009 35,928,036 6,9369 29,757,025 32,757,025

6,814 1,102 873 -3,862 -1,691 1,997 -5,994 787 5,455 5,727

Yes Yes

	>15%	<30%	>0.88	
1.07	24%	25%	0.99	
Ratio =	iation =	Error =	icient =	13
Model/Count Ratio =	Percent Within Caltrans Maximum Deviation =	Percent Root Mean Square Error =	Correlation Coefficient =	Total Count Link Within Deviation Link Outside Devlation
253,647				
271,160				

	2 6 5 5	Total		
423,191	394,796	Model/Count Ratio =	1.07	
		Percent Within Caltrans Maximum Deviation =	46%	>75%
		Percent Root Mean Square Error =	25%	<30%
	1	Average Correlation Coefficient =	0.928	>0.88

AndeliCount Ratio = 1.07 aximum Devlation = 45% fean Square Error = 25% slation Coefficient = 0.928	Count 24 intion 11 intion 13
Model/Count Ratio Breant Within Caltrans Maximum Deviation Percent Root Mean Square Error Average Correlation Coefficient	Total Count Link Within Deviation Link Outside Deviation

	>75%	<30%	>0.88	
1.08	36%	31%	0.87	
t Ratio =	viation =	Error =	ficient =	£ 4 r
Model/Count Ratio =	Percent Within Caltrans Maximum Deviation =	Percent Root Mean Square Error =	Correlation Coefficient =	Total Count Link Within Deviation Link Outside Deviation
141,149				
152,031				

Model
Original
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Volume \
eak Hour
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							~1		- 1						SB	SB/WB			
number	segment	from	to	Model	Traffic	Date	Model A	Allowable Deviation 1	Within	Model 1	Difference	Modei	Count	Date	Model	Allowable	Within	Model	Difference
	Ciorna Licharda	44		700	1357		П			1			+-	200	1				200
	Siema Highway	Sand Canyon Rd	Sand Canyon Rd	131	311		0.28	0.60	No.	-224	50,176	165	578			0.45	100	-413	170,569
	Sand Canyon Rd	Sierra Highway	Francis	1.5	787		747	0.00	Yes	8 5	9,025	256	278			0.45	ž	-322	103,684
	Sand Canyon Rd	South	Soledad Canyon Road	1.217	306		31.00	0.00	2 1	200	00,000	317	624		0.51	44.0	1060	-307	94,249
	Sand Canyon Rd	Soledad Canyon Road	North	410	1,029		0,40	0.37	1 4	-619	383 181	305	1 063		2	0.60	res	4 5	2,025
	Soledad Canyon Road	Sand Canyon Rd	East	1,311	1,048		1.25	0.37	Yes	263	69,169	1.076	868		1 24	0.30	X _o ×	000	42,564
	Soledad Canyon Road	Sand Canyon Rd	West	1,178	1,048		1.12	0.37	Yes	130	16,900	069	898		62.0	0.39	, A	178	43,204
	Sand Canyon Rd	South	SR-14 NB Ramps	1,074	674		1.59	0.43	ol/s	400	150,000	550	823		0.67	0.40	X es	-273	74.529
	See 14 No Borns	SR-14 NB Kamps	North	1,277	821		87	0.40	No	456	207,936	380	745	_	0.51	0.42	100	365	133 225
	SR 14 NB Ramp	Sand Daniel	Sand Canyon Kd	570	463		1,23	0.60	Yes	107	11,449								
	Sand Canyon Rd	South Carryon ad	OR-14 NB	250	238		0.82	0.60	\ ≺es	4	1,849								
	Sand Canvon Rd	Sanvon Road	North	1 2 2 2	324		36	0.60	Yes	116	13,456	390	304		1.28	09:0	Yes	98	7,396
	Lost Canyon Road		Fast	1,074	200		107 0	0.45	9 5	490	240,100	550	823		29'0	0.40	Yes	-273	74,529
	Lost Canyon Road		West	99	659		o ct c	0.00	9 9	4 503	12,996	378	9 5		14.54	0.60	-000	352	123,904
	Sand Canyon Rd	Road	North	32	45		0.71	090	Yes	200	n+0'(n)	238	2000		0.75	0.60	Yes	86-	9,604
	Placerita Canyon Road		West	156	273		0.57	090	3 4	1	00467	6 "	703			0.60	2 :	-202	40,804
	SR 14 NB	South of Sand Canyon Rd		2,271	2,000 2004	0004	1,14	0.28	Yes	27.1	73.441	3	ñ			0.00	9	ş.	8,836
	SR 14 SB Ramps		Soledad Canyon Road	538	281		181	0.60	640	257	88.049	1 528	720			000		į	
	Soledad Canyon Road		East	495	427		1,16	0.60	Yes	88	4 624	1 253	1 194		1.05	0.33	No.	4/9	454,276
	Soledad Canyon Road		West	1,076	1,122		96 0	0.35	Yes	148	2.116	1.341	934		2 4	0.04	Tes	70 0	3,844
	Soledad Canyon Road		East	683	844		0.81	0.40	Yes	-161	25,921	1.837	1.431	-	28	33	Yes	900	164,400
	Soledad Canyon Road	Highway	West	2,436	1,909		128	0.28	Yes	527	277,729	1,000	1.264		0.79	0.33	Yes	264	909,090
	Signa Highway		Soledad Canyon Road	808	740		1,23	0.42	Yes	168	28,224	1,268	1,182		1.07	0.34	Yes	8	7.396
	Siege Highway	d Canyon Road	North	354	420		0.84	09:0	Yes	99-	4,356	966	920		1.08	0.38	Yes	76	5 776
	Sierra Highway	South State County	Canyon Park Blvd	602	720		0.84	0.42	Yes	-118	13,924	1,529	1,448		1 06	0.31	Yes	. 60	6.561
	Centra nigitway		North	808	723		1.26	0.42	Yes	185	34,225	1,268	1,232		1.03	0.33	Yes	36	1.296
	Canyon Park Blyd		East Wast	206	93		1.07	0.60	, ≺es	5	169	718	376			09'0	-	342	116,964
	Sierra Highway		Via Princessa	307	4 00			0.60	Yes	op 1		94	83		1,13	09:0	Yes	1	121
	Sierra Highway	ncessa	North	254	A 24		0	54.0	Yes	, ,	0,00	1,822	1,517		1.20	0.31	Yes	302	93,025
	Via Princessa	>	East	877	1,212		0.72	33	Yee	225	201,00	050,0	1,499		1.02	0.31	Yes	98	1,296
	SR 14 SB Ramp	SR 14 SB	Via Princessa				1000	3		3	4	0/0	1,014		200	0.37	Yes	£ 5	1,225
	SR 14 SB Ramp		SR 14 SB									481	628		22	25.0	S = >	1 7	32,767
	Via Princessa		East	527	420		1.25	09:0	Yes	107	11,449	648	786		0.82	0.41	- X	7 1	40.04
	Via Princessa	Yamp	West	886	1,070		0.83	96.0	Yes	-184	33,856	1,232	1,206		1.02	0.33	Yes	28	676
	SO 14 ND Comp	ON 14 NO	Via Princessa	428	427		1.00	0.60	Yes	-								ì	9
	Via Poncessa	3	OK 14 NB	418	277		1.51	0.60	Yes	141	19,881								
	Via Princessa		Most	227	403		0.55	0.60	Yes	-182	33,124	332	687		0,48	0.43	980	-355	126,025
	Lost Canvon Road		West Via Driposesa	20 20	923		0.70	0.38	Yes	-275	75,625	527	489		1.08	09.0	Yes	88	1,444
	Lost Canvon Road	ncessa	North	0.0	8 5		00.1	0.60	Yes	12.5	441	29	62		0.47	0.60	Yes	-33	1,089
	Via Princessa	Soad	East	2 4	427		3 4	00.00	200	500	808'78	0 [528		000	0.46	200	-528	278,784
	Via Princessa		West	332	889		0.48	0.00	200	386	4,04	256	192		1.33	0.60	Yes	9	4,096
	Via Princessa		East	1.275	1.626		0.78	0.00	Yes	36.4	122,730	122	477		0.54	0.60	Yes	-190	36,100
	Via Princessa		West	941	1.249		0.75	0.33	, A	308	94 864	7 7 9 10	0.0.1		600	0.32	Yes	-405	164,025
					TOWER STATE		02222	2		3	100	701.10	070'		000	0.50	300	-519	269,361
								1			7			-					

l	0.0000	
	int Ratio = leviation = ire Error = efficient =	42 28 14
	Model/Count Ratio = Percent Within Catrans Maximum Deviation = Percent Root Mean Square Error = Correlation Coefficient =	Total Count Link Within Deviation Link Outside Deviation
	35,489 37,767	
	35,489	
	>75% <30% >0.88	
	1.00 70% 46% 0.84	
	t Ratio = viation = Error = ficient =	4 E E
	Model/Count Ratio = Percent Within Caltrans Maximum Eviation = Percent Root Mean Square Error = Correlation Coefficient =	Total Count Link Within Deviation Link Outside Deviation
	27,991	

		Total		
63,510	65,758	Model/Count Ratio =	0.97	
		Percent Within Caltrans Maximum Deviation =	%89	>75%
		Percent Root Mean Square Error =	36%	<30%
		Average Correlation Coefficient =	968.0	>0.88

86 59 27 Total Count Link Within Deviation Link Outside Deviation

28 14 14 Total Count Link Within Deviation Link Outside Deviation

>75% <30% >0.88

0.94 67% 33% 0.95

PM Peak Hour Volume Validation - Original Model

Control		South	g	Model					-		Model	Traffic			Allowable		H	Difference
Second Charles Seco	Seiters Highway Seiters Highway Sand Canyon Rd Sand Canyon Rd Sand Canyon Rd Soledad Canyon Rd Sand Canyon Rd Sand Canyon Rd Sand Canyon Rd SR 14 NB Ramp Sand Canyon Rd Sand Canyon Rd	South	The second secon	A PARTITURE I	-		İ	-7	-	-	Volume	ī	ate Collected	/Count	Daviation	_		Sourced
Second Charles Seco	Sand Canyon Rd Sand Canyon Rd Sand Canyon Rd Soledad Canyon Rd Soledad Canyon Rd Soledad Canyon Rd Sand Canyon Rd Sand Canyon Rd SR 14 NB Ramp SR 14 NB Ramp SR 25 Sand Canyon Rd Sand Canyon Rd	Para Carres	Sand Canyon Rd	201	L		0.47	t			144	SEO.	1	2.90	0.50	4	+	200
Second Control	Sand Cenyon Rd Sand Canyon Rd Sand Canyon Rd Sand Canyon Rd Soledad Canyon Rd Sand Canyon Rd Sand Canyon Rd Sand Canyon Rd SR 14 NB Ramp Sand Canyon Rd Sand Canyon Rd Lot Canyon Rd Lot Canyon Rd Lot Canyon Rd	Dang Canyon Rd	North	338	521						200	344		200	000	2 5	200	15.12
Second Carpor Red Seco	Sand Canyon Rd Sand Canyon Rd Soledad Canyon R Soledad Canyon R Sand Canyon Rd SR 14 NB Ramp SR 14 NB Ramp Sand Canyon Rd Last Canyon Rd Last Canyon Roa Lest Canyon Roa Lest Canyon Roa		East	355	205		0	ļ	1		2774	9		3 %	00.0	0 5	1 2	40.4
Second Carpon Red	Sand Canyon Rd Soledad Canyon R Soledad Canyon Rd Sand Canyon Rd Sand Canyon Rd SR 14 NB Ramp Sand Canyon Rd Sand Canyon Rd Sand Canyon Rd Lost Canyon Roa I rest Canyon Roa		Soledad Canvon Road	1.360	1.049			L			4 162	22		000	9 6	0	7 00	0
Second Charles Seco	Soledad Canyon F Soledad Canyon R Soledad Canyon Rd Sand Canyon Rd SR 14 NB Ramp SR 14 NB Ramp SR 14 NB Ramp SR 14 NB Ramp Sand Canyon Rd Lost Canyon Roa Lost Canyon Roa			274	123						7011	400			200		060	346,10
Second China Seco	Soledad Canyon R Sand Canyon Rd Sand Canyon Rd SR 14 NB Ramp SR 14 NB Ramp Sand Canyon Rd Sand Canyon Rd Lost Canyon Roa I ost Canyon Roa			1 607	1.476							200			0.00	101	52	15,12
Single S	Sand Canyon Rd Sand Canyon Rd SR 14 NB Ramp SR 14 NB Ramp Sand Canyon Rd Sand Canyon Rd Lost Canyon Roa Lost Canyon Roa		West	910	700						200	100		000	4.0		114	156.92
Section Sect	Sand Carryon Rd SR 14 NB Ramp SR 14 NB Ramp Sand Carryon Rd Sand Carryon Roa Lost Carryon Roa Lost Carryon Roa		CD 14 ND Dames	1000					_		707'1	2071		3	55.0	Yes	/6	3,24
Secretary Secr	SR 14 NB Ramp SR 14 NB Ramp SR 14 NB Ramp Sand Canyon Rd Sand Canyon Rd Lost Canyon Roal Lost Canyon Roal		Schiller day 41-70	907	170				_		1,251	993		201	0.43		598	357,60
State Carry Charles State Stat	SR 14 NB Ramp SR 14 NB Ramp Sand Canyon Rd Sand Canyon Rd Lost Canyon Roal Lost Canyon Roal			700	200						1,167	204			0.45	•	613	375.7E
Secretary Control Cont	Sand Canyon Rd Sand Canyon Rd Lost Canyon Roal		Sand Canyon Rd	1,503	1,213				_									
Comparison Com	Sand Canyon Kd Sand Canyon Rd Lost Canyon Roal		OK-14 NB	716	512			_										
March Marc	Sand Canyon Rd Lost Canyon Road		Lost Canyon Road	408	446			_			582	320		-	0.60	4	262	68 64
Charles Char	Lost Canyon Roar		North	766	269						1.251	364		3.44	0.60		AA7	286 76
March	I ost Canvon Roa		East	438	35						576	22		1000	000		3 6	0000
Florar Standard Charles St	TOOL CRIMOL TOOL		West	202	36			09.0	296		7 7	1 7		į	00.0		777	97.64
Stand of Stand Channel	Sand Canyon Rd			4.0	670			000	200			7 1			0.00		671	16,64
Secret of Sand Changes Secret of Sand Chan	Placerita Canvon	Posd		1 5	200			000	7		2 :	7		0.70	0.60	Yes.	-11	121
State Stat	DATE OF THE PARTY			4	75		7	Į			23	115		0.40	0.60	Yes	-62	3.84
Section Control Cont	2011100	South of Sand Canyon	200	5,593	9,532 2004			_										
State Stat	14 SB				2004						2,918	2,531		1,15	0.26	Yes	387	149 76
Second	SK 14 SB Kamps		Soledad Canyon Road	1759	206		1	H			835	244		(53)	0.46		291	84 68
No. of the control	Soledad Canyon		East	1,026	1,112						612	554		1.10	0.45	Yes	98	25. 1
Section Holymory East 1,547 1,542 1,547 1,545 1,542 1,544 1,545 1,544 1,545 1,	Soledad Canyon }		West	1,018	624			l		9	1.607	1 520		900	0.31	Y.	2 6	200
State Stat	Soledad Canyon		East	2,019	1.439			7.31	580		1 460	875			02.0	9	202	200
Solidaria Campon Road 1746 1865	Soledad Carryon I		West	2.106	1.547		7.0	334	556		2 538	2000		200	000		200	7
South House	Sierra Highway		Soledad Canyon Boad	1745	1 362				r	*	7,930	7007		97	97.0	0	176	X/1.44
Septiment Developer Plant Brief Chapter Plant	Sierra Highway	Soledad Carwon Road		1 130	1014						E171	1,000		7.12	9.79	0	134	17,95
Comparison Com	Sierra Highway	South		1 760	1,658						761	679		980	0.40	8	/6-	9.40
Second Highway Continues	Sarra Hinhway	Canton Dark Dhat	Marth Car Dec	147.6	1,030						247	946		8	0.38	Ka.	7	
Sucre helphore)	Canvon Park Blue		1100	2001	000'1				1		ELZ,L	947		28	0.38	Yes	272	73.98
Secondary Comparison Comp	Canvon Pack Blue		No.	977	2 6		ì	l			4/2	293		æ,	0.60		219	47.96
View Princessa	Sierra Highway		Via Princessa	1 569	1 683		_				2 2	3 5		1	0.60	,	92	4.22
Second Highwork East 1,300 1,256 1,06 1,03 1,10 1	Slerra Highway	Via Princessa	North	867	1 247		_			,	1,213	190			0.41		427	182 32
West Horizons West Horizons West Horizons Total Curyon Road West Horizons Road	Via Princessa	Sterra Hehway	1	1 330	1 255	_	_	_			567,1	6/1,1		0.10	0.34	20	118	13,82
Second Nation Second Natio	SR 14 SB Ranto	SR 14 SB	Va Princetos		2					0140	717	1,536		97.0	0.33	L Cos	-24	20
SR 14 SR Ramp East 1910 122 112 10.42 Yes 190 1.574 1.535 1.514 Yes 1.574 1.535 1.514 Yes 1.535 1.514 Yes 1.535 Yes 1.544 Yes 1.535 Yes 1.544 Yes 1.535 Yes 1.544 Yes 1.535 Yes 1.544 Ye	SR 14 SB Ramp	Via Princessa	SR 14 SB								000	247		0.93	7.0	res	7 6	2.30
See H. 4.58 Ramp West 1,516 1,320 1,15 0,32 Yes 1,514 1,325 1,117 0,31 Yes 1,324 1,324 1,325	Via Princessa	SR 14 SB Ramp	100	810	723		_				3 3	4 4 4 6 0		000	0.00		7 5	0
View	Via Princessa	SR 14 SB Ramp	West	1.516	1320	_	_				1 27.4	200.		000	4 5	501	671	19.62
SR 44 NB	SR 14 NB Ramp	SR 14 NB	Via Princessa	1.018	1.117			-			-	200		1000	22.0	9	50	19,35
SR 14 NB Ramp East	SR 14 NB Ramp	Va Princessa	SR 14 NB	694	515				_									
1044 1167 1089 15,129	Via Princessa	SR 14 NB Ramp	East	285	809		_				193	363		0.55	09:0	Yes	.160	25 600
Solution Value Princets	Va Pimoessa		West	1,044	1,167		_				810	721		1.32	0.42	Yes	08	7 60
Vist Princessa North Vist Princessa Vist	Lost Canyon Road		Via Princessa	29	64						06	28		0	0.60	You	3.5	103
Lost Carryon Road Enst 197 396 200 10.00 1.0	Lost Canyon Roan		North	0	414			Ļ			0	253		0,00	090	1	.253	84 000
Loss Carryon Road West 1373 1359 1369 1369 1360 Vec 1560 1364 1365 1364 1365 1366 1365 1366 13	Via Princessa	Lost Carryon Road	East	197	98						138	118		1.17	090	Yes	2	400
Weightheuser Way East 1,256 1,256 1,256 1,156 1,155 1,155 1,	Via Princessa	Lost Canyon Road	West	193	359	-					285	808		0.56	0.47	Yes	.223	40.72
Weyerhauser Way West 1,343 1,881 0.21 0.29 Yes -538 289,444 1,153 1,163 0.97 0.34 Yes -35 1,163 1,16	Via Princessa	Weyerhaeuser Way	East	1,275	1,295						1.564	1.855		0.84	0.29	1	301	00.60
39,653 Model/Count Ratio = 1.10 35,656 29,479 Model/Count Ratio = 1.21 Percent Within Caltrans Maximum Deviation = 139, >75% Percent Within Caltrans Maximum Deviation = 184, >75% Percent Count Ratio = 1.21 Percent Review Percent Count Ratio = 1.21 Percent Review Percent Revi	Via Princiessa	Weyerhaeuser Way	West	1,343	1,881		_			289	1,153	1,168		160	0.34	Yes	35	1 225
Percent Within Caltrans Maximum Deviation = 1.10 Percent Within Caltrans Maximum Deviation = 127 Percent Within Caltrans Maximum Deviation = 127 Percent Root Mean Square Error = 129, 415% Percent Root Mean Square Error = 45% Percent Root Mean Square Error = 45% Percent Root Mean Square Error = 45%							IJ					100		000				
39.653 Percent Within Caltrans Maximum Deviation = 1.10																		
73% 515% Percent Within Celtrans Maximum Deviation = 64% 515% 515% 515% Percent Road March Square England Road March 504m England Road March 504m England Square England Sq				965'57	39.653		A	Model/Count Rai		1,56.1	35,666	29,479			Model/Co	unt Ratio =	121	- Second
CONTROL NOTICE CONTROL						Percent Will	nin Caltrans Ma	aximum Deviation		×75%			Percent	Within Caltrans	Maximum s	Deviation =	64%	×15%
							Comment Agent	John Count Cr		200				Percent Kog	of Mean Squ	are Error =	43%	100V

|--|

86 59 27

Total Count Link Within Deviation Link Outside Deviation

42 27 15

Total Count Link Within Deviation Link Outside Deviation

APPENDIX C:

PROJECT TRIP GENERATION CALCULATIONS

				Tip do	neration for Vista Cany	Un - Am en	IO PM PE	ak Hour o	naer miter	iii condi	T						
	Land Use				Trip Generation			Trip F						Trip Es			
524	v = 2 m	Gross	10.1	5	Category (ITE unless		/ Peak Ho	-		Peak Ho			/ Peak Hou	100		M Peak Hou	***
Land Use	Land Use Definition A-1 thru PA-4	Quantity	GLA	Unit	otherwise specified)	In	Out	Total	- In	Out	Total	In	Out	Total	ln .	Out	Total
Residential	Detached SFR	96		DU	ITE 210 - SFD	0.19	0.56	0.75	0.64	0.37	1.01	18	54	72	61	36	9
High Density Residential	h	579		DU	ITE 220 - April	0.10	0.41	0.51	0.40	0.22	0.62	58	237	295	232	127	35
Medium-Density Resid.		442		DU	TE 230	0.07	0.37	0.44	0.35	0.17	0.52	31	164	194	155	75	23
Movie Theater	Multiplex			10 screens		0.07	0.07	0,,,,	0.00			0	0	0	61	75	13
Hotel	Hotel		200.00		ITE - 310							59	38	97	63	55	11
Retail	Neighborhood SC		131.00		ITE 820-SC	0.85	0.54	1.39	2.82	3.05	5.88	111	71	182	370	400	77
General Office	Office Park		646.00	0.0000000000000000000000000000000000000	TE 750	1.39	0.17	1.56	0.19	1.18	1.37	898	111	1,009	124	760	88
	''	. 1,117									ss Trips	1,175	675	1,849	1,065	1,529	2,59
									TOTA	AL GROS	STRIPS	1,175	675	1,849	1,065	1,529	2,594
								Gros	s Resider	tial Trips		107	455	562	447	238	68
								Gross	Retail/Mo	vie Trips		111	71	182	431	475	90
									Gross Ho	otel Trips		59	38	97	63	55	11
									Gross Of	ice Trips		898	111	1,009	124	760	88
					INTERNAL 1	TRIP ASSU	IMPTIONS	S/CALCUL	ATIONS								
					Percenta	ge of Hotel	Trips Inte	rnal to Ret	ail/Movie	4%	5%	2	2		3	3	
						rcentage o		•		5%	5%	3	2		3	3	
						ige of Resi		•		8%	8%	9	36		36	19	
					Percentage of I					2%	4%	2	9		18	10	
					Percentag	e of Office	•			2%	4%	18	2		5	30	
							OTHE	ER END O									
										ail Trips		13	22		43	26	
									Offi	ce Trips		38	11		22	39	
			No.	1 1 1		- F.S.		A		-							
						EXte	nai inps	(by land to				oe.	400		394	210	
									al Resider Retail/Mo			96 98	409 49		388	210 449	
									External H			54	34		56	50	
									xternal Of			842	97		97	691	
									EXTERNA			1,090	590	1,679	935	1,399	2,33
							Over	rall Interna				1,000	350	9.20%	000	1,000	9.989
			531	1	5 J. J. W. J.			7000	olink Mod	OCCUPATION AND ADDRESS OF THE PARTY.				0.2070			0.001
										АМ	PM						
							Transi	t Trips (Re	sidential)	8%	8%	8	33		31	17	
								Trips (Reta		5%	5%	5	2		19	22	
								Transit Trip		5%	5%	3	2		3	2	
							Т	ransit Trip	s (Office)	8%	8%	67	8		8	55	
								TOTAL M	ETROLIN	K TRIPS		83	45	127	62	97	15
						CON	IVERSIO	N TO PER	SON TRIE	S AVO=	1.1	91	49	140	68	107	17
			3 7 1				Sa	nta Clarita	Bus Mod	le Share							
										AM	PM						
							Transi	t Trips (Re	sidential)	1%	1%	1	4		4	2	
							Transit 1	Trips (Reta	ail/Movie)	1%	1%	1	0		4	4	
							-	Transit Trip	s (Hotel)	1%	1%	1	0		1	0	
							Т	ransit Trip	s (Office)	1%	1%	8	1		1	7	
								Т	OTAL BU	S TRIPS		11	6	17	9	14	2
						COL	VERSIO	N TO PER	SON TRIF	S AVO=	1.1	12	6	18	10	15	2
						Perce	ntage of E	xternal Tri	ps that use	bus/rail				8.58%			7.79%
									rnal Vehic								
									al Resider	-		88	373		358	191	
									Retail/Mo	•		92	46		365	422	
									External H			50	32		53	47	
									xternal Of			766	69	73. gw44.	88	629	i de la constitución de la const
									EXTERNA			996	539	1,535	865	1,288	2,15
		Overa	all Internaliz	ation/Transi	t Mode Share Percentag	e (1 minus	ext vehicl	le trips div	ided by gro	oss trips)				16.99%			16.99
Notes:																	
Average rate used for r	esidential uses and hotel. I	itted curve re	gression equ	ation used fo	or the retail and office uses												
E	e" categories for apartment																

	WEN AND AND AND AND AND AND AND AND AND AN	ation for Vis	ta Canyon	All did i	The state of the s		LIGITO MOS	165-0-				into in outlier.	opines eve		(mare a		
	Land Use				Trip Generation	1 444	rance volumes	Trip R		W CH			raeser eres	Trip Es		ar market free	van
(#204W000)	(Gross	O) 4	11-11	Category (ITE unless		Peak Ho		T	Peak Ho			1 Peak Hou			M Peak Ho	
Land Use	Land Use Definition	Quantity	GLA	Unit	otherwise specified)	In	Out	Total	In	Out	Total	In	Out	Total	.ln	Out	Total
esidential	Detached SFR	96		DU	ITE 210 SED	0.19	0.56	0.75	0.64	0.37	1.01	18	54	72	61	36	9
ligh Density Residentia		579		DU	ПЕ 220 - Аршт	0.10	0.41	0.51	0.40	0.22	0.62	58	237	295	232	127	35
edium-Density Resid.	Condos/Townhomes	675		DU	ILE 530	0.07	0.37	0.44	0.35	0.17	0.52	47	250	297	236	115	35
lovie Theater	Multiplex	0.0		10 screens	Water-Street					47.7.2		0	0	0	61	75	13
otel	Hotel		200.00		ITE - 310							59	38	97	63	55	11
etail	Neighborhood SC		131.00	KSF	ITE 820-SC	0.85	0.54	1.39	2.82	3.05	5.88	111	71	182	370	400	77
eneral Office	Office Park		396.00	KSF	ITE 750	1.50	0.18	1.68	0.20	1.26	1.46	594	73	667	81	498	57
	TOTAL	L 1,350								Gro	ss Trips	887	723	1,610	1,103	1,306	2,41
						V 1			TOTA	AL GROS	S TRIPS	887	723	1,610	1,103	1,306	2,410
								Gros	s Residen	tial Trips		123	541	664	529	278	80
								Gross	Retail/Mo			111	71	182	431	475	9
									Gross Ho			59	38	97	63	55	1
									Gross Off	ice Trips		594	73	667	81	498	5
					INTERNAL T					401	pa/		_		4	_	
					_	ge of Hotel				4%	5%	2	2		3	3	
						rcentage of				5% o%	5% e%	3	2		3	3	
						ge of Resid				8% 2%	8% 4%	10 2	43		42 21	22 11	
					Percentage of F Percentag					2% 2%	4% 4%	12	11		3	20	
					Percentag	e oi Oilice	-		ainviovie F INTERN		4%	12	,		3	20	
							OTHE	K END OI		ail Trips		14	17		34	28	
										ce Trips		45	13		25	45	
									0	oo mpo		10					
11 2 1 2 2 1	17-28-2001	16 ///	1 Sec. 1		The second	Exter	nal Trips	(by land u	use for all	modes)							
									al Resider			111	487		465	245	
									l Retail/Mo			97	54		397	447	
								Е	external H	otel Trips		54	34		56	50	
								E:	xternal Of	fice Trips		537	59		53	433	
								TOTAL E	EXTERNA	L TRIPS		799	634	1,433	972	1,175	2,1
							Over	all Internal	lization Pe	rcentage				10.99%			10.94
								Metr	olink Mod	le Share							
										AM	PM						
							Transit	Trips (Re	sidential)	8%	8%	9	39		37	20	
							Transit 1	rips (Reta	ail/Movie)	5%	5%	5	3		20	22	
							Т	ransit Trip	os (Hotel)	5%	5%	3	2		3	2	
							Т	ansit Trips	s (Office)	8%	8%	43	5		4	35	
								TOTAL M	ETROLIN	K TRIPS		59	48	107	64	79	14
						CON		ALC: NO	SON TRIF	1000	1.1	65	53	118	71	87	1:
							Sar	ita Clarita	Bus Mod								
							_	T	and or m	AM	PM 400		-		-	_	
								Trips (Re	-	1%	1%	1	5		5	2	
								rips (Reta		1%	1%	1	1		4	4	
								ransit Trip ransit Trips		1%	1%	1	0		1	0 4	
							I.	•	S (Office) OTAL BU	1% IS TRIPS	1%	5 8	6	14	10	12	
						COL	IVEDSION		SON TRIF		1.1	9	7	16	11	13	
									ps that us			9	,	8.50%	11	13	7.67%
		THE PERSON NAMED IN			William Res	, 5/66/		- T-	mai Vehic								
									al Resider			101	443		424	223	
									Retail/Mo			91	51		373	421	
									External H	•		50	32		53	47	
									xternal Of	•		489	53		48	394	
									EXTERNA			731	580	1,311	898	1,084	1,5
		Over	all Internaliz	ation/Trans	t Mode Share Percentag	e (1 minus	ext vehicle							18.55%			17.7
Notes:					·												
Average rate used for	esidential uses and hotel.	Fitted curve re	gression equ	uation used f	or the retail and office uses	÷											
	e" categories for apartment						es presuma	bly include	some level	s of intern	al trip-maklr	ng, walking, a	nd/or transit	use.			

		Table	C-1 (cont.)							
	Trip Generation for Vi	sta Canyon	- Daily Co	nditions fo	Interim Scenario						
	Land Use					Trip Rates	Trip Estimate				
		Gross			Trip Generation Category (ITE unless	Daily	Daily				
Land Use	Land Use Definition	Quantity	GLA	Unit	otherwise specified)	Total	Total				
Villages F	PA-1 thru PA-4										
Residential	Detached SFR	96		DU	ITE 210 - SFD	9.57	919				
High Density Residential	Apartment	579		DU	ITE 220 - Apart	6.65	3,850				
Medium-Density Resid.	Condos/Townhomes	442		DU	ITE 230	5.81	2,568				
Movie Theater	Multiplex			10 screens	ITE 445	n/a	1,500				
Hotel	Hotel			200 rooms	ITE - 310	8.17	1,634				
Retail	Neighborhood SC		131.00	KSF	ITE 820-SC	61.46	8,174				
General Office Office Park 646.00 KSF ITE 750 11.05											
TOTAL 1,117 Gross Trips											
STORY OF BUILDING					TOTAL GRO	nee Trine	05 705				
		Her Control			IOIAL GHO	JOS I KIPS	25,785				
During AM and PM	peak hours, about 10% of gr	oss trips a	re internal.	Assu	me 10% internalization ¹	l					
					External Trips=	:	23,241				
During AM a	nd PM peak hours, about 8%	6 of externa	al trips are	via bus/rail	Assume 8% bus/rai	l					
					External Vehicle Trips=	:	21,382				
Source: Fehr & Peers, 2	009.										
Note:	·										

Note;
1. This internalization percentage was selected because it is in the low end of range observed at Valencia Town Center, and slightly lower than MXD estimate.

		Table	C-2 (cont.)								
Trip Generation for Vista Canyon - Daily Conditions for Interim Scenario (Assuming Residential Overlay (233 MF units w replace 250 ksf office)												
	Land Use				T. 0	Trip Rates T	rip Estimate					
		Gross			Trip Generation Category (ITE unless	Daily	Daily					
Land Use	Land Use Definition	Quantity GLA		Unit	otherwise specified)	Total	Total					
Villages F	PA-1 thru PA-4				WI V 11 - 120 - 1							
Residential	Detached SFR	96		DU	ITE 210 - SFD	9.57	919					
High Density Residential	Apartment	579		DU	ITE 220 - Apart	6.65	3,850					
Medium-Density Resid.	Condos/Townhomes	675		DU	ITE 230	5.81	3,922					
Movie Theater	Multiplex			10 screens	ITE 445	n/a	1,500					
Hotel	Hotel			200 rooms	ITE - 310	8.17	1,634					
Retail	Neighborhood SC		131.00	KSF	ITE 820-SC	61.46	8,174					
General Office	Office Park		396.00	KSF	ITE 750	11.45	4,535					
	TOTAL	1,350			G	ross Trips	24,534					
		R 4 1 4 4	. s. 7 L		TOTAL GRO	OSS TRIPS	24,534					
During AM and PM	peak hours, about 10% of gr	oss trips a	ro internal	Леен	me 10% internalization ¹							
During Aw and Five	peak flours, about 10 % of gr	uss liips a	ie iliterilai.	Assu	External Trips=		22,080					
During AM a	and DM neak hours, about 90	of extern	al trine are	via hue/rail	•		22,000					
					External vehicle Trips=		20,314					
Source: Fehr & Peers, 2	2000											
Note:	.003.											

Note;

^{1.} This internalization percentage was selected because it is in the low end of range observed at Valencia Town Center, and slightly lower than MXD estimate.

Trip Generation Summary

Creekside Development, Santa Clarita, CA

Land Use:

- 220 single family homes
- 144 attached courtyard homes
- 207 detached condos
- 138 attached condos

	0	bserved Vehicl	e Trips ¹	ITE Gr	oss Trip General	tion Estimate	Difference		
	Total	Inbound	Outbound	Total	Inbound	Outbound	Total		
AM Peak Hour	550	186	364	425	94	331	125 / 29.4%		
PM Peak Hour	490	289	201	547	352	195	-57 / -10.4%		

Conclusions:

- 1. AM peak hour inbound trips are higher than ITE trip generation estimate likely due to parents returning home after dropping their student off at the nearby elementary school.
- 2. PM peak hour trips are approximately 10% lower than ITE trip generation estimates.

Notes:

¹8% of total AM peak hour trips and 6% of total PM peak hour trips were bike/pedestrian trips.

Valencia Town Center West Development, Santa Clarita, CA

Land Use:

- 244 room hotel
- 22,740 square feet of retail
- 12,800 square feet of office
- 55,000 square foot health club
- 210 apartment units
- 341 condo units

	0	bserved Vehicl	e Trips ¹	ITE Gr	oss Trip Genera	tion Estimate	Difference		
	Total	Inbound	Outbound	Total	Inbound	Outbound	Total		
AM Peak Hour	479	262	217	504	190	314	-25 / -4.9%		
PM Peak Hour	603	331	272	779	438	341	-176 / -22.6%		

Conclusions:

- The observed trips would equal the ITE trip generation estimate if an internalization percentage of 4.9% was
 assumed for the AM peak hour and 22.6% was assumed for the PM peak hour for the ITE calculation.
 However, given the significant amount of bike/ped trips, the project's actual internalization is likely in the 1520% range, which appears reasonable given the mix of uses on-site.
- 2. A high number of external bike/ped trips were observed because of the close proximity of complementary land uses near the project location.

Notes:

¹13% of total AM peak hour trips and 16% of total PM peak hour trips were bike/pedestrian trips.

Mixed Use Development (MXD) Trip Generation Model

Name of MXD	VCR
Location	Santa Clarita
MXD Characteristics	
<u>Geographic</u>	Notes:
Area (in acres)	105 Excludes Santa Clara River
	Includes most internal intersections (excluding those into apartment/parking
Number of Intersections	12 structures). This is a proxy for street connectivity and walkability.
Number of bus stops	4
Number of rail stops	1
Land Use	
Population	2010 Assumes 1.8 person per HH given lower household sizes in TODs
	Assumes 4 emps per ksf of BP, 2 emps per ksf of retail, and a combined 200
Employment	3050 additional employees in Hotel, and Theater
Number of Dwelling Units	
Single Family	
Multi-Family	
High Rise Condo	0 433
Retail Floor Space (ksf)	400
General Retail other than those listed below	
Supermarket Bank	
Health Club	
Restaurant (non-fast food)	
Fast-Food Restaurant	·
Gas Station	
Auto Repair	
Office Floor Space (ksf)	' <u></u>
Non-Medical	646
Medical	
Industrial Floor Space (ksf)	
Manufacturing	
Warehousing	
Hotel Rooms	200
Movie Screens	10
School Enrollment	
Grade School	
High Schoo <mark>l</mark>	
College	e <mark> </mark>
Misc Floor Space (ksf) not covered above	0
Number of Daily Trips expected from misc.	
uses	s <mark> </mark>

<u>Surrounding Area</u>
Employment within one mile of the MXD
Employment within a 30 minute Transit Trip
Regional Jobs / Housing Ratio

1000 Excludes employment within the MXD itself
20000 Estimated based on Metrolink/City buses and non-resid land uses.
1.30 Southern California region-wide ratio per 2008 APA Planning Roundtable

Mixed Use Development (MXD) Trip Generation Model

Name of MXD

VCR

Location

Santa Clarita

Number of "Raw" ITE Trips

24701 Slightly different than shown in Table C-1 due to different land use ca

Predicted Probabilities:

Internal Capture

17% Slightly higher than 15% daily internalization in Table B-1

Walking External Transit External 5% Independent Calculation of Likelihood of "Walk" as External Trip 5% Independent Calculation of Likelihood of "Transit" as External Trip

Number of Trips:

Internal Capture

4262

Walking External Transit External 988 986

Net Number of External Vehicle Trips

18464

Overall Trip Reduction Percentage

25% The MXD model is validated to this percentage reduction

APPENDIX D:

TECHNICAL CALCULATIONS FOR 2012 & INTERIM NO PROJECT CONDITIONS

Vista Canyon Ranch 6: Placerita Canyon Rd. & Sand Canyon Rd.

	J	*	1	†	+	4	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W			4	1>		A STATE OF THE STA
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Volume (veh/h)	50	50	20	10	10	330	
Peak Hour Factor	0.55	0.55	0.80	0.80	0.90	0.90	
Hourly flow rate (vph)	91	91	25	12	11	367	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s) Percent Blockage							
Right turn flare (veh)							
Median type	None						
Median storage veh)	MOUG						
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	257	194	378				
vC1, stage 1 conf vol			0.0				
vC2, stage 2 conf vol							
vCu, unblocked vol	257	194	378				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	87	89	98				
cM capacity (veh/h)	716	847	1181				
Direction, Lane #	EB 1	NB 1	SB 1	100	200	15 37 18	
Volume Total	182	38	378				
Volume Left	91	25	0				
Volume Right	91	0	367				
cSH	776	1181	1700				
Volume to Capacity	0.23	0.02	0.22				
Queue Length 95th (ft) Control Delay (s)	23	- 2	0				
Lane LOS	11.1	5.5	0.0				
Approach Delay (s)	В 11.1	A 5.5	0.0				
Approach LOS	В	5.5	0.0				
Intersection Summary	567 5	FALLS	THE BUILDING	Park.	11111	1	
Average Delay			3.7				
Intersection Capacity Uti	lization	3	3.4%	ICI	J Level	of Servic	e A
Analysis Period (min)			15				

	-	*	1	+-	1	-					
Movement	EBT	EBR	WBL	WBT	NBL	NBR		Sec. 10.	1970	10011108/0	
Lane Configurations	ተተጉ		*		**						
Sign Control	Free			Free	Stop						
Grade	0%			0%	0%						
Volume (veh/h)	870	10	10	1590	5						
Peak Hour Factor	0.85	0.85	0.90	0.90	0.40						
Hourly flow rate (vph) Pedestrians	1024	12	11	1767	12	12					
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type					None						
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume			1035		1641	347					
vC1, stage 1 conf vol											
vC2, stage 2 conf vol			4005		4044	0.45					
vCu, unblocked vol tC, single (s)			1035 4.1		1641 6.8	347					
tC, 2 stage (s)			4.1		0.0	6.9					
tF (s)			2.2		3.5	3.3					
p0 queue free %			98		86	98					
cM capacity (veh/h)			667		89	649					
Direction, Lane#	EB 1	EB 2	EB3	WB 1	WB2	WB3	WB 4	NB1	Charles and	English Sale	
Volume Total	409	409	216	11	589	589	589	25		- Company	TO LABORINE.
Volume Left	0	0	0	11	0	0	0	12			
Volume Right	0	0	12	0	0	0	Ō	12			
cSH	1700	1700	1700	667	1700	1700	1700	157			
Volume to Capacity	0.24	0.24	0.13	0.02	0.35	0.35	0.35	0.16			
Queue Length 95th (ft)	0	0	0	1	0	0	0	14			
Control Delay (s)	0.0	0.0	0.0	10.5	0.0	0.0	0.0	32.2			
Lane LOS Approach Delay (s)	0.0			В				D			
Approach LOS	0.0			0.1				32.2 D			
Intersection Summary	323	STUDIO		- 190 1	O.S.E.	300	1888		5 35		
Average Delay			0.3								
Intersection Capacity Uti	lization	4	10.7%	IC	CU Leve	el of Ser	vice		Α		
Analysis Period (min)			15								

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Movement	EBL		EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	L. Sales			ليراير	ተተኈ		44	ተ ተ	7	*	ተተ	7
Ideal Flow (vphpl)	1900			1900	-	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97			0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00			1.00			1.00	1.00	0.98	1.00	1.00	0.94
Flpb, ped/bikes	1.00			1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00			1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95			0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433			3433	5034		3433	3539	1546	1770	3539	1490
Flt Permitted	0.95			0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4590		3433	5034		3433	3539	1546	1770	3539	1490
Volume (vph)	270	700		370	1250	70	370	390	140	70	600	480
Peak-hour factor, PHF	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	700	600	370	1250	70	370	390	140	70	600	480
RTOR Reduction (vph)	0	119	0	0	4	0	0	0	95	0	0	265
Lane Group Flow (vph)	270	1181	0	370	1316	0	370	390	45	70	60 0	215
Confl. Peds. (#/hr)			49			22			8			39
Confl. Bikes (#/hr)			2			4			2			6
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	. •
Permitted Phases									8			4
Actuated Green, G (s)	13.4	40.5		16.9	44.0		17.4	36.4	36.4	7.2	26,2	26.2
Effective Green, g (s)	12.9	42.5		16.4	46.0		16.9	38.4	38.4	6.7	28.2	28.2
Actuated g/C Ratio	0.11	0.35		0.14	0.38		0.14	0.32	0.32	0.06	0.24	0.24
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	369	1626		469	1930		483	1132	495	99	832	350
v/s Ratio Prot	0.08	c0.26		c0.11	c0.26		c0.11	0.11		0.04	c0.17	000
v/s Ratio Perm									0.03	0.0 1	00	0.14
v/c Ratio	0.73	0.92dr		0.79	0.68		0.77	0.34	0.09	0.71	0.72	0.61
Uniform Delay, d1	51.9	33.7		50.1	30.9		49.6	31.2	28.6	55.7	42.3	41.0
Progression Factor	1.00	1.00		1.00	1.00		0.85	0.76	1.02	1.00	1.00	1.00
ncremental Delay, d2	6.3	2.9		7.9	2.0		6.7	0.3	0.1	17.1	3.5	4.1
Delay (s)	58.2	36.6		58.1	32.9		49.0	24.0	29.1	72.8	45.8	45.1
Level of Service	E	D		E	C		D	c	C	12.0 E	D	70.1 D
Approach Delay (s)		40.3		_	38.4			35.1	•	_	47.2	
Approach LOS		D			D			D			77.2 D	
ntersection Summary	8000	100	2706C	58 3	GIETAY.	80	100	Sec. 1975	2161	2 1 1 1	1 -1 -1	
HCM Average Control De			40.3	H	ICM Lev	el of Se	rvice		D			
ICM Volume to Capacity			0.76									
Actuated Cycle Length (s			120.0		um of lo				20.0			
ntersection Capacity Util	ization		87.8%	10	CU Leve	of Serv	/ice		Е			
naturals Desired (mile)			4 =									

Analysis Period (min) 15 dr Defacto Right Lane. Recode with 1 though lane as a right lane. c Critical Lane Group

	•	*	†	-	-	↓					
Movement	WBL	WBR	NBT	NBR	SBL	SBT			11000		T. Janil
Lane Configurations		7	444			ተተተ					
Sign Control	Stop		Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	0	260	740	130	0	1610					
Peak Hour Factor	0.75	0.75	0.90	0.90	0.95	0.95					
Hourly flow rate (vph)	0	347	822	144	0	1695					
Pedestrians	72										
Lane Width (ft)	12.0										
Walking Speed (ft/s)	4.0										
Percent Blockage	6										
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)			702								
pX, platoon unblocked	0.94	0.94			0.94						
vC, conflicting volume	1531	418			1039						
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1436	251			911						
tC, single (s)	6.8	6.9			4.1						
tC, 2 stage (s)											
tF (s)	3.5	3.3			2.2						
p0 queue free %	100	48			100						
cM capacity (veh/h)	110	661			656						
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	81115	122412	1000	
Volume Total	347	329	329	309	565	565	565				
Volume Left	0	0	0	0	0	0	0				
Volume Right	347	0	0	144	0	0	0				
cSH	661	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.52	0.19	0.19	0.18	0.33	0.33	0.33				
Queue Length 95th (ft)	77	0	0	0	0	0	0				
Control Delay (s)	16.3	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	С										
Approach Delay (s)	16.3	0.0			0.0						
Approach LOS	С										
Intersection Summary	E ST	-	- 11	100	OF S		353	12.	-11-	3	STATE OF THE PARTY.
Average Delay Intersection Capacity Ut	ilization		1.9 40.7%	10	CU Leve	l of Pa-	vice		A		
Analysis Period (min)		•	15	ı	O LEVE	ii ui ser	AICE		М		

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ሻ		7	ሻ	ተተጉ		ħ	ተተጉ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0		4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00		1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00		1.00		0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes Frt		1.00		1.00		1.00	1.00	1.00		1.00	1.00	
Fit Protected		0.90		1.00		0.85	1.00	0.98		1.00	1.00	
Satd. Flow (prot)		0.99		0.95		1.00	0.95	1.00		0.95	1.00	
Flt Permitted		1658 0.98		1770		1471	1770	4948		1770	5067	
Satd. Flow (perm)		1635		0.68		1.00	0.95	1.00		0.95	1.00	
	40		70	1258		1471	1770	4948	400	1770	5067	
Volume (vph) Peak-hour factor, PHF	10 1.00	10 1.00	70	300	0	150	30	780	130	120	1410	30
Adj. Flow (vph)	1.00	1.00	1.00 70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RTOR Reduction (vph)	0	51		300	0	150	30	780	130	120	1410	30
Lane Group Flow (vph)	0	39	0	0 300	0	109 41	0 30	17	0	120	1	0
Confl. Peds. (#/hr)	U	39	U	300	U	46	30	893	0 18	120	1439	0
Confl. Bikes (#/hr)						1			10			1
Turn Type	Perm			Perm	_	Perm	Prot			Deat		
Protected Phases	i Cilli	4		Femi	8	renn	5 - TOL	2		Prot	6	
Permitted Phases	4	7		8	O	8	9	2		1	6	
Actuated Green, G (s)	-	32.4		32.4		32.4	4.1	61.5		12.1	69.5	
Effective Green, g (s)		32.9		32.9		32.9	3.6	63.5		11.6	71.5	
Actuated g/C Ratio		0.27		0.27		0.27	0.03	0.53		0.10	0.60	
Clearance Time (s)		4.5		4.5		4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0		3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		448		345		403	53	2618		171	3019	_
v/s Ratio Prot				0.0		100	0.02	0.18		c0.07	c0.28	
v/s Ratio Perm		0.02		c0.24		0.03	0.02	0.10		00.01	00.20	
v/c Ratio		0.09		0.87		0.10	0.57	0.34		0.70	0.48	
Uniform Delay, d1		32.4		41.5		32.5	57.4	16.2		52.5	13.7	
Progression Factor		1.00		1.00		1.00	1.14	0.56		0.96	1.30	
Incremental Delay, d2		0.1		20.1		0.1	7.9	0.4		7.4	0.4	
Delay (s)		32.5		61.6		32.6	73.2	9.4		57.9	18.2	
Level of Service		С		E		С	E	Α		E	В	
Approach Delay (s)		32.5			52.0			11.5			21.3	
Approach LOS		С			D			В			С	
Intersection Summary	1211	1	AL IN	35-195-10	200	000	1960	1000	366	FC 1977		
HCM Average Control D			23.1	H	CM Lev	el of Se	rvice		С			-
HCM Volume to Capacity	y ratio		0.61						1.2			
Actuated Cycle Length (s	s)		120.0	Sı	um of lo	st time	(s)		8.0			
ntersection Capacity Util	lization	6	4.6%			of Serv			C			
Analysis Period (min)			15									
Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		∰ Stop			45 Stop		ሻ	\$ Stop		ħ	\$ Stop	
Volume (vph)	60	30	80	70	40	5	30	60	30	5	130	90
Peak Hour Factor	0.75	0.75	0.75	0.85	0.85	0.85	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	80	40	107	82	47	6	33	67	33	7	173	120
Direction, Lane#	EB1	WB 1	NB1	NB 2	SB 1	SB 2	1000	1300		The state of	100	
Volume Total (vph)	227	135	33	100	7	293						
Volume Left (vph)	80	82	33	0	7	0						
Volume Right (vph)	107	6	0	33	0	120						
Hadj (s)	-0.18	0.13	0.53	-0.20	0.53	-0.25						
Departure Headway (s)	5.1	5.6	6.5	5.7	6.2	5.4						
Degree Utilization, x	0.32	0.21	0.06	0.16	0.01	0.44						
Capacity (veh/h)	652	590	516	580	545	632						
Control Delay (s)	10.5	10.0	8.7	8.6	8.1	11.5						
Approach Delay (s)	10.5	10.0	8.6		11.4							
Approach LOS	В	В	Α		В							
Intersection Summary		1200	-150	W. 57.15	Bay.	NO.	A 5 (50)	The same	INFRES.	P. (55)	-	303
Delay HCM Level of Service Intersection Capacity Uti	lization		10.4 B 36.4%	IC	CU Leve	el of Serv	ice		A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	(F3)	CIT.	7-			
Lane Configurations	7	44	44		*5	7						
Sign Control		Free	Free		Stop							
Grade		0%	0%		0%							
Volume (veh/h)	80	160	190	50	110	230						
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.90						
Hourly flow rate (vph)	100	200	211	56	122	256						
Pedestrians		1										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		0										
Right turn flare (veh)												
Median type					None							
Median storage veh)		580										
Upstream signal (ft) pX, platoon unblocked		560										
vC, conflicting volume	267				520	424						
vC1, stage 1 conf vol	201				539	134						
vC2, stage 2 conf vol												
vCu, unblocked vol	267				539	134						
tC, single (s)	4.1				6.8	6.9						
tC, 2 stage (s)	•••				0.0	0.3						
tF (s)	2.2				3.5	3.3						
p0 queue free %	92				72	71						
cM capacity (veh/h)	1294				436	889						
Direction, Lane #	EB1	EB 2	EB3	WB 1	WB 2	SB 1	SB 2	3500	1000		1.51	
Volume Total	100	100	100	141	126	122	256					_
Volume Left	100	0	0	0	0	122	0					
Volume Right	0	0	0	0	56	٥	256					
cSH	1294	1700	1700	1700	1700	436	889					
Volume to Capacity	0.08	0.06	0.06	0.08	0.07	0.28	0.29					
Queue Length 95th (ft)	6	0	0	0	0	28	30					
Control Delay (s)	8.0	0.0	0.0	0.0	0.0	16.4	10.7					
Lane LOS	A					С	В					
Approach Delay (s) Approach LOS	2.7			0.0		12.5 B						
Intersection Summary	-			1	-		-					
Average Delay			5.9		Acarle S					250	141. 1-14	
Intersection Capacity Uti Analysis Period (min)	ilization	2	27.9% 15	Ю	CU Leve	l of Sen	/ice		A			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተተ	7	14	ተተተ	7	1/1/	ተተተ	7	ሻሻ	ተተተ	76.76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Fit Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Volume (vph)	160	830	350	180	610	70	220	340	100	230	1240	520
Peak-hour factor, PHF	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. Flow (vph)	160	830	350	180	610	70	220	340	100	230	1240	520
RTOR Reduction (vph)	0	0	183	0	0	50	0	0	59	0	0	271
Lane Group Flow (vph)	160	830	167	180	610	20	220	340	41	230	1240	249
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.3	30.7	30.7	9.8	32.2	32.2	11.4	46.7	46.7	12.8	48.1	48.1
Effective Green, g (s)	8.3	32.7	32.7	9.8	34.2	34.2	11.4	48.7	48.7	12.8	50.1	50.1
Actuated g/C Ratio	0.07	0.27	0.27	0.08	0.29	0.29	0.10	0.41	0.41	0.11	0.42	0.42
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	237	1386	431	280	1449	451	326	2064	642	366	2123	1164
v/s Ratio Prot	0.05	c0.16		c0.05	0.12		0.06	0.07		c0.07	c0.24	
v/s Ratio Perm			0.11			0.01			0.03			0.09
v/c Ratio	0.68	0.60	0.39	0.64	0.42	0.04	0.67	0.16	0.06	0.63	0.58	0.21
Uniform Delay, d1	54.5	37.9	35.5	53.4	34.9	31.1	52.5	22.7	21.7	51.3	26.9	22.4
Progression Factor	1.09	0.95	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.15	0.63	0.33
Incremental Delay, d2	5.7	0.9	1.0	3.8	0.3	0.1	4.3	0.2	0.2	2.2	1.1	0.4
Delay (s)	65.0	37.1	29.4	57.2	35.2	31.1	56.8	22.9	21.9	61.0	18.0	7.8
Level of Service	E	D	С	Е	D	С	E	С	С	Е	В	Α
Approach Delay (s)		38.4			39.5			34.0			20.3	
Approach LOS		D			D			С			С	
Intersection Summary		10.69	367		-		1134	- 17	-		- 3	
HCM Average Control De			30.6	H	CM Lev	el of Se	rvice		С			-
HCM Volume to Capacity			0.59									
Actuated Cycle Length (s			120.0	S	um of lo	st time	(s)		12.0			
Intersection Capacity Util	ization	6	34.7%	IC	U Leve	l of Serv	rice		С			
Analysis Period (min)			15									
c Critical Lane Group												

	-	-	4	*	1	1	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	*	ተተተ	ተተተ	74	*	#	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
FIt Permitted	0.21	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	396	5085	5085	1583	1770	1583	
Volume (vph)	40	1240	1170	90	40	10	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	40	1240	1170	90	40	10	
RTOR Reduction (vph)	0	0	0	18	0	9	
Lane Group Flow (vph)	40	1240	1170	72	40	1	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	· 1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	101.2	101.2	94.2	94.2	8.3	8.3	
Effective Green, g (s)	103.2	103.2	96.2	96.2	8.8	8.8	
Actuated g/C Ratio	0.86	0.86	0.80	0.80	0.07	0.07	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2,5	4.5	4.5	2.0	2.0	
Lane Grp Cap (vph)	375	4373	4076	1269	130	116	
v/s Ratio Prot	0.00	c0.24	0.23		c0.02		
v/s Ratio Perm	0.09			0.05		0.00	
v/c Ratio	0.11	0.28	0.29	0.06	0.31	0.01	
Uniform Delay, d1	1.5	1.6	3.1	2.5	52.7	51.5	
Progression Factor	1.00	1.00	1.48	2.13	1.00	1.00	
Incremental Delay, d2	0.1	0.2	0.2	0.1	0.5	0.0	
Delay (s)	1.5	1.7	4.7	5.3	53.2	51.6	
Level of Service	Α	Α	Α	Α	D	D	
Approach Delay (s)		1.7	4.8		52.9		
Approach LOS		Α	Α		D		
Intersection Summary	1-123		THE REAL PROPERTY.	414	205		printed the second second
HCM Average Control D			4.2	Н	CM Lev	el of Servi	ice A
HCM Volume to Capacit	ly ratio		0.29				
Actuated Cycle Length (120.0	S	um of lo	st time (s)	8.0
Intersection Capacity Ut	ilization	;	39.3%			of Service	
Analysis Period (min)			15				
c Critical Lane Group							

	1	4	†	1	-	↓	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	I SAN SECTION OF THE SECTION OF
Lane Configurations	1/1/	7	44	7	77	^	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	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	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1544	3539	
Volume (vph)	800	380	180	670	610	420	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	800	380	180	670	610	420	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	800	380	180	670	610	420	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		1	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	21.2	52.9	8.1	52.9	23.7	23.7	
Effective Green, g (s)	21.2	52.9	8.1	52.9	23.7	23.7	
Actuated g/C Ratio	0.40	1.00	0.15	1.00	0.45	0.45	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1376	1583	542	1583	1106	1586	
v/s Ratio Prot	c0.23		0.05		c0.12	0.12	
v/s Ratio Perm		0.24		0.42	c0.13		
v/c Ratio	0.58	0.24	0.33	0.42	0.55	0.26	
Uniform Delay, d1	12.4	0.0	20.0	0.0	10.0	9.1	
Progression Factor	1.00	1,00	1.00	1.00	1.00	1.00	
ncremental Delay, d2	0.9	0.4	0.6	0.8	0.3	0.2	
Delay (s)	13.2	0.4	20.6	0.8	10.3	9.3	
Level of Service	В	Α	С	Α	В	Α	
Approach Delay (s)	9.1		5.0			9.9	
Approach LOS	Α		Α			Α	
Intersection Summary	0.00	769		-		5300	75-91
HCM Average Control D	elay		8.2	Н	CM Lev	el of Service	
HCM Volume to Capacit			0.56	•		556	•
Actuated Cycle Length (52.9	S	um of lo	st time (s)	8.0
ntersection Capacity Uti		5	5.2%			of Service	В
Analysis Period (min)			15	, -		3. 23 .	_
Critical Lane Group							

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	ተተጉ		16.54	ተተተ	7	24	ተተ	74	44	^	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4901		3433	5085	1554	3433	3539	1558	3433	3539	1551
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4901	100	3433	5085	1554	3433	3539	1558	3433	3539	1551
Volume (vph)	170	700	190	270	1470	380	210	370	110	490	610	460
Peak-hour factor, PHF	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. Flow (vph)	170	700	190	270	1470	380	210	370	110	490	610	460
RTOR Reduction (vph)	0	38	0	0	0	45	0	0	41	0	0	107
Lane Group Flow (vph)	170	852	0	270	1470	335	210	370	69	490	610	353
Confl. Peds. (#/hr) Confl. Bikes (#/hr)			6			11			7			6
	D1			D					2			_
Turn Type Protected Phases	Prot	_		Prot		pm+ov	Prot		om+ov	Prot		Perm
Permitted Phases	5	2		1	6	7	3	8	1	7	4	
Actuated Green, G (s)	10.3	46.6		40.4	40.4	6	40.0	00.0	8	40.5	00.4	4
Effective Green, g (s)	10.3	48.6		12.1 12.1	48.4 50.4	66.9	10.9 10.9	22.8	34.9	18.5	30.4	30.4
Actuated g/C Ratio	0.09	0.40		0.10	0.42	68.9 0.57	0.09	24.8	36.9	18.5	32.4	32.4
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	0.21 6.0	0.31	0.15	0.27	0.27
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	4.0 1.5	4.5	4.0 1.5	4.0 1.5	6.0	6.0
Lane Grp Cap (vph)	295	1985		346	2136	892	312				4.5	4.5
v/s Ratio Prot	c0.05	0.17		c0.08	c0.29	0.06	c0.06	731	531	529	956	419
v/s Ratio Perm	CO.03	0.17		CO.00	60.29	0.06	CU.U6	0.10	0.01 0.03	c0.14	0.17	-0.00
v/c Ratio	0.58	0.43		0.78	0.69	0.18	0.67	0.51	0.03	0.03	0.64	c0.23
Uniform Delay, d1	52.8	25.7		52.7	28.4	13.9	52.8	42.2	30.0	0.93 50.1	0.64 38.6	0.84 41.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	0.7		10.1	1.8	0.1	4.5	1.00	0.0	22.0	1.8	15.2
Delay (s)	60.7	26.4		62.7	30.2	14.0	57.3	43.1	30.0	72.1	40.4	56.6
Level of Service	F	20.7 C		02.7 F	30.2 C	17.0 B	57.5 E	43.1 D	30.0 C	72.1 E	40.4 D	50.0 E
Approach Delay (s)	_	31.9		_	31.5		-	45.3	C	-	55.1	
Approach LOS		C			C			70.0 D			55. T	
Intersection Summary	1 23	23	Rid I	and a	- 3	Est	-1.12	L Com	77	E EXAMP	20	
HCM Average Control D			40.1	Н	CM Lev	el of Se	ervice		D			
HCM Volume to Capacit			0.73									
	Actuated Cycle Length (s)		120.0		um of lo				16.0			
Intersection Capacity Uti	lization	7	73.5%	IC	CU Leve	l of Ser	vice		D			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL.	NBT	NBR	SBL	SBT	SBR
Lane Configurations	444	个个分		444	ተተ _ጉ	7	7	ተተተ	7	444	ተተኈ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5056		4990	4806	1362	1770	5085	1575	4990	4682	1350
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5056		4990	4806	1362	1770	5085	1575	4990	4682	1350
Volume (vph)	270	500	20	280	1300	480	20	520	260	650	1250	970
Peak-hour factor, PHF	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. Flow (vph)	270	500	20	280	1300	480	20	520	260	650	1250	970
RTOR Reduction (vph)	0	3	0	0	0	49	0	0	14	0	15	106
Lane Group Flow (vph)	270	517	0	280	1300	431	20	520	246	650	1470	629
Confl. Peds. (#/hr)									3			1
Confl. Bikes (#/hr)									1			
Turn Type	Prot			Prot		om+ov	Prot		om+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	22.3	20.1		46.3	44.1	70.3	3.6	21.8	68.1	26.2	44.4	66.7
Effective Green, g (s)	23.3	22.1		47.3	46.1	73.3	4.6	23.8	71.1	27.2	46.4	69.7
Actuated g/C Ratio	0.17	0.16		0.35	0.34	0.54	0.03	0.17	0.52	0.20	0.34	0.51
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	852	819		1730	1624	732	60	887	867	995	1593	729
v/s Ratio Prot	0.05	0.10		0.06	c0.27	0.12	0.01	c0.10	0.10	0.13	c0.31	c0.15
v/s Ratio Perm						0.20			0.06			0.32
v/c Ratio	0.32	0.63		0.16	0.80	0.59	0.33	0.59	0.28	0.65	0.92	0.86
Uniform Delay, d1	49.6	53.4		30.8	41.0	21.4	64.4	51.8	18.3	50.3	43.3	29.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.7		0.0	3.3	8.0	1.2	1.4	0.1	1.2	9.6	10.0
Delay (s)	49.7	55.0		30.8	44.2	22.1	65.6	53.1	18.4	51.4	52.9	39.2
Level of Service	D	E		С	D	С	Е	D	В	D	D	D
Approach Delay (s)		53.2			37.3			42.2			49.0	
Approach LOS		D			D			D			D	
Intersection Summary		1000	STIN	7 175	1	Rie C.		35.3	-		377	E .
HCM Average Control De			45.0	Н	CM Lev	el of Se	rvice		D			
HCM Volume to Capacity	ratio		0.85									
Actuated Cycle Length (s			136.4	S	um of lo	st time	(s)		12.0			
Intersection Capacity Utili	ization	8	2.2%		U Leve				Ε			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	↑ ₽		7	1		7	1		ď	† ‡	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.92		1.00	0.95		1.00	0.99	
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3400		1770	3245		1770	3380		1770	3511	
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3400		1770	3245		1770	3380		1770	3511	
Volume (vph)	10	280	100	140	210	260	20	210	90	170	1630	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	295	105	165	247	306	21	221	95	179	1716	95
RTOR Reduction (vph)	0	33	0	0	213	0	0	40	0	0	3	0
Lane Group Flow (vph)	11	367	0	165	340	0	21	276	0	179	1808	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.3	14.3		14.9	14.9		1.4	41.5		14.5	54.6	
Effective Green, g (s)	14.3	14.3		14.9	14.9		1.4	41.5		14.5	54.6	
Actuated g/C Ratio	0.14	0.14		0.15	0.15		0.01	0.41		0.14	0.54	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	250	480		261	478		24	1386		254	1894	
v/s Ratio Prot	0.01	c0.11		0.09	c0.10		0.01	0.08		c0.10	c0.51	
v/s Ratio Perm												
v/c Ratio	0.04	0.77		0.63	0.71		0.88	0.20		0.70	0.95	
Uniform Delay, d1	37.5	41.8		40.6	41.1		49.8	19.2		41.3	22.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	7.1		4.9	4.9		127.4	0.1		8.6	11.7	
Delay (s)	37.6	49.0		45.5	46.0		177.2	19.2		49.9	33.8	
Level of Service	D	D		D	D		F	В		D	C	
Approach Delay (s)		48.7			45.9			29.1		_	35.2	
Approach LOS		D			D			С			D	
ntersection Summary		ME IS		PER TAN	35.5	185		and the same	ata	ARTER.	1100	10-11
HCM Average Control De			38.5	Н	CM Lev	el of Se	rvice		D			
HCM Volume to Capacity	/ ratio		0.89									
Actuated Cycle Length (s			101.2	S	um of lo	st time	(s)		16.0			
ntersection Capacity Util		8	33.3%		CU Leve				E			
Analysis Period (min)			15									
Critical Lane Group												

	1	4	1	-	-	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT		630384	120000	O'SHI E	196
Lane Configurations	*	7	† }		ሻ	44					
Sign Control	Stop		Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	210	10	410	70	790	1680					
Peak Hour Factor	0.70	0.70	0.90	0.90	0.90	0.90					
Hourly flow rate (vph)	300	14	456	78	878	1867					
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None										
Median storage veh)			700								
Upstream signal (ft) pX, platoon unblocked			768								
vC, conflicting volume	3183	267			533						
vC1, stage 1 conf vol	3103	201			555						
vC2, stage 2 conf vol											
vCu, unblocked vol	3183	267			533						
tC, single (s)	6.8	6.9			4.1						
tC, 2 stage (s)	0.0										
tF (s)	3.5	3.3			2.2						
p0 queue free %	0	98			15						
cM capacity (veh/h)	1	731			1030						
Direction, Lane#	WB 1	WB 2	NB 1	NB 2	SB1	SB 2	SB 3	3 5 5	10 TH	2 %	- 1
Volume Total	300	14	304	230	878	933	933				
Volume Left	300	0	0	0	878	0	0				
Volume Right	0	14	0	78	0	0	0				
cSH	1	731	1700	1700	1030	1700	1700				
Volume to Capacity	257.28	0.02	0.18	0.14	0.85	0.55	0.55				
Queue Length 95th (ft)	Err	1	0	0	274	0	0				
Control Delay (s)	Err	10.0	0.0	0.0	24.7	0.0	0.0				
Lane LOS	F	В			С						
Approach Delay (s)	9545.0		0.0		7.9						
Approach LOS	F										
Intersection Summary	100			320		1	S. Sall		930		
Average Delay			841.2								
Intersection Capacity U	tilization		79.0%	iC	CU Leve	of Ser	vice	E)		
Analysis Period (min)			15								

Vista Canyon Ranch 23: Placerita Canyon Rd. & SR 14 NB Ramps

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7"		† \$			4	7		C4	
Sign Control Grade		Free 0%			Free 0%			Stop 0%			Stop 0%	
Volume (veh/h)	0	120	170	0	330	10	270	0%	50	0	0%	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph)	0.50	133	189	0.50	367	11	300	0.30	56	0.32	0.32	0.52
Pedestrians	_			·		• • •		•	00	ŭ	•	Ū
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									30			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		718										
pX, platoon unblocked	070			400								
vC, conflicting volume	378			133			317	511	67	467	506	189
vC1, stage 1 conf vol vC2, stage 2 conf vol												
vCu, unblocked vol	378			133			317	511	67	467	506	189
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)	4.,			7.1			1.5	0.0	0.5	7.0	0.0	0.3
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			51	100	94	100	100	100
cM capacity (veh/h)	1177			1449			613	464	983	452	468	821
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB2	NB1	-			200	1	
Volume Total	67	67	189	244	133	356						
Volume Left	0	0	0	0	0	300						
Volume Right	0	0	189	0	11	56						
cSH	1700	1700	1700	1700	1700	726						
Volume to Capacity	0.04	0.04	0.11	0.14	0.08	0.49						
Queue Length 95th (ft)	0	0	0	0	0	68						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.2						
Lane LOS	0.0			0.0		C						
Approach Delay (s) Approach LOS	0.0			0.0		15.2 C						
Intersection Summary	-	33-		T-ATE	Allero.	303333	ile =	7				
Average Delay			5.1									
Intersection Capacity Ut	ilization	;	31.1%	IC	CU Leve	of Serv	/ice		Α			
Analysis Period (min)			15									

Vista Canyon Ranch 6: Placerita Canyon Rd. & Sand Canyon Rd.

	•	7	1	†	ļ	1	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	and the Cartesian Control of the Cartesian Con
Lane Configurations	M			र्स	1→		
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Volume (veh/h)	240	10	50	30	10	50	
Peak Hour Factor	0.90	0.90	0.75	0.75	0.80	0.80	
Hourly flow rate (vph)	267	11	67	40	12	62	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh) Median type	Mann						
Median storage veh)	None						
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	217	44	75				
vC1, stage 1 conf vol	217	77	75				
vC2, stage 2 conf vol							
vCu, unblocked vol	217	44	75				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF(s)	3.5	3.3	2.2				
p0 queue free %	64	99	96				
cM capacity (veh/h)	737	1026	1524				
Direction, Lane#	EB 1	NB 1	SB 1	111	VESTE	TO AN	
Volume Total	278	107	75				
Volume Left	267	67	0				
Volume Right	11	0	62				
cSH	746	1524	1700				
Volume to Capacity	0.37	0.04	0.04				
Queue Length 95th (ft)	43	3	0				
Control Delay (s)	12.7	4.8	0.0				
Lane LOS	В	Α					
Approach Delay (s)	12.7	4.8	0.0				
Approach LOS	В						
Intersection Summary		-	55.00	-10			- 4 OA
Average Delay			8.8				
Intersection Capacity Ut	ilization	19	31.6%	IC	U Level	of Servi	ce A
Analysis Period (min)			15				

	→	7	1	+	1	_							
Movement	EBT	EBR	WBL	WBT	NBL	NBR					3	W	3
Lane Configurations Sign Control	↑↑↑ Free		y	↑↑↑ Free	Stop								
Grade	0%			0%	0%								
Volume (veh/h)	1380	5	5	830	10	10							
Peak Hour Factor	0.95	0.95	0.90	0.90	0.50	0.50							
Hourly flow rate (vph)	1453	5	6	922	20	20							
Pedestrians				1	1								
Lane Width (ft) Walking Speed (ft/s)				12.0 4.0	12.0 4.0								
Percent Blockage				4.0	4.0								
Right turn flare (veh)				U	U								
Median type					None								
Median storage veh) Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume			1459		1775	489							
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol			1459		1775	489							
tC, single (s)			4.1		6.8	6.9							
tC, 2 stage (s) tF (s)			2.2		3.5	3.3							
p0 queue free %			99		73	96							
cM capacity (veh/h)			459		73	524							
Direction, Lane #	EB 1	EB 2	EB3	WB1	WB 2	WB3	WB4	NB 1	I Georgia	2107	100	200	100
Volume Total	581	581	296	6	307	307	307	40					_
Volume Left	0	0	0	6	0	0	0	20					
Volume Right	0	0	5	0	0	0	0	20					
cSH	1700	1700	1700	459	1700	1700	1700	128					
Volume to Capacity	0.34	0.34	0.17	0.01	0.18	0.18	0.18	0.31 31					
Queue Length 95th (ft) Control Delay (s)	0 0.0	0 0 .0	0. 0	1 12.9	0.0	0.0	0.0	45.4					
Lane LOS	0.0	0.0	0.0	12.9 B	0.0	0.0	0.0	45.4 E					
Approach Delay (s)	0.0			0.1				45.4					
Approach LOS								Ε					
Intersection Summary	Miles .	day.	718		120			100			55F	0	
Average Delay			0.8										
Intersection Capacity Ut	ilization		37.1%	1	CU Lev	el of Ser	rvice		P	1			
Analysis Period (min)			15										

	۶	→	7	1	←	•	4	†	~	1	1	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1,4			44	ተተው		77	*	7	4	^	7
Ideal Flow (vphpl)	1900		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4617		3433	4964		3433	3539	1520	1770	3539	1473
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4617	000	3433	4964		3433	3539	1520	1770	3539	1473
Volume (vph)	620	1010	620	210	570	90	630	590	370	170	570	400
Peak-hour factor, PHF	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. Flow (vph) RTOR Reduction (vph)	620	1010 68	620	210	570 17	90	630 0	590	370 278	170	570	400
Lane Group Flow (vph)	0 62 0	1562	0	0 210	643	0	630	0 590	92	0 170	0 570	310 90
Confl. Peds. (#/hr)	020	1502	70	210	043	9	030	590	92 17	170	570	90 48
Confl. Bikes (#/hr)			70			2			5			1
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8	reiiii	7	4	Perm
Permitted Phases	3	2		'	U		3	U	8	,	7	4
Actuated Green, G (s)	37.4	54.6		12.1	29.3		29.8	30.7	30.7	15.6	16.5	16.5
Effective Green, g (s)	36.9	56.6		11.6	31.3		29.3	32.7	32.7	15.1	18.5	18.5
Actuated g/C Ratio	0.28	0.43		0.09	0.24		0.22	0.25	0.25	0.11	0.14	0.14
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	960	1980		302	1177		762	877	377	202	496	206
v/s Ratio Prot	0.18	c0.34		c0.06	0.13		c0.18	c0.17	0.,	0.10	c0.16	200
v/s Ratio Perm								••••	0.06	0	300	0.06
v/c Ratio	0.65	0.91dr		0.70	0.55		0.83	0.67	0.24	0.84	1.15	0.43
Uniform Delay, d1	41.8	32.5		58.5	44.1		48.9	44.8	39.7	57.3	56.8	52.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	3.3		5.5	1.8		7.2	2.4	0.6	25.0	88.4	2.5
Delay (s)	45.2	35.8		64.0	46.0		56.1	47.2	40.3	82.2	145.1	54.5
Level of Service	D	D		E	D		E	D	D	F	F	D
Approach Delay (s)		38.4			50.3			49.1			103.9	
Approach LOS		D			D			D			F	
Intersection Summary	Eiler	TE BI	Jan 1	Harry 1-	200	411	-	DE PAR	H SYS	Allery.	111	1
HCM Average Control D			55.9	Н	CM Lev	el of Se	ervice		E			
HCM Volume to Capacity			0.86	_	51-		(=)		00.0			
Actuated Cycle Length (s			132.0		um of lo				20.0			
Intersection Capacity Uti Analysis Period (min)	ııza(ION		99.1% 15	К	CU Leve	or Ser	vice		F			

Analysis Period (min) 15
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

	1	1	†	1	1	ļ					
Movement	WBL	WBR	NBT	NBR	SBL	SBT	LINE CO.		No.	1913	371
Lane Configurations		7	ተተኩ			ተተተ					
Sign Control	Stop		Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	0	190	1410	330	0	1350					
Peak Hour Factor	0.85	0.85	1.00	1.00	0.95	0.95					
Hourly flow rate (vph)	0	224	1410	330	0	1421					
Pedestrians	32										
Lane Width (ft)	12.0										
Walking Speed (ft/s)	4.0										
Percent Blockage	3										
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)			702								
pX, platoon unblocked	0.79	0.79			0.79						
vC, conflicting volume	2081	667			1772						
vC1, stage 1 conf vol											
vC2, stage 2 conf vol	(Valera)										
vCu, unblocked vol	1830	31			1437						
tC, single (s)	6.8	6.9			4.1						
tC, 2 stage (s)											
tF (s)	3.5	3.3			2.2						
p0 queue free %	100	72			100						
cM capacity (veh/h)	52	793			358						
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	III .			
Volume Total	224	564	564	612	474	474	474				
Volume Left	0	0	0	0	0	0	0				
Volume Right	224	0	0	330	0	0	0				
cSH	793	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.28	0.33	0.33	0.36	0.28	0.28	0.28				
Queue Length 95th (ft)	29	0	0	0	0	0	0				
Control Delay (s)	11.3	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	В										
Approach Delay (s)	11.3	0.0			0.0						
Approach LOS	В										
Intersection Summary	1000	-	3830	E	1	355	34	With	1		
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		0.7 53.6% 15	Ю	CU Leve	l of Ser	vice		Α		

	*	-	7	1	-	4	1	1	-	-	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		P)	†	7	ħ	ተተኩ		7	ተተ _ጉ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Fit Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695		1770	1863	1539	1770	4975		1770	5042	
Flt Permitted		0.93		0.70	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1602		1299	1863	1539	1770	4975		1770	5042	
Volume (vph)	20	10	40	190	10	120	60	1680	230	160	960	50
Peak-hour factor, PHF	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. Flow (vph)	20	10	40	190	10	120	60	1680	230	160	960	50
RTOR Reduction (vph)	0	33	0	0	0	98	0	12	0	0	3	0
Lane Group Flow (vph)	0	37	0	190	10	22	60	1898	0	160	1007	0
Confl. Peds. (#/hr)						11			11			1
Confl. Bikes (#/hr)	_			_		2			5			
Turn Type	Perm	_		Perm	_	Perm	Prot	_		Prot	_	
Protected Phases		4		_	8	_	5	2		1	6	
Permitted Phases	4	04.4		8		8		70.0		44.5	70.0	
Actuated Green, G (s)		21.4		21.4	21.4	21.4	6.6	70.6		14.0	78.0	
Effective Green, g (s)		21.9		21.9	21.9	21.9	6.1	72.6		13.5	80.0	
Actuated g/C Ratio		0.18		0.18	0.18	0.18	0.05	0.60		0.11	0.67	
Clearance Time (s)		4.5		4.5	4.5	4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	_
Lane Grp Cap (vph)		292		237	340	281	90	3010		199	3361	
v/s Ratio Prot		0.00		-0.45	0.01	0.04	0.03	c0.38		c0.09	0.20	
v/s Ratio Perm		0.02		c0.15	0.00	0.01	0.07	0.00		0.00	0.00	
v/c Ratio		0.13		0.80	0.03	0.08	0.67	0.63		0.80	0.30	
Uniform Delay, d1		41.1		47.0	40.3	40.7	56.0	15.1		52.0	8.3	
Progression Factor		1.00		1.00	1.00	1.00	0.90	1.40		1.00	1.00	
Incremental Delay, d2		0.2 41.3		17.5	0.0	0.1	13.0	1.0		19.5	0.2	
Delay (s)		41.3 D		64. 4 E	40.4 D	40.8 D	63.3 E	22.2 C		71.4 E	8.6	
Level of Service					54.8	ט					A	
Approach Delay (s) Approach LOS		41.3 D			54.6 D			23.5 C			17.2 B	
						_						
Intersection Summary	BELLEV.		04.0		0111	-1 - (0			0	14-	19-1	9
HCM Average Control D			24.6	Н	CM Lev	el of Se	rvice		С			
HCM Volume to Capacit			0.69				/- \		40.0			
Actuated Cycle Length (120.0			ost time			12.0			
Intersection Capacity Uti	iization		75.7%	10	O Leve	el of Sen	vice		D			
Analysis Period (min)			15									
c Critical Lane Group												

	1	-	*	1	+	4	4	1	1	-	ţ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4) j	1>		ሻ	1 >	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	80	50	40	30	40	10	40	90	70	10	70	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	89	56	44	33	44	11	47	106	82	12	82	59
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	- Start	1,22		Day.	- Ille	
Volume Total (vph)	189	89	47	188	12	141						
Volume Left (vph)	89	33	47	0	12	0						
Volume Right (vph)	44	11	0	82	0	59						
Hadj (s)	-0.01	0.03	0.53	-0.27	0.53	-0.26						
Departure Headway (s)	5.0	5.2	6.0	5.1	6.0	5.2						
Degree Utilization, x	0.26	0.13	0.08	0.27	0.02	0.21						
Capacity (veh/h)	673	634	575	664	558	644						
Control Delay (s)	9.7	8.9	8.3	8.8	8.0	8.4						
Approach Delay (s)	9.7	8.9	8.7		8.4							
Approach LOS	Α	Α	Α		Α							
Intersection Summary	4170	THE .			920		1	107		10 24	ALC: T	
Delay			8.9									
HCM Level of Service			Α									
Intersection Capacity Uti Analysis Period (min)	lization		29.2% 15	IC	CU Leve	el of Serv	ice		Α			

	1	-	←		1	1	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	The little branch
Lane Configurations	T	个 个	1		N/		
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Volume (veh/h)	170	210	170	90	60	110	
Peak Hour Factor	0.95	0.95	0.85	0.85	0.80	0.80	
Hourly flow rate (vph)	179	221	200	106	75	138	
Pedestrians			3				
Lane Width (ft)			12.0				
Walking Speed (ft/s)			4.0				
Percent Blockage			0				
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)		580					
pX, platoon unblocked							
vC, conflicting volume	306				724	153	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	306				724	153	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	86				76	84	
cM capacity (veh/h)	1252				308	866	
Direction, Lane#	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	ALTONOMICS TO SELECT EACH
Volume Total	179	111	111	133	173	212	
Volume Left	179	0	0	0	0	75	
Volume Right	0	0	0	0	106	138	
cSH	1252	1700	1700	1700	1700	528	
Volume to Capacity	0.14	0.07	0.07	0.08	0.10	0.40	
Queue Length 95th (ft)	12	0	0	0	0	48	
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	16.3	
Lane LOS	A					С	
Approach Delay (s)	3.7			0.0		16.3	
Approach LOS						С	
Intersection Summary	1	1	1	g, and	SUSS.	1-120	
Average Delay	1041		5.4				
Intersection Capacity Ut	ilization	;	37.1%	IC	JU Leve	of Serv	vice A
Analysis Period (min)			15				

	۶	→	•	•	-	•	1	1	~	-	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	ተተተ	7	14.14	ተተተ	7	44	ተተተ	7	44	ተተተ	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt Flt Protected	1.00 0.95	1.00 1.00	0.85 1.00	1.00 0.95	1.00 1.00	0.85 1.00	1.00 0.95	1.00 1. 00	0.85 1. 00	1.00 0.95	1.00 1.00	0.85 1.00
Satd. Flow (prot)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Volume (vph)	210	840	160	190	720	140	590	1010	320	180	520	700
Peak-hour factor, PHF	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. Flow (vph)	210	840	160	190	720	140	590	1010	320	180	520	700
RTOR Reduction (vph)	0	0	118	0	0	102	0	0	110	0	0	213
Lane Group Flow (vph)	210	840	42	190	720	38	590	1010	210	180	520	487
Confl. Peds. (#/hr)			2			2			5			2
Confl. Bikes (#/hr)			2						1			1
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.9	29.4	29.4	9.7	30.2	30.2	22.5	51.4	51.4	9.5	38.4	38.4
Effective Green, g (s)	8.9	31.4	31.4	9.7	32.2	32.2	22.5	53.4	53.4	9.5	40.4	40.4
Actuated g/C Ratio	0.07	0.26	0.26	0.08	0.27	0.27	0.19	0.44	0.44	0.08	0.34	0.34
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	255	1331	408	278	1364	419	644	2263	692	272	1712	924
v/s Ratio Prot v/s Ratio Perm	c0.06	c0.17	0.03	0.06	0.14	0.02	c0.17	0.20	0.14	0.05	0.10	c0.18
v/c Ratio	0.82	0.63	0.03	0.68	0.53	0.02	0.92	0.45	0.14	0.66	0.30	0.53
Uniform Delay, d1	54.8	39.2	33.6	53.7	37.4	32.9	47.8	23.1	21.4	53.7	29.4	32.1
Progression Factor	1.20	0.97	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.85	0.71
Incremental Delay, d2	17.5	1.2	0.2	5.4	0.6	0.2	17.5	0.6	1.1	4.5	0.4	2.1
Delay (s)	83.5	39.2	22.7	59.1	38.0	33.1	65.3	23.7	22.5	60.4	25.4	24.9
Level of Service	F	D	C	E	D	C	E	C	C	E	C	C
Approach Delay (s)		44.7			41.2			36.3			29.6	
Approach LOS		D			D			D			С	
Intersection Summary	W. W.	SLOW	GE LE	Ser Till	63.53	KALITYS!		101.1	27730	250		1
HCM Average Control D			37.4	Н	ICM Lev	el of S	ervice		D			
HCM Volume to Capacit			0.66									
Actuated Cycle Length (120.0			ost time			16.0			
Intersection Capacity Ut	ilization		81.5%	10	CU Leve	el of Ser	vice		D			
Analysis Period (min)			15									
c Critical Lane Group												

	*	-	+	4	-	4	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	A LET No. 1 LET THE TOTAL
Lane Configurations	*	ተተተ	ተተተ	7	ሻ	77	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
Flt Permitted	0.08	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	142	5085	5085	1583	1770	1583	
Volume (vph)	10	1040	1680	50	130	70	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	10	1040	1680	50	130	70	
RTOR Reduction (vph)	0	0	0	23	0	45	
Lane Group Flow (vph)	10	1040	1680	27	130	25	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	· 1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	66.3	66.3	61.9	61.9	43.2	43.2	
Effective Green, g (s)	68.3	68.3	63.9	63.9	43.7	43.7	
Actuated g/C Ratio	0.57	0.57	0.53	0.53	0.36	0.36	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
Lane Grp Cap (vph)	86	2894	2708	843	645	576	
v/s Ratio Prot	0.00	c0.20	c0.33		c0.07		
v/s Ratio Perm	0.07			0.02		0.02	
v/c Ratio	0.12	0.36	0.62	0.03	0.20	0.04	
Uniform Delay, d1	14.9	14.0	19.6	13.3	26.2	24.7	
Progression Factor	1.00	1.00	1.04	1.55	1.00	1.00	
Incremental Delay, d2	0.4	0.3	0.8	0.1	0.7	0.1	
Delay (s)	15.3	14.3	21.2	20.7	26.9	24.8	
Level of Service	В	В	С	С	С	С	
Approach Delay (s)		14.4	21.2		26.2		
Approach LOS		В	C		С		
Intersection Summary	NEW TO		E de C	- Tour		III nas	
HCM Average Control D			19.1	Н	ICM Lev	el of Servi	ce B
HCM Volume to Capacit	y ratio		0.46				
Actuated Cycle Length (120.0	S	ium of k	ost time (s)	12.0
Intersection Capacity Ut			46.3%			el of Service	
Analysis Period (min)			15				
c Critical Lane Group							

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	DESCRIPTION OF THE PARTY OF THE
Lane Configurations	ሻሻ	7	ተተ	- 1	7575	44	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	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	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.40	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1461	3539	
Volume (vph)	580	1170	250	600	450	200	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	580	1170	250	600	450	200	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	580	1170	250	600	450	200	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		1	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	16.1	45.2	8.4	45.2	21.1	21.1	
Effective Green, g (s)	16.1	45.2	8.4	45.2	21.1	21.1	
Actuated g/C Ratio	0.36	1.00	0.19	1.00	0.47	0.47	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1223	1583	658	1583	1062	1652	
v/s Ratio Prot	0.17		0.07		0.08	0.06	
v/s Ratio Perm		c0.74		0.38	0.12		
//c Ratio	0.47	0.74	0.38	0.38	0.42	0.12	
Uniform Delay, d1	11.3	0.0	16.1	0.0	7.6	6.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
ncremental Delay, d2	0.5	3.1	0.6	0.7	0.1	0.1	
Delay (s)	11.8	3.1	16.8	0.7	7.7	6.9	
evel of Service	В	Α	В	Α	Α	Α	
Approach Delay (s)	6.0		5.4			7.5	
Approach LOS	Α		Α			Α	
ntersection Summary	NEWS	13.2	200 E		ST. ST	Patrings.	
ICM Average Control De			6.1	H	CM Lev	el of Servic	e A
ICM Volume to Capacity			0.74				
Actuated Cycle Length (s			45.2	Sı	um of lo	st time (s)	0.0
ntersection Capacity Util	ization	4	6.3%	IC	U Leve	of Service	Α
Analysis Period (min)			15				
Critical Lane Group							

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተቡ		14.54	ተተተ	7	44	1	7	1/4/4	44	7
Ideal Flow (vphpi)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4984		3433	5085	1542	3433	3539	1515	3433	3539	1527
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4984		3433	5085	1542	3433	3539	1515	3433	3539	1527
Volume (vph)	490	1540	180	180	860	470	280	700	140	500	450	190
Peak-hour factor, PHF	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. Flow (vph)	490	1540	180	180	860	470	280	700	140	500	450	190
RTOR Reduction (vph)	0	10	0	0	0	13	0	0	6	0	0	152
Lane Group Flow (vph)	490	1710	0	180	860	457	280	700	134	500	450	38
Confl. Peds. (#/hr)			18			23			27			13
Confl. Bikes (#/hr)			3			2			2			3
Turn Type	Prot			Prot		pm+ov	Prot		om+ov	Prot		Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	28.3	48.1		10.7	30.5	52.0	29.1	31.7	42.4	21.5	24.1	24.1
Effective Green, g (s)	28.3	50.1		10.7	32.5	54.0	29.1	33.7	44.4	21.5	26.1	26.1
Actuated g/C Ratio	0.21	0.38		0.08	0.25	0.41	0.22	0.26	0.34	0.16	0.20	0.20
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	736	1892		278	1252	631	757	904	556	559	700	302
v/s Ratio Prot	0.14	c0.34		0.05	0.17	c0.12	0.08	c0.20	0.02	c0.15	c0.13	
v/s Ratio Perm						0.18			0.07			0.02
v/c Ratio	0.67	0.90		0.65	0.69	0.72	0.37	0.77	0.24	0.89	0.64	0.12
Uniform Delay, d1	47.5	38.7		58.8	45.1	32.7	43.7	45.6	31.6	54.1	48.7	43.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	7.6		3.9	1.9	3.5	0.1	4.7	0.1	16.3	2.5	0.3
Delay (s)	52.2	46.3		62.7	47.0	36.2	43.8	50.3	31.7	70.4	51.2	43.9
Level of Service	D	D		E	D	D	D	D	С	Е	D	D
Approach Delay (s)		47.6			45.5			46.4			58.4	
Approach LOS		D			D			D			E	
Intersection Summary	1000	BULL !	10.00		W. D		30.00	3500		SEL	三學	11/1/19
HCM Average Control De			48.9	Н	CM Lev	el of Se	rvice		D			
HCM Volume to Capacity	y ratio		0.83									
Actuated Cycle Length (s			132.0	S	um of lo	ost time	(s)		12.0			
Intersection Capacity Util	lization	1	86.4%			el of Sen			Ε			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 20: Valencia Blvd. & Bouquet Canyon Rd.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	الوالوالير	ተተኩ		444	444	7	7	ተተተ	Ť	ANA	ተተጉ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5079		4990	4806	1343	1770	5085	1547	4990	4806	1362
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5079		4990	4806	1343	1770	5085	1547	4990	4806	1362
Volume (vph)	1120	1350	10	210	1050	430	20	1300	280	920	1360	680
Peak-hour factor, PHF	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. Flow (vph)	1120	1350	10	210	1050	430	20	1300	280	920	1360	680
RTOR Reduction (vph)	0	1	0	0	0	1	0	0	1	0	0	104
Lane Group Flow (vph)	1120	1359	0	210	1050	429	20	1300	279	920	1360	576
Confl. Peds. (#/hr)			9			10			12			
Confl. Bikes (#/hr)			-23-			1			2			
Turn Type	Prot			Prot		m+ov	Prot		om+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	30.0	53.0		12.4	35.4	67.2	4.1	40.0	52.4	31.8	67.7	97.7
Effective Green, g (s)	31.0	55.0		13.4	37.4	70.2	5.1	42.0	55,4	32.8	69.7	100.7
Actuated g/C Ratio	0.19	0.35		0.08	0.23	0.44	0.03	0.26	0.35	0.21	0.44	0.63
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	972	1755		420	1129	626	57	1342	538	1028	2104	862
v/s Ratio Prot	c0.22	0.27		0.04	c0.22	0.14	0.01	c0.26	0.04	c0.18	0.28	0.13
v/s Ratio Perm	4 45	0.77		0.50	0.00	0.18			0.14			0.29
v/c Ratio	1.15	0.77		0.50	0.93	0.69	0.35	0.97	0.52	0.89	0.65	0.67
Uniform Delay, d1	64.1	46.6		69.7	59.6	35.7	75.4	58.0	41.3	61.5	35.1	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	80.5	2.3		0.3	13.6	2.5	1.4	17.6	0.4	9.9	0.9	1.5
Delay (s)	144.6 F	48.8		70.0	73.2	38.2	76.8	75.5	41.6	71.4	35.9	20.1
Level of Service	г	D		E	E	D	Ε	E	D	Е	D	С
Approach Delay (s) Approach LOS		92.1 F			63.9 E			69.6			43.3	
								E			D	
Intersection Summary	TE SE					1 10	150	4111	9.31		3.10	
HCM Average Control D			66.0	Н	ICM Lev	el of Se	rvice		Е			
HCM Volume to Capacit			0.98	_								
Actuated Cycle Length (159.2			st time			16.0			
Intersection Capacity Uti	lization	10	3.7%	IC	JU Leve	l of Serv	/ice		G			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 21: Placerita Canyon Rd. & Sierra Hwy

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	1		ħ	↑ 1>		ሻ	^		ኻ	†	3. W. II 20014
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.99	
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3433		1770	3382		1770	3429		1770	3518	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3433		1770	3382		1770	3429		1770	3518	
Volume (vph)	20	280	70	20	260	110	80	1340	350	40	490	20
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	311	78	24	306	129	84	1411	368	42	516	21
RTOR Reduction (vph)	0	21	0	0	44	0	0	20	0	0	3	0
Lane Group Flow (vph)	22	368	0	24	391	0	84	1759	0	42	534	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.6	14.6		16.5	16.5		7.9	54.4		3.1	49.6	
Effective Green, g (s)	14.6	14.6		16.5	16.5		7.9	54.4		3.1	49.6	
Actuated g/C Ratio	0.14	0.14		0.16	0.16		0.08	0.52		0.03	0.47	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	247	479		279	533		134	1783		52	1668	
v/s Ratio Prot	0.01	c0.11		0.01	c0.12		c0.05	c0.51		0.02	0.15	
v/s Ratio Perm												
v/c Ratio	0.09	0.77		0.09	0.73		0.63	0.99		0.81	0.32	
Uniform Delay, d1	39.2	43.4		37.6	42.0		46.9	24.7		50.5	17.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	7.3		0.1	5.2		8.8	18.0		58.8	0.1	
Delay (s)	39.4	50.7		37.7	47.2		55.8	42.7		109.3	17.2	
Level of Service	D	D		D	D		Е	D		F	В	
Approach Delay (s)		50.1			46.7			43.3			23.8	
Approach LOS		D			D			D			С	
Intersection Summary	100	The state of the s	20 11	100-	100	The less	Line	100	200	THE STATE OF THE S		10-1
HCM Average Control De			41.2		ICM Lev	el of Se	rvice		D			
HCM Volume to Capacity	/ ratio		0.90									
Actuated Cycle Length (s			104.6	S	ium of lo	st time	(s)		16.0			
Intersection Capacity Util	ization	•	78.2%	10	CU Leve	l of Ser	vice		D			
Analysis Period (min)			15									
c Critical Lane Group												

	1	*	†	-	-	Į.						
Movement	WBL	WBR	NBT	NBR	SBL	SBT		2000		550	-3478	Ti.
Lane Configurations	Ŋ	7	ተ <u></u> թ		ħ	十 个						
Sign Control	Stop		Free			Free						
Grade	0%		0%			0%						
Volume (veh/h)	70	10	1440	30	200	480						
Peak Hour Factor	0.50	0.50	0.95	0.95	0.95	0.95						
Hourly flow rate (vph)	140	20	1516	32	211	505						
Pedestrians												
Lane Width (ft) Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage veh)	110110											
Upstream signal (ft)			768									
pX, platoon unblocked	0.55	0.55			0.55							
vC, conflicting volume	2205	774			1547							
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2377	0			1170							
tC, single (s)	6.8	6.9			4.1							
tC, 2 stage (s)												
tF (s)	3.5	3.3			2.2							
p0 queue free %	0	97			35							
cM capacity (veh/h)	5	591			323							
Direction, Lane#	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3	130 1	0	27/6	ELST ST	1
Volume Total	140	20	1011	537	211	253	253					
Volume Left	140	0	0	0	211	0	0					
Volume Right	0	20	0	32	0	0	0					
cSH Volume to Canacity	5 25 .56	591 0.03	1700	1700	323	1700	1700					
Volume to Capacity Queue Length 95th (ft)		0.03 3	0.59 0	0.32 0	0.65 107	0.15 0	0.15 0					
Control Delay (s)	Err	11.3	0.0	0.0	34.7	0.0	0.0					
Lane LOS	F	71.3 B	0.0	0.0	J - 4.7 D	0.0	0.0					
Approach Delay (s)	8750.5		0.0		10.2							
Approach LOS	F		0.0		10.2							
Intersection Summary	A roll of		68	5 58	2 Par	145.00	0.7	CHICAGO	100	216	3 650	- 4
Average Delay			580.8									
Intersection Capacity U	tilization		65.7%	IC	CU Leve	of Ser	vice		С			
Analysis Period (min)			15									

Vista Canyon Ranch 23: Placerita Canyon Rd. & SR 14 NB Ramps

	۶	→	*	1	+	1	1	1	~	1	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		↑↑ Free 0%	74		∱ ‡ Free 0%			र्दी Stop 0%	ř		Stop 0%	
Volume (veh/h)	0	220	200	0	60	10	340	0,0	110	0	0 /0	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph)	0	244	222	0	71	12	378	0	122	0	0	0
Pedestrians								1				
Lane Width (ft) Walking Speed (ft/s)								12.0 4.0				
Percent Blockage								4.0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)		740										
Upstream signal (ft) pX, platoon unblocked		718										
vC, conflicting volume	82			245			281	328	123	321	322	41
vC1, stage 1 conf vol				210			201	020	120	02.	022	71
vC2, stage 2 conf vol												
vCu, unblocked vol	82			245			281	328	123	321	322	41
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s) tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			42	100	86	100	100	100
cM capacity (veh/h)	1513			1317			649	589	904	526	594	1021
Direction, Lane #	EB 1	EB 2	EB 3	WB1	WB2	NB 1	NB 2	F. 107/5		1000		
Volume Total	122	122	222	47	35	378	122					
Volume Left	0	0	0	0	0	378	0					
Volume Right	0	0	222	0	12	0	122					
cSH	1700	1700 0.07	1700	1700	1700	649	904					
Volume to Capacity Queue Length 95th (ft)	0.07 0	0.07	0.13 0	0.03	0.02	0.58 94	0.14 12					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	18.0	9.6					
Lane LOS			0.0		0.0	C	A					
Approach Delay (s)	0.0			0.0		15.9						
Approach LOS						С						
Intersection Summary	1	2-2	300		0019	300	dir.	100			E ST	
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		7.6 31.8% 15	I	CU Leve	el of Ser	vice		Α			

SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Volume Served

%

100

115

97

101

101

106

99

Std Dev

19

12

17

15

9

Analysis Period:

Avg

269

150

341

761

142

138

138

Project:

Vista Canyon Ranch

Movement

L

Т

R

Subtotal

Ť

R

HCM:

2000

Scenario:

Approach

NB

SB

2012 No Project Conditions

PHF:

1

TOD:

AM Peak Hr Analys

Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Demand

Volume

270

130

350

750

140

130

140

Type: Signalized

	Delay/Veh (se	ic)
Avg	LOS	Std Dev
46.9	D	4
45.0	D	
10.5	В	-
30.2	e	
51.8	D	
49.0	D	
19,9	В	**
40.3	D	-
65.0	E	-

	Subtotal	410	418	102	-	40.3	D	-
	L	70	68	97	9	65.0	E	-
E8	Т	560	547	98	22	42.9	D	-
	R	290	288	99	28	15.6	В	-
	Subtotal	920	903	98	-	35.8	D	-
	L	230	222	97	22	60.6	E	_
WB	Ť	1040	1050	101	24	26.7	C	_
	R	150	140	93	11	4.7	A	-
	Subtotal	1420	1412	99	-	29.6	C	
	Total	3500	3493	100		32.7	C	

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

		Demand	V	olume Serv	red	Delay/Veh (sec)				
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev		
	L	520	483	93	35	183.8	F	-		
NB	R	30	28	93	5	159.1	F	_		
	Subtotal	550	511	93	-	182.5	F	_		
	T	530	574	108	26	8.4	Α	_		
EB	R	510	501	98	14	3.3	A			
	Subtotal	1040	1075	103	-	6.0	Α	_		
	L	360	347	96	17	65.0	E	-		
WB	T	900	889	99	28	23.2	С			
	Subtotal	1260	1236	98	-	34.9	C	-		
	Total	2850	2822	99	-	50.6	D	-		

SIMTRAFFIC LEVEL OF SERVICE REPORT **Including Upstream Delays**

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 No Project Conditions

PHF:

1

TOD:

AM Peak Hr

Analysis Period:

Hourly

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

		Demand	V	olume Serv	ed	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De	
	T	490	542	111	16	12.8	В		
NB	R	150	149	99	9	5.3	A	-	
	Subtotal	640	691	108	-	11.2	В		
	L	170	167	98	11	41-4	D		
SB	Τ	470	509	108	20	7.7	Α		
	Subtotal	640	676	106	141	16.1	В	-	
	L	220	214	97	15	19.7	В	-	
EB	R	200	198	99	13	4.0	A	-	
	Subtotal	420	412	98	-	12.2	В		
	Total	1700	1779	105	-	13.3	В	-	

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd.

Type: Un-Signalized

		Demand	V	olume Serv	red		elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	90	88	98	9	138.1	F	-
NB	Т	370	357	96	14	131.4	F	-
	R	5	5	100	2	128.1	F	-
	Subtotal	465	450	97	_	132.7	F	-
	L	20	19	95	7	40.2	E	-
SB	T	330	331	100	16	37.1	E	-
	R	380	378	99	20	26.9	D	-
	Subtotal	730	729	100	-	31.9	D	-
	L	310	313	101	14	99.2	F	
EB	T	5	6	120	2	100.7	F	-
	R	60	58	97	5	95.0	F	-
	Subtotal	375	377	101	-	98.6	F	-
	L	5	4	80	2	7.8	Α	
WB	T	10	9	90	3	11.3	В	_
	R	20	20	100	4	7.4	Α	-
	Subtotal	35	34	97	- ;	8.5	A	-
	Total	1605	1589	99	- 1	75.7	F	-



SIMTRAFFIC LEVEL OF SERVICE REPORT **Including Upstream Delays**

Project: Vista Canyon Ranch

R

Subtotal

Total

HCM: 2000

Scenario:

2012 No Project Conditions

310

385

2575

308

383

2574

PHF:

В

В

В

Analysis Period: _

1 10

TOD:

AM Peak Hr

Intersection: 14: SR 14 SB Ramps & Via Princessa

Hourly

of Runs:

11.3

17.7

15.0

Type: Signalized

			V	olume Serv	/ed	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De	
	L	240	225	93	12	63.1	E	-	
NB	T	600	615	102	36	4.1	Α	-	
	Subtotal	840	839	100	- 1	19.9	В	-	
	Ť	490	498	102	14	13.4	В	-	
SB	R	860	855	99	21	9.8	Α	-	
	Subtotal	1350	1352	100	-	11,1	В	-	
	L	70	70	100	7	44.7	D		
MB	Т	5	5	100	2	39.6	D	44	

99

99

100

12

-

ntersectio	n: 15: SR 14	NB Ramps	& Via Prii	ncessa			Type:	Signalized
		Demand	V	olume Serv	red		elay/Veh (s	sec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	T	580	609	105	29	17.9	В	-
NB	R	100	103	103	12	5,4	A	
	Subtotal	680	712	105	_	16.1	В	-
	L,	220	226	103	15	39.4	D	-
SB	T	340	352	104	16	15.7	В	**
	Subtotal	560	578	103	-	25.0	C	-
	L	260	269	103	23	26.7	C	-
EB	R	140	138	99	14	22.2	С	-
	Subtotal	400	407	102	-	25.1	C	-
	Total	1640	1697	103	-	21.3	C	-

SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 No Project Conditions

PHF:

F: 1

TOD:

PM Peak Hr

Analysis Period: Hourly

rly # of

of Runs: 10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

		Demand	V	olume Serv	red	Delay/Veh (sec)				
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De		
	L	310	305	98	18	46.6	D	74		
NB	Т	170	380	224	16	24.6	С	-		
	R	610	611	100	17	21.1	C			
	Subtotal	1090	1295	119		28.1	C	-		
	L	140	142	101	7	49.5	D	-		
SB	Т	120	118	98	11	42.9	D	-		
	R	80	82	103	9	12.2	В	-		
	Subtotal	340	342	101	-	38.3	D	_		
	L	120	117	98	6	68.5	E	-		
EB	Ť	840	844	100	25	61.1	E	-		
	R	370	374	101	11	27.8	С	-		
	Subtotal	1330	1335	100	-	52.4	D			
	L	180	176	98	11	66.9	E	-		
WB	Т	500	518	104	24	17.6	В	-		
	R	110	108	98	9	3.3	Α			
	Subtotal	790	802	102	-	26.5	C	-		
	Total	3550	3774	106	141	37.3	D	-		

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

		Demand	V	olume Serv	red	Delay/Veh (sec)					
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev			
	L	340	334	98	23	60.5	E	-			
NB	R	70	73	104	7	40.2	D	-			
	Subtotal	410	407	99	-	56.9	E	-			
EB	T	1140	1143	100	31	5,3	Α	-			
	R	470	471	100	17	2.8	Α	-			
	Subtotal	1610	1614	100	-	4.6	A	-			
	L	230	190	83	10	440.8	F	-			
WB	T	450	442	98	25	26.7	С	-			
	Subtotal	680	632	93	-	151.1	F	-			
	Total	2700	2653	98	-	47.5	D	1 -			

SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Project:

Vista Canyon Ranch

НСМ:

2000

Scenario:

2012 No Project Conditions

PHF:

1

TOD:

PM Peak Hr Analysis Period:

Hourly

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

		Demand		Volume Serv	ed		elay/Veh (se	ec)
Approach	Movement	Volume	Volume Avg		Std Dev	Avg	LOS	Std Dev
	T	480	483	101	22	23.9	С	-
NB	R	360	371	103	20	9.1	A	
	Subtotal	840	854	102	-	17.5	В	-
SB	L	240	234	98	11	54.2	D	-
	T	390	435	112	16	11.5	В	-
	Subtotal	630	668	106	-	26.4	C	_
	L	810	816	101	27	26.8	C	
EB	R	390	389	100	26	7.2	A	
	Subtotal	1200	1205	100	_	20.6	C	
	Total	2670	2728	102	-	21.0	С	

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd. Type: Un-Signalized

							<i>31</i>	- 0
		Demand	١	olume Serv	red	C	elay/Veh (se	BC)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	5	3	60	1	21.8	С	-
NB	T	620	625	101	23	27.4	D	140
	R	10	12	120	3	25,6	D	-
	Subtotal	635	640	101	-	27.3	D	-
	L	30	27	90	6	17.5	C	
SB	T	490	725	148	33	13.3	В	-
	R	30	29	97	4	11.2	В	-
	Subtotal	550	780	142	-	13.3	В	_
	L	40	41	103	7	6.7	Α	-
EB	Т	5	7	140	2	8,3	Α	-
	R	5	5	100	2	4.2	A.	-
	Subtotal	50	53	106	-	6.7	A	-
	L	5	5	100	2	7.3	A	-
WB	Т	5	6	120	2	9.0	Α	-
	R	40	44	110	6	5.8	A	-
	Subtotal	50	54	108		6.2	A	-
	Total	1285	1527	119	-	18.7	C	4



SIMTRAFFIC LEVEL OF SERVICE REPORT **Including Upstream Delays**

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 No Project Conditions

2840

PHF:

1

TOD:

PM Peak Hr

Total

Analysis Period:

Hourly

of Runs:

17.9

В

10

ntersectio	n: 14: SR 14	SD Kallips	o via Piii	icessa			Type: _ S	Signalized
		Demand	V	olume Serv	red	D	elay/Veh (s	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De
	L	130	125	96	10	49.8	D	-
NB	T	900	915	102	27	6.7	A	
	Subtotal	1030	1040	101	-	11.9	В	-
	T	830	836	101	28	30.8	С	-
SB	R .	560	560	100	29	7.6	Α	-
	Subtotal	1390	1397	101	-	21,5	С	
	L	110	109	99	14	40.1	D	
WB	T	10	9	90	4	42.6	D	***
	R	300	296	99	14	13.0	8	_
	Subtotal	420	414	99	-	20.8	C	_

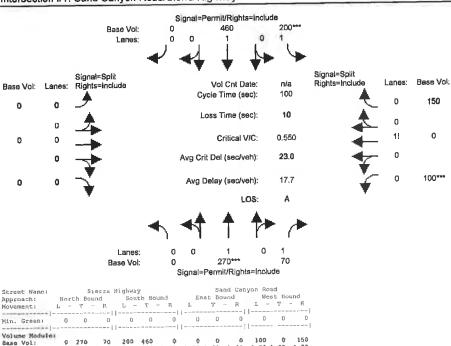
100

2851

		Demand	V	olume Serv	red	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	T	390	391	100	27	28.8	С	_	
NB	R	110	107	97	15	11.4	В	-	
	Subtotal	500	498	100	-	25.1	C	-	
	L	510	509	100	28	38.2	D	-	
SB	Т Т	430	435	101	16	12.7	В	-	
	Subtotal	940	944	100	- 1	26.5	C	_	
	L	640	645	101	11	29.5	C	-	
EB '	R	270	274	101	14	23.0	С	-	
	Subtotal	910	919	101	_	27.6	C	_	
	Total	2350	2361	100	-	26.6	C	4	

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) 2012 No Project AM

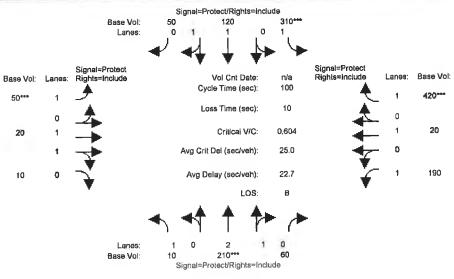
Intersection #1: Sand Canyon Road/Sierra Highway



Street Name: Approach: Movement:	No:	rth Bo - m	und – R	Soi L -	ith Bo - T	und - R	L	T BO	– R	T -	T T	- K
Min. Green:	0	0	Ω	0	0	0	0	0	0	0	0	0
Volume Module												
Base Vol:	0	270	70	200	460		0		۵			150
Geowith Adj:	1.00	1.00	1.00	1.40	1.00	1.00		1.00	1.00		1,00	1.00
Initial Bao:		210	30	200	460	0		Ċ1	0	100	0	150
Bans Adji	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.90
PHF Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	00.1
PHF Volume:	0	270	70	200		0	0	0	0	100		150
Reduct Volt		a	0	0	- 6	0	0	0	0	0	_	
Reduced Vol:	0	270	70	200			0					150
PCE Adja	1.00	1.00	1.00		1.00			1.00			1.00	
HLF Adja			1.00			1.00		1.00			1.00	1.00
FinalVolumes	0	270	70	500	460	0		0		100		L50
1414074070000				1		1						1
Saturation F.											1.000	1600
Sat/Lane:			1600		1600	1600		1600	1600		1600	1.00
Adjustment:					1.00	1.00		1.00	1.00		1,00	
Lames:			1.00		1.00			0.00	0.00		0.00	960
Final Sat.:	0	1600	1600	1600	1600	0	0	0	0	640		
									-			
Capacity Ana Vol/Sat: Crit Moves:	0.00	0.17	e: 0.04	0.13	0.29	0.00	0.00	0.00	0.00	0.16	0.00	0.16

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) 2012 No Project AM

Intersection #16: Via Princessa/Lost Canyon Road



Street Name: Approach:		L	ost Can	yon Re	bad			\	/la Pri	ncess	1	
Approach:	No.	cth B	ound	Sou	ıth B	ound	Ea	ist Bo	und	94	est Bo	und
Movement:	L ·	- T	- R	L -	- T	- R	L -	- T	- R	L ·	- T	- R
							1-00			1		
Min. Green:	0	0	0	0	0	0	0	0	0	. 0		0
							1			1		
Volumn Module	9:				150		F 0	20	1.0	190	20	420
Base Vol:										190		1.00
Growth Adj:				1.00			1,00					
Initial Bact					120		50		10	190	20	420
WAGE Adj!	1.00	1 00	1.00		I.DO		00			1.00		0.85
PHF Ad3:	1.00	1.00	1.00	1.00	1.00	1,00	1.00			1.00		1.00
PMF Volume:	10	210	60	310	120	50	50	20	10	190	20	357
Reduct Vol:	0	0	0	0	0	0	0	0	0	D	Û	0
Berfuged Vol:				310	120	50	5.0	20	10	190	2.0	357
FCE Add:							1.00		1.00	1.00	1.00	1.00
MLF Adj.				1.00	1,00	1.00	1.00	1,00	1.00	1.00	1.00	1.00
FinalVolume				310	120	50				190	20	357
EATHER TO SHOW												
Saturation F							,					
Sat/Lane:				1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:				1.00				1.00			1.00	1.00
	1.00			1.00				1.33			1,00	1.00
Final Sat.:								2133	1067		1600	1600
Final Sac.:	1000	3/33	1007	Tenn	2639	341						
				1			1	-				
Capacity Ana.	Lyeis	Madu	Te:				0.00	^ ^1	0.01	0.12	0.01	0.22
Vol/Sat:				0.19	u.05	0.05	0.03	0.01	0.01	V.12	0,01	0,22
Crit Moves:		****		*4**								

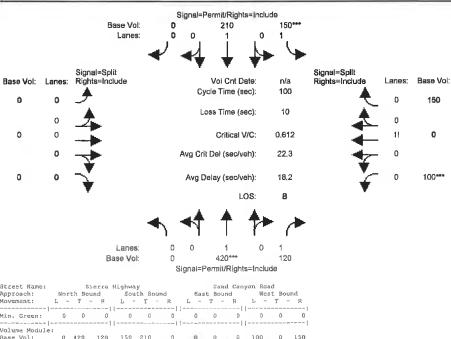
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) 2012 No Project PM

150

0

100***

Intersection #1: Sand Canyon Road/Sierra Highway



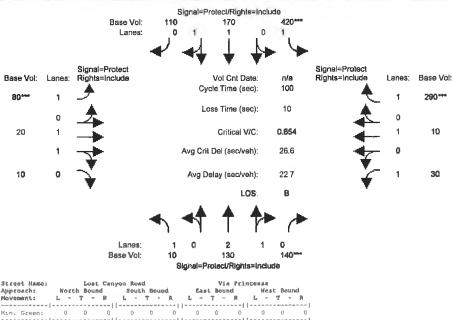
Street Name: Approach:		5	Sierra	Highwa	ay			Se	and Car	yon R	aad	
Movement:	L	- T	- R	L	- T	- R	L ·	- T	- R	ъ .	- T	- R
	1						[
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
			1				1			1		
Volume Modul	e:											
Base Vol:	0	420	120	150	210	0	.0	0	0	100	D	150
Growth Adj:	1,00	1.00	1,00	1.00	1.00	1,00	1.00	1,00	1.00	1.00	1.00	1.00
Initial Bse:	0	420	120	150	210	0	0	0	۵	100	0	150
User 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
PHE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00
PHF Volume:	0	420	1,20	150	210	0	0	0	0	100	0	150
Reduct Vol:	0	0	0	Q	n	Ω	0	0	0	D	0	0
PHF Volume: Reduct Vol: Reduced Vol:	0	120	120	150	210	0	0	0	- 0	100	0	150
PCE 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
MLF Adj:												
FinalVolume:	D	420	120	150	210	D	0	- 0	0	100	D	150
**********	1			1			1			1		
Saturation F.	low Me	odule										
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1,00	1.00	1.00	1.00	1.00	1.00	1.00	1.80	1.00	1,80	1.00
Lanes:	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.40	0.00	0.60
Final Sat.:	0	1600	1600	1600	1600	0	-D	0	0	640	0	960
	[1			1			1			
Capacity Ana	lysis	Modu1	.e:									
Vol/Sat:	0,00	0.26	0.08	0.09	0.13	0.00	0.00	0.00	0.00	0:16	0.00	0.16
Crit Moves:		4+++		4 ~ 4 4						****		

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) 2012 No Project PM

10

30

Intersection #16: Via Princessa/Lost Canyon Road



Struct Hame: Approach: Nort	Lost Canyo	n Road	_4 =	Via Peir	COBSA David	
Movement: L -	n pound	SOULE BOU	DQ. L	inc monute	Mear bound	
	0 0					
			!			1
Volume Module:						
		420 170	110 80	20 10	30 10 290	
Growth Adj: 1.00 1	00 1.00 1	.00 1.00	1.00 1.00		1,00 1 00 1.00	
Initial Bse: 10	130 140	420 170	110 80	20 10	30 10 290	
User Adj: 1.00 1	.00 1.00 1	.00 1.00	1.00 1.00	1,00 1.00	1,00 1,00 0.05	
PHF Ad): 1.00 1	.00 1.00 1	.00 1.00	1.00 1.00	1,00 1.08	1,00 1,00 1.00	
PHF Volume: 10	130 140	420 170	110 80	20 10	30 10 247	
Reduct Vol: 0	0 0	0 0	0 0	Q U	0 0	
Reduced Vol: 10	130 140	420 170	110 60	20 10	30 10 247	
PCE Ad1: 1.00 1	.00 1.00 1	,00 1.00	1.00 1.00	1.00 1.00	1,00 1.00 1.00	
MLF Ad1: 1.00 1	.00 1.00 1	-no 1,00	1.00 1.00	1,00 1 80	1,00 1,00 1.00	
FinalVolume: 10		420 170	110 00		30 10 247	
						1
Saturation Flow Mod			, ,			
Sat/Lane: 1600 1	600 1600 1	600 1600	1600 1600	1600 1600	1600 1600 1600	
Adjustment: 1.00 I	.00 1.00 1	.00 L.00	1,00 1,00	1.00 1.00	1.00 1.00 1.00	
Lanes: 1.00 2				1,33 0,67	1.00 1.00 1.00	
Final Sat.: 1600 3		800 1943		2133 1067	1600 1600 1600	
**********						1
Capacity Analysis M			• • •			•
Vol/Sat: 0.01 0		.26 0.09	0.09 0.05	10.01 0.01	0.02 0.01 0.15	
Crit Moves:		+44	4440		****	
CTTC MOTOR!						

6: Placerita Canyon Rd. & Sand Canyon Rd.

-	١	*	1	1	ļ	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR	DEFENDA	-37	11	I STEEL	1.00
Lane Configurations	A	7.0		स	1						
Sign Control	Stop			Free	Free						
Grade	0%			0%	0%						
Volume (veh/h)	50	50	20	10	10	390					
Peak Hour Factor	0.55	0.55	0.80	0.80	0.90	0.90					
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage	91	91	25	12	11	433					
Right turn flare (veh)											
Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked	None										
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	290	228	444								
vCu, unblocked vol	290	228	444								
tC, single (s) tC, 2 stage (s)	6.4	6.2	4.1								
tF(s)	3.5	3.3	2.2								
p0 queue free %	87	89	98								
cM capacity (veh/h)	685	812	1116								
Direction, Lane #	EB 1	NB 1	SB 1	41.3	(U)		7 1/15				
Volume Total	182	38	444								
Volume Left	91	25	0								
Volume Right	91	0	433								
cSH	743	1116	1700								
Volume to Capacity	0.24	0.02	0.26								
Queue Length 95th (ft)	24	2	0								
Control Delay (s)	11.4	5.6	0.0								
Lane LOS	В	Α									
Approach Delay (s) Approach LOS	11.4 B	5.6	0.0								
Intersection Summary			Bull	1000		100000	The same of the sa	11	D-1 0		-
Average Delay Intersection Capacity Ut Analysis Period (min)	tilization		3.4 37.2% 15	IC	U Leve	l of Servi	ce		Α		

	→	•	1	←	4	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR	688	1	THERE	E. 300	
Lane Configurations	114		*	ተ	A						
Sign Control	Free			Free	Stop						
Grade	0%	40	40	0%	0%	_					
Volume (veh/h)	950 0.85	10	10 0.90	1820 0.90	5 0.40	5 0.40					
Peak Hour Factor Hourly flow rate (vph)	1118	0.85 12	11	2022	12	12					
Pedestrians	1110	12	, ,	2022	12	12.					
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type					None						
Median storage veh)											
Upstream signal (ft) pX, platoon unblocked											
vC, conflicting volume			1129		1820	378					
vC1, stage 1 conf vol			1120		1020	0.0					
vC2, stage 2 conf vol											
vCu, unblocked vol			1129		1820	378					
tC, single (s)			4.1		6.8	6.9					
tC, 2 stage (s)											
tF (s)			2.2 98		3.5 82	3.3 98					
p0 queue free % cM capacity (veh/h)			614		68	619					
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	Carrie	3 1 1	and the same
Volume Total Volume Left	447 0	447 0	235 0	11 11	674 0	674 0	674 0	25 12			
Volume Right	0	0	12	0	0	0	0	12			
cSH	1700	1700	1700	614	1700	1700	1700	122			
Volume to Capacity	0.26	0.26	0.14	0.02	0.40	0.40	0.40	0.20			
Queue Length 95th (ft)	0	0	0	1	0	0	0	18			
Control Delay (s)	0.0	0.0	0.0	11.0	0.0	0.0	0.0	41.9			
Lane LOS				В				E			
Approach Delay (s)	0.0			0.1				41.9			
Approach LOS								Е			
Intersection Summary					1				-	Oles -	
Average Delay			0.4								
Intersection Capacity Uti	lization	•	45.2%	IC	CU Leve	el of Ser	vice		Α		
Analysis Period (min)			15								

8: Soledad Canyon Rd. & Sierra Hwy

	•	-	*	1	←	•	1	1	-	-	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተኩ		77	ተተኈ		1/1/2	ተተ	7	ሻ	^	7
Ideai Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.94
Flpb, ped/bikes	1.00			1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00			1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4550		3433	5019		3433	3539	1546	1770	3539	1490
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4550		3433	5019		3433	3539	1546	1770	3539	1490
Volume (vph)	320	730	730	440	1350	100	360	530	130	90	690	540
Peak-hour factor, PHF	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. Flow (vph)	320	730	730	440	1350	100	360	530	130	90	690	540
RTOR Reduction (vph)	0	143	0	0	6	0	0	0	89	0	0	264
Lane Group Flow (vph)	320	1317	0	440	1444	0	360	530	41	90	690	276
Confl. Peds. (#/hr)			49			22			8			39
Confl. Bikes (#/hr)			2			4			2			6
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	15.1	38.0		18.8	41.7		17.2	35.8	35.8	8.4	27.0	27.0
Effective Green, g (s)	14.6	40.0		18.3	43.7		16.7	37.8	37.8	7.9	29.0	29.0
Actuated g/C Ratio	0.12	0.33		0.15	0.36		0.14	0.32	0.32	0.07	0.24	0.24
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	418	1517		524	1828		478	1115	487	117	855	360
v/s Ratio Prot	0.09	c0.29		c0.13	c0.29		c0.10	0.15		0.05	c0.19	
v/s Ratio Perm									0.03			0.19
v/c Ratio	0.77	1.13dr		0.84	0.79		0.75	0.48	0.08	0.77	0.81	0.77
Uniform Delay, d1	51.0	37.5		49.4	34.0		49.7	33.1	28.9	55.2	42.9	42.4
Progression Factor	1.00	1.00		1.00	1.00		0.80	0.70	0.82	1.00	1.00	1.00
Incremental Delay, d2	7.4	7.0		10.9	3.6		6.1	0.5	0.1	23.4	6.2	10.5
Delay (s)	58.4	44.5		60.3	37.6		45.6	23.7	23.9	78.6	49.1	52.9
Level of Service	Е	D		Ε	D		D	С	С	Ε	D	D
Approach Delay (s)		47.0			42.9			31.5			52.7	
Approach LOS		D			D			С			D	
Intersection Summary	THE	3722 38	134	1000	PARE	BILL	E DIV	2 21	250		75 374	TE S
HCM Average Control De	elav 44.3 HCM Level of Service								D			

HCM Average Control Delay

HCM Volume to Capacity ratio

Actuated Cycle Length (s)

Intersection Capacity Utilization

Analysis Period (min)

44.3

HCM Level of Service

D

Sum of lost time (s)

20.0

ICU Level of Service

F

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

	1	•	†	1	1	ļ					
Movement	WBL	WBR	NBT	NBR	SBL	SBT					W
Lane Configurations		7	ተተቡ			ተተተ					
Sign Control	Stop		Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	0	270	880	130	0	1850					
Peak Hour Factor	0.75	0.75	0.90	0.90	0.95	0.95					
Hourly flow rate (vph)	0	360	978	144	0	1947					
Pedestrians	72										
Lane Width (ft)	12.0										
Walking Speed (ft/s)	4.0										
Percent Blockage	6										
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)			702								
pX, platoon unblocked	0.90	0.90			0.90						
vC, conflicting volume	1771	470			1194						
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	1641	202			1003						
tC, single (s)	6.8	6.9			4.1						
tC, 2 stage (s)											
tF(s)	3.5	3.3			2.2						
p0 queue free %	100	47			100						
cM capacity (veh/h)	77	684			583						
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	1000	at 15 2 5	-11/50	- 107 - 1
Volume Total	360	391	391	340	649	649	649				
Volume Left	0	0	0	0	0	0	0				
Volume Right	360	0	0	144	0	0	0				
cSH	684	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.53	0.23	0.23	0.20	0.38	0.38	0.38				
Queue Length 95th (ft)	77	0	0	0	0	0	0				
Control Delay (s)	16.0	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	С										
Approach Delay (s)	16.0	0.0			0.0						
Approach LOS	C										
Intersection Summary	111					3 3 7	-				10
Average Delay Intersection Capacity U	tilization		1.7 43.9%	10	CU Leve	of Ser	vice		Α		
Analysis Period (min)			15								

	1	→	*	1	-	4	1	†	~	-	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1000	4		ሻ	↑	7	ħ	ተተው		ሻ	444	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s) Lane Util. Factor		4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Frpb, ped/bikes		1.00 1.00		1.00 1.00	1.00 1.00	1.00 0.93	1.00 1.00	0.91 0.99		1.00 1.00	0.91 1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.90		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1658		1770	1863	1471	1770	4943		1770	5069	
Flt Permitted		0.98		0.68	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1635		1265	1863	1471	1770	4943		1770	5069	
Volume (vph)	10	10	70	320	5	180	30	920	160	140	1630	30
Peak-hour factor, PHF	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. Flow (vph)	10	10	70	320	5	180	30	920	160	140	1630	30
RTOR Reduction (vph)	0	50	0	0	0	129	0	19	0	0	1	0
Lane Group Flow (vph) Confl. Peds. (#/hr)	0	40	0	320	5	51 46	30	1061	0	140	1659	0
Confl. Bikes (#/hr)						46 1			18			1
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases	i Cilli	4		Femi	8	Cilli	5	2		1	6	
Permitted Phases	4			8	•	8	U	_		•	Ū	
Actuated Green, G (s)		33.8		33.8	33.8	33.8	4.2	58.9		13.3	68.0	
Effective Green, g (s)		34.3		34.3	34.3	34.3	3.7	60.9		12.8	70.0	
Actuated g/C Ratio		0.29		0.29	0.29	0.29	0.03	0.51		0.11	0.58	
Clearance Time (s)		4.5		4.5	4.5	4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		467		362	533	420	55	2509		189	2957	
v/s Ratio Prot		0.00			0.00		0.02	0.21		c0.08	c0.33	
v/s Ratio Perm		0.02		c0.25	0.04	0.03	0.55	0.40		0.74	0.50	
v/c Ratio Uniform Delay, d1		0.09 31.4		0.88 40.9	0.01 30.7	0.12 31.7	0.55 57.3	0.42 18.5		0.74	0.56	
Progression Factor		1.00		1.00	1.00	1.00	1.10	0.60		52.0 1.00	15.5 1.38	
Incremental Delay, d2		0.1		21.6	0.0	0.1	5.7	0.5		7.6	0.4	
Delay (s)		31.4		62.6	30.7	31.8	68.8	11.6		59.4	21.8	
Level of Service		С		E	C	C	E	В		E	C	
Approach Delay (s)		31.4			51.3			13.1			24.7	
Approach LOS		С			D			В			С	
Intersection Summary	1000	SIN		142	TO SE	100	STUDE	JOH	200	1536	- VOTE:	K MARIN
HCM Average Control D			25.0	Н	CM Lev	el of Se	rvice		С			
HCM Volume to Capacit			0.67									
Actuated Cycle Length (120.0			ost time			8.0			
Intersection Capacity Uti	lization	6	39.9%	IC	U Leve	el of Serv	/ice		С			
Analysis Period (min)			15									
c Critical Lane Group												

	1	-	-	1	-		1	1	-	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		4 } Stop			4 } Stop		ሻ	∯ Stop		7	Stop	
Volume (vph)	60	30	80	70	40	5	30	60	30	5	130	90
Peak Hour Factor	0.75	0.75	0.75	0.85	0.85	0.85	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	80	40	107	82	47	6	33	67	33	7	173	120
Direction, Lane #	EB1	WB1	NB 1	NB 2	SB 1	SB 2			-	1		SHO
Volume Total (vph)	227	135	33	100	7	293						
Volume Left (vph)	80	82	33	0	7	0						
Volume Right (vph)	107	6	0	33	0	120						
Hadj (s)	-0.18	0.13	0.53	-0.20	0.53	-0.25						
Departure Headway (s)	5.1	5.6	6.5	5.7	6.2	5.4						
Degree Utilization, x	0.32	0.21	0.06	0.16	0.01	0.44						
Capacity (veh/h)	652	590	516	580	545	632						
Control Delay (s)	10.5	10.0	8.7	8.6	8.1	11.5						
Approach Delay (s)	10.5	10.0	8.6		11.4							
Approach LOS	В	В	Α		В							
Intersection Summary		W. 0	-010		200						7.3	1
Delay			10.4									_
HCM Level of Service			В									
Intersection Capacity Uti	lization		36.4%	IC	CU Leve	l of Serv	rice		Α			
Analysis Period (min)			15						- '			

	1	-	-	*	-	1		
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations Sign Control Grade	ň	↑↑ Free 0%	∱⊅ Free 0%		Stop 0%	7		
Volume (veh/h)	80	210	230	50	110	230		
Peak Hour Factor Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage	0.80 100	0.80 262 1 12.0 4.0	0.90 256	0.90 56	0.90 122	0.90 256		
Right turn flare (veh) Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked		580			None			
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	311				615	157		
vCu, unblocked vol tC, single (s) tC, 2 stage (s)	311 4.1				615 6.8	157 6.9		
tF (s) p0 queue free % cM capacity (veh/h)	2.2 92 1246				3.5 69 389	3.3 70 860		
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB 2	SB 1	SB 2	terretor to the top of
Volume Total	100	131	131	170	141	122	256	
Volume Left Volume Right	100 0	0	0	0	0 56	122 0	0 256	
cSH	1246	1700	1700	1700	1700	389	860	
Volume to Capacity	0.08	0.08	0.08	0.10	0.08	0.31	0.30	
Queue Length 95th (ft)	7	0	0	0	0	33	31	
Control Delay (s)	8.1	0.0	0.0	0.0	0.0	18.4	10.9	
Lane LOS Approach Delay (s) Approach LOS	A 2.2			0.0		C 13.4 B	В	
Intersection Summary	- 2		100				-	- pr - 7
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization	:	5.6 29.0% 15	IC	CU Leve	l of Sen	vice	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	14.14	ተተተ	7	44	ተተተ	7	14	ተተተ	7	1/1/	ተተተ	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Volume (vph)	180	690	250	160	520	70	160	380	90	330	1550	490
Peak-hour factor, PHF	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. Flow (vph)	180	690	250	160	520	70	160	380	90	330	1550	490
RTOR Reduction (vph)	0	0	193	0	0	54	0	0	55	0	0	212
Lane Group Flow (vph)	180	690	57	160	520	16	160	380	35	330	1550	278
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.6	25.2	25.2	9.3	25.9	25.9	9.3	44.4	44.4	21.1	56.2	56.2
Effective Green, g (s)	8.6	27.2	27.2	9.3	27.9	27.9	9.3	46.4	46.4	21.1	58.2	58.2
Actuated g/C Ratio	0.07	0.23	0.23	0.08	0.23	0.23	0.08	0.39	0.39	0.18	0.49	0.49
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	246	1153	359	266	1182	368	266	1966	612	604	2466	1352
v/s Ratio Prot	c0.05	c0.14		0.05	0.10		0.05	0.07		c0.10	c0.30	
v/s Ratio Perm			0.04			0.01			0.02			0.10
v/c Ratio	0.73	0.60	0.16	0.60	0.44	0.04	0.60	0.19	0.06	0.55	0.63	0.21
Uniform Delay, d1	54.6	41.5	37.2	53.6	39.4	35.7	53.6	24.4	23.1	45.1	22.9	17.7
Progression Factor	1.02	0.96	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.22	0.56	0.41
Incremental Delay, d2	9.2	1.1	0.4	2.6	0.5	0.1	2.6	0.2	0.2	0.5	1.1	0.3
Delay (s)	64.7	41.1	36.4	56.2	39.8	35.8	56.2	24.6	23.3	55.3	14.0	7.6
Level of Service	E	D	D	E	D	D	E	С	С	E	В	Α
Approach Delay (s)		43.9			42.9			32.4			18.4	
Approach LOS		D			D			С			В	
Intersection Summary		21/2		100	TOP TO		14. 9	1-12	- 1	THE	163	
HCM Average Control D			29.8	Н	CM Lev	el of Se	rvice		С			
HCM Volume to Capacit	-		0.63									
Actuated Cycle Length (120.0			ost time			16.0			
Intersection Capacity Ut	ilization		65.7%	IC	CU Leve	el of Ser	vice		С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	75	ተተተ	ተተተ	7	7	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
Flt Permitted	0.23	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	424	5085	5085	1583	1770	1583	
Volume (vph)	40	960	1110	100	40	10	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	40	960	1110	100	40	10	
RTOR Reduction (vph)	0	0	0	20	0	9	
Lane Group Flow (vph)	40	960	1110	80	40	1	
	pm+pt			Perm		Perm	
Protected Phases	1	6	2		4		
Permitted Phases	6		_	2	•	4	
Actuated Green, G (s)	101.2	101.2	94.2	94.2	8.3	8.3	
Effective Green, g (s)	103.2	103.2	96.2	96.2	8.8	8.8	
Actuated g/C Ratio	0.86	0.86	0.80	0.80	0.07	0.07	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
/ehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
ane Grp Cap (vph)	398	4373	4076	1269	130	116	
//s Ratio Prot	0.00	c0.19	c0.22		c0.02		
//s Ratio Perm	0.08	30, 10	· · · · ·	0.05	00.01	0.00	
//c Ratio	0.10	0.22	0.27	0.06	0.31	0.01	
Jniform Delay, d1	1.4	1.4	3.0	2.5	52.7	51.5	
Progression Factor	1.00	1.00	1.85	3.05	1.00	1.00	
ncremental Delay, d2	0.1	0.1	0.2	0.1	0.5	0.0	
Delay (s)	1.5	1.6	5.7	7.7	53.2	51.6	
_evel of Service	1.5 A	7.0 A	3.7 A	A	55.2 D	D D	
Approach Delay (s)		1.6	5.9	^	52.9		
Approach LOS		Α	3.9 A		52.9 D		
ntersection Summary	The same	- 1/1-		11113	Line	100	
ICM Average Control D	elay		5.0	Н	CM Lev	el of Service	ce A
HCM Volume to Capacit			0.28				
Actuated Cycle Length (120.0	S	um of le	ost time (s)	12.0
ntersection Capacity Ut			38.1%			el of Service	
Analysis Period (min) Critical Lane Group			15				-

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N. A. Sandrain Co. Sandrain Co.	10000	VAID TO	I .	Tables	-	24200	
Movement	WBL	WBR		NBR	SBL	SBT	State of the state of
Lane Configurations	ሻሻ	1000	^	*	ሻሻ	^	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	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	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1533	3539	
Volume (vph)	940	180	200	670	330	610	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	940	180	200	670	330	610	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	940	180	200	670	330	610	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		. i	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	23.8	53.6	8.4	53.6	21.8	21.8	
Effective Green, g (s)	23.8	53.6	8.4	53.6	21.8	21.8	
Actuated g/C Ratio	0.44	1.00	0.16	1.00	0.41	0.41	
Clearance Time (s)	4.0		4.0		4.0	4.0	
/ehicle Extension (s)	4.5		4.5		1.5	4.5	
ane Grp Cap (vph)	1524	1583	555	1583	957	1439	
//s Ratio Prot	c0.27	1000	0.06	1000	0.06	0.17	
//s Ratio Perm	50.Z1	0.11	0.00	c0.42	0.08	U. 17	
//c Ratio	0.62	0.11	0.36	0.42	0.08	0.42	
Jniform Delay, d1	11.4	0.11	20.2	0.42	10.6	11.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
ncremental Delay, d2	1.00	0.1	0.7	0.8	0.1	0.3	
Delay (s)	12.4	0.1	20.9	0.0 8.0	10.7	0.3 11.7	
_evel of Service	12.4 B	0.1 A	20.9 C		10.7 B		
		A		Α	D	B	
Approach Delay (s)	10.4		5.4			11.4	
Approach LOS	В		Α			В	
ntersection Summary		100		1	100		15.8 67
ICM Average Control D			9.2	Н	CM Lev	el of Servic	
ICM Volume to Capacit			0.52				
Actuated Cycle Length (53.6	S	um of lo	st time (s)	4.
ntersection Capacity Ut	ilization		51.8%	IC	CU Leve	of Service	4
Analysis Period (min)			15				
Critical Lane Group							

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	444		14.14	ተተተ	7	44	^	7	14.54	^	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot) Flt Permitted	3433	4913		3433	5085	1554	3433	3539	1562	3433	3539	1551
	0.95 3433	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		4913	400	3433	5085	1554	3433	3539	1562	3433	3539	1551
Volume (vph)	180	760	190	400	1560	330	150	300	130	520	450	510
Peak-hour factor, PHF	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. Flow (vph)	180	760 36	190	400	1560	330	150	300	130	520	450	510
RTOR Reduction (vph) Lane Group Flow (vph)	0 180	914	0	0 400	1560	61	0 450	200	31	0	0	118
Confl. Peds. (#/hr)	100	914	0 6	400	1560	269	150	300	99	520	450	392
Confl. Bikes (#/hr)			0			11			7 2			6
Turn Type	Prot			Drot			Dest			Dest		Danna
Protected Phases		2		Prot		om+ov	Prot		m+ov	Prot	4	Perm
Permitted Phases	5	2		1	6	7 6	3	8	1 8	7	4	4
Actuated Green, G (s)	9.7	42.3		17.4	50.0	69 .0	9.1	21.3	38.7	10.0	24.2	4 31.2
Effective Green, g (s)	9.7	44.3		17.4	52.0	71.0	9.1	23.3	40.7	1 9.0 19.0	31.2 33.2	33.2
Actuated g/C Ratio	0.08	0.37		0.14	0.43	0.59	0.08	0.19	0.34	0.16	0.28	0.28
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	278	1814		498	2204	919	260	687	582	544	979	429
v/s Ratio Prot	c0.05	0.19		c0.12	c0.31	0.05	c0.04	0.08	0.02	0.15	0.13	429
v/s Ratio Perm	CO.03	Ų. 1 3		CU. 12	CU.3 I	0.03	60.04	0.00	0.02	0.15	0.13	c0.25
v/c Ratio	0.65	0.50		0.80	0.71	0.13	0.58	0.44	0.04	0.96	0.46	0.91
Uniform Delay, d1	53.5	29.3		49.6	27.8	12.1	53.6	42.6	27.8	50.1	36.0	42.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.1	1.0		8.6	1.9	0.1	1.9	0.8	0.1	27.4	0.6	24.4
Delay (s)	64.6	30.3		58.2	29.7	12.2	55.5	43.3	27.9	77.5	3 6 .6	66.4
Level of Service	E	C		E	C	В	E	70.0	27.0 C	77.0 E	D	E
Approach Delay (s)	_	35.8		_	32.2	_		43.0		_	61.2	_
Approach LOS		D			С			D			E	
Intersection Summary	100	333	L. Su	81 - 1		22.50	1993	DATE:	E 1/2 71/	WA.	15 6	en a
HCM Average Control D			41.9	Н	CM Lev	el of Se	ervice		D			
HCM Volume to Capacit			0.76									
Actuated Cycle Length (120.0		um of lo				16.0			
Intersection Capacity Ut	ilization		76.6%	IC	CU Leve	of Ser	vice		D			
Analysis Period (min)			15									
c Critical Lane Group												

20: Valencia Blvd. & Bouquet Canyon Rd.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	الوابولير	ተተኈ		14 14 14	ተተጐ	7	7	ተተተ	7	444	ተተጉ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5055		4990	4806	1362	1770	5085	1575	4990	4631	1352
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5055		4990	4806	1362	1770	5085	1575	4990	4631	1352
Volume (vph)	270	490	20	250	1230	420	20	530	240	540	1290	1190
Peak-hour factor, PHF	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. Flow (vph)	270	490	20	250	1230	420	20	530	240	540	1290	1190
RTOR Reduction (vph)	0	3	0	0	0	52	0	0	16	0	30	102
Lane Group Flow (vph)	270	507	0	250	1230	368	20	530	224	540	1633	715
Confl. Peds. (#/hr)									3			1
Confl. Bikes (#/hr)									1_			
Turn Type	Prot			Prot		om+ov	Prot		om+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	30.3	20.6		54.5	44.8	68.8	3.8	22.7	77.2	24.0	42.9	73.2
Effective Green, g (s)	31.3	22.6		55.5	46.8	71.8	4.8	24.7	80.2	25.0	44.9	76.2
Actuated g/C Ratio	0.22	0.16		0.39	0.33	0.50	0.03	0.17	0.56	0.17	0.31	0.53
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	1086	794		1926	1564	680	59	873	922	868	1446	754
v/s Ratio Prot	0.05	0.10		0.05	c0.26	0.09	0.01	c0.10	0.09	0.11	c0.35	c0.21
v/s Ratio Perm						0.18			0.05			0.32
v/c Ratio	0.25	0.64		0.13	0.79	0.54	0.34	0.61	0.24	0.62	1.13	0.95
Uniform Delay, d1	46.5	56.8		28.5	44.0	24.7	67.9	55.1	16.3	55.0	49.4	31.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	1.8		0.0	3.0	0.5	1.2	1.6	0.1	1.0	67.7	20.6
Delay (s)	46.6	58.6		28.6	47.0	25.2	69.2	56.6	16.3	56.0	117.1	52.5
Level of Service	D	E		С	D	С	E	E	В	Е	F	Đ
Approach Delay (s)		54.4			39.7			44.7			88.7	
Approach LOS		D			D			D			F	
Intersection Summary	STEE	d v	200	MAG		45 TK	1 4-1	200		30	1	39 di
HCM Average Control De			64.9	-	CM Lev	el of Se	rvice		Е			
HCM Volume to Capacity			0.94									
Actuated Cycle Length (s			143.8		ium of lo				12.0			
Intersection Capacity Util	ization	- (39.4%	IC	CU Leve	of Sen	vice		E			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 21: Placerita Canyon Rd. & Sierra Hwy

	۶	→	*	1	—	4	4	†	~	-	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	ተ ተተ	7	M	ተተተ	7	*	1		7	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	3339		1770	3495	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	3339		1770	3495	
Volume (vph)	10	480	170	170	360	280	40	230	140	160	1760	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	505	179	200	424	329	42	242	147	168	1853	168
RTOR Reduction (vph)	0	0	86	0	0	283	0	65	0	0	5	0
Lane Group Flow (vph)	11	505	93	200	424	46	42	324	0	168	2016	0
Turn Type	Split		Perm	Split		Perm	Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases			6			2						
Actuated Green, G (s)	15.4	15.4	15.4	17.9	17.9	17.9	3.1	61.0		16.4	74.3	
Effective Green, g (s)	15.4	15.4	15.4	17.9	17.9	17.9	3.1	61.0		16.4	74.3	
Actuated g/C Ratio	0.12	0.12	0.12	0.14	0.14	0.14	0.02	0.48		0.13	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	215	618	192	250	718	224	43	1608		229	2050	
v/s Ratio Prot	0.01	c0.10		c0.11	0.08		0.02	0.10		c0.09	c0.58	
v/s Ratio Perm			0.06			0.03						
v/c Ratio	0.05	0.82	0.48	0.80	0.59	0.21	0.98	0.20		0.73	0.98	
Uniform Delay, d1	49.2	54.3	51.9	52.7	51.0	48.1	61.8	18.9		53.0	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	8.2	1.9	16.5	1.3	0.5	127.2	0.1		11.5	16.0	
Delay (s)	49.3	62.5	53.9	69.2	52.3	48.6	189.0	18.9		64.5	41.6	
Level of Service	D	E	D	Ε	D	D	F	В		Е	D	
Approach Delay (s)		60.1			54.6			35.5			43.4	
Approach LOS		Ε			D			D			D	
Intersection Summary	75-1		SIZ 6	10.45	100	and the	5,000	2000		The said	19	600
HCM Average Control De			47.8	Н	CM Lev	el of Se	ervice		D			
HCM Volume to Capacity	y ratio		0.93									
Actuated Cycle Length (s	s)		126.7	S	um of k	ost time	(s)		16.0			
Intersection Capacity Uti	lization		89.1%	IC	U Leve	el of Ser	vice		Ε			
Analysis Period (min)			15									
c Critical Lane Group												

	1	4	†	-	-	+				
Movement	WBL	WBR	NBT	NBR	SBL	SBT			Contract of the last	
Lane Configurations	7	7	朴		7	^				
Sign Control	Stop		Free		·	Free				
Grade	0%		0%			0%				
Volume (veh/h)	330	10	450	70	790	1750				
Peak Hour Factor	0.70	0.70	0.90	0.90	0.90	0.90				
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage	471	14	500	78	878	1944				
Right turn flare (veh)										
Median type Median storage veh)	None									
Upstream signal (ft) pX, platoon unblocked			768							
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	3267	289			578					
vCu, unblocked vol	3267	289			578					
tC, single (s)	6.8	6.9			4.1					
tC, 2 stage (s)										
tF (s)	3.5	3.3			2.2					
p0 queue free %	0	98			12					
cM capacity (veh/h)	1	708			992					
Direction, Lane#	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3	100	1360	
Volume Total	471	14	333	244	878	972	972			
Volume Left	471	0	0	0	878	0	0			
Volume Right	0	14	0	78	0	0	0			
cSH	1	708	1700	1700	992	1700	1700			
Volume to Capacity	596.78	0.02	0.20	0.14	0.88	0.57	0.57			
Queue Length 95th (ft)	Err	2	0	0	309	0	0			
Control Delay (s)	Err	10.2	0.0	0.0	28.7	0.0	0.0			
Lane LOS	F	В			D					
Approach Delay (s) Approach LOS	9705.2 F		0.0		8.9					
Intersection Summary			1				- Levin		109 1	
Average Delay Intersection Capacity U Analysis Period (min)	Itilization		1219.6 86.7% 15	IC	CU Leve	l of Ser	vice		E	

Vista Canyon Ranch 23: Placerita Canyon Rd. & SR 14 NB Ramps

	1	→	*	1	+	4	4	†	-	-	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		↑↑ Free	ř		↑ ‡≽ Free			र्सी Stop	7		Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	130	210	0	410	10	400	0	50	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s)	0	144	233	0	456	11	444	0	56	0	0	0
Percent Blockage Right turn flare (veh)									20			
Median type								None	30		None	
Median storage veh)								MOHE			NOHE	
Upstream signal (ft) pX, platoon unblocked		718										
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	467			144			372	611	72	561	606	233
vCu, unblocked vol	467			144			372	611	72	561	606	233
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)	7.1			7.1			7.5	0.5	0.5	7.5	0.5	0.9
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			21	100	94	100	100	100
cM capacity (veh/h)	1091			1436			560	407	975	387	410	769
Direction, Lane#	EB 1	EB 2	EB 3	WB1	WB 2	NB 1	No.	1900	. 70	3360		1107
Volume Total	72	72	233	304	163	500						
Volume Left	0	0	0	0	0	444						
Volume Right	0	0	233	0	11	56						
cSH	1700	1700	1700	1700	1700	629						
Volume to Capacity	0.04	0.04	0.14	0.18	0.10	0.79						
Queue Length 95th (ft)	0	0	0	0	0	195						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	29.3						
Lane LOS						D						
Approach Delay (s) Approach LOS	0.0			0.0		29.3 D						
Intersection Summary			8-3		Unit	Sept.	100		-		a Faci	1
Average Delay Intersection Capacity Uti Analysis Period (min)	ilization		10.9 40.5% 15	J	CU Leve	l of Sen	vice		Α			

	*	7	4	†	ļ	4				
Movement	EBL	EBR	NBL	NBT	SBT	SBR	ALIE IN	5 4 N/S	100 M 200	Same of
Lane Configurations	Y			सी	7-					
Sign Control	Stop			Free	Free					
Grade	0%			0%	0%					
Volume (veh/h)	340	10	50	30	10	60				
Peak Hour Factor	0.90	0.90	0.75	0.75	0.80	0.80				
Hourly flow rate (vph) Pedestrians	378	11	67	40	12	75				
Lane Width (ft) Walking Speed (ft/s) Percent Blockage										
Right turn flare (veh)										
Median type	None									
Median storage veh)										
Upstream signal (ft) pX, platoon unblocked										
vC, conflicting volume	223	50	88							
vC1, stage 1 conf vol	220	50	00							
vC2, stage 2 conf vol										
vCu, unblocked vol	223	50	88							
tC, single (s)	6.4	6.2	4.1							
tC, 2 stage (s)										
tF (\$)	3.5	3.3	2.2							
p0 queue free %	48	99	96							
cM capacity (veh/h)	731	1018	1508							
Direction, Lane #	EB 1	NB 1	SB 1	1235	ALC: N	SI PLANT	Salasiy.	2		OF BALLY
Volume Total	389	107	88							
Volume Left	378	67	0							
Volume Right	11	0	75							
Volume to Conseits	737 0.53	1508 0.04	1700 0.05							
Volume to Capacity Queue Length 95th (ft)	0.53 78	0.04	0. 05 0							
Control Delay (s)	15.2	4.8	0.0							
Lane LOS	13.2 C	4.0 A	0.0							
Approach Delay (s)	15.2	4.8	0.0							
Approach LOS	C		4.0							
Intersection Summary			State!	SAUN	H (-)	000 TO	200	No.	of little	
Average Delay			11.0							
Intersection Capacity Ut	ilization		37.1%	IC	U Leve	of Service	•	Α		
Analysis Period (min)			15							

	→	•	•	-	1	-					
Movement	EBT	EBR	WBL	WBT	NBL	NBR	NA COL	0.835	100000		V-01 (12700)
Lane Configurations Sign Control Grade	↑↑↑ Free 0%		۲	↑↑↑ Free 0%	Stop 0%						
Volume (veh/h) Peak Hour Factor Hourly flow rate (vph)	1500 0.95 1579	5 0.95 5	5 0.90 6	860 0.90 956	10 0.50 20	10 0.50 20					
Pedestrians Lane Width (ft)	.0.0	J	J	1 12.0	1 12 .0	20					
Walking Speed (ft/s) Percent Blockage Right turn flare (veh)				4.0 0	4.0 0						
Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked					None						
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol			1585		1912	531					
vCu, unblocked vol tC, single (s) tC, 2 stage (s)			1585 4.1		1912 6.8	531 6.9					
tF (s) p0 queue free % cM capacity (veh/h)			2.2 99 410		3.5 66 59	3.3 96 492					
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB2	WB3	WB4	NB 1	OR SH	STREET,	0.00000
Volume Total	632	632	321	6	319	319	319	40			
Volume Left Volume Right	0	0 0	0 5	6	0	0	0	20			
cSH	1700	1700	1700	0 410	1700	0 1700	0 1700	20 105			
Volume to Capacity	0.37	0.37	0.19	0.01	0.19	0.19	0.19	0.38			
Queue Length 95th (ft)	0	0	0	1	0	0	0	39			
Control Delay (s)	0.0	0.0	0.0	13.9	0.0	0.0	0.0	58.8			
Lane LOS Approach Delay (s) Approach LOS	0.0			8 0.1				F 58.8 F			
Intersection Summary	alon.	2200	Dissi	TO SERVICE	Service S	COLUMN TO A STATE OF	0.932	The Contract of	oi - i -	SED	C-00
Average Delay Intersection Capacity Uti Analysis Period (min)	lization		0.9 39.4% 15	IC	CU Leve	el of Ser	vice		A		

	۶	-	•	•	+	*	4	†	1	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተጉ		ليراير	ተተጉ		14	^	7) j	个 个	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4561		3433	4926		3433	3539	1520	1770	3539	1473
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4561		3433	4926		3433	3539	1520	1770	3539	1473
Volume (vph)	700	990	740	190	550	120	640	690	450	200	710	450
Peak-hour factor, PHF	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. Flow (vph)	700	990	740	190	550	120	640	690	450	200	710	450
RTOR Reduction (vph)	0	84	0	0	28	0	0	0	315	0	0	312
Lane Group Flow (vph)	700	1646	0	190	642	0	640	690	135	200	710	138
Confl. Peds. (#/hr)			70			9			17			48
Confl. Bikes (#/hr)			7			2			5			1
Turn Type	Prot	•		Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8	_	7	4	
Permitted Phases	07.0	50.0		44.0	07.0		04.0		8	4		4
Actuated Green, G (s)	37.0	53.3		11.3	27.6		31.9	30.9	30.9	17.5	16.5	16.5
Effective Green, g (s)	36.5	55.3		10.8	29.6		31.4	32.9	32.9	17.0	18.5	18.5
Actuated g/C Ratio	0.28	0.42		0.08	0.22		0.24	0.25	0.25	0.13	0.14	0.14
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5	_	2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	949	1911		281	1105		817	882	379	228	496	206
v/s Ratio Prot	0.20	c0.36		c0.06	0.13		0.19	c0.19	0.00	0.11	c0.20	0.00
v/s Ratio Perm v/c Ratio	0.74	1.09dr		0.68	0.58		0.78	0.78	0.09 0.36	0.00	4 42	0.09 0.67
Uniform Delay, d1	43.4	34.9		58.9	45.7		47.1	46.2	40.8	0.88 56.5	1.43 56.8	53.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	5.4		5.0	2.2		4.8	5.1	1.00	28.5	205.5	9.5
Delay (s)	48.5	40.2		63.9	47.9		51.9	51.3	41.8	85.0	262.3	63.4
Level of Service	40.5 D	40.2 D		03.9 E	47.9 D		51.9 D	51.3 D	41.0 D	65.U F	202.3 F	03.4 E
Approach Delay (s)	D	42.6			51.4		D	49.1	D	г	•	_
Approach LOS		42.0 D			51.4 D			48.1 D			170.4 F	
wall-backer to block and								D				
Intersection Summary	Paris D	+	ALL ST	1	-01		Miller and	1- 1-	1907.35	100	THE REAL	1 1 2
HCM Average Control D			72.6	Н	CM Lev	el of Se	rvice		E			
HCM Volume to Capacity	,		0.89	_					45.5			
Actuated Cycle Length (s		.a.	132.0			ost time			12.0			
Intersection Capacity Uti	iization	10	02.5%	IC	JU Leve	of Ser	vice		G			
Analysis Period (min)	Dess	ما مینداد ۱	15			lone						

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

	1	*	†	-	-	1		
Movement	WBL	WBR	NBT	NBR	SBL	SBT	1000	all spirit and a second spirit and a second
Lane Configurations		74	ተተው			ተተተ		
Sign Control	Stop		Free			Free		
Grade	0%		0%			0%		
Volume (veh/h)	0	190	1570	330	0	1490		
Peak Hour Factor	0.85	0.85	1.00	1.00	0.95	0.95		
Hourly flow rate (vph)	0	224	1570	330	0	1568		
Pedestrians	32							
Lane Width (ft)	12.0							
Walking Speed (ft/s)	4.0							
Percent Blockage	3							
Right turn flare (veh)	•							
Median type	None							
Median storage veh)	110110							
Upstream signal (ft)			702					
pX, platoon unblocked	0.72	0.72	102		0.72			
vC, conflicting volume	2290	720			1932			
vC1, stage 1 conf vol	2290	120			1902			
vC1, stage 7 conf vol								
vCu, unblocked vol	2011	0			1513			
tC, single (s)	6.8	6.9			4.1			
	0.0	0.9			4. 1			
tC, 2 stage (s) tF (s)	3.5	3.3			2.2			
p0 queue free %	100	71			100			
	36	758			306			
cM capacity (veh/h)								
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	The state of the s
Volume Total	224	628	628	644	523	523	523	
Volume Left	0	0	0	0	0	0	0	
Volume Right	224	0	0	330	0	0	0	
cSH	758	1700	1700	1700	1700	1700	1700	
Volume to Capacity	0.29	0.37	0.37	0.38	0.31	0.31	0.31	
Queue Length 95th (ft)	31	0	0	0	0	0	0	
Control Delay (s)	11.7	0.0	0.0	0.0	0.0	0.0	0.0	
Lane LOS	В							
Approach Delay (s)	11.7	0.0			0.0			
Approach LOS	В							
Intersection Summary	1 Vien	L. Salv	6-11-11	1 6	Ulbyrow,	3333	II.S.	The state of the s
Average Delay			0.7					
Intersection Capacity Ut	lilization		56.6%	10	CU Leve	of Ser	vice	В
Analysis Period (min)			15					

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		7	1	7	¥	ተተኈ	4,,,,,	ř	ተተጐ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Fit Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695		1770	1863	1539	1770	4978		1770	5048	
Flt Permitted		0.93		0.70	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1605	- 10	1309	1863	1539	1770	4978		1770	5048	
Volume (vph)	20	10	40	220	10	140	60	1890	250	180	1120	50
Peak-hour factor, PHF	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. Flow (vph)	20	10	40	220	10	140	60	1890	250	180	1120	50
RTOR Reduction (vph)	0	32	0	0	0	112	0	13	0	0	3	0
Lane Group Flow (vph)	0	38	0	220	10	28	60	2127	0	180	1167	0
Confl. Peds. (#/hr)						11			11			1
Confl. Bikes (#/hr)				_		2			5			
Turn Type	Perm			Perm		Perm	Prot	_		Prot		
Protected Phases		4			8	_	5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)		23.5		23.5	23.5	23.5	6.7	67.7		14.8	75.8	
Effective Green, g (s)		24.0		24.0	24.0	24.0	6.2	69.7		14.3	77.8	
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.05	0.58		0.12	0.65	
Clearance Time (s)		4.5		4.5	4.5	4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		321		262	373	308	91	2891		211	3273	
v/s Ratio Prot v/s Ratio Perm		0.00		o0 17	0.01	0.00	0.03	c0.43		c 0.10	0.23	
v/c Ratio		0.02		c0.17	0.00	0.02	0.66	0.74		0.05	0.00	
Uniform Delay, d1		0.12		0.84	0.03	0.09	0.66	0.74		0.85	0.36	
• •		39.3 1.00		46.2 1.00	38.6 1.00	39.1 1.00	55.9 0.83	18.4 1.40		51.8	9.7	
Progression Factor Incremental Delay, d2		0.2		20.4	0.0	0.1	11.8	1.40		1.00 26.0	1.00 0.3	
Delay (s)		39.5		66.6	38.6	39.2	58.0	27.4		77.8	10.0	
Level of Service		39.5 D		66.6 F	30.0 D	39.2 D	50.U E	27.4 C		77.0 E	10.0 A	
Approach Delay (s)		39.5		_	55.5	D		28.2		E	19.0	
Approach LOS		39.3 D			55.5 E			20.2 C			19.0 B	
	-	BOCHON	-		decor	ev Di			See Theory	Security 1		etosoire'
Intersection Summary HCM Average Control D	olov	2700	27.0		CM Los	ol of Co	nuine	The state of	-	1000	11/2/12/14	
HCM Volume to Capacit			27.8 0.77		CIVI LE	vel of Se	vice		С			
Actuated Cycle Length (120.0	0	um of b	ost time	(e)		12.0			
Intersection Capacity Uti	•	9	32.4%			ost lime of Ser			12.0 E			
Analysis Period (min)	ntanoi j	•	15	10	O FEAS	51 UI 361	AICC.					
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43			4		ħ	4		7	7	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	80	50	40	30	40	10	40	90	70	10	70	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	89	56	44	33	44	11	47	106	82	12	82	59
Direction, Lane #	EB 1	WB1	NB 1	NB 2	SB 1	SB 2	W Da	100	abs	1315	NA.	- 1
Volume Total (vph)	189	89	47	188	12	141						
Volume Left (vph)	89	33	47	0	12	0						
Volume Right (vph)	44	11	0	82	0	59						
Hadj (s)	-0.01	0.03	0.53	-0.27	0.53	-0.26						
Departure Headway (s)	5.0	5.2	6.0	5.1	6.0	5.2						
Degree Utilization, x	0.26	0.13	0.08	0.27	0.02	0.21						
Capacity (veh/h)	673	634	575	664	558	644						
Control Delay (s)	9.7	8.9	8.3	8.8	8.0	8.4						
Approach Delay (s)	9.7	8.9	8.7		8.4							
Approach LOS	Α	Α	Α		Α							
Intersection Summary	STATE OF	CHICAL CO.	No. of	BASE	SESTION .	9.199	2339	100	SUETE	2011		
Delay			8.9									
HCM Level of Service			Α									
Intersection Capacity Uti Analysis Period (min)	lization		29.2% 15	IC	CU Leve	el of Sen	vice		Α			

	*	-			>	4	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	Mark the last of the mark
Lane Configurations	7	ተተ	ተኈ		Y		
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Volume (veh/h)	170	240	210	90	60	110	
Peak Hour Factor	0.95	0.95	0.85	0.85	0.80	0.80	
Hourly flow rate (vph) Pedestrians	179	253	247 3	106	75	138	
Lane Width (ft)			12.0				
Walking Speed (ft/s)			4.0				
Percent Blockage			0				
Right turn flare (veh)			J				
Median type					None		
Median storage veh)							
Upstream signal (ft)		580					
pX, platoon unblocked							
vC, conflicting volume	353				787	176	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	353				787	176	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s) tF (s)	2.2				3.5	3.3	
p0 queue free %	2.2 85				73	3.3 84	
cM capacity (veh/h)	1202				279	836	
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB 2	SB 1	
/olume Total	179	126	126	165	188	212	
/olume Left	179	0	0	0	0	75	
/olume Right	0	0	0	0	106	138	
SH	1202	1700	1700	1700	1700	490	
/olume to Capacity	0.15	0.07	0.07	0.10	0.11	0.43	
Queue Length 95th (ft)	13	0	0	0	0	54	
Control Delay (s)	8.5	0.0	0.0	0.0	0.0	17.8	
Lane LOS	A			0.0		C	
Approach Delay (s) Approach LOS	3.5			0.0		17.8 C	
ntersection Summary	344.5	HE'S	198/	The William		3100	TOP BY TANKS OF THE PARTY
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		5.3 38.2% 15	ļ	CU Leve	el of Servi	ice A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	14	ተተተ	7	44	ተተተ	7	1/4	ተተተ	7	1/4	ተተተ	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Fit Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Volume (vph)	220	840	120	200	560	140	620	1090	380	190	600	790
Peak-hour factor, PHF	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. Flow (vph)	220	840	120 87	200	560	140	620	1090	380	190	600	790
RTOR Reduction (vph)	0 220	0 84 0	33	0 200	0 560	100	0 620	1000	112	100	0	252
Lane Group Flow (vph) Confl. Peds. (#/hr)	220	040	2	200	560	40 2	020	1090	268	190	600	538
Confl. Bikes (#/hr)			2			2			5 1			2
Turn Type	Drot			Deat		Dozen	Deat			Dest		Danne
Protected Phases	Prot	4	Perm	Prot		Perm	Prot	9	Perm	Prot	6	Perm
Permitted Phases	7	4	4	3	8	8	5	2	2	1	6	6
Actuated Green, G (s)	8.5	30.8	30.8	9.9	32.2	32.2	22.6	49.6	2 49 .6	9.7	36.7	6 36 .7
Effective Green, g (s)	8.5	32.8	32.8	9.9	34.2	34.2	22.6	51.6	51.6	9.7	38.7	38.7
Actuated g/C Ratio	0.07	0.27	0.27	0.08	0.29	0.29	0.19	0.43	0.43	0.08	0.32	0.32
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	243	1390	426	283	1449	445	647	2187	669	278	1640	886
v/s Ratio Prot	c0.06	c0.17	720	0.06	0.11	770	c0.18	0.21	003	0.06	0.12	000
v/s Ratio Perm	00.00	50.11	0.02	0.00	0.11	0.03	00.10	0.2	0.17	0.00	0.12	c0.20
v/c Ratio	0.91	0.60	0.08	0.71	0.39	0.09	0.96	0.50	0.40	0.68	0.37	0.61
Uniform Delay, d1	55.4	38.0	32.4	53.6	34.5	31.5	48.2	24.8	23.6	53.7	31.2	34.2
Progression Factor	1.24	0.89	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.03	0.87	0.73
Incremental Delay, d2	32.1	1.0	0.1	6.4	0.3	0.2	25.0	0.8	1.8	5.2	0.6	2.9
Delay (s)	100.8	34.7	17.1	60.1	34.8	31.6	73.2	25.6	25.3	60.3	27.7	27.9
Level of Service	F	С	В	E	С	С	E	С	С	Е	C	C
Approach Delay (s)		45.2			39.9			39.7			31.7	
Approach LOS		D			D			D			С	
Intersection Summary	4 1	Spits	27031		SEVE	15/4		AD Sm	64.15	ale all		10163
HCM Average Control D	elay		38.7	Н	CM Lev	el of Se	ervice		D			
HCM Volume to Capacit			0.70									
Actuated Cycle Length (120.0	S	um of k	ost time	(s)		16.0			
Intersection Capacity Ut	ilization		82.7%	IC	CU Leve	el of Ser	vice		E			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	ሻ	ተ ተተ	ተተተ	7	7	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
Flt Permitted	0.08	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	146	5085	5085	1583	1770	1583	
Volume (vph)	20	940	1580	50	140	80	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	20	940	1580	50	140	80	
RTOR Reduction (vph)	0	0	0	26	0	48	
Lane Group Flow (vph)	20	940	1580	24	140	32	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	· 1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	61.4	61.4	56.1	56.1	48.1	48.1	
Effective Green, g (s)	63.4	63.4	58.1	58.1	48.6	48.6	
Actuated g/C Ratio	0.53	0.53	0.48	0.48	0.40	0.40	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
Lane Grp Cap (vph)	95	2687	2462	766	717	641	
v/s Ratio Prot	0.00	c0.18	c0.31		c0.08		
v/s Ratio Perm	0.11			0.02		0.02	
v/c Ratio	0.21	0.35	0.64	0.03	0.20	0.05	
Uniform Delay, d1	17.4	16.4	23.2	16.2	23.1	21.7	
Progression Factor	1.00	1.00	1.02	1.41	1.00	1.00	
Incremental Delay, d2	0.8	0.4	0.9	0.1	0.6	0.1	
Delay (s)	18.2	16.7	24.5	22.8	23.7	21.8	
Level of Service	В	В	С	С	С	С	
Approach Delay (s)		16.8	24.4		23.0		
Approach LOS		В	С		С		
Intersection Summary		Sellie Se	SITE S	200.00	4,6512	500000	
HCM Average Control D	Delay		21.7	H	ICM Le	vel of Servi	ce C
HCM Volume to Capaci			0.44				
Actuated Cycle Length			120.0	5	Sum of I	ost time (s)	12.0
Intersection Capacity U			45.0%			el of Service	
Analysis Period (min)			15		- ·		
c Critical Lane Group							

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	Maria Maria
Lane Configurations	ሻሻ	7	十 十	7	1/1/	^	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.85	1.00	0.85	1.00	1.00	
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.40	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1455	3539	
Volume (vph)	620	1040	360	780	180	260	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	620	1040	360	780	180	260	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	620	1040	360	780	180	260	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		1	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	16.3	45.8	12.0	45.8	21.5	21.5	
Effective Green, g (s)	16.3	45.8	12.0	45.8	21.5	21.5	
Actuated g/C Ratio	0.36	1.00	0.26	1.00	0.47	0.47	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1222	1583	927	1583	921	1661	
v/s Ratio Prot	0.18		0.10		0.02	0.07	
v/s Ratio Perm		c0.66		0.49	0.07		
v/c Ratio	0.51	0.66	0.39	0.49	0.20	0.16	
Uniform Delay, d1	11.6	0.0	13.9	0.0	7.0	7.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	2.1	0.5	1.1	0.0	0.1	
Delay (s)	12.2	2.1	14.4	1.1	7.0	7.0	
Level of Service	В	Α	В	Α	Α	Α	
Approach Delay (s)	5.9		5.3			7.0	
Approach LOS	Α		Α			Α	
Intersection Summary	36557	Mary Par	F 500	Local	STEEN STATE	607/SHS/S	and the last the formula
HCM Average Control D	elav		5.8	F	ICM Lev	el of Service	ce A
HCM Volume to Capacit			0.66	•			
Actuated Cycle Length (45.8	9	ium of k	ost time (s)	0.0
Intersection Capacity Uti			42.8%			of Service	
Analysis Period (min)			15	'			••
c Critical Lane Group			, 0				
- Jimou Lano Group							

Vista Canyon Ranch
19: Soledad Canyon Rd. & Whites Canyon Rd.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1414	ተተጉ		1/1/	ተተተ	7	1/2	44	74	77	44	7
ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5023		3433	5085	1542	3433	3539	1518	3433	3539	1527
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5023		3433	5085	1542	3433	3539	1518	3433	3539	1527
Volume (vph)	580	1600	110	220	870	490	280	580	240	510	410	190
Peak-hour factor, PHF	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. Flow (vph)	580	1600	110	220	870	490	280	580	240	510	410	190
RTOR Reduction (vph)	0	5	0	0	0	18	0	0	6	0	0	154
Lane Group Flow (vph)	580	1705	0	220	870	472	280	580	234	510	410	36
Confl. Peds. (#/hr)			18			23			27			13
Confl. Bikes (#/hr)			3			2			2			3
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	31.2	50.3		11.8	30.9	52.6	27.1	28.2	40.0	21.7	22.8	22.8
Effective Green, g (s)	31.2	52.3		11.8	32.9	54.6	27.1	30.2	42.0	21.7	24.8	24.8
Actuated g/C Ratio	0.24	0.40		0.09	0.25	0.41	0.21	0.23	0.32	0.16	0.19	0.19
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	811	1990		307	1267	638	705	810	529	564	665	287
v/s Ratio Prot	0.17	c0.34		0.06	0.17	c0.12	0.08	c0.16	0.04	c0.15	0.12	
v/s Ratio Perm						0.18			0.11			0.02
v/c Ratio	0.72	0.86		0.72	0.69	0.74	0.40	0.72	0.44	0.90	0.62	0.12
Uniform Delay, d1	46.3	36.4		58.5	44.9	32.7	45.4	46.9	35.7	54.1	49.2	44.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ncremental Delay, d2	5.3	5.0		6.5	1.8	3.9	0.1	3.5	0.2	17.6	2.2	0.3
Delay (s)	51.7	41.4		65.0	46.7	36.6	45.5	50.4	35.9	71.7	51.4	44.9
Level of Service	D	D		E	D	D	D	D	D	Е	D	D
Approach Delay (s)		44.0			46.1			46.0			59.6	
Approach LOS		D			D			D			E	
ntersection Summary	DE	18 18	11	1355	1113	Mica	UDG:	1100		1012	1500	el a
HCM Average Control D			47.8	Н	ICM Le	vel of Se	ervice		D			
HCM Volume to Capacit			0.83	_								
Actuated Cycle Length (132.0			ost time			16.0			
Intersection Capacity Uti	lization		86.0%	IC	JU Leve	el of Ser	vice		E			
Analysis Period (min)			15									
c Critical Lane Group												

	۶	→	*	•	+	4	1	†	~	1	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	444	ተተኩ		LLL	ተተጉ	7	Ŋ	ተተተ	7	444	ተተኩ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94 1.00	0.91 1.00		0.94 1.00	0.86 1.00	0.86 0.99	1.00 1.00	0.91 1.00	1.00 0.98	0.94 1.00	0.86 1.00	0.86 1.00
Frpb, ped/bikes Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5079		4990	4806	1343	1770	5085	1545	4990	4797	1362
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5079		4990	4806	1343	1770	5085	1545	4990	4797	1362
Volume (vph)	1190	1380	10	140	980	250	20	1440	210	790	1420	750
Peak-hour factor, PHF	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. Flow (vph)	1190	1380	10	140	980	250	20	1440	210	790	1420	750
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	2	0	1	106
Lane Group Flow (vph)	1190	1389	0	140	980	250	20	1440	208	790	1437	626
Confl. Peds. (#/hr)			9			10			12			
Confl. Bikes (#/hr)						1			2			
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot	-	om+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases	20.0	55 A			25.0	8	4.0	40.0	2	00.4	OF 4	6
Actuated Green, G (s)	30.0	55.4 57.4		9.6	35.0 37.0	64.4 67.4	4.0 5.0	40.0	49.6 52.6	29.4 30.4	65.4	95.4 98.4
Effective Green, g (s) Actuated g/C Ratio	31.0 0.20	0.37		10.6 0.07	0.24	0.43	0.03	42.0 0 .27	0.34	0.19	67.4 0.43	0.63
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	989	1864		338	1137	613	57	1366	520	970	2067	857
v/s Ratio Prot	c0.24	0.27		0.03	c0.20	0.08	0.01	c0.28	0.03	c0.16	0.30	0.14
v/s Ratio Perm		0.2.		0.00	00.20	0.11	0.0	00:20	0.11	00.10	0.00	0.32
v/c Ratio	1.20	0.75		0.41	0.86	0.41	0.35	1.05	0.40	0.81	0.70	0.73
Uniform Delay, d1	62.7	43.1		69.9	57.3	30.7	74.1	57.2	39.8	60.3	36.2	19.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	101.2	1.7		0.3	7.4	0.2	1.4	40.0	0.2	5.1	1.2	2.8
Delay (s)	163.9	44.8		70.2	64.6	30.9	75.5	97.2	40.0	65.4	37.4	22.7
Level of Service	F	D		Ε	E	С	E	F	D	E	D	С
Approach Delay (s)		99.8			59.0			89.7			41.2	
Approach LOS		F			E			F			D	
Intersection Summary	300	ED S	-7 310 5	100	Barton !	17 B	MADE	No. of				23
HCM Average Control D			71.1	H	ICM Lev	el of Se	rvice		Е			
HCM Volume to Capacit	•		0.98									
Actuated Cycle Length (156.4			ost time			16.0			
Intersection Capacity Ut	ilization	10	02.5%	IC	CU Leve	of Ser	vice		G			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 21: Placerita Canyon Rd. & Sierra Hwy

	۶	-	7	1	←	4	1	1	1	-	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ተተተ	7	ሻ	ተተተ	7	7	1		*	1	4000
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.99	
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	3405		1770	3521	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	3405		1770	3521	- 00
Volume (vph)	20	480	120	30	450	90	140	1470	500	40	550	20
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	533	133	35	529	106	147	1547	526	42	579	21
RTOR Reduction (vph)	0	0	118	0	0	92	0	23	0	0	2	C
Lane Group Flow (vph)	22	533	15	35	529	14	147	2050	0	42	598	
Turn Type	Split		Perm	Split		Perm	Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases			6			2						
Actuated Green, G (s)	15.9	15.9	15.9	18.4	18.4	18.4	15.9	84.1		3.1	71.3	
Effective Green, g (s)	15.9	15.9	15.9	18.4	18.4	18.4	15.9	84.1		3.1	71.3	
Actuated g/C Ratio	0.12	0.12	0.12	0.13	0.13	0.13	0.12	0.61		0.02	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	_
Lane Grp Cap (vph)	205	588	183	237	680	212	205	2083		40	1826	
v/s Ratio Prot	0.01	c0.10		0.02	c0.10		c0.08	c0.60		0.02	0.17	
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.11	0.91	0.08	0.15	0.78	0.07	0.72	0.98		1.05	0.33	
Uniform Delay, d1	54.4	60.1	54.3	52.6	57.6	52.0	58.6	26.0		67.2	19.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	17.6	0.2	0.3	5.6	0.1	11.3	16.0		157.5	0.1	
Delay (s)	54.7	77.6	54.5	52.9	63.2	52.2	70.0	42.0		224.7	19.3	
Level of Service	D	E	D	D	Е	D	Ε	D		F	В	
Approach Delay (s)		72.4			60.9			43.9			32.7	
Approach LOS		E			E			D			С	
Intersection Summary		all the	40.5	2010	LICAL I	vel of S	onvice	CAL	D	- C-	-	100
HCM Average Control [49.5		HCIVI LE	ivel of S	ei vice		U			
HCM Volume to Capaci			0.94		Ou	laat tiess	. (0)		16.0			
Actuated Cycle Length	(S)		137.5			lost time			E			
Intersection Capacity U Analysis Period (min) c Critical Lane Group		1	85.9% 15		ICU Lev	el of Se	ITVIC e					

	•	*	†	1	-	1						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	STATE	But.	0.000	(FREE		TO BE
Lane Configurations	۲	7	1		ሻ	^						
Sign Control	Stop		Free			Free						
Grade	0%		0%			0%						
Volume (veh/h)	110	10	1550	30	200	500						
Peak Hour Factor	0.50	0.50	0.95	0.95	0.95	0.95						
Hourly flow rate (vph)	220	20	1632	32	211	526						
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s) Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage veh)	140110											
Upstream signal (ft)			768									
pX, platoon unblocked	0.54	0.54			0.54							
vC, conflicting volume	2332	832			1663							
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2614	0			1376							
tC, single (s)	6.8	6.9			4.1							
tC, 2 stage (s)												
tF (s)	3.5	3.3			2.2							
p0 queue free %	0	97 505			21							
cM capacity (veh/h)	2	585	£ 60 tem 0	ALC: Pro-Million	267							
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3	1	10.000	Elle	E 2	1000
Volume Total	220	20	1088	575	211	263	263					
Volume Left	220	0	0	0	211	0	0					
Volume Right cSH	0 2	20	1700	32	0 267	4700	0 1700					
Volume to Capacity	97.91	585 0.03	1700 0.64	1700 0.34	0.79	1700 0.15	0.15					
Queue Length 95th (ft)		3	0.04	0.34	151	0.15	0.13					
Control Delay (s)	Err	11.4	0.0	0.0	54.9	0.0	0.0					
Lane LOS	F	В	0.0	0.0	F	0.0	0.0					
Approach Delay (s)	9166.7	_	0.0		15.7							
Approach LOS	F											
Intersection Summary	SCIENCE.	ANGE OF	T- Co	4 4 7	93.E	0.000		-	275	SCHE	AT THE	A STATE
Average Delay			837.7									
Intersection Capacity U	Itilization		71.0%	10	CU Leve	el of Ser	vice		С			
Analysis Period (min)			15									

Vista Canyon Ranch 23: Placerita Canyon Rd. & SR 14 NB Ramps

	1	-	*	1	4	4	4	†	-	-	Ţ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations		个 个	7		↑ ↑			લૈ	7			
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%		_	0%	
Volume (veh/h)	0	320	290	0	70	10	500	0	130	0	0	0.00
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph)	0	356	322	0	82	12	556	0	144	0	0	(
Pedestrians								1 12.0				
Lane Width (ft)								4.0				
Walking Speed (ft/s)								4.0				
Percent Blockage Right turn flare (veh)								U	30			
Median type								None	30		None	
Median storage veh)								NONE			NONE	
Upstream signal (ft)		718										
pX, platoon unblocked		710										
vC, conflicting volume	94			357			398	451	179	338	445	47
vC1, stage 1 conf vol	0,			00.			000				,	
vC2, stage 2 conf vol												
vCu, unblocked vol	94			357			398	451	179	338	445	47
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			0	100	83	100	100	100
cM capacity (veh/h)	1498			1198			536	502	833	489	506	1012
Direction, Lane #	EB1	EB2	EB 3	WB 1	WB2	NB 1	NAME OF TAXABLE	10.48	190	200		440
Volume Total	178	178	322	55	39	700						
Volume Left	0	0	0	0	0	556						
Volume Right	0	0	322	0	12	144						
cSH	1700	1700	1700	1700	1700	675						
Volume to Capacity	0.10	0.10	0.19	0.03	0.02	1.04						
Queue Length 95th (ft)	0	0	0	0	0	446						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	62.9						
Lane LOS						F						
Approach Delay (s)	0.0			0.0		62.9						
Approach LOS						F						
Intersection Summary	T-	RE		W 48	1 ne		1.60	GIP N	1	Lane B		
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		29.9 43.4% 15	ļ	CU Leve	el of Sen	vice		Α			

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 No Project Conditions

PHF:

1

TOD:

AM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

		Demand	V	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	290	260	90	13	48.1	D	
NB	T	140	167	119	13	41.3	D	-
	R	360	335	93	18	11.0	В	-
	Subtotal	790	763	97	-	30.3	C	
_	L	140	140	100	14	51.8	D	
SB	T	160	156	98	11	51.0	D	
	R	150	155	103	9	22.4	C	
	Subtotal	4.50	451	100	-	41.4	D	-
	L	70	74	106	14	68.6	Ε	-
EB	Ŧ	630	617	98	24	44.0	D	-
	R	300	300	100	22	15.8	В	-
	Subtotal	1000	991	99	-	37.3	D	-
	L	240	211	88	17	58.5	E	-
WB	Т	1210	1157	96	26	35.3	D	-
	R	170	152	89	18	8.5	Α	-
	Subtotal	1620	1519	94	-	35.8	D	-
	Total	3860	3724	98	-	35.8	D	-

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

		Demand	V	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	700	554	79	24	635.2	F	-
NB	R	60	48	80	7	616.9	F	-
	Subtotal	760	603	79	-	633.7	F	-
	T	600	634	106	18	10.8	В	
EB	R	520	503	97	18	3.5	A	-
	Subtotal	1120	1137	102	-	7.6	A	_
	L	360	353	98	15	64.5	E	-
WB	Т	920	920	100	29	44.8	D	-
	Subtotal	1280	1272	99	-	50.3	D	-
	Total	3160	3012	95	-	150.9	F	-

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 No Project Conditions

PHF:

1

TOD:

AM Peak Hr

Analysis Period:

Hourly

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

		Demand		Volume Serv	ed		olay/Veh (s	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	T	540	532	99	14	13.0	В	-
NB	R	210	195	93	13	5.8	A	
	Subtotal	750	727	97	-	11.0	В	-
	L	180	170	94	15	47.6	D	~
SB	Ť	500	521	104	28	8.0	Α	
	Subtotal	680	690	101	-	17.7	В	-
	L	230	236	103	11	19.6	В	-
EB	R	230	230	100	6	4.7	Α	-
	Subtotal	460	465	101	-	12.3	В	-
	Total	1890	1882	100		13.8	В	-

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd. Type: Un-Signalized

		Demand	V	olume Serv	ed		elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	90	75	83	6	495.4	F	-
NB	Т	480	392	82	16	500.4	F	-
	R	5	4	80	2	501.6	F	
	Subtotal	575	471	82	+	499.6	F	-
	L	20	21	105	4	94.4	F	4
SB	T	390	374	96	15	100.2	F	-
	R	380	378	99	17	87.6	F	
	Subtotal	790	773	98	-	93.9	F	-
	L	310	313	101	14	99.4	F	-
EB	T	5	5	100	2	96.2	F	-
	R	60	56	93	7	96.4	F	4
	Subtotal	375	374	100	_ 1	98.9	F	-
	L.	5	4	80	2	8.5	Α	-
WB	T	10	11	110	6	11.3	В	-
	R	20	21	105	3	8.0	Α	-
	Subtotal	35	36	103	-	9.0	A	-
	Total	1775	1654	93	-	208.6	F	-



Analysis Period:

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 No Project Conditions

PHF:

1

TOD:

AM Peak Hr

Hourly

of Runs:

10

Intersection: 14: SR 14 SB Ramps & Via Princessa

Type: Signalized

		Demand	v	olume Serv	ed .	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	L	220	201	91	1.5	78.2	E	-	
NB	Т	560	569	102	26	5.3	A	-	
	Subtotal	780	769	99	-	24.3	C	-	
	Т	540	533	99	23	18.9	В	-	
SB	R	870	885	102	34	10.5	В	**	
	Subtotal	1410	1419	101	-	13.6	В	-	
	L	80	76	95	9	81.7	F		
WB	' T	5	6	120	2	45.6	D	-	
	R	290	283	98	16	11,6	В		
	Subtotal	375	365	97	-	26.9	C	-	
	Total	2565	2554	100	-	18.7	В	-	

		D	V	olume Serv	har	Delay/Veh (sec)				
Approach	Movement	Demand Volume	Avg	%	Std Dev	Avg	LOS	Std Dev		
	Т	560	595	106	23	23.2	С	**		
NB	R	120	125	104	11	6,2	Ā	-		
	Subtotal	680	720	106	1 è	20.2	С	-		
	L	240	239	100	13	38.9	D	-		
SB	T	380	377	99	21	41.3	D	- 4		
	Subtotal	620	616	99	-	40.4	D	-		
	L	220	222	101	15	25.7	C	-		
EB	R	140	139	99	9	84,6	F	-		
	Subtotal	360	361	100	-	48.4	D	-		
	Total	1660	1697	102	-	33.5	С	-		

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

PHF:

1

TOD:

2015 No Project Conditions PM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

		Demand	٧	olume Serv	ed	0	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	320	319	100	14	49.5	D	**
NB	T	180	400	222	17	27.3	C	**
	R	620	621	100	21	21.3	C	-
	Subtotal	1120	1339	120		29.8	C	-
	L	150	145	97	13	48.1	D	-
SB	T	130	125	96	7	44.2	D	**
	R	90	85	94	7	13.8	В	
_	Subtotal	370	355	96	-	38.5	D	-
	L	130	120	92	17	144.8	F	
EB	T	T 910		99	16	147.8	F	
	R	390	375	96	24	105.3	F	-
	Subtotal	1430	1392	97	-	136.1	F	-
_	L	230	205	89	14	79.3	E	
WB	T	540	538	100	23	15.3	В	
	R	140	131	93	6	3.3	A	_
	Subtotal	910	874	96	-	28.5	C	-
	Total	3830	3960	103	1 -	67.7	E	-

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

	i .	Demand	V	olume Serv	ed	Delay/Veh (sec)				
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev		
	L	440	397	90	16	380.7	F	-		
NB	R	120	100	83	14	348.7	F	-		
	Subtotal	560	497	89	-	374.3	F	-		
	Т	1160	1160	100	29	5.4	Α			
EB	R	510	498	98	18	2.9	Α			
	Subtotal	1670	1659	99	-	4.7	A	-		
	L	300	234	78	11	616.3	F	**		
WB	Т	470	446	95	30	82.8	F	-		
	Subtotal	770	681	88	-	266.4	F	-		
	Total	3000	2836	95	-	132,2	F	-		

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 No Project Conditions

PHF:

1

TOD:

PM Peak Hr Analysis Period:

Hourly

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

		Demand		Volume Serv	ed		Delay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	T	530	532	100	19	25.7	C	-
NB	R	450	439	98	22	10.2	В	
	Subtotal	980	971	99		18.7	В	_
	L	240	228	95	14	49.7	D	
SB	T	460	478	104	19	11.8	В	-
	Subtotal	700	706	101	-	24.1	C	-
	L	810	811	100	20	25.5	C	-
EB	R	450	448	100	26	8.2	Α	-
	Subtotal	1260	1259	100	-	19.3	В	
	Total	2940	2936	100	-	20.3	C	

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd. Type: Un-Signalized

	1	Demand	٧	olume Serv	be	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	5	5	100	3	131.2	F	-
NB	T	750	736	98	15	125.8	F	-
	R	10	10	100	1	126.2	F	-
	Subtotal	765	752	98	-	125.8	F	-
	L	30	29	97	5	22.8	C	-
SB	T	620	820	132	41	17.9	С	-
	R	30	29	97	6	14,1	В	-
	Subtotal	680	878	129	-	17.9	С	-
	L	40	41	103	9	7.6	Α	-
EB	Т	5	4	80	2	8.2	Α	-
	R	5	5	100	2	5.3	Α	-
	Subtotal	50	50	100	-	7.4	A	-
	L	5	4	80	1	6.7	Α	**
WB	Т	5	4	80	2	10.3	В	
	R	50	51	102	7	6,5	Α	-
	Subtotal	60	60	100		6.8	A	-
	Total	1555	1739	112	-	63.9	F	-



 Project:
 Vista Canyon Ranch
 HCM:
 2000

 Scenario:
 2015 No Project Conditions
 PHF:
 1

 TOD:
 PM Peak Hr
 Analysis Period:
 Hourly
 # of Runs:
 10

itersection	n: <u>14: SR 14</u>		Type:	Signalized						
		Demand	V	olume Serv	ed	Delay/Veh (sec)				
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De		
	L	130	123	95	13	48.9	D	-		
NB	T	790	793	100	34	7.1	Α	1		
	Subtotal	920	915	99	-	12.8	В			
	T	960	942	98	25	43.3	D	-		
SB	R	550	548	100	16	7.7	Α	-		
	Subtotal	1510	1490	99	-	30.2	C	-		
	L	150	142	95	14	38.5	D	-		
WB	Т	10	10	100	2	42.8	D	747		
	R	320	326	102	25	13.3	В	-		
	Subtotal	480	477	99	-	21.4	C	-		
	Total	2910	2883	99		23.2	C	-		

		Demand	V	olume Serv	ed		Delay/Veh (sec)		
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	Т	470	474	101	22	31.2	C	-	
NB	R	140	135	96	8	12.6	В	-	
	Subtotal	610	608	100	-	27.1	C	-	
	L	560	555	99	13	39.8	D		
SB	T	550	528	96	14	14,3	В	-	
	Subtotal	1110	1083	98	_	27.4	C	-	
	L	450	441	98	21	26.5	C	-	
EB	R	280	280	100	15	47.5	D	-	
	Subtotal	730	721	99	-	34.7	C	-	
	Total	2450	2412	98	-	29.5	C	-	

Level Of Service Computation Report 1CU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim No Project AM

Lanes: Initial Vol:

150

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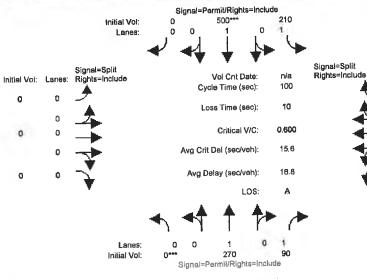
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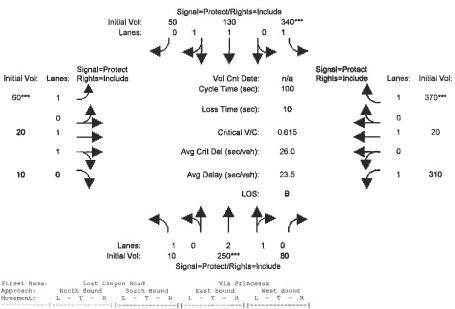
Intersection #1: Sand Canyon Road/Sierra Highway



Street Name: Approach:		S	ierra H	4ighwa	y _	,		Sa	nd Can	yon Ro	ad net no	und
Approach:	No	th Bo	und	Soi	th Bo	und	Ero	ISE BO	iunia _	MC	e po	n n
Min. Green:	_					[
Valume Hodule												
Base Vol:		270	90	210	500	0	0	Ó	0	150	0	150
Growth Ad):				1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growen Maji	1.00	230	90		500	0	b	0	٥	150		150
Initial Bue:			90		0	ŏ		Ó	Ó	0	0	0
Added Vol:				0		*			0	o o	0	0
PasserByVol-1	0	. 0					ŏ		0			150
Initial Fut:		270		210		-			_		1.00	1.00
Dear Adji	1.00	1.00	1.00		1.00	1.00		1.00			1,00	1.00
PILF Ad):	1.00	1,00	1.00	1.00	1.00	1.00		1.00				150
PHF Volumes	0	270	90	210	600	0	0		0	150		
Reduct Vol:	0	Ω	0	0	0	0	0	0	0	- P	0	
Agduced Vol1	0	270	90	210					Ø			
PCR Adja	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
HLP Adji	1 00	1 00	1.00	1.00	1.00	1.00	1,00	1,00	1.00		1.00	1.00
			0.0	716	5.00	Δ.	0	0	0	150	0	150
FinalVolumet	. "	2.10				1	1		entrane -	1		
	1					,	,					
Saturation F				7.000	1.000	1.600	1600	1600	1600	1600	1600	1600
Sat/Lane:	1600	T900						1.00			1,00	
Adjustment:	1.00	1,00	1.00			1.00		0.00			0.00	
Lanes:	0.00	1,00	1,00			0.00			0.00			800
Final Sat.:	. 0	1600	1600	1600	1600	0	. 0	0	U,			
Final Sat.:	1		-									
Compositor Des	1 wele	Modu	e:									
Vol/Sat:	0.00	0.17	0.06	0.13	0.31	0.00	0.00	0.00	0.00	0.19	0.00	0.19
Crit Moves:	***				++++					++++		
OLIC HOTEL												

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim No Project AM

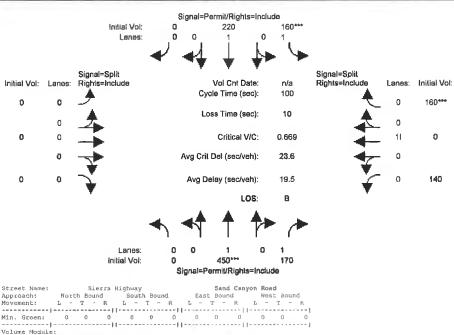
Intersection #16: Via Princessa/Lost Canyon Road



Street Name: Approach:		Lo	st Car	yon R	bsc			٧	'ia Pri	ncess	a	
Movement:	L	- T	- R	L	- T	- R	ou L	- T	- R	L	- T	- R
Min. Green:							1			1		
Min. Green:	0	0	. 0	0	0	0	0	0	0	.0	0	0
			1	1						1		
Volume Module												
Base Vol:						50			10			370
Growth Adj:						1.00		1.00	1,00		1.00	1.00
Instial Bse:				340		50	60			310		370
Added Vol:	0	ō	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0					
Initial Fut:	10	250	80	340	130	50	60	20	10	310	20	370
User Adj:	1.00	1,00	1.00	1.00	1,00	1.00	1,00	1.00	1.00	1.00	1,00	0.65
PHF 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
PHF Volume:	10	250	0.0	340	130	50	60	20	1.0	310	20	315
Reduct Vol:												
Reduced Val:	10	250	0.0	340	130	50	60	20	10	310	20	315
PCE 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
MLF 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
FinalVolume:												
*********				1		****	1					
Saturation Fl	LOW M	odule:										
Sat/Lamer	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1,00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1,00	2.27	0,73	1,00	1,44	0.56	1,00	1,33	0.67	1,00	1.00	1.00
Final Sat.;	1600	3636	1164	1600	2311	889	1600	2133	1067	1600	1600	1600
	been			1			1			I		
Capacity Anal												
/ol/Sat:	0.01	0.07	0.07	0.21	0.06			0.01	0.01	0.19	0,01	
Crit Moves:		****		****			****					****

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim No Project PM

Intersection #1: Sand Canyon Road/Sierra Highway

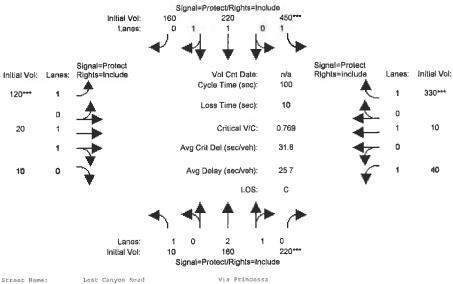


Street Name: Approach:	No	tth Bo	Sierra ound	Highway So:	ay uth Bo	pund	E	5a ast Bo	nd Can	yon Ro	ad est Bo	ound
Movement:	L .	- T	- R	ь.	- T	- R	ъ.	- T	- R	ь -	· T	- R
Min. Green:												
Volume Modul												
Base Vol:	0	450	170	160	220	0	0	0	0	140	0	160
Growth Adj:												
Initial Bse:	0	450	170	160	220	0	0	0	D	140	0	160
Added Vol:	D	0	D	0	0	0	0	D	0	0	0	0
PasserByVol: Initial Fut:	0	0	ΰ	0	0	0	0	0	0	0	0	0
User Adj:						1.00			1,00			
PHF Adj:	1.00	1.00	1.00	1.00	T.00	1.00			1.00			
PHF Volume:	Ū	450	170	160	220	0	Û	0	0	140	0	160
Reduct Vol:	D	0	0	D	0	0	0	0	Ð	0	0	0
Reduced Vol:												
PCE 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
MLF 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
FinalVolume:	0	450	170	160	220	0	0	0	0	140	D	160
				1					1	1		
Saturation F												
Sat/Lane:												
Adjustment:												
Lanes:												
Final Sat.:												
*******				1						1		
Capacity Ana				0.30	0.14	0.00		0.00	0.00	0.10	0 00	0.10
Vol/Sat: Crit Moves:					0.14	0,00	0.00	0.00	0.00	0.19		0.19
CEIT Moves:												

--- PENDA PEPBB PARENTE

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim No Project PM

Intersection #16: Via Princessa/Lost Canyon Road



Street Name:	Lost Canyon Road North Bound South Bound					Via Princessa						
Approach:	No	rth Bo	und	So.	sth Bo	und	E	ast Bo	bna	1/2	est Bo	und
Movement:	L	- T	- R	L	- T	- R	L	T	- B	L ·	- T	- R
			Ů						13			0
							1		1			
Volume Modul												
Base Vol:		160			220	160	120		10		10	330
Growth Adj:	1.00	1.00	1,00		1.00	1.00		1-00				1.00
Initial Bse:			220		220	160	120			40		330
Added Vol:			0	0	0	0		0	D	0	-	0
PasserByVol:	D	0	0	0	Û	0			D		0	0
Initial Fut:			220	450		160	120		10			330
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	0.85
PHF Adj:	1,00	1.00	1.00	1,00	1,00	1.00	1.00	1.00	1.00		1.00	1.00
PHF Volume:	10	160	220	450	220	160	120	3.0	10	40		281
Reduct Vol:	0	0	O.	0	Q	0	U	Ű	0	0		0
Reduced Vol:	10	160	220	450	220	160			10			201
PCE 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
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00		1.00				1.00
FinalVolume:			220		220	160		20		40		201
				1						1		
Saturation F	low M	odule:										
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600			1600	1600
Adjustment:	1.00	1.00	1.00	1.00		1.00		1.00			1,00	1.00
Lanes:	1.00	2,00	1.00	1.00	1.16	0.94	1.00	1.33	0.67		1,00	1,00
Final Sat.:	1500	3200		1600		1347		2133			1600	1600
				1]			
Capacity Ana	lysis	Modu]	Le:									
Vol/Sat:					0.12	0.12		0.01	0.01	0,03	0.01	
Crit Moves:			****	****								***

MCS+: Basic Freeway Segments Release 5.3

	Fax:
	Епопе:

E-mail:

Febr 6 Pears
112/16/2008
AM Peak Hour
SE 14 NB
Via Princessa to Sand Canyon Operational Analysis Agency or Company: Date Performed: Analysis Time Period: Freeway/Direction: Analyst:

Jurisdiction: Santa Clarita Analysis Year: 2012 Conditions Description: Visua Canyon Ranch

From/To:

pc/h/ln veh/h Flow Inputs and Adjustments 2140 0.93 0.00 0.00 0.98 0.98 0.980 587 Segment length
Trucks and buses PCE, ET
Recreational vehicle PCE, ER
Heavy weblicle adjustment, flW
Driver population factor, fp Volume, V
Peak-hour factor, PHF
Peak 15-min volume, v15
Trucks and buses Recreational vehicles Terrain type: Flow rate, vp Grade

fe interchange/mi 444444 444444 Measured 65.0 0.0 0.0 0.0 1.5 65.0 Urban Freeway 6.0 FFS or BFFS
Lane width adjustment, fLW
Listeral clearance adjustment, fLC
Interchange density adjustment, fID
Vumber of lanes adjustment, fN
Pree-flow speed, FFS Right-shoulder lateral clearance Interchange density Number of lanes, N Free-flow speed: Lane width

Speed Inputs and Adjustments

LOS and Performance Measures 65.0 Flow rate, vp Free-flow speed, FFS

pc/h/ln mi/h mi/h

pc/m1/1n

Average passenger-car speed, S Number of Lanes, N Density, D

Level of service, bos

ď

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: E-mail:

Fax:

Operational Analysis

Analyst:
Agency or Company: Fehr & Peers
Date Performed:
12/16/2008
Analysis Time Period: AM Peak Hour
Freeway/Direction: SR 14 NB
From/To: Sand Canyon Canyon
Auxisdiction: Santa Clarita
Analysis Year: 2012 Conditions
Description: Vista Canyon Ranch

Flow Inputs and Adjustments

Volume, V			
The Party Property City	2040	veb/h	
Dear-India talifor. Por	0.93		
Peak 15-min volume. v15	548	٥	
South From Market	4	250	
Representational debilions	0	*	
10111 11111 11111 11111 11111 11111 11111 1111	Level		
orange and a second	0.00	**	
Segment length	0.00	겉	
Trucks and huses PCE, ET	1.5		
Recreational vehicle PCE, ER	1.2		
Heavy vehicle adjustment, fWV	086-0		
Driver population factor, fp	1.00	:	
Flow rate, vp	746	pc/h/ln	

ft ft interchange/mi	mi/h mi/h mi/h mi/h mi/h	
12.0 6.0 0.50	Measured 65.0 0.0 0.0 0.0 3.0 65.0	The same of the sa
Lane width Right-shoulder lateral clearance Interchange density Number of lanes, N	Free-flow speed: FFS or BFFS Lane width adjustment, flW Lateral clearance adjustment, fLC Interchange density adjustment, fID Number of lanes adjustment, fN Free-flow speed, FFS	

Speed Inputs and Adjustments

	1/00
Measures	46
Performance	
and	
108	
	1

pc/b/ln mi/h mi/h	pc/mi/ln
746 65.0 65.0	11.5
s 'peads	
Flow rate, vp Free-flow speed, FFS Average passenger-car s	Number of lanes, N Density, D

Level of service, LOS

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Overall results are not computed when free-flow speed is less than 55 mph.

Phone: E-mail:

Fax:

Operational Analysis

Analyst:
Agency or Company: Febr 4 Peers
Dake Parformed:
12/16/2008
Analysts Time Period: PY Peak Hour
Ereseay/Direction: SR 14 NB Pincessa to Sand Canyon
Auticiction: Santa Clarita
Analysis Year: 2012 Conditions
Description: Vista Canyon Ranch

sindur word	stow rubines and wadnarments		1
Volume, V	5410	7/20A	
Peak-hour factor, PHF	13 G		
Feak 15-min volume, v15	1424	76	
Trucks and buses	**		
Recreational vehicles	٥	4	
Terrain type:	Level		
Grade	0.00		
Segment length	0.00	#8	
Trucks and buses PCE, ET	10°		
PCE,	N. F		
Heavy vehicle adjustment, fHV	0.980		
	3.0	1000	
Flow rate, vo	1936	pc/h/In	

ft ft interchange/mi	m1/h	mi/h	11/11	17/TE	m4/th	mi/h	20
0.0.0 % 0.0.0 %	65.0	0.0	0.0	0.0	3.0	0.59	Urban Freezay
Lane width Right-shoulder lateral clearance Interchange density Number of lanes, N	FIGURE SPEED	Lane width adjustment, fLW	ce adius	lance density adi	Number of Lanes adjustment, fN	Free-flow speed, FFS	

Speed Inputs and Adjustments

		l
Bellia management of the second	100000000000000000000000000000000000000	-
And the second second		
	4 2 6 1	
-	2002	
		1

po/h/ln	#Ch.	DC/111/11
100 00 00 00 00 00 00 00 00 00 00 00 00	200	31.0
	peed, S	
Flow cate, vp	(verage passenger-car s	Density, D

Level of service, Los

Overall results are not computed when free-flow speed is less than 15 mph.

ρ

Overall results are not computed when free-flow speed is less than 55 mph.

Phone: E-mail:

X E

Operational Analysis

Apalyst:
Agency or Company:
Pehr & Peers
12/16/2008
Date Performed:
12/16/2008
Analysis Time Period:
PH Peak Hour
Freeway/Direction:
Sand Canyon to Soledad Canyon
From/To:
Santa Clarita
Analysis Year:
2012 Conditions
Description: Vista Canyon Ranch

	e											-17	171
	veh/h		٨	*	•		-	겉				41.44	bc/ n/ Tu
Fich Inputs and Adjustments	4850	0,95	1276	47	0	Level	00.0	00.0	1.5	1.2	0.980	1.00	2604
Inputs											>		
FICE	Volume, V	Peak-hour factor, PHF	Peak 15-min volume, v15	Constitution of the consti	Recreational vehicles	Terrain EvDe:		Segment length	Trucks and buses PCE, ET			Driver population factor, fp	Flow rate, vp

ft ft interchange/mi	m 1/h m 1/h m 1/h m 1/h m 1/h m 1/h
12.0 6.0 0.50	Measured 65.0 0.0 0.0 0.0 4.5 65.0
Lane width Right-shoulder lateral clearance Interchange density Number of lanes, N	Free-flow speed: FFS or BFFS Lane width adjustment, fLW Lateral clearance adjustment, fLC Interchange density adjustment, fLD Number of lanes adjustment, fN Free-flow speed, FFS

Speed Inputs and Adjustments

	pc/h/ln mi/h m1/h pc/m1/ln
Los and Performance Measures	2604 65.0 2
and	so.
TOS	speed,
	Flow rate, vp Free-flow speed, FFS Average passenger-car speed, S Number of lanes, N Density, D

Overall results are not computed when free-flow speed is less than 55 mph.

Fax: Phone: S-mail: Operational Analysis

Analyst:
Agency or Company:
Pehr & Peers
Date Performed:
12/16/2008

Nallysts Time Period:
Freeway/Direction:
Freeway/Direction:
Soleded Canyon to Sand Canyon
Ourisdiction:
Santa Clarita
Description: Vasta Canyon Ranch

Volume, V Peak-lour factor, Peak 15-min volume Trucks and buses Recreational vehic Segment langt Trucks and buses i Recreational vehicle adju	ODST	actor, PHF	ses		Segment length 0.00	Recreational vehicle PCE, ER 1.2 Heavy vehicle adjustment, IHV 0.980 Driver population factor, fp 1.00
---	------	------------	-----	--	---------------------	--

Speed Inputs and Adjustments.

12.0	6.0	0.50 interchange/mi	3	Measured	65.0	0.0 m1/h	0.0	0.0 at/h	3.0	65.0 mi/h
Tano width	Binht-shoulder lateral clearance	Interchande density	Number of lanes, N	Theory woll - corr	Walter LC Units	1.0	The state of the s	transport and addington	Number of lanes addingthent for	Prop-fl or speed. Nes

LOS and Performance Measures

885 65.0 mi/n		13.6 pc/m1/1n
	sbeed, s	
Flow rate, vp	Average passanger-car	Number of Lanes, M

MCS+: Basic Freeway Segments Release 5.3

: X B Z

Operational Analysis

Analyst:
Agency or Company:
Parts & Peers
Date Performed:
12/16/2006
Analysts Time Pertod:
PM Peak Hour
Freeway/Direction:
Sand Canyon to Via Princessa
Trom/To:
Sand Canyon to Via Princessa
Analysts Year:
2012 Conditions
Description: Vista Canyon Ranch

	THE PERSON NAMED IN THE PE	
N	2790	veh/h
Doobt-base Carton, Diff	96.0	
The section of the section of the	727	i.
A PARTY OF THE PAR	*	
Perreational vehicles	0	
Terrain tone:	Level	
The state of the s	00.00	
Segment length	00.00	TW.
Trucks and buses PCE, ET	in:	
DCE.	79.14	
Hanny webicle adjustment, thy	0.980	
	1.00	25/11/32
Flow rate, vp	***	

ft interchange/ml Speed Inputs and Adjustments 12.0 Lane width Right-shoulder lateral clearance Interchange density

ured	d/Lm	mi/h	m1/h	mi/b	m1/h	H-12/19	in Freeway
Number of lanes, N	SHE ALL SHEET	Condata addingtment. FIR	over clearance addressment. fic.	Constants density adjustment. [10]	there of large administrate. In	Del or speed FFS	TIT

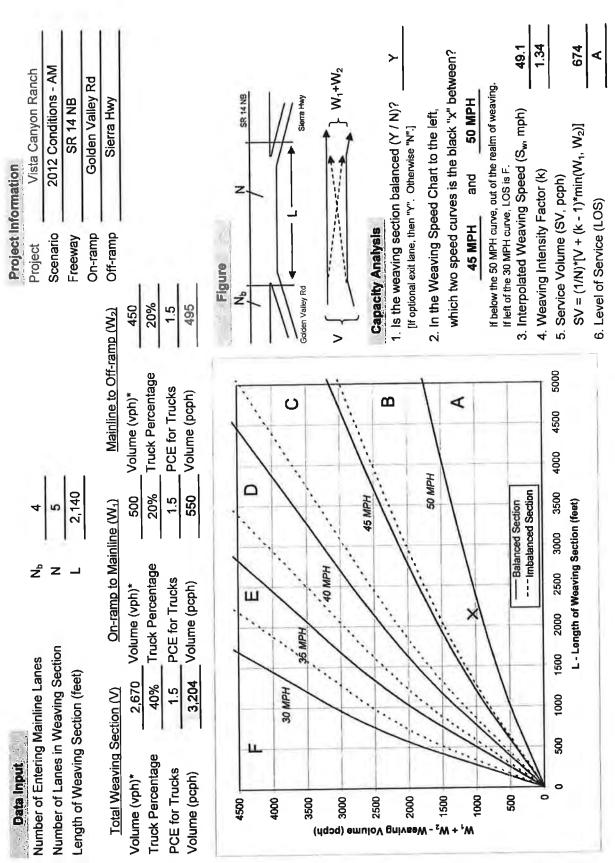
10s and Performance Measures

pc/h/la mi/h md/h	pc/m1/10
741 65.0	, a
S paeds	
Flow rate, Vp Free-flow speed, FFS Average passenger-car	Number of lanes, N Density, D

Level of service, LOS

Overall require are not computed when free-flow speed is less than 55 mph.

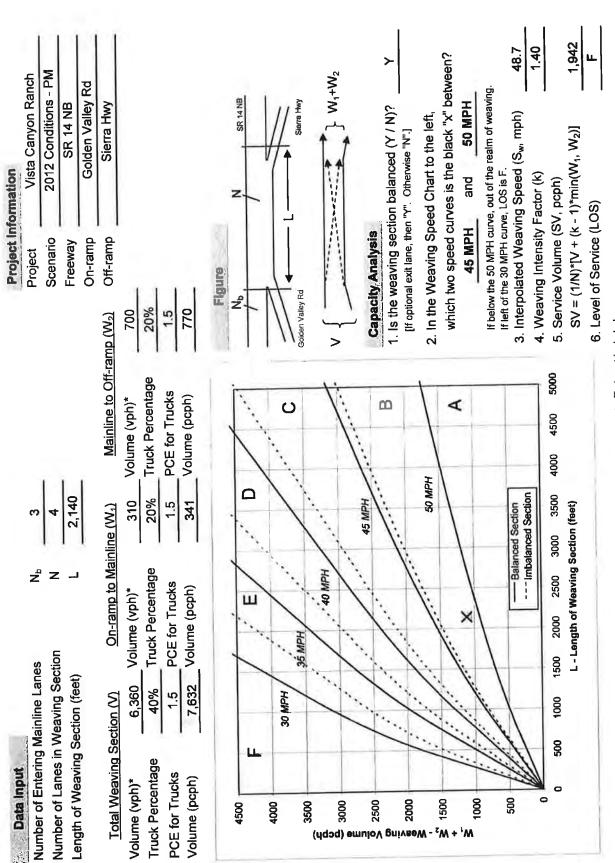
m



The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections , Jack E. Leisch & Associates, September 1983. * Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

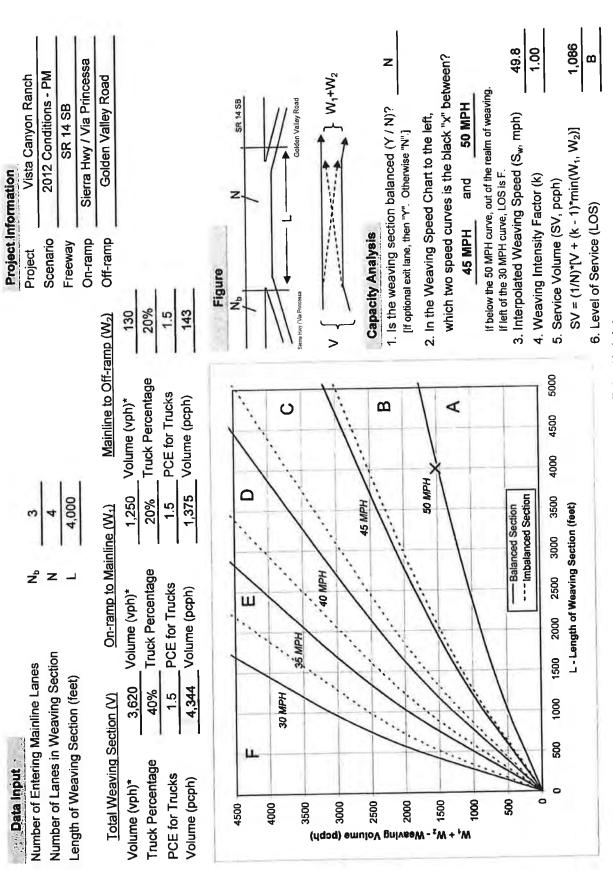
Fehr & Peers



The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

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Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections , Jack E. Leisch & Associates, September 1983. Fehr & Peers



The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

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Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections, Jack E. Leisch & Associates, September 1983.

Fehr & Peers

HCS+: Ramps and Ramp Junctions Release	Ramp Jenetto	s Releas	or	Heavy vehicle adjust Driver population far Flow rate, vp
Phone: E-mail:	E S			,1 ⁽³⁾ d. ³ b. ³
Analyst: Agency/Co.: Bate performed: Date performed: Presh Standy Dir of Travel: SR 14 NB Junction: Sand Canyon Rd Jurisdiction: Canta Clarita Analysis Year: Description: Vista Canyon Ranch	ors fors four four frita			
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Divarge 65.0 2140 Off Ramp Data	0	uộu Mộu	01
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	819ht 135.0 35.0 500	Right 35.0 420 5500	mph ft ft ft	12 Level of service for
Does adjacent ramp exist? Double on adjacent ramp Position of adjacent ramp Distance to adjacent ramp Conversion to pc/h Under Base Conditions	No No Under Base	Conditio	vph ft is	Intermediate apead 'Space mean speed in Space mean speed in
Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Fercational vehicles Terrain type: Grade Iength Trucks and buses PCE, ET Recreational vehicle PCE, ET	Freeway 2140 6.93 5.75 6.00 6.00 7.1.5	Ramp 420 0.80 131 2 2 2 2 2 0 0 0 0 0 0 0 0 0 1.5 1.5 1.5	Adjacent Ramp vph v v v * * * *	of peeds uses beeds

Driver population factor, Flow rate, vp	adjustment, the	1.00	1.00	ndod
	Estimati	Estimation of V12 Diverge	rge Areas	
	4 4	(Equation 25-8	8 or 25-91	
	P - 0.436	Using Equation	œ G	
	V = V + (V = 7	V P = 1322	pc/p	
	63	Capacity checks		
D.	Actual 2347	Haximum 9400	m Los No	E
4 4	1817	9400	S.O.	
2	530	2000	O.Z.	
*	S12 p	pc/h (Equat	(Equation 25-15 or 2	25-161
i o	> 2700 pc/h?	Mo		
0	> 1.5 v /2	No		
3 or avst 1f yes, v = 150	522 12	(Equation	1on 25-181	
	Flow Entering		Area	
s !	Actual 1322	Max Desirable		Violation?
12	Level of Service	of Service Determination (if not	14 TOT 311	
Density. Level of service for	E A CHES		12 D D areas of influence	11.1 pc/mi/ln
	Spee	Speed Estimation		
Intermediate speed	d variable,	n	= 0.476	
Space mean speed	mean speed in ramp influence	area,	S = 54.1 mph	r.
Space mean speed	in outer lanes,	w.	m = 71.3 mph	Z:
	100 CO. 100 CO.			

Pake	HCS+: Ramps at	HCS+: Ramps and Ramp Junctions Release	A Releasi	m G	Heavy vehicle adjustment, filv Driver population factor, fP Flow rate, up Satina
February February Sand Canyon Rd Sand C		12 12 12			'e's'
February	Me	rge Analysis			la
Norge	any	r. Rd Rd Lta			FO V V V V V V V V V V V V V V V V V V V
Adjacent Ramp Components Freeway Ramp Adjacent Conditions Ease Conditions Freeway Ramp Pats Ramp	(ii)	Treeway Data			3 or av36 12
Treeway Tre	Type of analysis Number of lanes in freeway Free-flow speed on freeway	Mozge 3 65.0		त्रवृत्त	128 1.16
Peeway Lanes in ramp Lanes in ramp Lanes in ramp Solution First accel/decel lane Second accel/decel lane Second accel/decel lane Second accel/decel lane Adjacent Ramp Adjacent Ramp Conversion to pc/h Under Base Conditions Conversion to pc/h U	recedy	on Ramp Data		nd.	RIZ
Penalty, august seekay, and the speed on ramp second accel/decel lane second samp or the samp space measures samp space measures samp samp second samp space measures samp samp samp space measures samp s					Level of Se
ramp first accel/decel lane 500 fft first accel/decel lane Adjacent Ramp No vph Space mea adjacent Ramp ocadjacent Ramp conditions fit adjacent Ramp Space mea Space mea Conversion to pc/h Under Base Conditions Famp vph Space mea Space mea factor. PHF 60.93 60.85 vph factor No 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Side of treeway Number of Lanes in ramp Free-flow speed on ramp	81ght 1		ngin.	Density, D = 5.475 + 0.00734
Second accel/decel lane Second accel lane Space mean speed in ramp init Intermediate speed variable, Space mean speed in outer lat Space mean speed in late Space mean s	Volume on ramp Length of first accel/decel lane	320		ft to	
No vph To pc/h Under Base Conditions Freeway Ramp Adjacent Ramp vph 1720 320 88 94 8 8 8 8 94 8 9 9 8 8 8 94 8 8 8 8	second accel/de		(e exists)	2	Intermediate speed variable,
Freeway Ramp Adjacent Freeway Ramp vph 1720 320 Ramp vph 0.93 0.85 % % 462 2 94 % 4 62 94 % 1.5 mi mi mi	Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp	No.		uda	Space mean speed in ramp inf
Ereeway Ramp Adjacent 1720 320 Ramp 1720 0.93 0.85 462 2 0 0 0 0 Level \$ 1.5 mi mi mi	Type of adjacent Ramp Distance to adjacent Ramp			£	mean speed for
Ereeway Ramp Adjacent 1720 320 1720 0.93 0.85 462 462 94 2 0 0 0 Level 8 1.5 mi mi mi mi	Conversion to p	pc/h Under Base	Condition	127	
1720 320 0.93 0.85 462 2 4 2 0 0 Level % Level % % mi mi mi	Junction Components	Freeway	Ramp	Adjacent	
1.2	Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, vi5 Recreational vehicles Terrain type: Length Trucks and buses PCE, ET	2	320 24,85 24,85 3,00 3,00 4,00 4,00 4,00 4,00 4,00 4,00	100 E	ų
	Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, Driver population factor, Flow rate, vp	tment, fNV actor, fP	1.00	0.990 1.00 380		ydod
	Satimati	Estimation of VI2 Merga	Areas		
, t		(Equation 25-2	2 or 25-3)		
. D4	165.0	Using Equation	rı c		
* > **	12 F FM	1116 pc/h			
	Ca	Capacity Checks			
b	Actual 2266	Maximum 7050		LOS F?	
0	770	pc/h (Equation	ion 25-4 or	25-51	
p	2700 pc/h?	No			
0 10	1.5 V	NO.			
1 yes, 4 - 1:16	ric Li	(Equation)	ton 25-8)		
	Flow Ente Actual 1116	Entering Merge Influence Area Max Desirable 4600	luence Area Le	Violation?	
KIZ	vel of Service	Level of Service Determination	(I TOU ET)		
Density, D = 5.475 Level of service fo	+ 0.00734 v R NI LAMP-INGOWA	- 0.0078 v - 0. 12 y junction areas	0.30627 L = A A infilence	e 13.8	pc/mi/ln
	Speed	ad Estimation			
Intermediate speed	speed variable,	25.	- 0.303		
Space mean speed in	ramp influence area,	o area, S	58.0	12.	
Space mean speed in	speed in outer lanes,	e w	0.69 -	ydu	
the party of the last of the last	der out of the last of		0 00	400	

HCS+: Ramps and Ramp	d Ramp Junctions Release 5.3	Heavy vehicle adjustment, frv 0.960 0.990 briver population factor, FP 1.00 1.00 1.00 510w rate, vp 617
		Estimation of Vi2 Diverge Areas (Equation 25-8 or 25-9)
Phone: E-mail: Di	Fax: Diverge Analysis	EQ P = 1.000 Using Equation 0 ED v = v + (v - v) P = 3727 pc/h 12 8 E R PD
Analyst: Agency/Co.: Bate performed: Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 SB Junction: Jurisdiction: Sand Canyon Rd Analysis Year: Description: Vista Canyon Ranch	rs n Rd ita thons	Capacity C
Type of analysis Type of analysis Type of lanes in freeway Free-flow speed on freeway Volume on freeway		Is v v > 2700 pe/h? No Is v v v > 1.5 v /2 80 If yes, v = 3127 If yes, v = 3127
Side of freeway Number of lates in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane Adjacent Ramp Da		Actual Ac
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	No vph refer the Canditions	Speed distimation Intermediate speed variable, Space mean speed in ramp influence area, Space mean speed in cuter lanes, Space mean speed in cuter lanes, Speed distinct speed in cuter lanes, Speed distinct spee
Junction Components Volume, V (vph) Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terain type: Grade Trucks and buses PCE, 2T Recreational vehicle PVE, Recreational vehicle	Conversion to pc/h under mass Conditions Ereeway Ramp Adjacent Ramp vph 153 550 8 40 153 0.90 v 153 6 6 6 8 8 8 155 0.00 mi 0.00 mi mi 155 1.5 1.5 1.5	

	Actual	Maximum	LOS F7	
> 4	3727	4700	Mo	
* * *	3110	4700	CN	
	119	2000	NO	
D 100 100 100 100 100 100 100 100 100 10	0 pc/h	(Equation 25-15 or	-15 or 25-16)	
No.	> 2700 pc/h2	No		
>	> 1.5 4 /2	No		
3 or av3d If yes, v = 3127	7	(Equation 25-18)	-18)	
21.	Actual Max Desirable 3727 4400 Level of Service Determination (1f not	Max Desirable 4400 termination (lf not F)	Violation? No not F)	
Density, D = 4.252 + R R Level of service for ramp-freeway	D = 4.252 + 0.0086 R or ramp-freeway junction	0.0086 v - 0.009 L = junction areas of influence	L = 31.8 Influence D	ps/m1/1n
	Speed astimation	imation		
Intermediate speed variable,	d variable,	D = 0.4	0.484	
Space mean speed	in ramp influence area,	S	10m 6.	
Space mean speed	in outer lanes.	+	N/A mph	
TO OCH THE OCH	for all poblicies.	S = 53.9	dan 6.	

popy

HCS+: Ramps and	HCS+: Ramps and Ramp Junctions Release	5.3	Heavy vehicle adjustment, fBV 0.990 0.990 Driver population factor, FP 1.00 1.00 Flow rate, vp 999 pcph	40
			Estimation of V12 Merge Areas	- 1
Phone: E-mail:	X B bs		1 50 (Equation 25-2 or 25-3) F0 1.000 Using Equation U	
	Merge Analysis		12 F FM = 3131 pc/h	
Analyst: Agency/Co.: Date performed: 12/16/2008 Analysis time period: Freeway/Dir of Travel: SR 14 SB Junction: Santa Clarita Analysis Year: Description: Vista Canyon Ranch Freeway	rs ur n Rd ita tions tions Freeway Data		V Actual Actual Actual Actual Actual Actual Alao V V V V V V V V V V V V V V V V V V V	Ĭ
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Merge 2 65.0 65.0 2885 On Ramp Data	трћ чрћ	If yes, v = 3131 Flow Entering Merge influence Area Actual Max Destrable No No S131 A600	ij
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane Adjacent Ram	Right 1 35.0 870 870 1500 1500 Adjacent Ramp Data (if one exists)	mph yph ft ft	Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 27.8 pc/mi/ln R Level of Service for tamp-freeway junction areas of influence C Speed Stimation N = 0.458	ni/ln
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to pc/	No amp Ramp P Ramp Conversion to pc/h Under Base Conditions	uph Et. ons	Space mean speed in ramp influence area, S = 54.5 mpb Space mean speed in outer lanes, S = 8/5 mph Space mean speed for all vehicles, S = 54.5 mph	I
Volume, V (vph) Peak-hour factor, PHF Peak-hour factor, PHF Peak 15-min volume, v15 Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ST Recreational vehicle PCE, ER	Freeway Ramp 2885 670 0.94 0.88 767 247 4 247 4 247 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Adjacent Ramp vph		

HCS+: Ramps at	HCS+: Ramps and Ramp Junctions Release 5.	is Reloase	m vi	Heavy vehicle adjustment, fHV briver population factor, fP Flow rate, vp Setim
hone: -mail:	Fax: Diverge Analysis			EQ EQ 9:43
nalyst: Sept 6 Peers Sept 700.: 12/16/2008 nalysis time period; AM Peak Hour reeway/Dir of Travel: SR 14 NB function: Via Princessa rs Ssa ita Lions Lions Freeway Data			>	
Type of analysis tumber of lanes in freeway free-flow speed on freeway folume on freeway	Diverge 4 65.0 2220 Off Ramp Data		udh udh	15 v v v 7 1.5 v /2 15 v v v 344 12 3 or av34 12 12 11 yes, 128 1330
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 1 1 35.0 400 col lane 500 Adjacent Ramp Data (if one exists)	e exists)	mph vph ff ft ft	Density, D + 17 B Lavel of Serv
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	wist? ramp p tamp Conversion to pc/h Under Base Conditions	Condition	vph ft	Intermediate speed variable, Space mean speed in ramp infil
Junction Components Volume, V (vph) Peak-hour factor, PHF peak 15-min volume, v15 Trucks and buses Terrain type: Grade Lengte Lengte Trucks and buses PCE, ET Recreational vehicle PCE, ET	Freeway 2220 0.93 597 0 0.00 0.00 0.00 1.5	Ramp 400 0.85 118 2 2 0.00 0.00 1.5	Adjacent Ramp vph vph v v v v v v mi	Spade mean speed for all vehi

Heavy vehicle adjustment, fHV Driver population factor, fP Flow rate, vo	Stonent, fHV Sactor, fP	0 11 10	0.980	1.00		Edigo
	Estim	Estimation of V12	2 Diverge	Areas		
	X .aa	(Equati	(Equation 25-8 c	or 25-9)		
	EQ 0.436	Usung	Equation	00		
	12 8 (- 4) F	- 1330	n/od		
		Capacity	Checks			
>	Actua 2435	Actual 2435	Maximum 9400	42	LOS F7	
iza D	5967	0	0076	39	No	
in Ou	475		2000	N	No	
į,	55.2	pc/h	(Equation	25-15	or 25-16)	
or av34	> 2700 pc/n?		No			
or av34	> 1.5 v /2		ON			
3 or av34 yes, v = 1330	0		(Equation 25-18	n 25-18)		
7, 12	Flow Entering Actual 1330 Level of Service De			uence Area	Violation?	
Density,	D - 4.252 B for ramp-freewar	D = 4.252 + 0.0086 v R ramp-freeway junction	12	009 L m D of influence	m 11.2 ence B	pc/mi/ln
		Speed Estimation	ופנזפו			
Intermediate speed	speed variable,			114.0 -		
Space mean speed in		ramp influence area,	o co	= 54.2	4dm	
Space mean speed 3	in outer lanes,	68,	່ທີ	71.3	ydw	
Property and the same	ear all uchinlos	000		8 99 =	moh	

HCS+: Ramps and Ramp Junctions Release 5.3

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HCS+: Ramps and	HCS+: Ramps and Ramp Junctions Release 5.3	Heavy vehicle adjustment, ETV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 3592 1169
		Estimation of VI2 Merge Areas
Phone: Z-mail:	Fax:	, n
	Merge Analysis	12 = 24
Analyst: Redenoyot: Behr & Peers Date performed: Rhalysts time period: Freeway/Olz of Travel: Via Ptincessa Junisdiction: Santa Clarita Analysis Year: Description: Vista Canyon Ranch	in single constant on single con	Capacity Checks Actual
126	Freeway Data	3 or av34 12
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	3 65.0 mph 3310 vph	Elow Entering Wer Actual Actual Nax D 2125 4600
OD	On Kamp Data	NAC Toron Tarantanto Deferminant of Late 71
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 150 mph 1100 vph 1100 vph ft	Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 27.5 R L2 Level of scrytos for ramp-freeway junction areas of influence C Speed Sstimation
Adjacent Ra	Adjacent Ramp Date (if one exists)	Intermediate speed variable, K = 0.391
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	No vph	Space mean speed in ramp influence area, S = 56.0 mph Space mean speed in duter lanes, 0 0 0 50.5 mph
Conversion to po	Conversion to pc/h Under Base Conditions	
Junction Components	Freeway Ramp Adjacent	
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	3310 1100 vph 0.95 880 269 v 0.95 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

pc/mi/ln

HCS+: Ramps and Ramp Junctions Release	Ramp Junction	as Selease	6,3	Reavy vehicle adjust Driver population fa Flow rate, vp
				н."
Phone: E-mail:	i ax:			Pv Pv
Diver	Diverge Analysis			
Analyst: Agency/Co.: Date performed: Analysis time period: Freeway/Dir of Travel: SR 14 NB Junction: Santa Clarita Analysis Year: Description: Vista Canyon Ranch Freew	rs ur n Rd ita tions Freeway Data			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Type of analysis	Diverge	ø		3 or 9 0
Number of lanes in freeway Free-flow speed on freeway Volume on freeway	5410		ngh Vph	16 yes, v = 3814 If yes, v = 3814
110	Off Ramp Data			
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 1 35.0 1200 500		mph Yph Et	V 12 Density,
Adjacent Ramp Data (1f one exists)	Data (1f on	e exists)		Level of service fo
Does adjacent ramp exist: Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp Conversion to pc/h Under Base Conditions	No Under Base	Conditton	vph ft	Intermediate speed 'n Space mean speed in Space mean speed in
Junction Components	Ereeway	Ramp	Adjacent	Space mean speed fo
Volume, V (vph) Peak-bour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational venicles Grade Trucks and buses PCE, ET Recreational vehicle PCE, ER	0.95 1424 0.95 0.00 0.00 11.5	1200 0.90 2333 0.00 0.00 1.5	rang vyph	

Reavy vehicle adjustment, Driver population factor, Flow rate, vp	ED E	0.980	1.00		popp
	Estimation of V12	of V12 Diverge	Areas		
A .	(3)	(Equation 25-8	02 35-9)		
Dy Py	0.553 Us	Using Equation	S		
V V V V V V V V V V V V V V V V V V V	+ 10 + A	FD = 3814	pc/t.		
	Capac	Capacity Checks			
b	Actual 5809	Maximum 7050	កន	10S F7	
) in p	44.62	7050	N	No	
oc oc	1347	2000	N.	No	
	1995 pc/n	(Equation 25-15		or 25-161	
OF 8734	2700 pc/h?	No			
40		No			
yes, v = 3814	Y.	(Equation	n 25-18(
Plow Actual 3814	Flow Entering Actual 3814 of Service De	Entering Diverge Influence Ar 31 Max Destrable 4400 Service Determination (if not	g) tu	Violation? No	
9	= 4.252 = 0	- 0.0086 v - 0.		= 32.6	pc/m1/1n
Service for camp	freeway	12	54		
	Speed E	Speed Estimation			
Intermediate speed variable,	ole,	a	0.549		
Space mean spead in ramp	influence area,	· vi	52.4	non	
Space mean speed in outer	outer lanes,	4 00	67.4	uph	
		200			

HCS+: Ramps and Ramp Junctions Release 5.3

Phone: E-mail:	F X X X			
Merge	Merge Analysis			
Analyst: Agency/Co.: Bate performed: Bate performed: AM Peak Hour Freeway/Dir of Travel: SR 14 NB Junction: Sand Canyon Rd Jurisdiction: Santa Clarite Analysis Year: 2012 Conditions Description: Vista Canyon Ranch	on.			
9946	Freeway Data			
nalysis lanes in	Merge 2			
Free-flow speed on freeway Volume on freeway	4250	T A	ngn Agb	
R do	Ramp Data			
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 1 35.0 600 500	E > 41 F4	ար «Ն Ը Մ	
Adjacent Ramp Data		(if one exists)		
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	NO	Þ 4	vph ft	
Conversion to pc/h Under	Base	Conditions		
Junction Components	Freeway	Ramp	Adjacent	
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Terrational vehicles Terratin type: Grade Length Trucks and buses PCE, ET	4250 0.95 1118 4 0 Level &	600 0.95 158 2 0 0 Level &	Ramp vph	

Driver population ractor, Flow rate, vp	iactor, ir	4563	1.00 638 pcpn
	Estimation	of V12 Merge Ar	Areas
		(Equation 25-2 or	25-3)
	1.000	Using Equation 0	
	v = v (P) = · · · · · · · · · · · · · · · · · ·	4563 pc/h	
	Capacity	ity Checks	
٨	Actual 5201	Maximum 4700	LOS 22 Yes
ρ	0 pc/h	(Equation	25-4 or 25-5)
010	> 2700 pc/h?	No	
4 9 9	> 1.5 v /2	No	
$\frac{1 \text{ or avs4}}{12\text{A}}$	563	(Equation	25-8)
Þ	Flow Enteri Actual 4563	Entering Merge Influence Max Desirable 4600	ce Area Violation? Yes
R12	Level of Service D	Determination (i1	(if not F)
Density, $D = 5.47$. R Level of service	5 + 0.00734 v + R	0.0078 v - 0.00627 12 junction areas of in	627 L = 42.6 pc/mi/ln influence F
	Speed	Lon	
Intermediate speed	d variable,	ıl	0.994
Space mean speed	in ramp influence	II	42.1 mph
Space mean speed	in outer lanes,	± 63 C	N/A mph
Space mean speed	for all vehicles,	11	42.1 mph

HCS+: Ramps at	HCS+: Ramps and Ramp Junctions Release 5.3	is Releas	5.3	Heavy vehicle adjustment, five Driver population factor, f? Flow rate, vp
Phone: E-mail:	: X rd			pa: 179,0 = 03
130	Diverge Analysis			in ex
Analyst:	s sid			Actual Ac
4	Freeway Data			3 or 8v34
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Diverge 3 65.0 2500 Off Ramp Data		dqn qqn	1s v v s > 2700 pc/h3 1s v v v s > 1.5 v /2 3 or av34 If yes, v = 1943
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp	81ght 35.0		ų du ų du	Flow Entering D. Actual M. 1943 1. 4. 12. Level of Service Details.
Length of first accel/decel lane Length of second accel/decel lane Adjacent Ra	el lane cel lane Adjacent Ramp Data (if one exists)	exists)	44	Density; B A 4.252 + G. Level of service for camp-freeway jun
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	No.		rph It	Speed Estable, Speed variable, Space mean speed in ramp influence at
Conversion to pc/h Under Base	c/h Under Base	Conditions	100	Space mean speed in outer lanes,
Junction Components	Freeway	Range	Adjacent	Space mean space for all venicles,
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Isnyth Trucks and buses PGZ, ET Recreational vehicle PGE, ER	2500 0.96 651 0 0.00 0.00 0.00 0.00 0.00 0.00	410 0.85 0.85 0.00 0.00 1.5	A S S S S S S S S S S S S S S S S S S S	

Flow rate, vp	factor,	P.	1.00	1.00		papa
	E)	Estimation	of VI2	Diverge Arcas		
	# 00 100		Equation 25-8	-8 or 25-9)	2	
	li .	179.0	Using Equation	5 ::0		
	> 16	* · · · · · · · · · · · · · · · · · · ·	3 ED - 1943	g pc/p		
		Cap	Capacity Checks			
Da.		Actual 2656	Maximum 7053	m	LOS F?	
2 0		2169	7050		No	
K 00 0		487	2000		No	
		713 pc/h	/h (Equation	tion 25-15	s or 25-16)	
do l	> 2700 pc/h3	c/h2	No			
IS T T T	> 1.5 7	.3 /2	No			
12A 12A	943	4	(Egua	(Equation 25-18)	2	
8	Flow E Actual	Flow Entering Actual	Diverge Max Desi	ence	Area Violation? No	
15	Level of	Service	Determination	n (1f not	F)	
ίλ: 1		4.252 +	+ 0.0086 v -	9.009		pc/mi/in
Level of service	for ramp-	Speed	ramp-freeway junction areas Speed Estimation	30	influence B	
Intermediate speed variable,	d variabl	, e,	a	= 0.472		
Space mean speed	H	ramp influence area,	area,	54.1	digit	
Space mean speed	speed in outer lanes,	Lanes,	" US	71.3	ııdı	
Space mean speed	for all v	venicles,	(0)	6.7.9	NGE	

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popt

1.00

Heavy vehicle adjustment, fry Driver population factor, fr Flow rate, vp

(Equation 25-2 or 25-3)

EQ (Equation 25-2 of 25-FQ (Sing Equation 1 FM (P) (Sing Equation 1 12 F FM 1376 pc/h

Estimation of V12 Menge Areas

	:xez	u		
	Merge Analysis	2		
Analyst: Agency/Co.; Both performed: 12/16/200 Analysis time period: PH Peak Breeway/Dir of Travol: SR 14 SB Junction: Sand Can, Jurisdiction: Sante Cir. Analysis Year: Description: Vista Canyon Ranch	Febr & Peers 12/16/2008 12/16/2008 SP Peak Hour SR 14 SB Sand Canyon Rd Sants Clarits Out Ranch			
	Freeway Data	70		
	Z M	Merge 3		
Free-flow speed on freeway Volume on freeway	10 (1)	2090	EF	ngh vpn
999	Samp date	4 4 4		
Number of lance in ramp	S	Kignt.		
	(e)	35.0	H	प्रवेध
Volume on ramp		700	> 4	vph
of second accel/decel lane		200	. 141	2 42
Adj	Adjacent Ramp Data ((if one exists)	existsi	
Goes adjacent ramp exist?	2	0 2	Þ	nga
Type of adjacent Ramp Distance to adjacent Ramp			14	47
Conversi	Conversion to pc/h Under Base Conditions	Base Co	nditions	
Junction Components	Ехвемау		Ramp	Adjacent
Volume, V (vph) Peak-hour factor, PHE Peak IS-min volume, v15 Trucks and buses	000000000000000000000000000000000000000	roane	700	ųda Ameri
Recreational venicles Terrain type: Grade	Level	*		we
Length proc pro	er.	1	1.5	mi.

	ACTUA	4	Maximum	in.	C= (4)	
58	2942		2050	No		
0 00	845	pc/h	(Equation 25-4 or 25-5)	5-4 or 25-	5)	
V 2500 V	2700 pc/h2		No			
4034	1.5 v /2		No			
25			(Equation 25-8)	6-8		
>	Actual 1376	Mex I	Flow Entering Merge Influence Area rus! Max Desitable 76 4600	Area Vio	Violation?	
R12 Lev	Level of Service		Determination (if not F)	30L F1		
Density, D = 5.475 + 0.00734 R Level of service for ramp-fr	D = 5.475 + 0.00734 v + R R service for ramp-freeway		0.0078 v - 0.00627 L = 12 A Junction grees of influence	27 L = A influence	12. 10 1. 1. 10	pc/mi/in
	Spi	Speed Estimation	nation			
Intermediate speed variable,	zriable,		» »	0,248		
ut peads weam aceds	ramp influence	nce srea,	US.	Tuph		
Space mean speed in	outer lanes,		S = 63.	Ham 8.		
Lagge Lead action	for all vehicles,	es,	2 = 60	don si		

				200000000000000000000000000000000000000
				Satimati
Phone: E-mail:	Fax:			2.0 P + 0.563
Diver	Diverge Analysis			A + (**
Analyst:				
med: me period: of Travel:				V = V Soluel
N. C.	92			
	Ereeway Data			3 OF 4934 2236 P
The state of the s	-	3		
C .	3 7 7 6 2 9 6	11		Is v v v > 1.5 v /2
Free-flow speed on freeway Volume on freeway	5670		mph:	3 or av34 \$2
	Off Ramp Data			128
Side of freezew	0			Slow Enteri
Number of lanes in ramp	1			3853
Free-Flow speed on ramp	35.0		цфи	12
Volume on ramp	910		Ed.	Level of Service
	2000		1 10 1 10 1 10 1 10 1 10 1 10 1 10 1 1	Density, D = 4.252
Adjacent Ramp Data (if one exists)	p Data (if or	te exists		Level of service for ramp-freeway
Does adjacent ramp exist?	No			9908
Volume on adjacent ramp Position of adjacent ramp			uda.	Intermediate speed variable,
Type of adjacent ramp Distance to adjacent ramp			+24	Space mean speed in ramp toffuence
Conversion to pc/h Under Base Conditions	n Under Base	Conditio	SG	Space mean speed in outer lanes,
Junction Components	Еквемау	Катр	Adjacent	Space mean speed for all vehicles
Volume, V (vph) Peak-hour factor, PHF	5670	010	hay	
Deak 15-min volume, vis	1492	239	歸田	
Recreational vehicles	* 0	NO		
Terrain type: Grade	Level 0.00	Level 0.00	₩.	
Trucks and buses PCE, ET	0.00 mt	00.00	Im Im	
Recreational vehicle PCE, ER	1.2	EN		

	heavy vehicle adjustment, Driver population factor, Flow rate, vp	大田 石 石 石	0.980 1.00 6088	1.00		ydod
		Setimati	Estimation of V12 Diverge	rge Areas		
	U ((Equation 25-8 or	8 or 25-9)	- 10	
	3 1	0.563	Using Squation	5 0		
	1	* +	7 F + 3852	pc/h		
		S	Capacity Checks			
» «		Actual 6088	Max1mum 7050	Е	LOS F?	
		5121	7050		No	
		196	2000		No	
3		2236 p	po/h (Equation	10n 25-15	or 25-16)	
Is w o seed	> 2700 pc/h?	cu/pd	No			
3 3	> 1.5 W		No			
f yes, v = 3852	22	y	(Equat	(Equation 25-18)	13	
12	Flow E Actual 3852 Level of Se	w Enteri	Flow Entering Diverge incluence Area Actual Max Desirable 3852 4400 EVEL OF SERVICE Determination (11 not F)	luence Ar 19 (lf not	Violation? No F)	
Density,	Ω	5 = 4.252	- 4 9800 0 +	D.009 L	32.9	pc/mt/ln
Level of service	for ramp	R ramp-freeway	12 junction areas	0	d ence	
		3003	Speed Estimation			
Intermediate speed	d variable,	le,	۵	- 0.515		
Space mean speed	speed in ramp influence area,	Influenc	eo	53.5	udu	
Space mean apeed	in outer lanes,	Lanes,	K W	1 66.5	ngn	

HCS+: Ramps and Ramp Junctions Release	Samp Junction	ns Relea	Se 5.3	Heavy vehicle adjustm Driver population fac Flow rate, vp
Phone: E-mail:	Fax:			20 A. A.
	Merge Analysts			4 P
Analyst: Agency/Co.: Bate performed: 12/16/2008 Analysis time period: PM Peak Hour Freeway/Dir of Travel: Nie Princessa Junction: Analysis Year: Santa Clarite Analysis Year: Description: Analysis Anar				0 av34 0 v v v v v v v v v v v v v v v v v v
Free	Freeway Data			3 OF B
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Merge 4 65.0 5370 00 Ramp Data		nga Vpn	12 yes, v 12R = 1507
Side of freeway Number of lanes in ramp Free-flow speed on ramp	Right 35.0		mph Vpd	Density, D = 5.475 + P Level of service for
Length of first accel/decel lane Length of second accel/decel lane Adjacent Ram	esl lane rool lane "Adjacent Ramp Data (if one exists)	exists	it it	Intermediate speed va
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to pc/h Under Base Conditions	No Dider Base	Conditio	vpn ft	Space mean speed in Space mean speed in Space mean speed to:
Junction Components	Ускаета	Ramp	Adjacent	
Volume, V Vph) Peak-hour factor, 9HF Peak 15-min volume, V15 Trucks and buses Terrational vehicles Terratin type: Cande Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	2370 0.96 617 617 0 1.8vel 8	690 0.95 182 2 2 1.6vel	in the state of th	

		2707	734	bcoh
	Estimacio	Estimation of VI2 Merge	Areas	
	d	(Equation 25-2	or 25-3)	
	F 0.285	Valng Squatton	4	
	v = v (P) =	718 pc/h		
	Cal	Capacity Gnecks		
5	Actual 3252	Maximum 9400	LOS ET	
200	006	pc/h (Equation	n 25-4 oz 25-51	-
	> 2700 pc/n?	No		
20	> 1.5 v /2	Yes		
2 or sv30 If yes, v = 10	1007	(Equation	n 25-83	
		Entering Merge influence	ence Area	
	Actual 1007	Max Desirable		Violation? No
12,4	Level of Service	Determination (if not	of not Fr.	
Density, D = 5.47 Level of service	B + 5.475 + 0.00734 v + 0.0078 v - 0.8 service for tamp-freeway junction areas	0.0078 v - 0. 12 junction areas	0.00627 L = A	15.6 pc/mi/in
	Spead	Estimation		
Intermediate spend	id variable,	\$2.	0.308	
Space mean speed	speed in ramp influence area,	01	57.9 mph	
Space mean speed	speed in outer lanes,	in S	64.1 mph	
Space mean speed	tor all vehicles,	69	60.6 mph	

level of service, Los

Overall sesuits are not computed when free-flow appeal to less than 55 mph.

Phone: E-mail:

13 ax :

Operational Analysis

Analyst:
Agency or Company: Fehr & Peers
Date Performed: 12/16/2008
Analysts Time Period: AM Peak Hour
Freeway/Direction: SR 14 NB
Tron/To: Sand Canyon
Santa Clarite
Analysts Year: 2015 Conditions
Description: Vista Canyon Ranch

Flow Inputs and Ad-

Volume, V	2320	Test/E
The free as		
בממעיווסחי דמכרסדי בוני	0.33	
Peak 15-min volume, vis	624	þ
The state of the s		
Trucks and buses	*	iati
Recreational vehicles	C	
Serrain type:	Level	
Grade	0.00	CT*
Segment Length	00.00	TE
Trucks and buses PCE, ET	un'	
Recreational vehicle PCE, EP.	1.2	
Heavy vehicle adjustment, fRV	0.980	
Driver population factor, fp	1.00	
Flow cate, vp	636	00/0/10

Speed Inputs and Adjustments

##	interchange/mi	mi./h	11/h	4/74	TL/h	#/ FE	m1/2	
52.0	0.50	Neasured 65.0	0.0	0.0	0.0	(D)	65.0	Urban Freeway
Lane width Right-shoulder lateral clearence	Interchange density Number of lanes, N	Free-flow speed: FFS or BFS	Lane width adjustment, flw	Lateral clearance adjustment, flC	Interchange density adjustment, fID	Number of lanes adjustment, fN	Free-flow speed, FFS	

LOS and Portormance Measures

636 96/1/	1, S 65.0 mL/h
Flow rate, vp Free-flow speed, FFS	Average passenger-car speed,

HCS+: Basic Freeway Segments Release 5.21

Phone: E-mail:

Operational Analysis

FBX

Agency or Company: Date Performed: Analysis Time Period: Analyst:

Fehr 6 Peers 12/16/2008 PM Peak Hour SR 14 SB

Sand Canyon to Via Princessa Freeday/Direction: SR 14 SB From/To: From/To: Sand Canyon to V Jurisdiction: Santa Clarita Analysis Year: 2015 Conditions Description: Vista Canyon Ranch Flow Inputs and Adjustments

		A CONTRACTOR OF THE PARTY OF TH		
Volume, V		3190	d) des	
Peak-hour factor, PHF		96	11/11/24	
Peak 15-min volume, v15		0 00	i.	
Trucks and buses		1		
Recreational vehicles			• •	
Terrain Lype:		Level		
Grade		0.00		
Segment length		00.0	» E	
Trucks and buses PCE, ET		0 10	1	
Recreational vehicle PCE,	85	1.2		
Heavy vehicle adjustment,	£HV	0.980		
tion factor,	fp	1.00		
Flow rate, vp		847	pc/h/ln	

ft ft interchange/mi ai/h ai/h ai/h 12.0 6.0 0.50 4 Measured 65.0 0.0 0.0 1.5 65.0 Urban Freeway Lateral clearance adjustment, fitc Interchange density adjustment, fiD Number of lanes adjustment, fN Free-flow speed, FFS Lane width Right-shoulder lateral clearance Interchange density
Number of lands, N
Free-flow speed:
FFS or BFFS
Lane width adjustment, flw

Speed Inputs and Adjustments

pc/h/ln m1/b mi/h LOS and Performance Measures 65.0 65.0 4 13.0 Flow race, up Free-flow spead, FFS Average passenger-car speed, S Number of Lanes, N

pc/m1/ls

Level of service, LOS

Overall results are not computed when free-flow speed is less than 55 mph.

Level of service, LOS

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Fax: Phone: E-mail:

Operational Analysis

Analyst:
Agency or Company: Febr & Peers
Date Performed: 12/16/2008
Analysis Time Period: PW Peak Hour
Freeway/Direction: SR 14 NB
From/To: Via Princessa to Sand Canyon
Jurisdiction: Santa Clarita
Analysis Year: 2015 Conditions
Description: Vista Canyon Ranch

	Flow Inpu	ts and	Flow Inputs and Adjustments	
Volume, V			6260	veh/h
Peak-hour factor, PHF			0,95	
Peak 15-min volume, v15			1647	>
Trucks and buses			9	
Recreational vehicles			Ç	- 40
Terrain type:			Level	
Grade			0,00	D/o
Segment length			0,00	m.
Trucks and buses PCE, ET			1.5	
Recreational vehicle PCE,	ER		1,2	
Heavy vehicle adjustment,	EHV		0.980	
Driver population factor,	£p		1.00	
Flow rate, op			2240	pc/h/ln

Speed Inputs at	Speed Inputs and Adjustments	
Lane width	12.0	e J No. o
Right-shoulder lateral clearance	0.9	لة ا
interchange density	0.50	interchange/m;
Number of lanes, N	. (~)	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, flw	0.0	m47b
Lateral clearance adjustment, ILC	0.0	Ti Va
nterchange density adjustment, fip	0.0	mt/h
Number of lanes adjustment, fN	0,0	mi/h
Free-flow speed, FFS	65.0	11/h
	Urban Freeway	2

LOS and Performance Measures

pc/h/ln mi/h	u/te	pc/mi/ln
2240	ള. പ്രസ	40.1
Flow rate, up Free-flow speed, FPS	Average passenger-car speed, S Number of lanes, N	Density, D

Overall results are not computed when free-flow speed is less than 55 mph.

Fax

Phone: E-mail:

Operational Analysis

Analyst:
Agency or Company: Fehr & Peers
Date Performed: 12/16/2008
Analysis Time Period: PM Peak Hour
Sreeway/Diréction: SR 14 SB
From/To:
Jurisdiction: Santa Clarita
Analysis Year: 2015 Conditions
Description: Vista Canyon Ranch

Flow Inputs and Adjustments

Volume, V	2940	veh/h	
Peak-hour factor, PHF	96.0		
Peak 15-min volume, vi5	766	>	
Trucks and buses	ঘ	*	
Recreational vehicles	0	- 44	
Terrain type:	Level		
Grade	00.00	olo	
Segment length	0.00	-H	
Trucks and buses PCE, ET	2.1		
Recreational vehicle PCE, ER	1.2		
Heavy vehicle adjustment, fHV	0.980		
Driver population factor, fp	1.00		
Flow rate, vp	1041	pc/h/ln	

14	F.	interchange/mi		red	mi/h	m1/t-	mi/h	m1/h	11/12	mi/h	Urban Freeway
12,0	6.0	0.50	M	Measured	65.0	0.0	0.0	0.0	9,0	65.0	Urban
Lane width	Right-shoulder Laceral clearance	Interchange density	Number of lanes, N	Free-flow speed:	RES OF BEES	Lane width adjustment, flw	Lateral clearance adjustment, fLC	Interchange density adjustment, fid	Number of lanes adjustment, fN	Free-flow speed, FFS	

Speed Inputs and Adjustments

Los and Performance Measures

pc/h/ln mi/h	mi/h	pc/m1/ln
1041	65.0	16.0
FS	dar speed, S	
Flow rate, vp Free-flow speed, FFS	Average passenger- Number of lanes, N	Density, D

HCS+: Basic Freeway Segments Release 5.21

五四次 Phone: E-mail:

Operational Analysis

Analyst:

Agency or Company: Fehr & Peers
Date Performed: 12/16/2008
Analysis Time Period: AM Peak Hour
Freeway/Direction: Sh 14 NB
From/To: Sand Canyon to Soledad Canyon
durisdiction: Sand Canyon to Soledad Canyon
Analysis Year: 2015 Conditions
Description: Vista Canyon Ranch

Flow Inputs and Adj

	crow inputs and Adjustments	Adjustments	
Volume, V		2250	ueh/h
Peak-hour factor, PMF		60.0	
Peak 15-min volume, v15		505	20
Trucks and buses		4	· di
Recreational vehicles		. 0	o di
Terrain type:		Level	,
Grade		0 0	
Segment length		0.00	Ě
Trucks and buses PCE, ET		- T-	1
Recreational vehicle PCE,	e: ul	· ·	
Heavy vehicle adjustment,	FHY	086.0	
Driver population factor,	41	1.00	
Flow rate, vp		823	pc/h/ln

Speed Inputs and Adjustments

12.0 ft	6.0	0.50 Anterchange/m		Measured				0.0		65.0 mi/h	Urban Freeway
Lane width	Right-shoulder lateral clearance	Interchange density	Number of lanes, N	Free-flow speed:	FFS or BFFS	Lane width adjustment, flw	Lateral clearance adjustment, flc	Interchange density adjustment, fID	Number of lanes adjustment, fN	Free-flow speed, PFS	

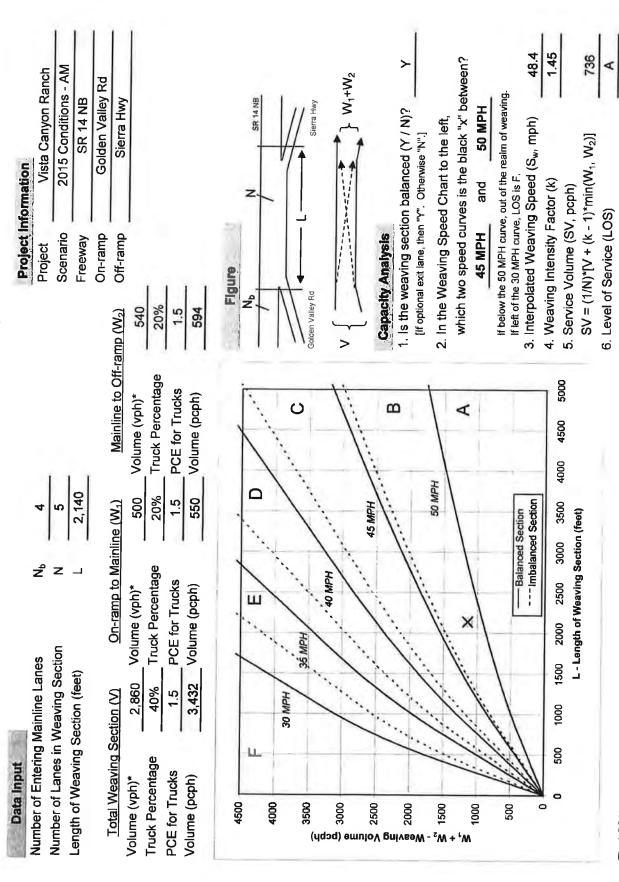
105 and Performance Measures

	pc/m1/1n
8823 665.0 3 65.0 3 65.0	12.
Flow rate, wp Free-flow speed, FFS Average passenger-car appeed, Number of lanes, N	Density, D

Level of service, LOS

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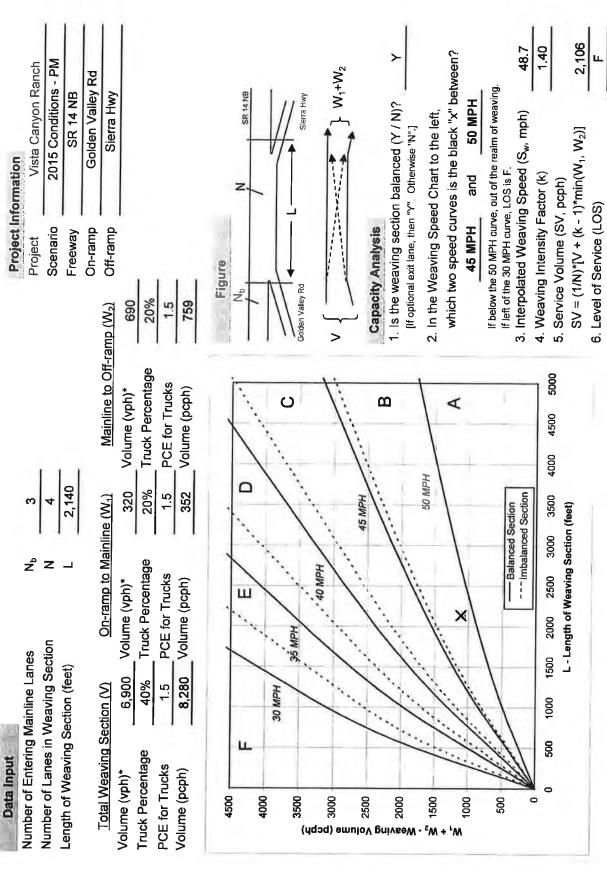
Overall results are not computed when free-flow speed is less than 55 mph.



* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables. The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

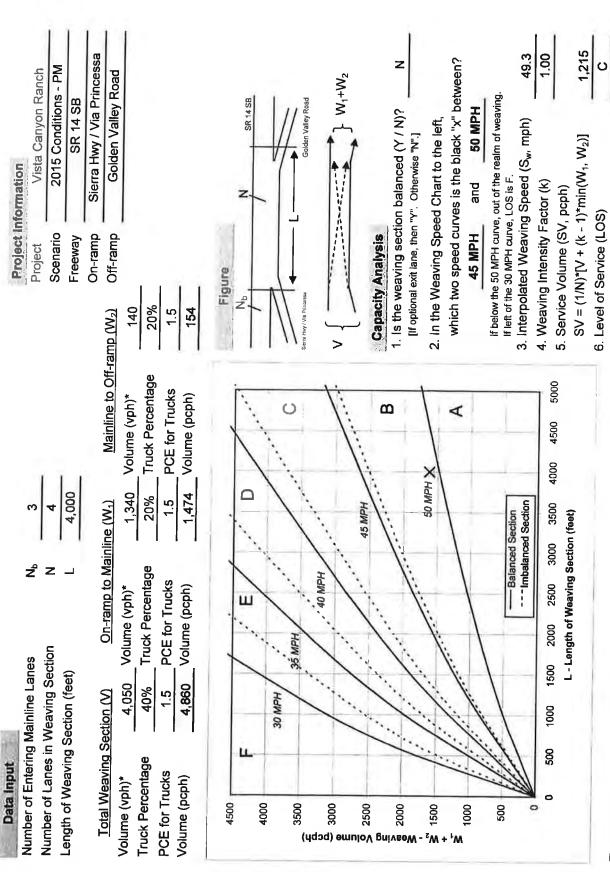
Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections , Jack E. Leisch & Associates, September 1983.

Fehr & Peers



The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections , Jack E. Leisch & Associates, September 1983. Fehr & Peers * Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.



* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables. The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections, Jack E. Leisch & Associates, September 1983.

Fehr & Peers

HCS+: Ramps and Ramp Juncti	Ramp Junctions Release	sse 5.21	Heavy vehicle adjustment, fRV Driver population factor, fP Flow rate, vp	0.980 1.00 2545	0.990 1.00 581
			Estimation of V12 Diverge Areas	V12 Diverge	Areas
dh cond	i		00		or 25-9}
rnone: E-mall: Diverc	Fax: Diverge Analysis		P = 0.436 Using PD	Using Equation) P = 1437 P PD	8 pc/n
Apalyst:			1	Capacity Checks	
med: me period: of Travel:			Actual v v 2545	Max1mum 9400	LOS F?
			> 1 64 2 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	9400	0 %
Analysis Year: 2015 Conditions Description: Vista Canyon Ranch	₽ }		7 XX	2000	o N
5100)	Freeway Data		3 or av34	(Eguation	25-15 or 25-16)
Type of analysis	Diverge		3 or av34	No	
Number of lanes in ireeway Free-flow speed on freeway	4 0.5 0.15 0.15	hqu	3 07 8	No	
	ž	uda	if yes, v = 12A	(Equation 25-18)	25-18)
OIL NAME	amp para				2000
# 8 3 6 1	84ght 1 35.0 466	nga Aph	Actual Max Desirable Actual Max Desirable 12	Diverge Influe Max Desirable 4600 Termination (4	nce Area Violation No f not F)
wength of itst accel/decel lane Langth of second accel/decel lane	205	eq 구학	Density, D = 4.252 + 0.00	0.0086 v - 0.009	09 L = 12.3
Adjacent Ramp Data	Data (if one exists)	8 }	Level of service for ramp-freeway junction areas		of influence B
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	O _N	vph ft	Speed Estimation Intermediate speed variable, Space mean speed in zamp influence area,	ation	0.480 54.0 mph
Conversion to pc/h Under Base	Under Base Conditions	sus	Space mean speed in outer lanes,	to to	71.3 mph
Junction Components	Freeway Ramp	Adjacent	Space mean speed for all vehicles,	o vi	60.3 mph
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	2320 460 0.93 0.80 624 144 4 2 0 0 Level Level 0.00 mi 0.00 1.5 1.5	v v v v v v v v v v v v v v v v v v v			

pc/m1/1n

Flow Entexing Diverge Influence Area Actual Max Desirable Violation? 1437

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		V FO V V 3 O X V 3 O X V S I S V O X V S I S V O X V S I S V O X O X S I S V O X O X O X O X O X O X O X O X O X O	3 or		udu	A 21	L .		COL	יני היים ביים מבדירים מלדירים מלדי	17	one exists) Intermediate	Space mean	vph Space mean	fr Space mean		Ramp Adjacent	390 Ramp vph 0.85 v 115 v			O Level	Level
X B	Merge Analysis	eers D8 Hour Yon Rd arita ditions	Freeway Data		1860	On Ramp Data	Right	T 6			DI-0- 10-25	Adjacent Ramp Data (if one exists)	S. S	đu	du:	Conversion to pc/h Under Base Conditions	Freeway	1860 0.93 500 4		0 Level	0 Level	0 Level
Phone: E-mail:		Analyst: Agency/Co.: Bate porformed: 12/16/20 Analysis time period: AM Peak Freeway/Dir of Travel: SR 14 NB Junction: Juxisdiction: Sand Can Juxisdiction: Santa Cl Description: Vista Canyon Ranch		Type of analysis Number of lanes in freeway Freesflow proced on freeway	Volume on freeway		Side of freeway	Number of lanes in ramp Free-flow eneed on remo	Table C	Length of first accel/decel lane length of second accel/decel lane	1		Does adjacent ramp exist?	Volume on adjacent name Position of adjacent Ramp Type of Adjacent Ramp	Distance to adjacent Ramp	Con	Junction Components	Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses	DASSESSE LANGE TO THE PROPERTY OF	Recreational vehicles Terrain type:	Recreational vehicles Terrain type: Grade	Recreational vehicles Terrain type: Grade Length

•	te, vp	2040	1.00		pop
	Estimation of	V12	Merge Areas		
	U C	(Equation 2	25-2 or 25-3)	_	
	2 - 0.591	Using Equation	ion 1		
	* v (P)	- 1207 pc/h	£		
	Ü	Capacity Checks	83		
S S	Actual 2503	Maximum 7050	mum	LOS E7	
> > >	833	pc/h (Egu	(Equation 25-4	or 25-5)	
3 G	> 2700 pc/h?	%O			
2 0	> 1.5 v /2	No			
2		(Equ	(Equation 25-8)		
		zge.	Influence Area	ea	
12	Actual 1207	Max Desirable	able	Violation?	
1	Level of Service	Perermination	(if nor	F)	
Density, D = 5.475 R Level of service for	+ 0.00734 v R	+ 0.0078 v - 0 12 y junction areas	00.	27 L = 15.2 A influence B	pc/mi/ln
	Speed	d Estimation			
Intermediate speed	variable,		H = 0.307		
Space mean speed I	in ramp influence	e area,	S = 57.9	ųdu	
Space mean speed I	in outer lanes,		S = 63.8	դժա	
Space mean speed f	for all vehicles.		2 0 Y	4	

Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Elow rate, vp 4785 853	L = (Equation of V12 Diverge Areas EQ	Capacite Rotual 1 F 4785 2 V - V 3932 3 E R 853	Is v v v v v v v v v v v v v v v v v v v	Speed Estimation Intermediate speed variable, Space mean speed in ramp influence area, Space mean speed in outer lanes, Space mean speed for all vehicles,
HCS+: Ramps and Ramp Junctions Release 5.21	Fax: Diverge Analysis	# D X > d T	o l lane el lane djacent	### Adjacent #### Adjacent ###################################
HCS	Phone: E-mail:	Analyst: Agency/Co.: Bate performed: Analysis time period: AM Peak Junction: Junction: Junction: Sand Can Junisdancion: Sand Can Peacription: Vista Canyon Ranch	Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Langth of first accel/decel lane Langth of second accel/decel lane	Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp Distance to adjacent ramp Junction Components Volume, V (vph) Peak-hour factor, PHF Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE,

pc/mi/ln

pcph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: E-mail:		** ** ***				
	Merge	Merge Analysis				
Analyst: Agency/Co.: Date performed: Analysis time period: Freeway/Dir of Travel: Junction: Analysis Year: Analysis Year:	Fehr & Peers 12/16/2008 11/16/2008 11: AM Peak Hour 11: SR 14 SB Sand Cahyon Rd Santa Clarica 2015 Conditions Canyon Ranch					
	Freeway	ray Data				
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Ö	Merge 2 65.0 3650 Ramp Data		mph vph		
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel Length of second accel/decel	n ramp on ramp sccel/decel lane accel/decel lane	81ght 1 35.0 880 1500		e von Advit Advit		
	Adjacent Ramp	Data (if one	e exists}	1		
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	r. a. a.	o _N		vph ft		
Conv	Conversion to pc/h Under Base Conditions	Under Base	Conditio	Suc		
Junction Components		Freeway	Ramp	Adjacent	ų	
Volume, V (vph) Peak-hour factor, PRF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE,	ER	3650 0.94 4 4 1 Level * 1.5	980 0.98 250 2 0 Level	Range Ruiz Ruiz	A A A B	

Driver population factor, Flow rate, vp	factor, fp	3961	0101	pcph
	Estimation of	V12 Merge	Areas	,
	EQ 1.000 E	(Equation 25-2 Using Equation 3961 pc/h	or 25-3}	
		Capacity Checks		
, ,	Actual 4971	Maximum 4700	LOS F? Yes	
3 or av34	0		n 25-4 or 25-5)	
, e , e	> 1.5 v /2	N ON		
127		(Equation	n 25-8)	
v 122	Flow Enter: 3961 3961 Level of Service [Entering Merge Influenc Max Desirable 4400 vice Determination (if	Influence Area Violation? No No (if not f)	
Density, $D = 5.475$ R Level of service fi	+ 0.00734 v + R R or ramp-freeway	0.0078 v = 0. 12 junction areas	0.00627 L = 34.4 A s of influence F	pc/m1/1n
		Estimation	4 1	
Intermetiate speed	d variable, in ramp influence	ares, s	47.1 mph	
Space mean speed	in outer lanes,	∝ v, ⊂	N/A mph	
Space mean speed	for all vehicles,	° W	47.1 mph	

				Flow rate, Vp
Phone: E-mail:	Fax: Diverge Analysis			P = 0.436 FD V V V V V V V V V V V V V V V V V V V
Analyst: Agency/Co.: Bate performed: 12/16/200 Analysts time period: Freeway/Dir of Travel: Jurisdiction: Analysis Year: Santa Cli Analysis Year: Description: Vista Canyon Ranch	002 060			Act 254 254
	Freeway Data			3 or av34
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Diverge 4 65.0 2320 Off Ramp Data	ridim Hqv		Is v v > 2700 pc/h? Is v v v > 1.5 v /2 3 or av34 > 1.5 v /2 If yes, v = 12A
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp	Right 1 35.0 360	E 7 4		Actual Actual 12 1351 Level of Service
of second accel/dec	Ramp Data	exists)		Density, D = 4.252 Level of service for ramp-freewa
Does adjacent ramp exist? Volume on adjacent ramp Posttion of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	° 2	ųda 3;		nediat
1	Conversion to pc/h Under Base Conditions			Space mean speed in ourer lanes,
Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Terrain Lype: Grade Cande Length Trucks and buses PCE, ET Recreational vehicle PCE, ET	Ereeway 23.20 0.93 624 4 4 0.00 0.00 1.5	Ramp Adjac 360 0.85 106 0.00 100 0.00 mi	Adjacent Ramp vph vph vph vm v v mi	Space mean speed for all vehicle

	0	(Equation 25-8 or 2	25-9}	
	P = 0.436 Us	Using Equation 8		
	12 R + (V - V L R F R	P = 1351 pc/h FD	Į.	
	Capac	Capacity Checks		
> n	Actual 2545	Maximum 9400	LOS F7	
> 1 L	2117	9400	o N	
	428	2000	No	
	597 pc/h	(Equation	25-15 or 25-16)	
5 4	> 2700 pc/h?	No		
5 0 0 0	> 1.5 v /2	O N		
2		(Equation 25	25-18;	
	Flow Entering	Diverge influence Area	Area	
7	1351	Max Desirable 4600	Violation? No	
	Level of Service Determination (if not	termination (if n	10t F)	
Density, Level of service	D=4.252 + 0.0086 v - 0. Service for ramp-freeway junction areas	+ 0.0086 v - 0.009	009 I = 11.4 pc D of influence B	pc/mi/ln
	Speed	Speed Estimation		
Intermediate spen	speed variable,	D = 0.467	167	
Space mean speed	in ramp influence	* 54	ngm E.	
Space mean speed	in outer lanes,	S = 73.	. 3 mph	
Spanne mean energy	0012140011100	6	2	

popu

0.990 1.00 428

0.980 1.00 2545

Heavy vehicle adjustment, filv 0.980 0.990 Driver population factor, f? 1.00 1.00 Flow rate, vp 6721 1414 Estimation of V12 Diverge Areas	EQ (Equation 25-8 or 25-9) FQ 0.527 Using Equation 5 FD v + (v - v) P = 4210 pc/h 12 R F R FD	Capacity Checks V V V V Fig. F V V V V SO F R 1414 2000 No No No No No No No No No	3 or av34 No pc/h? No No av34 1.5 v /2 No (Equation 25-18)	Plow Entering Diverge Influence Area Violation? Violation? Violation? Violation? No AG00 AG00 AG00 AG00 AG00 AG00 B = 4.252 + 0.0086 v - 0.009 L = 36.0 AG00 AG00 AG00 AG00 B = 4.252 + 0.0086 v - 0.009 L = 36.0 AG00 Speed Estimation Intermediate speed variable, S Space mean speed in ramp influence area, S Space mean speed in outer lanes, S Space mean speed in outer lanes, S Space mean speed in outer lanes,	Space mean speed for all vehicles, S = 56.5 mph	
kamp Junctions Release 5.21	Fax: Diverge Analysis		Freeway Data Diverge 3 65.0 mph 6260 vph		No vph Ft ft Under Base Conditions	Етеемау Ramp Adjacent Ramp vph 6260 1260 vph 0.90 vph 1647 2 2 8 0 0 0 0 8 0 0 0 0 0 0 0 0 0 0 0 0
HCS+: Ramps and Ramp Junctions	Phone: E-mail: Diver	Analyst: Agency/Co.: Date performed: Analysis time period: Freeway/Dir of Travel: SR 14 NB Junction: Sand Canyon Rd Sand Clarita Analysis Year: Description: Vista Canyon Ranch	Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Side of freeway Number of lanes in ramp Number of lanes on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane Adjacent Ramp	Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp Conversion to pc/h	Volume, V (vph) Peak-hour factor, PHF Peak l5-min volume, v15 Trucks and buses Recreational vehicles Textain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE,

pc/mi/ln

hapa

MCS+: Ramps and Ramp Junctions Release 5.21

		30	If yes, v		Density, Level of	Intermedi	Space mea Space mea Space mea		T(c) > @ @
			पं त्रंग पंत्रंग		mph voh ft	itsts)	vph ft	litions	Adjacent Ramp Ramp # # # #
Eax:	ES UZ LT LTA ELONS	Freeway Data	Merge 2 2 65.0 65.0 5040 On Ramp Data	1 1 1 1	Right 1 35.0 690 500	Adjacent Ramp Data (if one exists)	NO	Conversion to pc/h Under Base Conditions	Бресмау Ramp 5040 690 0.95 0.95 1326 182 4 2 0 0 Level 8 mi 1.5
Phone: E-mail:	Analyst: Agency/Co.: Fehr & Peers Agancy/Co.: Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 NB Junction: Sand Canyon Rd Jurisdiction: Sand Clarita Analysis Year: Description: Vista Canyon Ranch		Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway		Side of freeway in ramp Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Adjacent R	Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	Conversion to p	Junction Components Volume, V (vph) Peak-hour factor, PHE Peak i5-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET

		5411	734	ridod:
	Estimation of	of V12 Merge	Areas	
	11	Equation 25-2	or 25-3)	
	EQ 1.000 U	Using Equation	0	
	v = v (P) = 12 F FM	5411 pc/h		
	Capa	Capacity Checks		
> *	Actual 6145	Maximum 4700	10S F?	
> !	0 pc/h	h (Equation	n 25-4 or 25-5)	
S V V V V V V V V V V V V V V V V V V V	> 2700 pc/h?	NO		
2 k	> 1.5 v /2	0 %		
128	J 1	(Equation	n 25-8)	
		Entering Merge Influence Area	ence Area	
v 12	Actual Sfl1	Max Desirable	Violation? No	
	Level of Service D	Determination	(if not F)	
Density, D = 5.475 R Level of service for	+ 0.00734 v + %	0.0078 v - 0. 12 junction areas	0.00627 L = 49.9 A S of influence F	pc/mi/ln
		Estimation		
Intermediate speed	speed variable,	22 1	2.105	
Space mean speed	in ramp influence area,	າທະ	- 16.6 mph	
Space mean speed in	in outer lanes,	± 50 C	N/A mph	
Space mean speed i	for all vehicles.) U	16 E mon	

ACV+: Famps an	ntsv: samps and kamp Junctions Malease 5.21	ns Release	5.2	Driver population factor, fp Flow rate, vp Estiman
Phone: E-mail: Div	Fax: Divezge Analysis			EG 0.651
Analyst: Agency/Co.: Bate performed: 12/16/2008 Analysis time period: PM Peak Hour Freeway/Dir of Travel: SR 14 SB Junction: Jurisdiction: Sand Canyon Rd Analysis Year: Description: Vista Canyon Ranch	Rd Rd Cons			ACL 312 245 665 665
a.g.	Freeway Data			3 or av34
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Diverge 3 65.0 2940 Off Ramp Data		ਪ੍ਰਧਾ	20 20 EU,
	ĺ			at car
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Lencth of first accel/decel lane	819ht 1 35.0 560	E A	Ар. 4 се 7 г.	v Actual Actual 12 2267
of second accel/de	cel lane Adjacent Ramp Data (1f one exists)	ft exists)		Density, D = 4.255 R R Level of Service for ramb-freews
Does adjacent ramp exist?	NO			o o
Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp		yp.	vph ft	Intermediate speed variable, Space mean speed in ramp influen
Conversion to pc/h Under Base Conditions	:/h Under Base C	Conditions		Space mean speed in outer lanes,
Junction Components	Freeway	Ramp	Adjacent	Space mean speed for all vehicle
Volume, V (vph) Peak-hour factor, PHF Peak-lS-min volume, v15 Fucks and buses Recreational vehicles Terrain type: Terrain type: Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	2940 0.96 4 4 1.84e1 0.00 1.5	560 0.85 165 0 0 0.00 ml 1.5	Kamp v v v v	

	P = 0.651	Using Equation 5		
	V = V + [V + V]	1 P = 2267 R FD	pc/h	
	Cap	Capacity Checks		
	Actual	aumtxeM	10S E?	
> 5	3124	2050	No	
>	2459	7050	No.	
K FO	665	2000	No	
,,	857 pc	pc/h (Equation 25-15	25-15 or 25-16}	
u Q	> 2700 pc/h?	o N		
Is v v v Is avid	> 1.5 v /2	No		
122		(Equation 25-18)	25-18)	
	Flow Entering Actual	Diverge Max Desi	Influence Area Valetion?	
27	7.567	4600	o N	
	Level of Service	Determination (1f	not E)	
Density,	D = 4.252 +	0.0086 v - 0.009	19.2	pc/m1/ln
Level of service	for ramp-freeway junction	junction areas of	influence B	
	Speed	Estimation		
Intermediate speed variable,	d variable,	0 = 0	.488	
Space mean speed in	in ramp influence area,	, N	53.8 mph	
Space mean speed	in outer lanes,	8	71.3 mph	
Space mean speed	School for all webinles	N C	-	

hdod

0.990 1.00 665

0.980 1.00 3124

Estimation of VI2 Diverge Areas

HGS+: Ramps	HCS+: Ramps and Ramp Junctions Release 5,21	una Seleas	6.5,21	Reavy vertals adjustment, Driver population factor, Flow race, vp
Phone: S-mail:	Sax:			7 0 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
Analyst: Agency/Co.: Febr & Peers Date performed: Analysts time period: PM Peak Hour Fraewsy/Dir of Travel: SR 14 SE Junction: Sand Canyon Rd Analysts Year: Description: Vista Canyon Ranch	ers our on Rd rita			avad > 2700 avad > 27000
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Precensy Data 3 65.0 65.0 00 Ramp Data		ક હતું તો ક લેતો ક	3 or avad 128, v = 128, v = 128, v = 136
Side of freeway Number of lames in ramp Free-flow speed on ramp Yolume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 1 35.0 810 1500		mph. Vph ft	Density, D = 5.475 + 0.30 Level of service for ramp
Adjacent Does adjacent ramp exiet? Volume on adjacent Ramp Postiton of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	Adjacent Ramp Data (1f one exists)	exists)	veh St.	Interrediate speed varian Space mean speed in ramp Space mean speed in otter Space mean speed for all
Conversion to Junction Components Volume, V (vph) Peak-hour factor, FHF Peak 15-min volume, vis Trucks and buses Recreational vohicles Terain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PTE, ER	Conversion to pc/h Under Base Conditions, Freeway Ramp 2360 610 6198 420 207 4 6 620 207 4 6 620 207 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Condition Ramp 810 207 207 207 1.5	Adjacent Ramp uph	

Reavy vericle adjustment.	ustment, fHV	0	000	0.990		
Driver population factor, Flow rate, VP		28	1.00	1.00		udod
	Estimation of	ton of V12	Merge	Areas		
	1	(Equation	Equation 25-2 c	or 25-3)		
	F 0.619	Using E	Equation			
	Y (P)	1567	pc/h			
	Ü	Capacity C	Checks	1		
Þ	3364		Maximum 7050		No Pro	
	296	pc/h	(Equation 25-4		05 28-5)	
40	> 2700 pc/h3		330			
1 or avid	\$ 1.5 4 /2		XO X			
325	2		(Squarton	25-81		
2 2	Flow Ente Actual 1567	Entering Merge Influence Max Desirable 4400	g Merge Influe Max Desirable	nce Area	Violation? No	
	Jevel of Service	s Determination		2 JOE 37)		
Density, $D = 5.475$ Revel of service for	+ 0,30734 ¢ R rr ramp-freewa	0.0078 junctio	1 27	0.00627 1 A	1. 5. 60 60 60 60 60 60 60 60 60 60 60 60 60 6	pc/ail/in
	Speed	ed Estimation	cion			
Internediate speed	d variable,		20	0.259		
Space mean speed	in ramp influence	de area,	ya	29.0	ugu	
Space mean speed	in outer lanes,		oc co	63.3	Com	
Cream moun cooper	For all wahloles	· i	0 4	60.2	meh	

HCS+: Ramps	HGS+: Ramps and Ramp Junctions Release	ons Relea	5.21	Heavy vehicle adjustmer Driver population factor Flow rate, vp
Phone: E-mail:	Fan			E E E E E E E E E E E E E E E E E E E
Analyst: Agency/Co.: Agency/Co.: Bare performed: 12/16/2008 Analysis time period: PW Peak Hour Freeway/Dir of Travel: SR 14 NB Junction: Jurisdiction: Santa Clarita Analysis Year: Description: Vista Canyon Ranch	ers server Amerysis (Our ressa server)			> > >
	Freeway Data			3 or av34
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Diverge 3 3 65.0 6250 Off Ramp Data	8 5	արի Մրդ	15 v v v > 270 15 v v v v v 1 = 3 ox av34 1f yes, v = 12A
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 1 35.0 730 500		mph Vph ft ft	v P P P P P P P P P P P P P P P P P P P
Adjacent	Adjacent Ramp Data (if o	one exists}	33	Level of service for ra
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	O Z		vph ft	intermediate speed vari
Conversion to	Conversion to pc/h Under Base Conditions	Condition	ວກຮ	Space mean speed in out
Junction Components	Freeway	Ramp	Adjacent	Space mean speed for al
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle	6250 0.95 1645 0 0.00 0.00 0.00 1.5	730 0.95 192 2 2 2 4 1.6 1.5 1.5	Hamp V vph % % % ini mi	

			6/11	176		pcph
	Ш	Estimation of	of V12 Diverge	ge Areas		
	- 2	:	(Equation 25-8	or 25-9)		
	3	0.557 0	Using Equation	u)		
	4 2 I Z I A	+ (v - v) + E R	P = 4079	pc/h		
		Capai	Capacity Checks			
» В ,		Actual 6711	Maximum 7050		LOS F?	
) I		5935	7050	-	o _N	
, v . v . v . v . v . v . v . v . v . v		776	2000	_	No	
		2632 pc/h	n (Equation	25-15	or 25-16)	
	> 2700 p	pc/h?	No			
2 1	> 1.5 v	12	No			
127	-1		(Equation	(Equation 25-18)		
	Flow	Flow Entering	Diverge Influence Area	Janca Are		
12		7		m	Violation? No	
		ervice	rotieu	not F		
Dansity, Level of service (D = R for ramp-1	4.252 + Ereeway	0.0086 v - 0 12 junction areas	0.009 L = D S of influence	= 34.8 ence D	pc/mi/ln
		Speed	Estimation			
Intermediate speed	d variable,			= 0.498		
Space mean spead	in ramp i	ramp influence		53,5	hqn	
Space mean speed	in outer lanes,	lanes,	ຮູ້ດ	64.9	чdш	
Space mean speed 1	for all v	vehlcles.		57.5	dob'	

HCS+: Ramps and Samp Junctions Release 5.21

HCS+: Ramps and Ramp Junctions Release 5.21	Ramp Junctio	ns Release	5.21	Driver population factor, £P Flow rate, vp Estima
Phone: E-mail: Merge	Fax: Merce Analysis			20 22 23 4 83 7 (P) 10 10 10 10 10 10 10 10 10 10 10 10 10 1
Analyst: Agency/Co.: Fehr 6 Peers Date performed:	su			P P 3 P P P P P P P P P P P P P P P P P
Free	Freeway Data			1s v v > 1.5 v /2 3 or av34 12
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Merge 4 65.0 2710 On Ramp Data	E >	họn họy	If yes, v = 1151 12A = 1151 V 1151
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 135.0 680 500	₩ > 44 A	mph vgh ደር ድር	Level of service for ramp-freew Sprvi
Adjacent Ramp Data (if		one exists)		Intermediate speed variable,
Does adjacent ramp exist: Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	o N	P	vph ft	Space mean speed in ramp influe Space mean speed in outer lanes Space mean speed for all vehich
Conversion to pc/h Under Base	h Under Base	Conditions		
Volume, V (vph) Pak-hour factor, PHF Peak 15-min volume, v15 Trucks and busea Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	Freeway 2710 0.96 1 0 0 0.06 1 0 0 1.5 mi	Ramp 680 0.95 2 2 0 0 Level %	Adjacent Ramp vph vph v v v v v v v v v ni	

Flow rate, vp	COF, EP	2879	723	pcph
	Estimation	Estimation of V12 Merge	Areas	
-1		(Equation 25-2	or 25-3)	
	0.287	Using Equation	v	
12,	# (B) > 1	825 pc/h		
	Сара	Capacity Checks		
	Actual	Maximum	LOS F?	
FO	7000) } h	2	
V V V	1027 pc/h	h (Eguation	in 25-4 or 25-5)	
< pp. 10 10 10 10 10 10 10 10 10 10 10 10 10	2700 pc/h?	No		
5 8	.5 v /2	Yes.		
4 5	77	(Equation	n 25-8)	
	Flow Enteri	Entering Merge Influence	Area	
V 172	Actual 1151	Max Desirable		1001
Level	of Service	Determination (if	if not F)	
Density, D = 5.475 + R Level of service for	0.00734 v · 0 R ramp-freeway 1	0.0078 v - 0 12 junction areas	0.00627 L - 1. A s of influence B	6.6 pc/mi/ln
	Speed	Estimation		
Intermediate speed va	variable,	25	0.311	
Space mean speed in r	ramp influence		- 57.8 mph	
Space mean speed in o	outer lanes,		= 63.7 mph	
Spare mean anead for	all vehicles.		441	

APPENDIX E:

TECHNICAL CALCULATIONS FOR 2012 & INTERIM PLUS PROJECT CONDITIONS

Vista Canyon Ranch
6: Placerita Canyon Rd. & Sand Canyon Rd.

Movement	,	۶	•	1	†	↓	4	
Sign Control Stop O'W	Movement	EBL	EBR	NBL	NBT	SBT	SBR	LA COLUMN TO STREET STATE OF THE
Grade 0% 0% 0% 0% 0% Volume (veh/h) 50 50 20 10 10 330 Peak Hour Factor 0.55 0.56 0.80 0.80 0.90 0.90 Hourly flow rate (vph) 91 91 25 12 11 367 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, unblocked vol tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB1 NB1 SB1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B Intersection Summary Average Delay Intersection Capacity Utiliization Intersection Summary Average Delay Intersection Capacity Utiliization A 100 0.90 0.90 191 10 10 330 130 194 0.90 0.90 194 0.90 0.90 194 0.90 0.90 194 0.90 0.90 194 0.90 0.90 194 0.90 0.90 194 0.90 0.90 195 0.90 194 0.90 0.90 194	Lane Configurations	M			ની	f)		
Volume (veh/h) 50 50 50 20 10 10 330 Peak Hour Factor 0.55 0.55 0.80 0.80 0.90 0.90 Hourly flow rate (vph) 91 91 25 12 11 367 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type None Median type VC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC1, stage 1 conf vol vC2, unblocked vol 0.55 0.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB1 NB1 SB1 Volume Total 182 38 378 Volume Right 91 0 367 cSH 776 1181 1700 Volume Right 91 0 367 cSH 776 1181 1700 Volume Right 91 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B Intersection Summary Average Delay Intersection Capacity Utiliization Volume	Sign Control							
Peak Hour Factor	Grade					-,-		
Hourly flow rate (vph) 91 91 25 12 11 367 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (ft) Dyx, platon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC1, unblocked vol tC, single (s) tC, 2 stage (s) tif (s)	Volume (veh/h)		50					
Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (ft) pX, platon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC3, stage 2 conf vol vC4, unblocked vol	Peak Hour Factor							
Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, unblocked vol tC, single (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0 23 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Hourly flow rate (vph)	91	91	25	12	11	367	
Walking Speed (fit/s) Percent Blockage Right turn fiare (veh) Median type None Median storage veh) Upstream signal (ft) Upstream signal (ft) 257 194 378 VC1, stage 1 conf vol vC2, stage 2 conf vol vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage (s) 6.4 6.2 4.1 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 1F (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach LOS B A								
Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 257 194 378 tC, single (s) 6.4 6.2 4.1 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 1F (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach LOS B A Approach LOS<	` ,							
Right turn flare (veh) Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC3, single (s) tC, 2 stage (s) tF (s)								
Median type None Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC1, unblocked vol tC, single (s) 6.4 6.2 4.1 tC, single (s) 6.4 6.2 4.1 6.2 4.1 tC, 2 stage (s) tf (s) 3.5 3.3 2.2 90 queue free % 87 89 98 87 89 98 87 89 98 87 89 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume	Right turn flare (veh)							
Upstream signal (ft) pX, platoon unblocked vC, conflicting volume 257 194 378 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 257 194 378 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Note of Service A 194 378 184 378 185 186 187 188 188 188 188 188 188 188 188 188		None						
pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vCu, unblocked vol 257 194 378 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB1 NB1 SB1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Average Delay Note to Control Service A Intersection Capacity Utilization 33.4% ICU Level of Service								
VC, conflicting volume VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, unblocked vol VC3, stage 1 conf vol VC4, unblocked vol VC5, stage 2 conf vol VC4, unblocked vol VC5, stage (s) VC7, stage (s) VC7, stage (s) VC8, volume free % VC9, volume free free % VC9, volume free free free free free free free fr								
vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 257 194 378 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Nover the control of t								
vC2, stage 2 conf vol vCu, unblocked vol 257 194 378 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB1 NB1 SB1 Volume Total 182 38 378 Volume Right 91 0 367 cSH 776 1181 1700 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Intersection Capacity Utilization 33.4% ICU Level of Service A		257	194	378				
vCu, unblocked vol 257 194 378 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Average Delay Average Delay Title 1 4.1 Total 182 182 183 184 184 184 184 184 184 184 184 184 184								
tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LoS B Intersection Summary Average Delay Note: A service A A service A ICU Level of Service A service A ICU Level of Service								
tC, 2 stage (s) tF (s)	•							
tF (s) 3.5 3.3 2.2 p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Intersection Capacity Utilization 33.4% ICU Level of Service A		6.4	6.2	4.1				
p0 queue free % 87 89 98 cM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Intersection Capacity Utilization 33.4% ICU Level of Service A								
CM capacity (veh/h) 716 847 1181 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 CSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay Intersection Capacity Utilization 33.4% ICU Level of Service								
Direction, Lane # EB 1 NB 1 SB 1	•							
Volume Total 182 38 378 Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A	cM capacity (veh/h)	716	847	1181				
Volume Left 91 25 0 Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A					1000	33/6	Specific Transport	Device the second of the second
Volume Right 91 0 367 cSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A	Volume Total							
CSH 776 1181 1700 Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A				_				
Volume to Capacity 0.23 0.02 0.22 Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A	_		_					
Queue Length 95th (ft) 23 2 0 Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A								
Control Delay (s) 11.1 5.5 0.0 Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A								
Lane LOS B A Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A				•				
Approach Delay (s) 11.1 5.5 0.0 Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A				0.0				
Approach LOS B Intersection Summary Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A		_						
Intersection Summary Average Delay Intersection Capacity Utilization 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A			5.5	0.0				
Average Delay 3.7 Intersection Capacity Utilization 33.4% ICU Level of Service A	Approach LOS	В						
Intersection Capacity Utilization 33.4% ICU Level of Service A	Intersection Summary	11/12	1 3	-33	3 /		2111/1/20	
more desired and a second a second and a second a second and a second								
Analysis Period (min) 15		tilization		-	10	CU Leve	el of Ser	vice A
	Analysis Period (min)			15				

	→	*	1	+	1	-					
Movement	EBT	EBR	WBL	WBT	NBL	NBR	40.00	-320	11/5/11	W.S.D.	ALC: N
Lane Configurations	ተተጉ		*	ተተተ	W						
Sign Control	Free			Free	Stop						
Grade	0%			0%	0%						
Volume (veh/h)	891	10	10	1596	5	5					
Peak Hour Factor	0.85	0.85	0.90	0.90	0.40	0.40					
Hourly flow rate (vph)	1048	12	11	1773	12	12					
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s) Percent Blockage											
Right turn flare (veh)											
Median type					None						
Median storage veh)					110110						
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume			1060		1667	355					
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol			1060		1667	355					
tC, single (s)			4.1		6.8	6.9					
tC, 2 stage (s)			2.2		25	2.2					
tF (s) p0 queue free %			2.2 98		3.5 85	3.3 98					
cM capacity (veh/h)			653		86	641					
A-CALL CONTRACTOR OF THE CONTR							VA IPO I	rie:			
Volume Total	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	4000	1120	
Volume Left	419	419	221	11	0	0	59 I	12			
Volume Right	0	0	12	0	0	0	0	12			
cSH	1700	1700	1700	653	1700	1700	1700	151			
Volume to Capacity	0.25	0.25	0.13	0.02	0.35	0.35	0.35	0.17			
Queue Length 95th (ft)	0	0	0	1	0	0	0	14			
Control Delay (s)	0.0	0.0	0.0	10.6	0.0	0.0	0.0	33.4			
Lane LOS				В				D			
Approach Delay (s)	0.0			0.1				33.4			
Approach LOS								D			
Intersection Summary		SPECE!	16,23	11/2	372	E/11 5	A15)	27:02	St. Sall	\$15-0	A CUT
Average Delay			0.3								
Intersection Capacity Uti	lization	-	40.8%	10	CU Leve	el of Ser	vice		Α		
Analysis Period (min)			15								

8: Soledad Canyon Rd. & Sierra Hwy

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተጉ		44	ተተው		77	^	7	7	44	7
ldeal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4588		3433	5034		3433	3539	1546	1770	3539	1490
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4588		3433	5034		3433	3539	1546	1770	3539	1490
Volume (vph)	270	700	604	377	1250	70	385	407	166	70	605	480
Peak-hour factor, PHF	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. Flow (vph)	270	700	604	377	1250	70	385	407	166	70	605	480
RTOR Reduction (vph)	0	120	0	0	4	0	0	0	112	0	0	265
Lane Group Flow (vph)	270	1184	0	377	1316	0	385	407	54	70	605	215
Confl. Peds. (#/hr)			49			22			8			39
Confl. Bikes (#/hr)			2			4			2			6
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	13.4	39.9		17.1	43.6		17.8	36.8	36.8	7.2	26.2	26.2
Effective Green, g (s)	12.9	41.9		16.6	45.6		17.3	38.8	38.8	6.7	28.2	28.2
Actuated g/C Ratio	0.11	0.35		0.14	0.38		0.14	0.32	0.32	0.06	0.24	0.24
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	369	1602		475	1913		495	1144	500	99	832	350
v/s Ratio Prot	0.08	c0.26		c0.11	c0.26		c0.11	0.11		0.04	c0.17	
v/s Ratio Perm									0.03			0.14
v/c Ratio	0.73	0.94dr		0.79	0.69		0.78	0.36	0.11	0.71	0.73	0.62
Uniform Delay, d1	51.9	34.3		50.0	31.2		49.5	31.0	28.5	55.7	42.4	41.0
Progression Factor	1.00	1.00		1.00	1.00		0.85	0.76	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	3.1		8.3	2.0		7.2	0.3	0.2	17.1	3.6	4.1
Delay (s)	58.2	37.3		58.3	33.3		49.4	24.0	28.8	72.8	46.0	45.2
Level of Service	Ε	D		Ε	С		D	С	С	E	D	D
Approach Delay (s)		40.9			38.8			35.1			47.3	
Approach LOS		D			D			D			D	
Intersection Summary	1000	-	- T		ALC: N	T. 1 C TO 1	and the same	THE STREET	1/15/50	100		550
	olav	- 357 -50	40.6		CMLO	vel of Se	nice		D			
HCM Average Control D HCM Volume to Capacit			0.77		IOIAI FG/	vei Ui St	I VICE		0			
			120.0						20.0			
Actuated Cycle Length (s Intersection Capacity Uti			88.5%	· · · · · · · · · · · · · · · · · · ·					20.0 E			
Analysis Period (min)	nzaliVi i		15		OU FEAF	31 UI 361	TIVE		_			
Alialysis Fellou (IIIIII)			10									

Analysis Period (min)

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

	1	4	†	-	-	ļ				
Movement	WBL	WBR	NBT	NBR	SBL	SBT	3560	7 7		20,30
Lane Configurations		7	^^1			ተተተ				
Sign Control	Stop		Free			Free				
Grade	0%		0%			0%				
Volume (veh/h)	0	318	740	130	0	1626				
Peak Hour Factor	0.75	0.75	0.90	0.90	0.95	0.95				
Hourly flow rate (vph)	0	424	822	144	0	1712				
Pedestrians	72									
Lane Width (ft)	12.0									
Walking Speed (ft/s)	4.0									
Percent Blockage	6									
Right turn flare (veh)										
Median type	None									
Median storage veh)										
Upstream signal (ft)			702							
pX, platoon unblocked	0.93	0.93			0.93					
vC, conflicting volume	1537	418			1039					
vC1, stage 1 conf vol	1001									
vC2, stage 2 conf vol										
vCu, unblocked vol	1433	234			899					
tC, single (s)	6.8	6.9			4.1					
tC, 2 stage (s)	0.0	0.0			•••					
tF (s)	3.5	3.3			2.2					
p0 queue free %	100	37			100					
cM capacity (veh/h)	110	674			659					
				1100		00.0	00.0			
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2 571	SB 3	4 7 100		Mary Mary Land
Volume Total				309		0	0			
Volume Left	0	0	0		0 0	0	0			
Volume Right	424	0	4700	144			1700			
cSH	674	1700	1700	1700	1700 0.34	1700 0.34	0.34			
Volume to Capacity	0.63	0.19	0.19	0.18			0.34			
Queue Length 95th (ft)	111	0	0	0	0	0				
Control Delay (s)	19.0	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	С									
Approach Delay (s)	19.0	0.0			0.0					
Approach LOS	С									
Intersection Summary	36.2	12	2	Della .	1-30	A Links			3//	San San Line
Average Delay			2.6							
Intersection Capacity U	tilization		44.3%	ŀ	CU Leve	el of Sei	vice	Α		
Analysis Period (min)			15							

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		ř	†	7	*	ተተ _ጮ		75	ተ ተ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0		4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00		1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00		1.00		0.93	1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00		1.00	1.00	1.00		1.00	1.00	
Frt		0.90		1.00		0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.99		0.95		1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1658		1770		1471	1770	4945		1770	5067	
Flt Permitted		0.98		0.68		1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1635		1266		1471	1770	4945		1770	5067	
Volume (vph)	10	10	70	313	0	150	30	780	134	136	1410	30
Peak-hour factor, PHF	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. Flow (vph)	10	10	70	313	0	150	30	780	134	136	1410	30
RTOR Reduction (vph)	0	50	0	0	0	107	0	19	0	0	1	0
Lane Group Flow (vph)	0	40	0	313	0	43	30	895	0	136	1439	0
Confl. Peds. (#/hr)						46			18			1
Confl. Bikes (#/hr)						1						
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8	_	5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)		34.0		34.0		34.0	4.2	58.8		13.2	67.8	
Effective Green, g (s)		34.5		34.5		34.5	3.7	60.8		12.7	69.8	
Actuated g/C Ratio		0.29		0.29		0.29	0.03	0.51		0.11	0.58	
Clearance Time (s)		4.5		4.5		4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0		3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		470		364		423	55	2505		187	2947	
v/s Ratio Prot							0.02	0.18		c0.08	c0.28	
v/s Ratio Perm		0.02		c0.25		0.03						
v/c Ratio		0.09		0.86		0.10	0.55	0.36		0.73	0.49	
Uniform Delay, d1		31.2		40.5		31.4	57.3	17.8		52.0	14.7	
Progression Factor		1.00		1.00		1.00	1.08	0.56		0.97	1.29	
Incremental Delay, d2		0.1		18.0		0.1	5.8	0.4		8.2	0.4	
Delay (s)		31.3		58.4		31.5	67.7	10.4		58.7	19.3	
Level of Service		С		E		С	E	В		Ε	В	
Approach Delay (s)		31.3			49.7			12.3			22.7	
Approach LOS		С			D			В			С	
Intersection Summary	DOM:	OF W	Total Control	7 11 48	In pic		2.14	SUPUL	TER		0 - 0	13
HCM Average Control D	elay		23.8	H	ICM Lev	el of Se	rvice		С			
HCM Volume to Capacit			0.62									
Actuated Cycle Length (120.0			ost time			8.0			
Intersection Capacity Uti	lization	(35.3%	IC	CU Leve	ol of Ser	vice		С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		7	1>		19	f)	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	62	30	80	70	40	5	30	78	30	5	143	153
Peak Hour Factor	0.75	0.75	0.75	0.85	0.85	0.85	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	83	40	107	82	47	6	33	87	33	7	191	204
Direction, Lane #	EB1	WB1	NB 1	NB 2	SB 1	SB 2	1 201	1100		Chillian .		
Volume Total (vph)	229	135	33	120	7	395						
Volume Left (vph)	83	82	33	0	7	0						
Volume Right (vph)	107	6	0	33	0	204						
Hadj (s)	-0.17	0.13	0.53	-0.16	0.53	-0.33						
Departure Headway (s)	5.5	6.0	6.7	6.0	6.4	5.5						
Degree Utilization, x	0.35	0.22	0.06	0.20	0.01	0.60						
Capacity (veh/h)	602	539	496	552	539	625						
Control Delay (s)	11.4	10.7	8.9	9.3	8.2	15.2						
Approach Delay (s)	11.4	10.7	9.2		15.1							
Approach LOS	В	В	Α		С							
Intersection Summary		HILL	1770	3723	300	201			3		-	
Delay			12.5									
HCM Level of Service			В									
Intersection Capacity Ut	ilization)	40.8%	10	CU Leve	el of Ser	vice		Α			
Analysis Period (min)			15									

	٠	-	+	1	-	1		
Movement	EBL	EBT	WBT	WBR	SBL	SBR	17.33	
Lane Configurations Sign Control Grade	ř.	↑↑ Free 0%	†î → Free 0%		Stop 0%	7		
Volume (veh/h)	98	162	190	50	110	243		
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.90		
Hourly flow rate (vph) Pedestrians	122	202	211	56	122	270		
Lane Width (ft)		12.0						
Walking Speed (ft/s) Percent Blockage Right turn flare (veh)		4.0 0						
Median type Median storage veh)					None			
Upstream signal (ft) pX, platoon unblocked		580						
vC1, stage 1 conf vol vC2, stage 2 conf vol	267				585	134		
vCu, unblocked vol	267				585	134		
tC, single (s) tC, 2 stage (s)	4.1				6.8	6.9		
tF (s)	2.2				3.5	3.3		
p0 queue free %	91				69	70		
cM capacity (veh/h)	1294				400	889		
Direction, Lane#	EB 1	EB 2	EB 3	WB1	WB2	SB 1	SB 2	of the second
Volume Total	122	101	101	141	126	122	270	
Volume Left	122	0	0	0	0	122	0	
Volume Right	0	4700	0	4700	56	400	270	
cSH Velume to Conseits	1294 0.09	1700 0.06	1700 0.06	1700 0.08	1700 0.07	400 0.31	889 0.30	
Volume to Capacity Queue Length 95th (ft)	8	0.06	0.00	0.00	0.07	32	32	
Control Delay (s)	8.1	0.0	0.0	0.0	0.0	17.9	10.8	
Lane LOS	Α	0.0	0.0	0.0	0.0	17.3 C	В	
Approach Delay (s) Approach LOS	3.0			0.0		13.0 B		
Intersection Summary		39		Winds.	Santa	W. B	a Jen	Mary Land Land Street Land
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		6.2 28.7% 15	Ī	CU Leve	el of Ser	vice	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተተ	7	ሻሻ	ተተተ	7	44	ተተተ	7	77	ተተተ	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Volume (vph)	160	842	350	193	656	70	220	340	104	230	1241	532
Peak-hour factor, PHF	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. Flow (vph)	160	842	350	193	656	70	220	340	104	230	1241	532
RTOR Reduction (vph)	0	0	181	0	0	50	0	0	62	0	0	262
Lane Group Flow (vph)	160	842	169	193	656	20	220	340	42	230	1241	270
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.3	31.1	31.1	10.2	33.0	33.0	11.4	46.3	46.3	12.4	47.3	47.3
Effective Green, g (s)	8.3	33.1	33.1	10.2	35.0	35.0	11.4	48.3	48.3	12.4	49.3	49.3
Actuated g/C Ratio	0.07	0.28	0.28	0.08	0.29	0.29	0.10	0.40	0.40	0.10	0.41	0.41
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	237	1403	437	292	1483	462	326	2047	637	355	2089	1145
v/s Ratio Prot	0.05	c0.17		c0.06	0.13		0.06	0.07		c0.07	c0.24	
v/s Ratio Perm			0.11			0.01			0.03			0.10
v/c Ratio	0.68	0.60	0.39	0.66	0.44	0.04	0.67	0.17	0.07	0.65	0.59	0.24
Uniform Delay, d1	54.5	37.7	35.2	53.2	34.6	30.5	52.5	23.0	22.0	51.7	27.6	23.1
Progression Factor	1.11	0.95	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.14	0.65	0.33
Incremental Delay, d2	5.7	0.9	1.0	4.3	0.4	0.1	4.3	0.2	0.2	2.7	1.1	0.4
Delay (s)	66.2	36.8	29.1	57.5	34.9	30.6	56.8	23.1	22.2	61.8	19.1	8.0
Level of Service	Е	D	С	E	С	С	E	С	С	E	В	Α
Approach Delay (s)		38.3			39.3			34.1			21.0	
Approach LOS		D			D			С			С	
Intersection Summary	-000	1	1	The Park	425	Salamin		5000			Di Co	THE L
HCM Average Control D	elay		30.9	H	ICM Le	vel of Se	rvice		С			
HCM Volume to Capacit	y ratio		0.59									
Actuated Cycle Length (s)		120.0	S	ium of k	ost time	(s)		12.0			
Intersection Capacity Uti	lization		65.4%	IC	CU Leve	el of Ser	vice		С			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 17: Via Princessa & Weyerhaeuser Wy.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
ane Configurations	ሻ	ተተተ	ተተተ	7	ሻ	7	
deal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
=rt	1.00	1.00	1.00	0.85	1.00	0.85	
FIt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
FIt Permitted	0.20	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	377	5085	5085	1583	1770	1583	
/olume (vph)	40	1252	1213	90	40	10	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	40	1252	1213	90	40	10	
RTOR Reduction (vph)	0	0	0	18	0	9	
ane Group Flow (vph)	40	1252	1213	72	40	1	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	1	6	2		4		
Permitted Phases	6		_	2	•	4	
Actuated Green, G (s)	101.2	101.2	94.2	94.2	8.3	8.3	
Effective Green, g (s)	103.2	103.2	96.2	96.2	8.8	8.8	
Actuated g/C Ratio	0.86	0.86	0.80	0.80	0.07	0.07	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
/ehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
ane Grp Cap (vph)	359	4373	4076	1269	130	116	
/s Ratio Prot	0.00	c0.25	c0.24	1200	c0.02	110	
/s Ratio Perm	0.09	00.20	00.2	0.05	00.02	0.00	
/c Ratio	0.11	0.29	0.30	0.06	0.31	0.01	
Jniform Delay, d1	1.5	1.6	3.1	2.5	52.7	51.5	
Progression Factor	1.00	1.00	1.35	1.85	1.00	1.00	
ncremental Delay, d2	0.1	0.2	0.2	0.1	0.5	0.0	
Delay (s)	1.6	1.7	4.4	4.6	53.2	51.6	
evel of Service	Α.	Α.,	Α	ч.о А	D.2	D D	
Approach Delay (s)	, ,	1.7	4.4	,,	52.9	5	
Approach LOS		A	Α.Τ.		D		
ntersection Summary	115	LIVE NO.	AV SI	1000	1000	100 2.100	of the second of the land
CM Average Control D			4.0	+	ICM Le	vel of Servic	e A
ICM Volume to Capacit			0.30				
ctuated Cycle Length (120.0			ost time (s)	12.0
ntersection Capacity Ut	ilization		40.1%	I	CU Leve	el of Service	. А
nalysis Period (min)			15				
Critical Lane Group			10				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	The tent of the second state of the second sta
Lane Configurations	ሻሻ	7	个个	7	77	^	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.85	1.00	0.85	1.00	1.00	
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539	
Fit Permitted	0.95	1.00	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1544	3539	
Volume (vph)	806	408	180	672	620	420	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	806	408	180	672	620	420	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	806	408	180	672	620	420	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		· 1	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	21.4	53.3	8.1	53.3	23.9	23.9	
Effective Green, g (s)	21.4	53.3	8.1	53.3	23.9	23.9	
Actuated g/C Ratio	0.40	1.00	0.15	1.00	0.45	0.45	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1378	1583	538	1583	1111	1587	
v/s Ratio Prot	c0.23		0.05		c0.12	0.12	
v/s Ratio Perm		0.26		0.42	c0.13		
v/c Ratio	0.58	0.26	0.33	0.42	0.56	0.26	
Uniform Delay, d1	12.5	0.0	20.2	0.0	10.1	9.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.4	0.6	0.8	0.3	0.2	
Delay (s)	13.3	0.4	20.8	8.0	10.4	9.4	
Level of Service	В	Α	С	Α	В	Α	
Approach Delay (s)	9.0		5.1			10.0	
Approach LOS	Α		Α			В	
Intersection Summary		200	1000	Chartes	1000	22130	
HCM Average Control D	elay		8.3	Н	ICM Lev	el of Service	ce A
HCM Volume to Capacit	y ratio		0.56				
Actuated Cycle Length (53.3	S	um of lo	st time (s)	8.0
Intersection Capacity Uti	•	5	55.7%			of Service	
Analysis Period (min)			15				_
c Critical Lane Group							

Vista Canyon Ranch 19: Soledad Canyon Rd. & Whites Canyon Rd.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1/1/	ተተኈ		77	ተተተ	7	ሻሻ	ተተ	7	ች ች	个个	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4896		3433	5085	1554	3433	3539	1558	3433	3539	1551
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4896		3433	5085	1554	3433	3539	1558	3433	3539	1551
Volume (vph)	170	702	198	270	1477	382	239	379	110	491	612	460
Peak-hour factor, PHF	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. Flow (vph)	170	702	198	270	1477	382	239	379	110	491	612	460
RTOR Reduction (vph)	0	40	0	0	0	43	0	0	41	0	0	104
Lane Group Flow (vph)	170	860	0	270	1477	339	239	379	69	491	612	356
Confl. Peds. (#/hr)			6			11			7			6
Confl. Bikes (#/hr)									2			
Turn Type	Prot			Prot		pm+ov	Prot		om+ov	Prot		Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	10.3	45.9		12.1	47.7	66.2	11.5	23.5	35.6	18.5	30.5	30.5
Effective Green, g (s)	10.3	47.9		12.1	49.7	68.2	11.5	25.5	37.6	18.5	32.5	32.5
Actuated g/C Ratio	0.09	0.40		0.10	0.41	0.57	0.10	0.21	0.31	0.15	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	295	1954		346	2106	883	329	752	540	529	958	420
v/s Ratio Prot	c0.05	0.18		0.08	c0.29	0.06	c0.07	0.11	0.01	c0.14	0.17	
v/s Ratio Perm	0.50					0.16			0.03			c0.23
v/c Ratio	0.58	0.44		0.78	0.70	0.38	0.73	0.50	0.13	0.93	0.64	0.85
Uniform Delay, d1	52.8	26.3		52.7	29.0	14.3	52.7	41.7	29.5	50.1	38.6	41.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	0.7		10.1	2.0	0.1	6.6	0.9	0.0	22.3	1.8	15.8
Delay (s)	60.7	27.0		62.7	31.0	14.4	59.3	42.6	29.5	72.4	40.3	57.2
Level of Service Approach Delay (s)	E	C		Е	C	В	E	D	С	E	D	E
Approach LOS		32.4 C			32.0			46.1			55.4	
		C			С			D			Е	
Intersection Summary		75.0	on.	9-14	A POST	N. W.			- All	age y	PIC -	200
HCM Average Control D			40.6	Н	CM Lev	el of Se	ervice		D			
HCM Volume to Capacit			0.74									
Actuated Cycle Length (120.0			st time			16.0			
Intersection Capacity Uti	lization	7	4.5%	IC	CU Leve	of Ser	vice		D			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 20: Valencia Blvd. & Bouquet Canyon Rd.

	۶	-	*	•	+	4	1	1	~	-	ţ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	444	444		Labala	ተተኩ	7	4	ተተተ	7	Lalala	ተ ቀሱ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5056		4990	4806	1362	1770	5085	1575	4990	4682	1350
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5056		4990	4806	1362	1770	5085	1575	4990	4682	1350
Volume (vph)	270	502	20	283	1306	483	20	520	261	651	1250	970
Peak-hour factor, PHF	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. Flow (vph)	270	502	20	283	1306	483	20	520	261	651	1250	970
RTOR Reduction (vph)	0	3	0	0	0	48	0	0	13	0	15	106
Lane Group Flow (vph)	270	519	0	283	1306	435	20	520	248	651	1470	629
Confl. Peds. (#/hr)									3			1
Confl. Bikes (#/hr)									1_			
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	22.3	20.2		46.6	44.5	70.8	3.6	21.8	68.4	26.3	44.5	66.8
Effective Green, g (s)	23.3	22.2		47.6	46.5	73.8	4.6	23.8	71.4	27.3	46.5	69.8
Actuated g/C Ratio	0.17	0.16		0.35	0.34	0.54	0.03	0.17	0.52	0.20	0.34	0.51
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	849	820		1735	1632	734	59	884	867	995	1590	728
v/s Ratio Prot	0.05	0.10		0.06	c0.27	0.12	0.01	c0.10	0.10	0.13	c0.31	c0.15
v/s Ratio Perm						0.20			0.06			0.32
v/c Ratio	0.32	0.63		0.16	0.80	0.59	0.34	0.59	0.29	0.65	0.92	0.86
Uniform Delay, d1	49.8	53.6		30.9	41.0	21.4	64.7	52.0	18.4	50.5	43.5	29.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.7		0.0	3.2	0.9	1.2	1.4	0.1	1.2	9.8	10.1
Delay (s)	49.9	55.2		30.9	44.2	22.2	65.9	53.4	18.5	51.6	53.3	39.4
Level of Service	D	E		С	D	С	Ε	D	В	D	D	D
Approach Delay (s)		53.4			37.3			42.3			49.4	
Approach LOS		D			D			D			D	
Intersection Summary	1000	O JEAN	W 71		C 26		LO TE	19 17 19	1.017		J. Com	
HCM Average Control D			45.2	F	ICM Lev	el of Se	rvice		D			
HCM Volume to Capacity	-		0.85	_	# 1		(-)		40.0			
Actuated Cycle Length (s			136.9			ost time			12.0			
Intersection Capacity Uti	iization		82.3%	I.	OU LEVE	el of Sen	VICO		Ę			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 21: Placerita Canyon Rd. & Sierra Hwy

	۶	-	•	1	←	4	4	†	~	-	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑ ⊅		*	∱ Ъ		ሻ	1		ሻ	A D	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.92		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3400		1770	3245		1770	3381		1770	3511	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3400		1770	3245		1770	3381		1770	3511	
Volume (vph)	10	281	100	140	210	260	20	212	90	170	1636	93
Peak-hour factor, PHF	0.95	0.95	0.95	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	296	105	165	247	306	21	223	95	179	1722	98
RTOR Reduction (vph)	0	33	0	0	213	0	0	40	0	0	3	0
Lane Group Flow (vph)	11	368	0	165	340	0	21	278	0	179	1817	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.3	14.3		14.9	14.9		1.4	41.5		14.5	54.6	
Effective Green, g (s)	14.3	14.3		14.9	14.9		1.4	41.5		14.5	54.6	
Actuated g/C Ratio	0.14	0.14		0.15	0.15		0.01	0.41		0.14	0.54	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	250	480		261	478		24	1386		254	1894	
v/s Ratio Prot	0.01	c0.11		0.09	c0.10		0.01	0.08		c0.10	c0.52	
v/s Ratio Perm												
v/c Ratio	0.04	0.77		0.63	0.71		0.88	0.20		0.70	0.96	
Uniform Delay, d1	37.5	41.8		40.6	41.1		49.8	19.2		41.3	22.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	7.2		4.9	4.9		127.4	0.1		8.6	12.3	
Delay (s)	37.6	49.1		45.5	46.0		177.2	19.3		49.9	34.5	
Level of Service	D	D		D	D		F	В		D	С	
Approach Delay (s)		48.8			45.9			29.0			35.9	
Approach LOS		D			D			С			D	
Intersection Summary	Chillian Chill	40 - 100	243		11. 15	No.	1	- 4	2 7 M. J	1 1000	(S)	1130
HCM Average Control D			38.8	H	ICM Lev	el of Se	rvice		D			
HCM Volume to Capacity			0.89									
Actuated Cycle Length (s			101.2		of lo				16.0			
Intersection Capacity Uti	lization		83.6%	10	CU Leve	of Ser	vice		Ε			
Analysis Period (min)			15									
c Critical Lane Group												

	•	•	1	1	-	↓							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	55/13/	100		1	NULS.	633	16.
Lane Configurations	*1	7	ተ ጉ		7	个 个							
Sign Control	Stop	9 10	Free			Free							
Grade	0%		0%			0%							
Volume (veh/h)	213	10	412	70	790	1686							
Peak Hour Factor	0.70	0.70	0.90	0.90	0.90	0.90							
Hourly flow rate (vph)	304	14	458	78	878	1873							
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh) Median type	None												
Median storage veh)	None												
Upstream signal (ft)			768										
pX, platoon unblocked			700										
vC, conflicting volume	3189	268			536								
vC1, stage 1 conf vol	0.00				555								
vC2, stage 2 conf vol													
vCu, unblocked vol	3189	268			536								
tC, single (s)	6.8	6.9			4.1								
tC, 2 stage (s)													
tF (s)	3.5	3.3			2.2								
p0 queue free %	0	98			15								
cM capacity (veh/h)	1	730			1029								
Direction, Lane#	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3	VE D	1300	W.		60000	1 -1
Volume Total	304	14	305	230	878	937	937						
Volume Left	304	0	0	0	878	0	0						
Volume Right	0	14	0	78	0	0	0						
cSH	1 266.25	730 0.02	1700	1700	1029	1700	1700						
Volume to Capacity Queue Length 95th (ft)		0.02	0.18 0	0.14 0	0. 85 276	0.55 0	0.55 0						
Control Delay (s)	Enr	10.0	0.0	0.0	24.8	0.0	0.0						
Lane LOS	F	10.0	0.0	0.0	24.0 C	0.0	0.0						
Approach Delay (s)	9551.1	J	0.0		7.9								
Approach LOS	F		0.0		7.0								
Intersection Summary	- 22 6	100		LE LO	3 4 38	TAR OF	3.6	Al-al-	- 18	7	"Ton	100	((11)
Average Delay			850.0										
Intersection Capacity U	tilization		79.2%	IC	CU Leve	of Ser	vice)			
Analysis Period (min)			15										

Vista Canyon Ranch 23: Placerita Canyon Rd. & SR 14 NB Ramps

	۶	-	*	1	4-	1	1	1	<i>></i>	1	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		↑↑ Free 0%	7		作 Free 0%			र्दी Stop 0%	7		Stop 0%	
Volume (veh/h)	1	120	170	0	330	10	270	0	50	0	0,0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage	1	133	189	0	367	11	300	0	56	0	0	0
Right turn flare (veh)									30			
Median type Median storage veh)								None	00		None	
Upstream signal (ft)		718										
pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol	378			133			319	513	67	469	508	189
vC2, stage 2 conf vol vCu, unblocked vol	378			133			319	513	67	400	E00	400
tC, single (s) tC, 2 stage (s)	4.1			4.1			7.5	6.5	6.9	469 7.5	508 6 .5	189 6 .9
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			51	100	94	100	100	100
cM capacity (veh/h)	1177			1449			610	463	983	450	466	821
Direction, Lane#	EB 1	EB 2	EB 3	WB1	WB 2	NB 1	03	2012	Z I		200	.00
Volume Total	46	89	189	244	133	356						
Volume Left	1	0	0	0	0	300						
Volume Right	0	0	189	0	11	56						
cSH	1177	1700	1700	1700	1700	723						
Volume to Capacity	0.00	0.05	0.11	0.14	0.08	0.49						
Queue Length 95th (ft)	0	0	0	0	0	68						
Control Delay (s)	0.2	0.0	0.0	0.0	0.0	15.3						
Lane LOS	A					С						
Approach Delay (s) Approach LOS	0.0			0.0		15.3 C						
Intersection Summary		-172	The same	REP.	1000	- 20		- M	11000		The St	70
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization	,	5.2 31.1% 15	I	CU Leve	el of Sen	/ice		A			

Vista Canyon Ranch 6: Placerita Canyon Rd. & Sand Canyon Rd.

	*	*	1	†	↓	4	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	N.			4	7>		
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Volume (veh/h)	240	10	50	30	10	50	
Peak Hour Factor	0.90	0.90	0.75	0.75	0.80	0.80	
Hourly flow rate (vph)	267	11	67	40	12	62	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None						
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	217	44	75				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	217	44	75				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	64	99	96				
cM capacity (veh/h)	737	1026	1524				
Direction, Lane#	EB1	NB 1	SB 1			is B. C.	
Volume Total	278	107	75				
Volume Left	267	67	0				
Volume Right	11	0	62				
cSH	746	1524	1700				
Volume to Capacity	0.37	0.04	0.04				
Queue Length 95th (ft)	43	3	0				
Control Delay (s)	12.7	4.8	0.0				
Lane LOS	В	Α					
Approach Delay (s)	12.7	4.8	0.0				
Approach LOS	В						
Intersection Summary				Service	1-1		
Average Delay			8.8				
Intersection Capacity Ut	tilization		31.6%	Į(CU Leve	el of Service	A
Analysis Period (min)			15				

Vista Canyon Ranch
7: Soledad Canyon Rd. & Lost Canyon Rd.

	-	*	1	+	1	-					
Movement	EBT	EBR	WBL	WBT	NBL	NBR	8,170	THE PER		1 618	SHO
Lane Configurations	ተተጉ		7	ተ ተተ	NA.						
Sign Control	Free			Free	Stop						
Grade	0%			0%	0%						
Volume (veh/h)	1394	5	5	853	10	10					
Peak Hour Factor	0.95	0.95	0.90	0.90	0.50	0.50					
Hourly flow rate (vph)	1467	5	6	948	20	20					
Pedestrians				1	1						
Lane Width (ft)				12.0	12.0						
Walking Speed (ft/s)				4.0	4.0						
Percent Blockage				0	0						
Right turn flare (veh)				•	_						
Median type					None						
Median storage veh)					,,,,,,,						
Upstream signal (ft)											
pX, platoon unblocked											
C, conflicting volume			1474		1798	494					
C1, stage 1 conf vol			1717		1100	707					
C2, stage 2 conf vol											
Cu, unblocked vol			1474		1798	494					
C, single (s)			4.1		6.8	6.9					
			7.1		0.0	0.5					
tC, 2 stage (s) tF (s)			2.2		3.5	3.3					
o0 queue free %			99		72	96					
			453		70	520					
cM capacity (veh/h)											
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB 2	WB 3	WB 4	NB 1	1300		4 = -
/olume Total	587	587	299	6	316	316	316	40			
/olume Left	0	0	0	6	0	0	0	20			
Volume Right	0	0	5	0	0	0	0	20			
SH	1700	1700	1700	453	1700	1700	1700	124			
Volume to Capacity	0.35	0.35	0.18	0.01	0.19	0.19	0.19	0.32			
Queue Length 95th (ft)	0	0	0	1	0	0	0	32			
Control Delay (s)	0.0	0.0	0.0	13.0	0.0	0.0	0.0	47.3			
Lane LOS				В				E			
Approach Délay (s)	0.0			0.1				47.3			
Approach LOS								E			
Intersection Summary	- 1		1	1224	2		3.53	Jan B.	2000	795470	120
Average Delay			0.8								
Intersection Capacity Ut	ilization		37.4%	J.	CU Lev	el of Se	rvice		Α		
Analysis Period (min)			15								
- · ·											

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations	44	ተተ ን		44	ተተሱ		14/4	ተ ተ	7	T	ተተ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4610		3433	4964		3433	3539	1520	1770	3539	1473
FIt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4610		3433	4964		3433	3539	1520	1770	3539	1473
Volume (vph)	620	1010	637	239	570	90	640	601	388	170	589	400
Peak-hour factor, PHF	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. Flow (vph)	620	1010	637	239	570	90	640	601	388	170	589	400
RTOR Reduction (vph)	0	71	0	0	17	0	0	0	291	0	0	310
Lane Group Flow (vph)	620	1576	0	239	643	0	640	601	97	170	589	90
Confl. Peds. (#/hr)			70			9			17			48
Confl. Bikes (#/hr)			7			2			5			1
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	37.4	53.3		13.2	29.1		30.0	30.9	30.9	15.6	16.5	16.5
Effective Green, g (s)	36.9	55.3		12.7	31.1		29.5	32.9	32.9	15.1	18.5	18.5
Actuated g/C Ratio	0.28	0.42		0.10	0.24		0.22	0.25	0.25	0.11	0.14	0.14
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	960	1931		330	1170		767	882	379	202	496	206
v/s Ratio Prot	0.18	c0.34		c0.07	0.13		c0.19	c0.17		0.10	c0.17	
v/s Ratio Perm									0.06			0.06
v/c Ratio	0.65	0.95dr		0.72	0.55		0.83	0.68	0.26	0.84	1.19	0.44
Uniform Delay, d1	41.8	33.9		57.9	44.3		48.9	44.8	39.7	57.3	56.8	52.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	3.9		6.5	1.9		7.7	2.6	0.6	25 .0	103.2	2.6
Delay (s)	45.2	37.8		64.5	46.2		56.6	47.4	40.3	82.2	159.9	54.6
Level of Service	D	D		E	D		E	D	D	F	F	D
Approach Delay (s)		39.8			51.0			49.3			112.2	
Approach LOS		D			D			D			F	
Intersection Summary	- W 370	a Service		1000		100	G. P.L		CVIII.	11 90	Tall.	981
HCM Average Control D			58.2	F	CM Le	vel of Se	ervice		Е			
HCM Volume to Capacit			0.89	_								
Actuated Cycle Length (•		132.0			ost time			20.0			
Intersection Capacity Ut	ilization	1	99.5%	10	CU Leve	el of Ser	vice		F			
Analysis Period (min)	_		15									
dr Defacto Right Lane.	Reco	de with	1 thougl	n lane a	s a righ	t lane.						
c Critical Lane Group												

	1	•	1	-	-	↓				
Movement	WBL	WBR	NBT	NBR.	SBL	SBT				- m-01
Lane Configurations		74	ተተጉ			ተተተ				
Sign Control	Stop		Free			Free				
Grade	0%		0%			0%				
Volume (veh/h)	0	229	1410	330	0	1415				
Peak Hour Factor	0.85	0.85	1.00	1.00	0.95	0.95				
Hourly flow rate (vph)	0	269	1410	330	0	1489				
Pedestrians	32									
Lane Width (ft)	12.0									
Walking Speed (ft/s)	4.0									
Percent Blockage	3									
Right turn flare (veh)										
Median type	None									
Median storage veh)										
Upstream signal (ft)			702							
pX, platoon unblocked	0.74	0.74			0.74					
vC, conflicting volume	2103	667			1772					
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	1795	0			1350					
tC, single (s)	6.8	6.9			4.1					
tC, 2 stage (s)										
tF (s)	3.5	3.3			2.2					
p0 queue free %	100	66			100					
cM capacity (veh/h)	52	785			366					
Direction, Lane#	WB1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	1	TE TO	100
/olume Total	269	564	564	612	496	496	496			
Volume Left	0	0	0	0	0	0	0			
/olume Right	269	0	0	330	0	0	0			
SH	785	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.34	0.33	0.33	0.36	0.29	0.29	0.29			
Queue Length 95th (ft)	38	0	0	0	0	0	0			
Control Delay (s)	12.0	0.0	0.0	0.0	0.0	0.0	0.0			
ane LOS	В									
Approach Delay (s)	12.0	0.0			0.0					
Approach LOS	В									
ntersection Summary			12713		ALC:	13/37	333	2000	APRIL TO	
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		0.9 56.0% 15	IC	CU Leve	el of Ser	vice	В		

	>	-	>	1	4	•	1	1	1	-	Ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
ane Configurations	-	4		75	4	7	7	ተተሱ		ሻ	444	
deal Flow (vphpi)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	190
Total Lost time (s)	1000	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
ane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
-ips, pearbikes -rt		0.92		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Fit Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
• • • • • • • • • • • • • • • • • • • •		1695		1770	1863	1539	1770	4969		1770	5042	
Satd. Flow (prot)		0.93		0.70	1.00	1.00	0.95	1.00		0.95	1.00	
Fit Permitted		1603		1302	1863	1539	1770	4969		1770	5042	
Satd. Flow (perm)	00	10	40	199	10	120	60	1680	245	225	960	5
Volume (vph)	20			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	120	60	1680	245	225	960	5
Adj. Flow (vph)	20	10	40		0	98	0	16	0	0	3	
RTOR Reduction (vph)	0	33	0	0	10	23	60	1909	Õ	225	1007	
Lane Group Flow (vph)	0	38	0	199	10	11	00	1909	11	220	1001	
Confl. Peds. (#/hr)						2			5			
Confl. Bikes (#/hr)				_			D1	_		Prot		
Turn Type	Perm			Perm		Perm	Prot	_		1	6	
Protected Phases		4		_	8		5	2		•	U	
Permitted Phases	4			8		8	~ ~	00.4		20.9	77.4	
Actuated Green, G (s)		22.0		22.0	22.0	22.0	6.6	63.1		20.9	79.4	
Effective Green, g (s)		22.5		22.5	22.5	22.5	6.1	65.1			0.66	
Actuated g/C Ratio		0.19		0.19	0.19	0.19	0.05	0.54		0.17	6.0	
Clearance Time (s)		4.5		4.5	4.5	4.5	3.5	6.0		3.5		
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	_
Lane Grp Cap (vph)		301		244	349	289	90	2696		301	3336	
v/s Ratio Prot					0.01		0.03	c0.38		c0.13	0.20	
v/s Ratio Perm		0.02		c0.15		0.01						
v/c Ratio		0.12		0.82	0.03	0.08	0.67	0.71		0.75	0.30	
Uniform Delay, d1		40.6		46.8	39.8	40.2	56.0	20.4		47.4	8.6	
Progression Factor		1.00		1.00	1.00	1.00	0.87	1.43		1.00	1.00	
Incremental Delay, d2		0.2		18.6	0.0	0.1	13.0	1.5		8.6	0.2	
Delay (s)		40.7		65.3	39.9	40.3	61.6	30.6		55.9	8.8	
Level of Service		D		Ε	D	D	Ε	С		E	Α	
Approach Delay (s)		40.7			55.4			31.5			17.4	
Approach LOS		D			E			С			В	
Intersection Summary	200	VIII		9.00	-	MONTH.	Edi -	-	1 he	11/6	VIE 9	
HCM Average Control I	Delay		29.1		HCM Le	vel of S	ervice		С			
HCM Volume to Capac			0.74						4			
Actuated Cycle Length			120.0			lost time			12.0			
Intersection Capacity U		ì	80.0%	9	CU Lev	el of Se	rvice		D			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		4∔ Stop			4≯ Stop		٦	∯ Stop		J,	∱ Stop	
Volume (vph)	86	50	40	30	40	10	40	163	70	10	79	93
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	96	56	44	33	44	11	47	192	82	12	93	109
Direction, Lane #	EB1	WB 1	NB 1	NB 2	SB 1	SB 2		EST	gran	diga:	9.37	185
Volume Total (vph)	196	89	47	274	12	202						
Volume Left (vph)	96	33	47	0	12	0						
Volume Right (vph)	44	11	0	82	0	109						
Hadj (s)	0.00	0.03	0.53	-0.18	0.53	-0.34						
Departure Headway (s)	5.4	5.6	6.1	5.4	6.3	5.4						
Degree Utilization, x	0.29	0.14	0.08	0.41	0.02	0.30						
Capacity (veh/h)	613	570	561	638	539	630						
Control Delay (s)	10.6	9.5	8.5	11.0	8.2	9.5						
Approach Delay (s)	10.6	9.5	10.6		9.4							
Approach LOS	В	Α	В		Α							
Intersection Summary	The	11 S. P.	Mela	500		20000	ME9	SUPE	SUS.	EM	TIPES	11
Delay			10.2									
HCM Level of Service			В									
Intersection Capacity Uti Analysis Period (min)	lization	•	40.5% 15	IC	CU Leve	el of Serv	rice		Α			

12: Canyon Park Blvd. & Jake's Wy.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	A CONTRACTOR OF THE PARTY OF TH
Lane Configurations	Ŋ	† †	44		W		
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Volume (veh/h)	243	216	170	90	60	119	
Peak Hour Factor	0.95	0.95	0.85	0.85	0.80	0.80	
Hourly flow rate (vph) Pedestrians	256	227	200 3	106	75	149	
Lane Width (ft)			12.0				
Walking Speed (ft/s)			4.0				
Percent Blockage Right turn flare (veh)			0				
Median type Median storage veh)					None		
Upstream signal (ft) pX, platoon unblocked		580					
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	306				881	153	
vCu, unblocked vol	306				881	153	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)	7.1				0.0	0.5	
tF (s)	2.2				3.5	3.3	
p0 queue free %	80				5.5 67	83	
cM capacity (veh/h)	1252				227	866	
Direction, Lane#	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	
Volume Total	256	114	114	133	173	224	
Volume Left	256	0	0	2.7	200	75	
Volume Right	230	0	0	0	0 1 06	149	
cSH	1252	1700	1700	1700	1700	446	
Volume to Capacity	0.20	0.07	0.07	0.08	0.10	0.50	
Queue Length 95th (ft)	19	0.07	0.07	0.00	0.10	69	
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	21:0	
Lane LOS	A.	0.0	0.0	0.0	0.0	21.0 C	
Approach Delay (s)	4.6			0.0		21.0	
Approach LOS	4.0			0.0		C	
Intersection Summary		1500	34	fle 6	1947	SAND	
Average Delay Intersection Capacity Uti Analysis Period (min)	ilization		6.8 41.7% 15	10	CU Leve	l of Servi	ice A

	١	→	•	•	+	4	1	1	~	1	Ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1/4	ተተተ	7	إرار	ተተተ	7	14.14	ተተተ	7"	ሻሻ	ተተተ	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt Elt Brotostod	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Fit Permitted	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Satd. Flow (perm)	0.95 3433	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
		5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Volume (vph)	210	888	160	199	751	140	590	1011	334	180	521	708
Peak-hour factor, PHF Adj. Flow (vph)	1.00 210	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RTOR Reduction (vph)	210	888 0	160	199	751	140	590	1011	334	180	521	708
Lane Group Flow (vph)	210	888	118 42	100	0 751	102	500	0	109	0	0	210
Confl. Peds. (#/hr)	210	000	2	199	751	38 2	590	1011	225	180	521	498
Confl. Bikes (#/hr)			2			2			5 1			2
Turn Type	Prot			Drot		Danes	Deal			Dest		
Protected Phases	7	4	Perm	Prot 3	8	Perm	Prot	0	Perm	Prot		Perm
Permitted Phases	•	4	4	3	0	8	5	2	2	1	6	•
Actuated Green, G (s)	8.9	29.6	29.6	9.9	30.6	30.6	22.5	51.0	2 51.0	9.5	38.0	6 38.0
Effective Green, g (s)	8.9	31.6	31.6	9.9	32.6	32.6	22.5	53.0	53.0	9.5 9.5	40.0	40.0
Actuated g/C Ratio	0.07	0.26	0.26	0.08	0.27	0.27	0.19	0.44	0.44	0.08	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	255	1339	410	283	1381	424	644	2246	687	272	1695	915
v/s Ratio Prot	c0.06	c0.17	710	0.06	0.15	727	c0.17	0.20	007	0.05	0.10	915
v/s Ratio Perm	55.55	00.11	0.03	0.00	0.10	0.02	CO. 17	0.20	0.14	0.05	0.10	c0.18
v/c Ratio	0.82	0.66	0.10	0.70	0.54	0.09	0.92	0.45	0.33	0.66	0.31	0.54
Uniform Delay, d1	54.8	39.5	33.5	53.6	37.3	32.6	47.8	23.3	21.9	53.7	29.7	32.6
Progression Factor	1.20	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.85	0.71
Incremental Delay, d2	17.5	1.4	0.2	6.3	0.7	0.2	17.5	0.7	1.3	4.5	0.5	2,2
Delay (s)	82.9	41.0	25.2	59.9	38.0	32.8	65.3	24.0	23.1	60.3	25.6	25.3
Level of Service	F	D	C	E	D	C	E	C	C	E	C	C
Approach Delay (s)		46.0			41.3	_	_	36.4	_	_	29.9	·
Approach LOS		D			D			D			C	
Intersection Summary	TAX T	1100	1000	- 3		Man)	. 35%	NESS	Selection of	Jan	1000	
HCM Average Control D			37.9	Н	CM Lev	el of Se	rvice		D			
HCM Volume to Capacit	y ratio		0.68									
Actuated Cycle Length (120.0			st time			16.0			
Intersection Capacity Uti	lization	1	82.7%	IC	U Leve	of Ser	vice		E			
Analysis Period (min)			15									
c Critical Lane Group												

	*	-	4-		-	4	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	7	ተተተ	ተተተ	7	19	7	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
Flt Permitted	0.07	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	138	5085	5085	1583	1770	1583	
Volume (vph)	10	1088	1709	50	130	70	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	10	1088	1709	50	130	70	
RTOR Reduction (vph)	0	0	0	23	0	45	
Lane Group Flow (vph)	10	1088	1709	27	130	25	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	· 1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	67.1	67.1	62.7	62.7	42.4	42.4	
Effective Green, g (s)	69.1	69.1	64.7	64.7	42.9	42.9	
Actuated g/C Ratio	0.58	0.58	0.54	0.54	0.36	0.36	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
Lane Grp Cap (vph)	85	2928	2742	854	633	566	
v/s Ratio Prot	0.00	c0.21	c0.34		c0.07		
v/s Ratio Perm	0.07			0.02		0.02	
v/c Ratio	0.12	0.37	0.62	0.03	0.21	0.04	
Uniform Delay, d1	14.6	13.7	19.2	13.0	26.7	25.2	
Progression Factor	1.00	1.00	1.02	1.53	1.00	1.00	
Incremental Delay, d2	0.5	0.4	0.8	0.0	0.7	0.1	
Delay (s)	15.1	14.1	20.4	19.8	27.5	25.3	
Level of Service	В	В	С	В	С	С	
Approach Delay (s)		14.1	20.4		26.7		
Approach LOS		В	С		С		
Intersection Summary	No. 30	100	1 4 6	2	312	ill in h	UP TO THE OWNER OF THE PARTY OF
HCM Average Control D	elay		18.5	H	ICM Le	vel of Servi	ice B
HCM Volume to Capaci			0.46				
Actuated Cycle Length ((s)		120.0	S	Sum of I	ost time (s)	12.0
Intersection Capacity Ut			46.9%	10	CU Leve	el of Servic	e A
Analysis Period (min)			15				
c Critical Lane Group							

Vista Canyon Ranch 18: Via Princessa & Whites Canyon Rd.

Movement		-	T		-	\rightarrow	
	WBL	WBR	NBT	NBR	SBL	SBT	
ane Configurations	ሻሻ	7	^	7	42	^	
deal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
ane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.85	1.00	0.85	1.00	1.00	
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539	
FIt Permitted	0.95	1.00	1.00	1.00	0.40	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1461	3539	
Volume (vph)	584	1206	250	616	492	200	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	584	1206	250	616	492	200	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	584	1206	250	616	492	200	
Turn Type		Free		Free	pm+pt		
Protected Phases	4	1100	2	3 / 55	່ 1	6	
Permitted Phases	7	Free	_	Free	6		
Actuated Green, G (s)	16.3	45.8	8.4	45.8	21.5	21.5	
	16.3	45.8	8.4	45.8	21.5	21.5	
Effective Green, g (s)	0.36	1.00	0.18	1.00	0.47	0.47	
Actuated g/C Ratio	4.0	1.00	4.0		4.0	4.0	
Clearance Time (s)	4.5		4.5		1.5	4.5	
Vehicle Extension (s)	1222	1583	649	1583	1078	1661	
Lane Grp Cap (vph)		1505	0.07	1000	0.09	0.06	
v/s Ratio Prot	0.17	c0.76	0.07	0.39	0.12	0.00	
v/s Ratio Perm	0.40	0.76	0.39	0.39	0.46	0.12	
v/c Ratio	0.48		16.4	0.0	7.8	6.8	
Uniform Delay, d1	11.4	0.0	1.00	1.00	1.00	1.00	
Progression Factor	1.00	1.00	0.7	0.7	0.1	0.1	
Incremental Delay, d2	0.5	3.5	17.1	0.7	7.9	6.9	
Delay (s)	12.0	3.5	17.1 B	Ο.7	7.5 A	Α.	
Level of Service	В	Α	5.4	^	^	7.6	
Approach Delay (s)	6.3					7.0 A	
Approach LOS	Α		Α			^	
Intersection Summary	273	JAC.		1000	LON L	usl of Conde	ce A
HCM Average Control D			6.3		HOW LE	vel of Service	.6
HCM Volume to Capaci	ity ratio		0.76		<u> </u>	lank kiwan (c)	0.0
Actuated Cycle Length ((s)		45.8			lost time (s)	_
Intersection Capacity U	tilizatior	n	47.6%		ICU Lev	el of Service	^
Analysis Period (min)			15				

Vista Canyon Ranch 19: Soledad Canyon Rd. & Whites Canyon Rd.

Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL		4		
	SBT	SBR		
Lane Configurations ቫሻ ተቶር ሻሻ ተላተ ሾ ሻሻ ተላተ ሾ ሻሻ	44	7		
Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190	1900	1900		
Total Lost time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0	4.0		
Lane Util. Factor 0.97 0.91 0.97 0.91 1.00 0.97 0.95 1.00 0.97	0.95	1.00		
Frpb, ped/bikes 1.00 1.00 1.00 0.97 1.00 1.00 0.96 1.00	1.00	0.96		
Flpb, ped/bikes 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.00	1.00		
Frt 1.00 0.98 1.00 1.00 0.85 1.00 1.00 0.85 1.00	1.00	0.85		
Fit Protected 0.95 1.00 0.95 1.00 1.00 0.95 1.00 1.00 0.95	1.00	1.00		
Satd. Flow (prot) 3433 4969 3433 5085 1541 3433 3539 1515 3433	3539	1527		
Flt Permitted 0.95 1.00 0.95 1.00 1.00 0.95 1.00 1.00 0.95	1.00	1.00		
Satd. Flow (perm) 3433 4969 3433 5085 1541 3433 3539 1515 3433	3539	1527		
Volume (vph) 490 1548 212 180 865 472 300 706 140 502	460	190		
Peak-hour factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.00	1.00		
Adj. Flow (vph) 490 1548 212 180 865 472 300 706 140 502	460	190		
RTOR Reduction (vph) 0 12 0 0 0 12 0 0 6 0	0	152		
Lane Group Flow (vph) 490 1748 0 180 865 460 300 706 134 502	460	38		
Confl. Peds. (#/hr) 18 23 27		13		
Confl. Bikes (#/hr) 3 2 2		3		
Turn Type Prot Prot pm+ov Prot pm+ov Prot		Perm		
Protected Phases 5 2 1 6 7 3 8 1 7	4			
Permitted Phases 6 8		4		
Actuated Green, G (s) 27.9 47.9 10.7 30.7 52.2 29.0 31.9 42.6 21.5	24.4	24.4		
Effective Green, g (s) 27.9 49.9 10.7 32.7 54.2 29.0 33.9 44.6 21.5	26.4	26.4		
Actuated g/C Ratio 0.21 0.38 0.08 0.25 0.41 0.22 0.26 0.34 0.16	0.20	0.20		
Clearance Time (s) 4.0 6.0 4.0 4.0 6.0 4.0 4.0 4.0	6.0	6.0		
Vehicle Extension (s) 1.5 4.5 1.5 4.5 1.5 4.5 1.5	4.5	4.5		
Lane Grp Cap (vph) 726 1878 278 1260 633 754 909 558 559	708	305		
	¢0.13			
v/s Ratio Perm 0.18 0.07		0.02		
v/c Ratio 0.67 0.93 0.65 0.69 0.73 0.40 0.78 0.24 0.90	0.65	0.12		
Uniform Delay, d1 47.9 39.4 58.8 45.0 32.7 44.0 45.5 31.5 54.2	48.5	43.3		
Progression Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.00	1.00		
Incremental Delay, d2 5.0 9.8 3.9 1.8 3.5 0.1 4.7 0.1 16.7	2.5	0.3		
Delay (s) 52.9 49.2 62.7 46.8 36.2 44.2 50.3 31.6 70.9	51.1 D	43.6 D		
Level of Service D D D D D D D D	_	D		
Approach Delay (s) 50.0 45.4 46.4	58.5			
Approach LOS D D D	E			
Intersection Summary	100			
HCM Average Control Delay 49.8 HCM Level of Service D				
HCM Volume to Capacity ratio 0.84				
Actuated Cycle Length (s) 132.0 Sum of lost time (s) 12.0				
Intersection Capacity Utilization 87.4% ICU Level of Service E				
Analysis Period (min) 15				
c Critical Lane Group				

	1	-	*	1	+	4	1	1	/	1	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	444	ተተው		444	ተ ተጉ	7	M	ተ ተተ	7	لولولو	ተተ _ጉ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5079		4990	4806	1343	1770	5085	1547	4990	4806	1362
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5079		4990	4806	1343	1770	5085	1547	4990	4806	1362
Volume (vph)	1120	1356	10	212	1054	432	20	1300	283	923	1360	680
Peak-hour factor, PHF	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. Flow (vph)	1120	1356	10	212	1054	432	20	1300	283	923	1360	680
RTOR Reduction (vph)	0	1	0	0	0	1	0	0	1	0	0	104
Lane Group Flow (vph)	1120	1365	0	212	1054	431	20	1300	282	923	1360	576
Confl. Peds. (#/hr)			9			10			12			
Confl. Bikes (#/hr)						1			2			
Turn Type	Prot			Prot		pm+ov	Prot		om+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	30.0	52.9		12.5	35.4	67.3	4.1	40.0	52.5	31.9	67.8	97.8
Effective Green, g (s)	31.0	54.9		13.5	37.4	70.3	5.1	42.0	55.5	32.9	69.8	100.8
Actuated g/C Ratio	0.19	0.34		0.08	0.23	0.44	0.03	0.26	0.35	0.21	0.44	0.63
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	971	1750		423	1128	626	57	1341	539	1031	2106	862
v/s Ratio Prot	c0.22	0.27		0.04	c0.22	0.14	0.01	c0.26	0.04	c0.18	0.28	0.13
v/s Ratio Perm						0.18			0.14			0.29
v/c Ratio	1.15	0.78		0.50	0.93	0.69	0.35	0.97	0.52	0.90	0.65	0.67
Uniform Delay, d1	64.2	46.8		69.7	59.7	35.7	75.5	58.0	41.3	61.5	35.1	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	80.9	2.4		0.3	14.1	2.5	1.4	17.7	0.4	9.9	0.8	1.5
Delay (s)	145.1	49.2		70.0	73.8	38.3	76.8	75.7	41.8	71.4	35.9	20.1
Level of Service	F	D		Ε	Ε	D	Ε	E	D	Ε	D	С
Approach Delay (s)		92.4			64.3			69.7			43.4	
Approach LOS		F			Е			Е			D	
Intersection Summary	100	2)(5)	5 100	1	450	(Carl	THE BE	No. of	300	COTTE!	10	
HCM Average Control D			66.2	H	ICM Le	vel of Se	ervice		E			
HCM Volume to Capaci			0.98	_	# !	44'	(-)		40.0			
Actuated Cycle Length (4.	159.3			ost time			16.0			
Intersection Capacity Ut	ilization	1	03.8%	10	CU Levi	el of Ser	VICE		G			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 21: Placerita Canyon Rd. & Sierra Hwy

	۶	→	7	1	+	4	1	1	~	1	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	44		7	1		Ŋ	1		75	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3434		1770	3382		1770	3430		1770	3517	
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3434		1770	3382		1770	3430		1770	3517	
Volume (vph)	20	283	70	20	260	110	80	1346	350	40	494	22
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	314	78	24	306	129	84	1417	368	42	520	23
RTOR Reduction (vph)	0	20	0	0	44	0	0	20	0	0	3	0
Lane Group Flow (vph)	22	372	0	24	391	0	84	1765	0	42	540	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	6	6		· 2	2		3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	14.6	14.6		16.5	16.5		7.9	54.4		3.1	49.6	
Effective Green, g (s)	14.6	14.6		16.5	16.5		7.9	54.4		3.1	49.6	
Actuated g/C Ratio	0.14	0.14		0.16	0.16		0.08	0.52		0.03	0.47	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	247	479		279	533		134	1784		52	1668	
v/s Ratio Prot	0.01	c0.11		0.01	c0.12		c0.05	c0.51		0.02	0.15	
v/s Ratio Perm												
v/c Ratio	0.09	0.78		0.09	0.73		0.63	0.99		0.81	0.32	
Uniform Delay, d1	39.2	43.4		37.6	42.0		46.9	24.8		50.5	17.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	7.8		0.1	5.2		8.8	18.6		58.8	0.1	
Delay (s)	39.4	51.2		37.7	47.2		55.8	43.4		109.3	17.2	
Level of Service	D	D		D	D		E	D		F	В	
Approach Delay (s)		50.6			46.7			44.0		•	23.8	
Approach LOS		D			D			D			C	
Intersection Summary	5010	-	10 200	STREET	9000	United in	SIRS	mean	F . F . 3	-1-1	97.00	10-
HCM Average Control Do	elav		41.6	H	CM Lev	el of Se	rvice		D			17.2
HCM Volume to Capacity			0.90	-		J. J. J.			_			
Actuated Cycle Length (s			104.6	S	um of lo	st time	(s)		16.0			
Intersection Capacity Util			78.3%		CU Leve				D			
Analysis Period (min)			15									
c Critical Lane Group												

	1	•	1	-	-	1				
Movement	WBL	WBR	NBT	NBR	SBL	SBT	G-1	HV		NEWSON.
Lane Configurations	7	7	14		*	44				
Sign Control	Stop	-	Free			Free				
Grade	0%		0%			0%				
Volume (veh/h)	72	10	1446	30	200	484				
Peak Hour Factor	0.50	0.50	0.95	0.95	0.95	0.95				
Hourly flow rate (vph)	144	20	1522	32	211	509				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None									
Median storage veh)										
Upstream signal (ft)			768							
pX, platoon unblocked	0.54	0.54			0.54					
vC, conflicting volume	2214	777			1554					
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	2393	0			1179					
tC, single (s)	6.8	6.9			4.1					
tC, 2 stage (s)										
tF (s)	3.5	3.3			2.2					
p0 queue free %	0	97			34					
cM capacity (veh/h)	5	589			320					
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3	N. Section	SADER!	
Volume Total	144	20	1015	539	211	255	255			
Volume Left	144	0	0	0	211	0	0			
Volume Right	0	20	0	32	0	0	0			
cSH	5	589	1700	1700	320	1700	1700			
Volume to Capacity	27.66	0.03	0.60	0.32	0.66	0.15	0.15			
Queue Length 95th (ft)		3	0	0	110	0	0			
Control Delay (s)	Err	11.3	0.0	0.0	35.6	0.0	0.0			
Lane LOS	F	В	1.3		E					
Approach Delay (s)	8781.0		0.0		10.4					
Approach LOS	F									
Intersection Summary			3.0	market de	-	2		5-51	B	
Average Delay Intersection Capacity U Analysis Period (min)	Itilization		593.8 66.0% 15	IC	CU Leve	of Ser	vice	С		

Vista Canyon Ranch 23: Placerita Canyon Rd. & SR 14 NB Ramps

	۶	→	7	1	+	4	4	1	~	/	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		_ ^^	7		†			र्स	1			
Sign Control		Free			Free			Stop			Stop	
Grade	_	0%			0%			0%			0%	
Volume (veh/h)	3	220	200	0	60	10	340	0	110	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph)	3	244	222	0	71	12	378	0	122	0	0	0
Pedestrians								1				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)								Nana			A1	
Median type								None			None	
Median storage veh) Upstream signal (ft)		718										
pX, platoon unblocked		/10										
vC, conflicting volume	82			245			287	334	123	328	329	41
vC1, stage 1 conf vol	02			245			201	334	123	320	329	41
vC2, stage 2 conf vol												
vCu, unblocked vol	82			245			287	334	123	328	329	41
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)	7.1			7.1			7.5	0.5	0.5	1.5	0.5	0.9
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			41	100	86	100	100	100
cM capacity (veh/h)	1513			1317			641	583	904	519	587	1021
Direction, Lane #	EB 1	EB 2	ED 2	WB 1	WOO	NDA			004	010	001	IOZI
Volume Total	85	163	EB 3	47	WB 2	NB 1	NB 2	12.0	SEL			
Volume Left	3	0	0	0	0	378	122					
Volume Right	0	0	222	0	12	3/0	122					
cSH	1513	1700	1700	1700	1700	641	904					
Volume to Capacity	0.00	0.10	0.13	0.03	0.02	0.59	0.14					
Queue Length 95th (ft)	0.00	0.10	0.13	0.03	0.02	96	12					
Control Delay (s)	0.3	0.0	0.0	0.0	0.0	18.4	9.6					
Lane LOS	A	0.0	0.0	0.0	0.0	C	3.0 A					
Approach Delay (s)	0.1			0.0		16.2						
Approach LOS	•			0.0		C						
Intersection Summary	COLUMN TO A STATE OF THE PARTY	E Wes		-	25.	JUBIL	-	et 50 m	1152.0	D CED	10	V
Average Delay Intersection Capacity Uti Analysis Period (min)	lization		7.7 33.9% 15	10	CU Leve	of Ser	vice		Α			

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 Plus Project Conditions

PHF:

1

TOD:

AM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	272	271	100	13	47.1	D	-
NB	T	133	152	114	10	44.2	D	-
	R	360	358	99	16	10.9	В	-
	Subtotal	765	781	102		30.0	C	_
	L	141	145	103	9	56.2	E	-
SB	T	130	131	101	13	47.1	D	-
	R	141	139	99	10	20.4	C	-
	Subtotal	412	415	101	-	41.4	D	-
	L	74	77	104	11	71.3	E	-
EB	Т	568	566	100	20	43.0	D	-
	R	296	297	100	18	15.5	В	-
	Subtotal	938	940	100	-	36.6	D	-
	l L	230	218	95	13	58.8	E	-
WB	T	1042	1050	101	34	26.7	C	-
	R	150	151	101	11	5.0	A	-
	Subtotal	1422	1418	100	-	29.3	C	-
	Total	3537	3554	100	-	32.8	C	-

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

	1.000	Demand	٧	olume Serv	ed	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	Ł.	520	484	93	28	224.6	F	-	
NB	R	30	30	100	5	207.5	F	-	
	Subtotal	550	514	93	-	223.6	F	_	
	T	546	597	109	16	7.5	Α	-	
EB	R	513	516	101	19	3.3	A	-	
	Subtotal	1059	1113	105	-	5.6	A	-	
	L	362	355	98	23	64.2	E	-	
WB	T	902	894	99	31	22.8	C	-	
	Subtotal	1264	1249	99	_	34.6	C	-	
	Total	2873	2876	100	-	57.2	E	-	

Project: Vista Canyon Ranch HCM:

Scenario:

2012 Plus Project Conditions

PHF: 1

TOD:

Analysis Period: AM Peak Hr

Hourly

of Runs:

10

2000

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

		Demand	٧	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Т	493	551	112	23	12.5	В	-
NB	R	150	147	97	9	5.4	A	
	Subtotal	643	697	108	- 1	11.0	В	-
	L	170	168	99	18	53.4	D	
SB	T	476	507	107	21	8.0	Α	_
	Subtotal	646	675	104	-	19.3	В	-
	L	232	225	97	19	19.8	В	-
EB	R	206	207	100	13	3.9	Α	-
	Subtotal	438	432	99	-	12.2	В	-
	Total	1727	1805	105	_	14.4	В	-

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd. Type: Un-Signalized

		Demand	V	olume Serv	ed		elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	90	88	98	7	172.1	F	
NB	Ť	372	366	98	18	175.0	F	-
	R	5	5	100	2	185.7	F	i -
	Subtotal	467	459	98	-	174.5	F	-
	L,	23	22	96	5	55.6	F	-
SB	T	339	333	98	14	56.9	F	-
	R	380	384	101	16	43.2	E	-
	Subtotal	742	739	100	-	49.8	E	-
	L	310	311	100	13	101.2	F	-
EB	T	5	4	80	2	95.4	F	-
	R	60	59	98	8	96.1	F	-
	Subtotal	375	374	100	-	100.3	F	-
	L	5	5	100	2	8.9	Α	
WB	T	10	11	110	3	10.9	В	-
	R	21	22	105	3	7.9	A	-
	Subtotal	36	38	106	-	8.9	A	-
	Total	1620	1610	99	-	96.1	F	-

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 Plus Project Conditions

PHF:

1

TOD:

AM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 14: SR 14 SB Ramps & Via Princessa

Type: Signalized

		Demand	V	olume Serv	ed		elay/Veh (s	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	291	220	76	19	171.4	F	-
NB	T	664	623	94	34	6.4	Α	-
	Subtotal	955	843	88	-	49.4	D	4
	Т	507	471	93	24	99.6	F	-
SB	R	860	859	100	19	10.6	В	-
	Subtotal	1367	1330	97	- 1	42.1	D	-
	L	84	71	83	6	214.6	F	and a
WB	T	5	3	60	1	218.0	F	
	R	310	317	102	17	18.1	В	-
	Subtotal	399	391	98	-	55.2	E	-
	Total	2721	2564	94	-	46.5	D	-

Intersection: 15: SR 14 NB Ramps & Via Princessa

Type: Signalized

	1	Demand	٧	olume Serv	red	C	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Т	695	623	90	45	83.8	F	-
NB	R	151	136	90	19	5.7	A	-
	Subtotal	846	759	90	-	69.8	E	-
	L	220	202	92	17	52.4	D	-
SB	T	371	336	91	16	100.6	F	-
	Subtotal	591	538	91		82.5	F	-
	L	260	264	102	10	27.0	С	-
EB	R	155	131	85	5	296.1	F	-
	Subtotal	415	395	95	- 1	116.3	F	-
	Total	1852	1691	91	-	84.7	F	_



Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 Plus Project Conditions

PHF:

1

TOD:

PM Peak Hr

Analysis Period: Hourly

of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type:

Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	316	321	101	15	47.8	D	-
	Т	173	374	216	19	26.7	C	2+
	R	621	619	100	20	20.8	С	
	Subtotal	1110	1313	118	1 -	29.1	C	-
SB	L	145	144	99	11	47.9	D	-
	T	120	123	103	13	43.7	D	-
	R	85	88	104	13	12.7	В	-
	Subtotal	350	354	101	-	37.7	D	-
	L	123	126	102	9	70.5	E	-
EB	Т	846	855	101	19	61.9	E	**
	R	374	367	98	22	28.1	С	-
	Subtotal	1343	1348	100	-	53.5	D	_
	L	180	171	95	19	71.0	E	-
WB	T	509	533	105	29	17.6	В	-
	R	110	103	94	13	3.1	A	-
	Subtotal	799	808	101	-	27.1	C	100
	Total	3602	3824	106	-	38.1	D	-

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

Approach	Movement	Demand Volume	٧	olume Serv	ed	Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	340	340	100	21	75.1	E	-
	R	70	69	99	10	48.6	D	-
	Subtotal	410	409	100	-	70.6	E	-
E8	T	1151	1152	100	23	5.3	Α	-
	R	481	484	101	13	2.9	Α	-
	Subtotal	1632	1636	100	-	4.6	A	-
	L	239	200	84	7	566.5	F	-
WB	T	459	445	97	30	49.2	D	-
	Subtotal	698	645	92	_	209.7	F	_
	Total	2740	2690	98	_	63.8	E	-

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 Plus Project Conditions

PHF:

1

TOD:

PM Peak Hr

Analysis Period:

Hourly

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std De
NB	T	492	495	101	21	24.2	С	-
	R	360	353	98	10	8.9	Α	-
	Subtotal	852	848	100	-	17.8	В	-
	L	240	235	98	16	63.4	E	-
SB	T	394	427	108	26	12.3	В	-
	Subtotal	634	661	104	-	30.4	C	-
	L	818	824	101	21	25.4	С	-
EB	R	394	388	98	22	7.0	Α	-
	Subtotal	1212	1212	100	-	19.5	В	-
	Total	2698	2721	101	-	21.6	С	-

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd.

Type: Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	5	5	100	1	23.4	С	
	Т	629	629	100	21	25.9	D	-
	R	10	11	110	4	23.8	С	-
	Subtotal	644	645	100	-	25.9	D	-
	L	32	30	94	8	16.2	С	-
SB	T	496	719	145	28	12.8	В	-
	R	30	30	100	4	10.3	В	-
	Subtotal	558	778	139	-	12.9	В	_
	L i	40	39	98	6	6.9	Α	-
EB	T	5	5	80	3	8.0	Α	_
	R	5	5	100	2	4.2	Α	_
	Subtotal	50	49	98	_	8.7	A	-
	L	5	3	60	2	6.3	Α	-
WB	Т	5	5	80	2	9.4	Α	141
	R	43	45	102	7	6.0	Α	-
	Subtotal	53	52	98	-	6.3	A	-
	Total	1305	1524	117	- 1	17.9	С	-

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2012 Plus Project Conditions

PHF:

1

TOD:

PM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 14: SR 14 SB Ramps & Via Princessa

Type:

Signalized

Approach		Demand Volume	Volume Served			Delay/Veh (sec)		
	Movement		Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	165	158	96	10	79.4	E	-
	T	944	799	85	54	9.7	Α	-
	Subtotal	1109	957	86	-	21.1	C	-
	T	899	780	87	29	253.2	F	-
SB	R	560	528	94	35	108.2	F	1
	Subtotal	1459	1308	90	_	194.7	F	-
	L	167	134	80	9	410.6	F	-
WB	T	10	9	90	3	454.4	F	-
	R	300	286	95	29	148.3	F	
	Subtotal	477	429	90	D-	236.4	F	-
	Total	3045	2694	88	-	139.7	F	

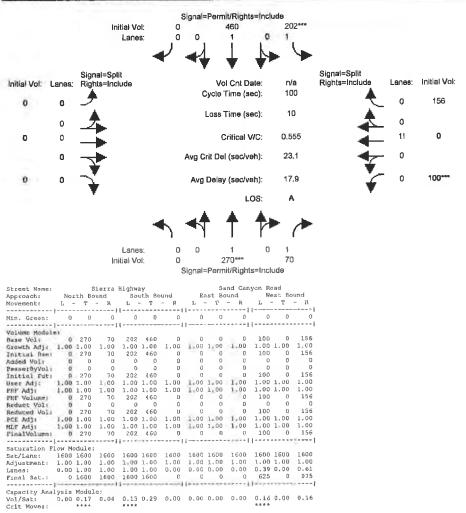
Intersection: 15: SR 14 NB Ramps & Via Princessa

Type: Signalized

Delay/Veh (sec) Volume Served Demand Std Dev Std Dev Avg LOS Volume Movement Approach Avg % C 28.7 102 31 469 481 9,8 Α NB 12 144 145 101 R C 24.3 102 Subtotal 626 613 D 86 24 38.5 439 L 510 F 13 82.0 SB 470 85 556 61,0 E 85 908 Subtotal 1066 438.9 F 75 41 640 483 L F 1152.4 EB 64 18 331 211 F 693 71 655.9 971 Subtotal F 235.9 2228 84 2650 Total

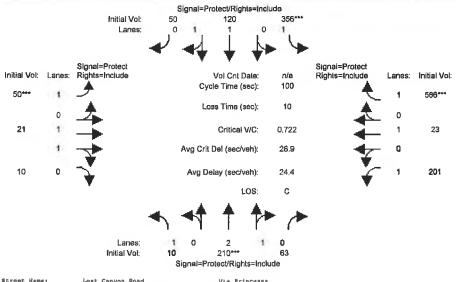
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) 2012 Plus Project AM

Intersection #1: Sand Canyon Road/Sierra Highway



Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) 2012 Plus Project AM

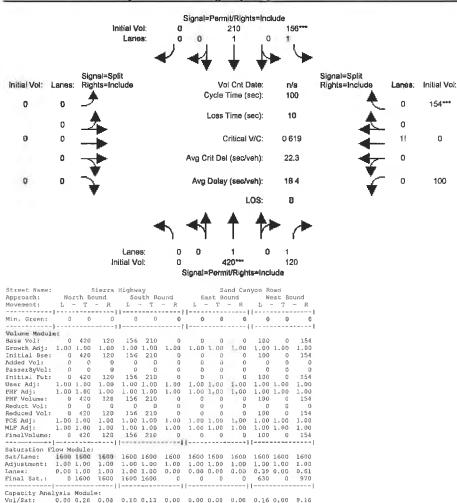
Intersection #16: Via Princessa/Lost Canyon Road



Stroot Name: Approach:		Lo	st Can	you R	oad				la Pri	EC48E	a	
Approachs	Ko	eth Bo	und	501	uth Bo	brind	Ē.	ant Be	und	N	est Bo	und
Movement	t :	Τ -	* R	L	. 1	- B	, L .	- 7	- R	L	· 1	- R
Min. Green:	0	0	0	0	0	0	0	Ö	0	0	Ø	Ò
	1									[
Volume Modul												
Base Vol:					120	5.0	50	21	10	201	23	596
Orowth Adj:						1.00	1.00	1,00	1.00		1.00	
Initial Beer					120	50	50		10		23	586
Added Vol:	0	0	D	0			0		0	D		0
PassorByVol:						- 0	0	D	0		- 61	0
Initial Put:	10	210	63	356	120	50	50	21	10	201	23	586
Usez Adjı	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.65
PHF Adjt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volumes	10	210	63	356	120		50		10		23	490
Reduct Vol:	0	-0	0	-0	0	0	0	Ď	0	0	0	0
Reduced Vol:	10	210	63	356	120	50	50	21	10	201	23	490
PCK Adat	1.00	1.00	1,00	1,00	1.00	L.00	1.00	1.00	1.00	1.00	1.00	1.00
HLP AUI	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolumet	10	210	63	356	120	50	50	21	10	201	23	498
				1								
Saturation F.	Low Mo	dule:										
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1,00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.31	0.69	1.00	1.41	0.59	1.00	1.35	0.65	1.00	1.00	1.00
Final Sat.:						941	1600		1032			1600
							1					
Capacity Anal	lysis	Modul	e:									
Vol/Sat:			0.06		0.05	0.05		0.01	0.01	0.13	0.01	0.31
Crit Moves:		***		++++			****					

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) 2012 Plus Project PM

Intersection #1: Sand Canyon Road/Sierra Highway



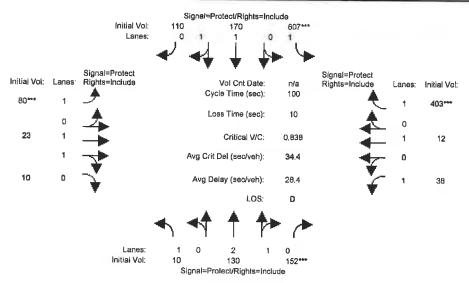
Capacity Analysis Module:

Vol/Sat: 0.00 0.25 0.03 0.10 0.13 0.00 0.00 0.00 0.00 0.16 0.00 0.16

Crit Moves:

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) 2012 Plus Project PM

Intersection #16: Via Princessa/Lost Canyon Road



Street Name; Approach:		L	ost Car	nyon R	oad			1	∕la Pri	Incess	a	
Wbbroscu:	No	ren a	ound_	50	uth B	band	Б	ast B	ound	W	est B	bnuc
Movement:	. 6	T	- R	L	- T	- R	L	– T	- R	I,	- T	- R
Min. Green:	1			1			11					
Mrti. Official:		0	U		U	U.	U	0	0	0	0	0
Volume Modul	e:]					
Base Vol:	10	130	152	607	170	110	80	23	1.0	38	12	403
Growth Adj:			1,00	1.00	1.00	1.00		1.00		1.00		
Initial Bse:	10	130	1.52	607		110	80	23	10			403
Added Vol:				0		0	0	0	Ω	0	0	0
PasserByVol:	Ω	0	0	0	0	0	0	ñ	0			ű
Initial Put:	10	130	152	607	170	110	8.0	23	10	38		403
User Adj:	1.00	1,00	1.00	1.00	1.00	1.00	1,00	1.00	1.00		1.00	0.85
PHF Adj:	1.00	1.00	1,00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
PHF Volume:	10	130	152	607	170	110	80	23	10		12	343
Reduct Vol:			0	0	0	0	0	0	D	0	0	0
Reduced Vol:			152	607	170	110	80	23	1.0	3.8	12	343
PCE Adj:			1,00	1.00	1.00	1.00	1,00	1,00	1.00	1.00	1,00	
MLF Adj:				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:				607	170	110	8.0	23	10	38	12	343
				i			1					1
Saturation Fl												
Sat/Lane:				1600	1600	1600	1600	1600	1600	1600	1600	1608
Adjustment:			1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanest						0.79	1.00				1.00	1.00
Final Sat.:				1600		1257	1600	2230	970	1600	1600	1600
						1						~~~~
Capacity Anal												
Vol/Sat:	0.01	0.04	0.16	0,30	0.09	0.09	0.05	0.01	D. 01	0,02	0.01	
Crit Moves:			2444	4000			***					++++

HCS*: Basic Freeway Segments Release 5.3

Fax:

Phone:

E-mail:			
	Operational Ana	lysis	-
Analyst:			
Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:			
Freeway/Direction:	SR 14 NB		
From/To:	Via Princessa to	Sand Canuan	
Jurisdiction:			
Analysis Year:	Santa Clarita 2012 Plus Projec	CARRIETANS	
Description: Vista Car	nyon Ranch	L COMMITTIONS	
25754046740074 12304468	Flow Inputs and	Adiustments	
Volume, V		2140	veh/h
Peak-hour factor, PHF		0.93	
Peak 15-min volume, vl	5	575	Α.
Trucks and buses		4	1
Recreational vehicles		D	1
Terrain type:		Level	
Grade		0.00	
Segment length		0.00	mi
Trucks and buses PCE,		1.5	
Recreational vehicle P		1.2	
Heavy vehicle adjustme	nt, EHV	0.980	
Driver population fact	or, fp	1.00	
Flow rate, vp		587	pc/h/in
	Speed Inputs ar	nd Adjustments	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	ft
Interchange density	- Later Sires	0.50	interchange/mi
Number of lanes, N		4	-necremange, mr
Free-flow speed:		Measured	
FFS or BFFS		65.0	mi/h
Lane width adjustment.	FTW	0.0	mi/h
Lateral clearance adju		0.0	mi/h
Interchange density ad		0.0	m1/h
Number of lanes adjust		1,5	mi/h
Free-flow speed, FFS		65.0	mi/h
inc man parmy in		Urban Frmeway	Control Bridge
	LOS and Perform	mance Massures	
	TOO BILL FAITOR	mance neasures	
	Andrew and the second		
Flow rate, vp		587	pc/h/ln
Flow rate, vp Free-flow speed, PFS		65.0	mi/h
Free-flow speed, FFS Average passenger-car	speed, S		
	speed, S	65.0	mi/h

Level of service, LOS

A

BCS+: Basic Freeway Segments Release 5.3

Phone: E-mail: Fax:

	Operational Ana	lusis	
	operational Ana	1,020	
Analyst:			
Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	AM Peak Hour		
reeway/Direction:	SR 14 NB		
From/To:	Sand Canyon to S	oledad Canyon	
Jurisdiction:	Santa Clarita		
Analysis Year:	2012 Plus Projec	t Conditions	
Description: Vista Car			
	Flow Inputs and	Adjustments	
Volume, V		2073	veh/b
Peak-hour factor, PHF		0.93	
Peak 15-min volume, vi	5	557	v
Trucks and buses	3.00	4	
Recreational vehicles		0	
Terrain type:		Level	
Grade		0.00	*
Segment length		0.00	mi
Trucks and buses PCE,	ह-शा	1.5	
Recreational vehicle P		1.2	
		0.980	
Heavy vehicle adjustme		1.00	
Driver population fact	or, rp	758	po/h/ln
Flow rate, vp		150	bolavan
	Speed Inputs an	nd Adjustments	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	ft
Interchange density		0.50	interchange/mi
Number of lanes, N		3	The state of the s
Free-flow speed:		Measured	
FFS or BFFS		65.0	mi/h
Lane width adjustment,	£LW	0.0	ma/h
Lateral clearance adju	stment. FLC	0.0	mi/h
Interchange density ad	justment, fID	0.0	mi/h
Number of lanes adjust	ment. fN	3.0	mi/h
Free-flow speed, FFS	William Co.	65.0	mi/h
		Urban Preewa	ву
	LOS and Perfor	mance Measures_	<u> </u>
Flow rate, vp		758	pc/h/ln
Free-flow speed, FFS		65.0	mi/h
Average passenger-car	2 bases	65.0	mi/h
Number of lanes, N	ahasiw a	3	
		11.7	pc/mi/la
Density, D		Bridge F	5-01,000,000

Level of service, LOS

- 8

HCS+: Basic Freeway Segments Release 5.3

Phone: E-mail:		Fax:	
	Operational An	alvsis	
	- 6.1121		
Analyst:	water Viscous		
Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	PM Peak Hour		
Freeway/Direction:	SR 14 NB	2012 2000	
From/To:	Via Princessa t	o Sand Canyon	
Jurisdiction:	Santa Clarita	TOTAL STREET	
Analysis Year:	2012 Plus Proje	ct Conditions	
Description: Vista Ca	nyon sanch		
	Flow Inputs an	d Adjustments	
Volume, V		5444	veh/h
Peak-hour factor, PHF	2	0.95	
Peak 15-min volume, vl	5	1433	v
Trucks and buses		4	3
Recreational vehicles		0	1
Terrain type:		Lavel	
Grade		0.00	
Segment Length		0.00	10.2
Trucks and buses PCE,		1.5	
Recreational vehicle P		1.2	
Heavy vehicle adjustme		0.980	
Driver population fact Flow rate, vp	or, tp	1.00	
riow race, vp		1948	pc/h/ln
	Speed Inputs a	nd Adjustments	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	ft
Interchange density		0.50	interchange/mi
Number of lanes, N		3	
Free-flow speed:		Measured	77.67
FFS or BFFS	***	65.0	mi/h
Lane width adjustment,		0.0	mi/h
Lateral clearance adju		0.0	mi/h
Interchange density ad		0.0	mi/h
Number of lames adjust: Free-flow speed, FFS	ment, IN	3.0	mi/h
tree_trom shead, 112		65.0	mi/h
		Urban Freeway	
	LOS and Perform	mance Measures	
Flow rate, vp		1948	pc/h/ln
Free-flow speed, FFS		65.0	mi/h
Average passenger-car	speed, S	62.3	mi/h
Number of lanes, N		3	
Density, D		31.3	pc/mi/in

Level of service, LOS

Ð

HCS+: Basic Freeway Segments Release 5.3

Phone: E-mail:		Fax:	
	Operational Ana	ilysis	
6 - L 7			
Analyst: Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	PM Peak Hour		
Freeway/Direction:	SR 14 NB		
From/To:	Sand Canyon to S	foleded Canvon	
Jurisdiction:	Santa Clarita	No seems manual to	
Analysis Year:	2012 Plus Projec	et Conditions	
Description: Vista Ca		Section 2017	
	Flow Inputs and	d Adjustments	
Volume, V		4872	ven/h
Peak-hour factor, PHF		0.99	
Peak 15-min volume, v1	5	1282	V.
Trucks and buses			1
Recreational vehicles		*	*
Terrain type:		Lavel	
Grade		4144	5
Segment length		0.00	mi
Trucks and buses PCE,		1.5	
Recreational vehicle P		1.2	
Heavy vehicle adjustmo		0.980	
Driver population fact Flow rate, vp	or, ip	2615	pc/h/2n
LION tate, 46		2023	permian
	Speed Inputs an	nd Adjustments	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	ft
Interchange density		0.50	interchange/mi
Number of lanes, N		2	
Free-flow speed:		Measured	-1.iv
FFS of BFFS	2411	65.0	mi/h
Lane width adjustment,		0.0	mi/h mi/h
Lateral clearance adju		0.0	mi/h
Interchange density ad Number of lanes adjust		4.5	mi/h
Free flow speed, FFS	ment, IN	65.0	mi/h
rice trow speed, sto		Urban Freeway	Comment of the commen
	LOS and Perform	mance Measures	
Flow rate, wo		2615	pc/h/ln
Free-flow speed, FFS		65.0	mi/h
Average passenger-car	speed, S		mi/h
Number of lanes, N	CA ALEGAE	2	
Density, D			pc/ml/in
		ь.	pc/ml/in

Level of service, LOS Overall results are not computed when free-flow speed is less than 55 mph.

11

HCS+: Basic Freeway Segments Release 5.3

Phone: E-mail:		Faxz	
	Operational And	alysis	
Amalust.			
Analyst; Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Perlod:	PM Peak Hour		
Freeway/Direction:	SR 14 SB		
From/To:	Soledad Canyon	n Sand Canvon	
Jurisdiction:	Santa Clarita	es assis seedan	
Analysis Year:	2012 Plus Projec	ct Conditions	
Description: Vista Ca		EP STREETSRE	
	Flow Inputs and	d Adjustments	
Volume, V		2546	veh/h
Peak-hour factor, PHF		0.96	2.4.1.40
Peak 15-min volume, vl	5	663	v
Trucks and buses		4	*
Recreational vehicles		0	
Terrain type:		Level	
Grade		0.00	
Segment length		0.00	m.i
Trucks and buses PCE,		1.5	
Recreational vehicle P		1.2	
Heavy vehicle adjustme		0.980	
Driver population fact	or, ip	1.00	Sugar IVS
Flow rate, vp		902	pc/h/ln
	Speed Inputs a	nd Adjustments	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	ft
Interchange density		0.50	interchange/mi
Number of lanes, N		3	
Free-flow speed;		Measured	T11/16
FFS or BFFS		65.0	m1/h
Lane width adjustment,		0.0	mi/h
Lateral clearance adju		0.0	mi/h mi/h
Interchange density ad Number of lanes adjust		3.0	mi/h
Free-flow speed, FFS	monte, In	65.0	mi/h
race race opeco, res		Urban Freeway	
	LOS and Perfor	mance Measures	
Flow rate, vp		902	pc/h/ln
Free-flow speed, FFS		65.0	mi/h
Average passenger-car	speed, S	65.0	mi/h
Number of lanes, N	ARAGE S.	3	1047.11
Density, D		13.9	pc/mi/in
		75.5	B

Level of service, LOS

18

HCS+: Basic Freeway Segments Release 5:3

Phone: E-mail:		Faxt	
	Operational Ana	lysis	
Analyst:			
Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	PM Peak Hour		
Freeway/Direction:	SR 14 SB		
rom/To:	Sand Canyon to V	ia Princessa	
Jurisdiction:	Santa Clarita		
Analysis Year:	2012 Plus Projec	t Conditions	
Description: Vista Ca		***************************************	
	Flow Inputs and	Adjustments	
Volume, V		2847	veh/h
Peak-hour factor, PHF		0.96	
Peak 15-min volume, vl	5	741	v
Trucks and buses		4	
Recreational vehicles		0	1 .
Terrain type:		Level	*
Grade		0.00	
Segment length		0.00	msi.
Trucks and buses PCE,	ET.	1.5	
Recreational vehicle P		1.2	
Heavy vehicle adjustme		0.980	
Driver population fact		1.00	
Flow rate, vp	y., -E	756	pc/h/in
	Speed Inputs as	nd Adjustments_	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	ft
Interchange density		0.50	Interchange/mi
Number of lanes, N		4	And the second second
Free-flow speed:		Measured	
FFS or BFFS		65.0	mi/h
Lane width adjustment,	flw	0.0	mi/h
Lateral clearance adju		0.0	mi/h
Interchange density ad		6.0	mi/h
Number of lanes adjust		1.8	mi/h
Free-flow speed, FFS	200	65.0	mi/h
and the same of th		Urban Free	way
	LOS and Perform	mance Heasures_	
Flow rate, vp		756	pc/h/ln
Free-flow speed, FFS		65.0	mi/h
Average passenger-car	speed, S	65.D	mi/h
Number of lanes, N		4	
Density, D		1116	pc/m1/ln

Level of service, LOS

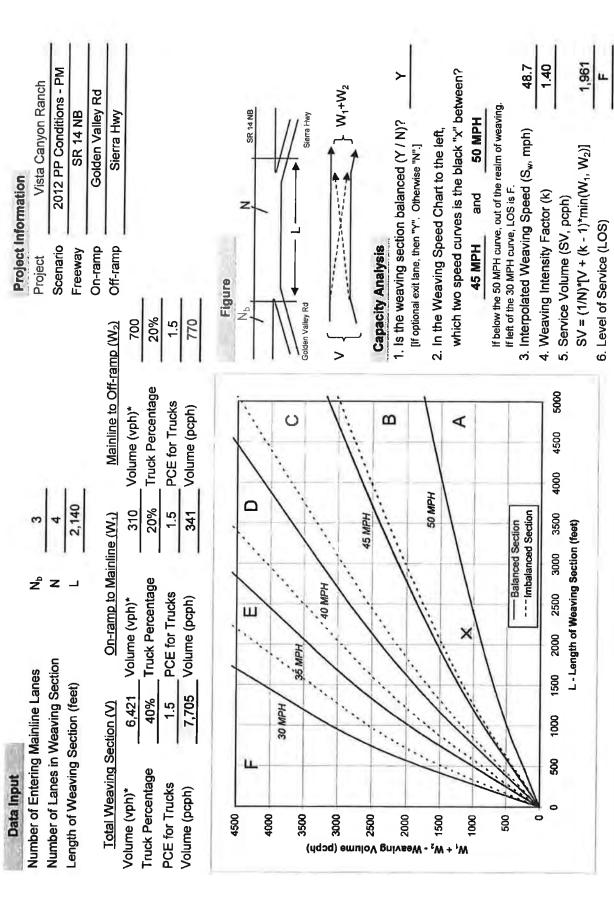
3

Leisch Method for Weaving Analysis

Project Information Project Vista Canyon Ranch Scenario 2012 PP Conditions - AM Freeway SR 14 NB On-ramp Golden Valley Rd Sierra Hwy		Figure Note that the weaving section balanced (Y / N)? If optional exit lane, then "Y". Otherwise "N".] 2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between? 45 MPH and 50 MPH If below the 50 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F. 3. Interpolated Weaving Speed (S _w , mph) 49.1 4. Weaving Intensity Factor (k) 5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(W ₁ , W ₂)] 6. Level of Service (LOS)
		Capacity Analysis I. Is the weaving section balance [if optional exit lane, then "Y". Othen 2. In the Weaving Speed Chart which two speed curves is that which two speed curve, out of the if left of the 30 MPH curve, LOS is F. 3. Interpolated Weaving Speed 4. Weaving Intensity Factor (k) 5. Service Volume (SV, pcph) SV = (1/N)*[V + (k - 1)*min(V 6. Level of Service (LOS)
line Lanes N _b 4 ving Section N 5 on (feet) L 2,140 On-ramp to Mainline (M.) Mainline to Off-ramp (M.)	5 Volume (vph)* 500 Volume (vph)* 500 Volume (vph)* 500 Volume (vph)* 500 Volume (pcph) 550 Volume (pcph)	30 MPH 35 MPH 45 MPH 45 MPH Balanced Section 1000 1500 2500 3000 3500 4000 4500 5000 L-Length of Weaving Section (feet)
Data Input Number of Entering Mainline Lanes Number of Lanes in Weaving Section Length of Weaving Section (feet)	Volume (vph)* Truck Percentage PCE for Trucks Volume (pcph)	W ₁ + W ₂ - Weaving Volume (pcph) W ₂ - Weaving Volume (pcph)

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.
* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.
Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections, Jack E. Leisch & Associates, September 1983.
Fehr & Peers

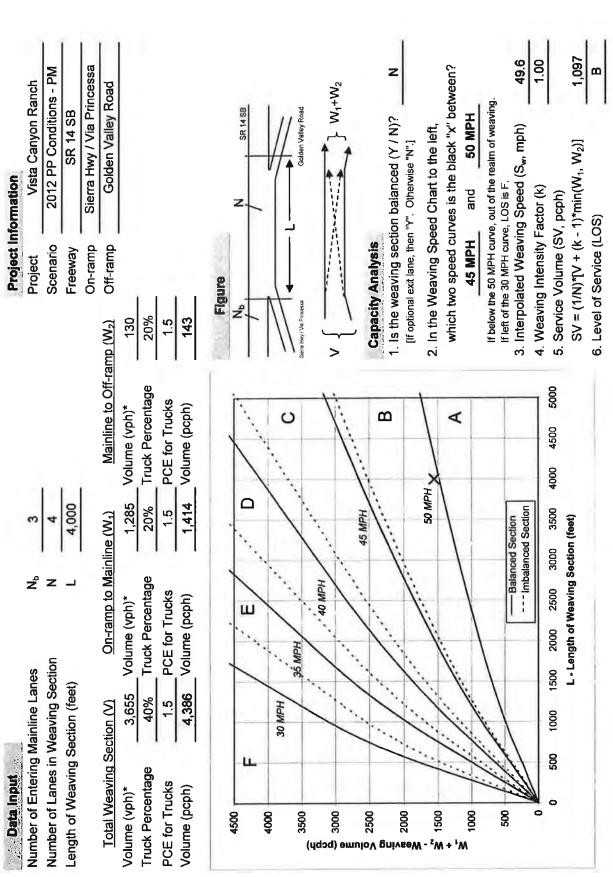
Leisch Method for Weaving Analysis



The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections , Jack E. Leisch & Associates, September 1983. Fehr & Peers * Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

Leisch Method for Weaving Analysis



The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections , Jack E. Leisch & Associates, September 1983. * Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

source: compr Fehr & Peers

Fax:

Phone:

E-mail:	920				
Dit	erge Analy	518_			
Analyst: Agency/Co.: Pate performed: Analysis time period: Array Amelysis time period: Amelysis time period: Amelysis time period: Amelysis time period: Sand Canyon Junction: Junction: Junisdiction: Analysis Year: Description: Vista Canyon Ranch	Rd	itic	ons		
P	eeway Data				
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	4 65		ie	mpn	
120	Ramp Data				
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Ri 1 35 43 50	.0 8		mph vph ft ft	
Adjacent Re	mp Data (i	f or	e exist	s)	
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	No			vph	
Conversion to po	/h Under B	240	Conditio	ft	
Junction Components	Freeway		Ramp	0110	Adjacent
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ES	2140 0.93 575 4 0 Level 0.00 0.00 1.5	8	438 0.80 137 2 0 Level 0.00 0.00 1.5	ni.	Ramp vph v. a a a mi

Heavy vehicle adj: Driver population Flow rate, vp	factor, fP	0.980 1.00 2347	0.990 1.00 553		poph
	Estimati	on of V12 Dive	erge Areas		
	EO EO	(Equation 25-	-8 or 25-9	1	
		Using Equation	9 n		
	v = v = 1v -	v) P = 133: R FD	pe/h		
	Ca	pacity Checks			
V = 0.	Actual 2347	Maxim 9400		LOS F?	
V = V - V FO F R	1794	9400		No	
V B	553	2000		No	
v v	506 p	c/h (Equa	tion 25-15	or 25-16)	
3 or av34 Is v v 3 or av34	> 2700 pc/h?	No			
Is v v 3 or av34	> 1.5 v /2	No			
If yes, v = 133	5.	(Equa:	tion 25-18):	
		ng Diverge In	fluence Are	ea	
12	Actual 1335	Max Desiral 4400		Violation7 No	
	evel of Service	Determination	(if not	E)	
Density, Level of service f	R	+ 0.0086 v -	5		pc/mi/in
DOTEL OF DELVICE :			35 01 11111	uence a	
e color de la la la		d Estimation_	500000		-
Intermediate speed			= 0,478		
Space mean speed i			= 54.0	mph	
Space mean speed i	n outer lanes,	s	= 71.3	mph	
Space mean speed i	or all vehicles	, s	= 60.3	mph	

Fax:

Phone:

E-mail:

Trucks and buses PCE, ET

Recreational vehicle PCE, ER

	M	erge Anal	ysis					
Analyst:								
	Fehr & Pee							
	12/16/2008							
Analysis time period:		ur						
Freeway/Dir of Travel:		2 24						
	Sand Canyo							
Analysis Year:	Santa Clar	158	4-15	.221	621			
Description: Vista Can	2012 Plus yon Ranch	rroject c	ona.	1110	DS.			
2000		Freeway D	ata					
and the second s			1.5					
Type of analysis				rge				
Number of lanes in free			3					
Free-flow speed on free	way		65			mph		
Volume on freeway			275	53		vph		
		On Ramp D	ata	_				
Side of freeway			Ric	ght				
Number of lanes in ramp			1					
Free-flow speed on ramp			35	.0		mph		
Volume on ramp			320	0		vph		
Length of first accel/c			500	0		EE		
Length of second accel/	decel lane					Et		
	_Adjacent	Ramp Data	(1:	f on	e exist	5)		
Does adjacent ramp exis	t?		No					
Volume on adjacent Ramp	>					vph		
Position of adjacent Ra	du							
Type of adjacent Ramp								
Distance to adjacent Ra	mp					Et		
Cor	version to	pc/h Unde	r B	356	Conditi	ons_		
Junction Components		Free	way		Ramp		Adjacent	
Volume, V (vph)		1753			320		1. Santage	you
Peak-hour factor, PHF		0.93			0.85			113.0
Peak 15-min volume, v15		471			94			w
Trucks and buses		4			2			3.
Recreational vehicles		0			0			
Terrain type:		Leve	1		Level			
Grade				8		*		4
Length				ma		m3		mi

1.5

```
Heavy vehicle adjustment, fHV
                                  0.980
                                             0.990
Driver population factor, fP
                                  1.00
                                             1.00
Flow rate, vp
                                  1923
                                             380
                                                                peph
                     Estimation of V12 Merge Areas
                L .
                              (Equation 25-2 or 25-3)
                EQ
               P =
                     0.591 Using Equation 1
                F14
               v = v (P ) = 1137 pc/h
                12 F FM
                         Capacity Checks_
                                    Maximum
                       Actual
                                                  LOS F?
                       2303
   V
                                    7050
     FO
                       786 pc/h
   v v
                                    (Equation 25-4 or 25-5)
    3 or av34
               > 2700 pc/h?
15 V V
     3 or av34
Is v v > 1.5 c /2
     3 or av34
If yes, v = 1137
                                    (Equation 25-8)
       12A
                    Elow Entering Merge Influence Area
                   Actual
    V
                   1137
    812
              Level of Service Determination (if not F)
Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 14.0 pc/mi/ln R R R A
Level of service for ramp-freeway junction areas of influence B
                        Speed Estimation
Intermediate speed variable,
                                        M - 0.304
                                        S
Space mean speed in ramp influence area,
                                       5 = 58.0
                                        R
Space mean speed in outer lanes,
                                        5 = 64.0
                                        0
                                       S = 59.9 mph
Space mean speed for all vehicles,
```

Phone: E-mail:		Fax	\$				
	Dive	rge Analy	sis_				
Analyst:							
Agency/Co.:	Fehr & Peers						
Date performed:	12/16/2008						
Analysis time period:	AM Peak Hour						
Freeway/Dir of Travel:	SR 14 SB						
Junction:	Sand Canyon F	kd					
Jurisdiction:	Santa Clarita						
Analysis Year: Description: Vista Car	2012 Plus Pro nyon Ranch	ject Cond	1110	ns			
	A.	eway Data					
Tune of sections		P/4					
Type of analysis Number of lanes in free	ound	2	verg	C			
Free-flow speed on free			.0		dam		
Volume on freeway			46		vph		
	OEE	Ramp Data					
Side of freeway		Ri	ght				
Number of lanes in ram	D	1	2				
Free-Flow speed on ram	D	35.0					
Volume on ramp		550					
Length of first accel/	decel lane	50	0		EL		
tength of second accel	/decel lane				Et		
	Adjacent Ran	np Data (i	fon	e exist	s)		
Does adjacent ramp exi	st?	No					
Volume on adjacent ram	p				vph		
Position of adjacent r	amp						
Type of adjacent ramp					3.5		
Distance to adjacent r	amp				ft		
Co	nversion to po	/h Under E	lase	Conditi	ons_		
Junction Components		Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)		3446		550			vpi
		D.94		0.90			
Peak-hour factor, PHF	5	916		153			٧
Peak-hour factor, PHF Peak 15-min volume, v1		A.		2			8
Peak-hour factor, PHF Peak 15-min volume, v1 Trucks and buses	7	-					
Peak-hour factor, PHF Peak 15-min volume, v1 Trucks and buses Recreational vehicles	7	ò		0			
Peak-hour factor, PHF Peak 15-min volume, v1 Trucks and buses Recreational vehicles Terrain type:		Level		Level			
Peak-hour factor, PHF Peak 15-min volume, v1 Trucks and buses Recreational vehicles Terrain type: Grade		Level 0.00	1	Level 0.00	÷ mi		
Peak-hour factor, PHF Peak 15-min volume, v1 Trucks and buses Recreational vehicles Terrain type:		Level	1	Level	ŧ mi		

Heavy vehicle adjustment, Driver population factor, Flow rate, vp		0.980 1.00 3739	0.990 1.00 617	poph
	Estimation			
L SO	ż	Equation 25-8 c	or 25-9)	
P = FD		sing Equation		
7 - 7 12 R		P = 3739 FD	pc/h	
	Capa	city Checks		
v = v Fi F	Accual 3739	Məximum 4700	Los	F7
y - v - v	3122	4700	No	
FO F R	617	2000	No	
y y 3 or av34	0 pc/	h (Equation	25-15 or	25-161
Is v v > 2700 3 or av34	pc/n7	No		
Is v v > 1.5 v		No		
3 cr av34 If yes, v = 3739 12A	12	(Equation	25-18)	
Fle	w Entering	Diverge Influ	ence Ares_	
V 373	ual 19	Max Desirable 4400	Vi No	olation?
	Service D	etermination ((f not F)_	
1	t	0.0086 v - 0.0	D	- 1
Level of service for ramp	-ireeway j	unction areas	of influenc	te D
	Speed	Estimation		
Intermediate speed variab	ie,	D =	0.484	
Space mean speed in ramp	influence		53.9 mp	ħ
Space mean speed in outer	lanes,		N/A mg	pir.
Space mean speed for all	vehicles,	s =	53.9 mg	sh .

Fax:

Merge Analysis

Phone:

E-mail:

Analyst:

Analysis time period: Freeway/Dir of Travel: Junction: Jurisdiction:	SR 14 SB Sand Canyo Santa Clar 2012 Plus	our on Rd	Condit	ions			
		Freeway	Data				
Type of analysis			Merq				
Number of lanes in free	พลง		2	u			
Free-flow speed on free			65.0		mph		
Volume on freeway			2896		vph		
		Оп Катр	Data				
Side of freeway			Righ				
Number of lanes in ramp			1	-			
Free-flow speed on ramp			35.0		mph		
Volume on ramp			673		vph		
Length of first accel/d			1500		ft		
Length of second accel/	decel lane				Et		
	Adjacent	Ramp Dat	a (if	one exist	5)		
Does adjacent ramp exis	t?		No				
Volume on adjacent Ramp					vph		
Position of adjacent Ra	mp						
Type of adjacent Ramp							
Distance to adjacent Ra	mp				ft		
Con	version to	pc/h Und	ier Bas	e Conditi	ons_		
Junction Components		Fre	eway	Ramp		Adjaces Ramp	ht
Volume, V (vph)		289	96	873		-	vph
Peak-hour factor, PHF			94	0.88			
Peak 15-min volume, v15		770	2	248			10
Trucks and buses		4		2			8
Recreational vehicles Terrain type:		0		0			-
Grade		757	rel .	Level			1
Length				1	mi		mi.
Trucks and buses PCE, E	T	1.3		1.5	9(7		19:1
Recreational vehicle PC		1.3		1.2			

```
Heavy vehicle adjustment, fHV
                                     0.990
                                                0.390
Driver population factor, fP
                                     1.00
                                                1.00
Flow rate, vp
                                     3142
                                                1002
                                                                      pcph
                       Estimation of V12 Merge Areas
                 1 =
                                (Equation 25-2 or 25-3)
                  EQ
                 P = 1.000 Using Equation 0
                  FM.
                 V = v (P | = 3142 pc/h
                  12 F FM
                             Capacity Checks
                         Actual
                                       Maximum
                                                      LOS FE
                         4144
                                                      No
     FO
                         0 pc/h
                                       (Equation 25-4 or 25-5)
     3 or ava4
                 > 2700 pc/h?
     3 or av34
                > 1.5 9 /2
     3 or av34
                     12
If yes, v = 3142
                                       (Equation 25-8)
                      Flow Entering Merge Influence Area
ctual Max Desirable 7
                     Actual
                                                       Violation?
                     3142
                                  4600
     R12
               Level of Service Determination (if not F)
Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L - 27.9 R 12
                                                                    pc/mi/ln
Level of service for ramp-freeway junction areas of influence C
                          Speed Estimation
Intermediate speed variable,
                                          M = 0.462
                                           9
Space mean speed in ramp influence area,
                                           $ = 54.4
                                                       mph
Space mean speed in outer lanes,
                                           S = N/A
                                                       mph
Space mean speed for all vehicles,
                                          S = 54.4
```

Phone Fax: E-mail: Diverge Analysis Analyst: Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/Dis of Travel: SR 14 NB Junction: Via Princessa Jurisdiction: Santa Clarita Analysis Year: 2012 Plus Project Conditions Description: Vista Canyon Ranch Freeway Data Type of analysis Diverge Number of lanes in freeway 4 Free-flow speed on freeway 65.0 mph Volume on freeway 2235 woh Off Ramp Data Side of freeway Right Number of lanes in ramp Free-Flow speed on ramp 35.0 mph Volume on ramp 415 vph Longth of first accel/decel lane 500 Length of second accel/decel lane ft Adjacent Ramp Data (if one exists) Does adjacent ramp exist? Volume on adjacent ramp rph Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp £t Conversion to pc/h Under Base Conditions Junction Components Freeway Adjacent Ramp Ramp Volume, V (vph) 2235 415 Peak-hour factor, PHF 0.93 0.85 Peak 15-min volume, v15 601 122 Trucks and buses 4 2 Recreational vehicles 0 0 Terrain type: Level Level Grade 0.00 0.00 Length 0.00 mi 0.00 mi mi Trucks and buses PCE, ET 1.5 1.5

1.2

1.2

Recreational vehicle PCE, ER

```
Heavy vehicle adjustment, fHV
                                     0.980
                                                 0.990
Driver population factor, fP
                                     1.00
                                                 1.00
Flow rate, vo
                                     2451
                                                 493
                                                                      poph
                       Estimation of V12 Diverge Areas
                 £ ....
                                [Equation 25-8 or 25-9)
                  EQ
                 2
                         0.436 Using Equation 8
                  ED
                 v = v + (v - v ) P = 1347 pc/h
                  12 R F R FD
                             Capacity Checks
                         Actual
                                       Maximum
                                                      LOS F?
                         2451
                                       9400
                                                      No
     Fi
          F
                         1958
    A 4 A - A
                                       9400
                                                      No
         E
     FO
                          593
                                       2000
                                                      No
     3
    4
         V.
                         852 pc/h
                                       (Equation 25-15 or 25-16)
     3 or av34
        v
                > 2700 pc/h?
     3 or av34
is
    v. v
                > 1.5 v /2
     3 or av34
                       12
If yes, v = 1347
                                       (Equation 25-18)
        12A
                     Flow Entering Diverge Influence Area
                    Actual
                                  Max Desirable
                                                       Violation?
                                  4400
     12
                Level of Service Determination (if not F)
Density,
                     D = 4.252 + 0.0086 v - 0.009 T
                                                                   pc/mi/ln
                                         12
Level of service for ramp-freeway junction areas of influence B
                           Speed Estimation
Intermediate speed variable,
                                           D = 0.472
                                           5
Space mean speed in ramp influence area.
                                           8 = 54.1
Space mean speed in nuter lanes,
                                             @ 71.3
                                           S
Space mean speed for all vehicles,
                                          $ = 60.7
```

Fax:

Merge Analysis

Phone:

E-mail:

Analyst:

Analyst: Agency/Co.: Fehr & Pe Date performed: 12/16/200 Analysis time period: PM Peak H Freeway/Dir of Travel: SR 14 SB Junction: Yia Princ Jurisdiction: Santa Cla Analysis Year: 2012 Plus Description: Vista Canyon Ranch	8 our essa	nditio	ons			
	Freeway Da	ta				
Type of analysis		Merge				
Number of lanes in freeway		3				
Free-flow speed on freeway		65.0		mph		
Volume on freeway		3310		vph		
	On Ramp Da	ta				
Side of freeway		Right				
Number of lanes in ramp		1				
Free-flow speed on ramp		35.0		mph		
Volume on ramp		1131		vph		
Length of first accel/decel lane		500	ft			
Length of second accel/decel lane				£t		
Adjacent	Ramp Data	(if or	ne exist	s1		
Does adjacent ramp exist?		No				
Volume on adjacent Ramp				uph		
Position of adjacent Ramp						
Type of adjacent Ramp						
Distance to adjacent Ramp				ft		
Conversion to	pc/h Under	Base	Canditi	ons		~
Junction Components	Freek	ay	Ramp		Adjacen Ramp	t.
Volume, V (vph)	3310		1151		4.6	vph
Peak-hour factor, PHF	0.94		0.95			
Peak 15-min volume, v15	880		303			W.
Trucks and buses	4		0			3
Recreational vehicles	0					8
Terrain type: Grade	Level		Level			
Length		m1		mi		8
Trucks and buses PCE, ET	1.5	m.z	1.5	ma		मार्च.
Recreational vehicle PCE, ER	1.2		1.2			
nementablish vehicle rop, Ex	4.4		4.4			

```
Heavy vehicle adjustment, fHV
                                     0.980
                                                 0.990
Driver population factor, fP
                                     1.00
                                                 5.03
Flow rate, vp.
                                     3592
                                                 1224
                                                                      gaph
                       Estimation of VI2 Merge Areas
                 L =
                                 (Equation 25-2 or 25-3)
                  EQ
                       0.591 Using Equation 1
                 y = v (P) = 2125 pc/h
                           Capacity Checks
                          Actual
                                       maximum
                                                       LOS F?
    W
                          4816
                                       7050
                                                      No
     FO
                         1467 pc/h
                                       (Equation 25-4 or 28-51
     3 or av34
                 > 2700 pc/h?
     3 or av34
     3 or av34
If yes, v = 2125
12A
                                       (Equation 25-8)
                      Flow Entering Merge Influence Area
                     Actual
                                  Max Desirable
                                                       Violation?
                     2125
                                  4600
     R12
                Level of Service Determination (if not F)
Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 27.9 R 12 A
                                                                    pc/mi/ln
Level of service for ramp-freeway junction areas of influence C
                           Speed Estimation
Intermediate speed variable,
                                           M = 0.397
                                           S
Space mean speed in ramp influence area,
                                           8 = 55.9
Space mean speed in outer lanes,
                                           S = 61.5
                                                       mph
                                            0
Space mean speed for all vehicles.
                                           S = 57.5
```

Fax:

Phone:

E-mail:

Co manes						
	Diverge Ana	lysis.				
Jurisdiction: Santa (2008 K Hour MB Inyon Rd	nditir	ons			
Description: Vista Canyon Rand	zh					
	Freeway Da	58				
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	1	Divers 3 65.0 5444	je	mph		
	Off Ramp Da	ta				
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/decel lan Length of second accel/decel la	ie	Right 1 35.0 1212 500		mph vph ft ft		
Adjace	ent Ramp Data	(if or	e exist	s)		
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp	1	No		vph		
Distance to adjacent ramp				ft		
	to pc/h Under	Base	Conditi	ons		_
Junction Components	Freewa	2y	Ramp		Adjacent Ramp	
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles	5444 0.95 1433 4		1212 0.90 337 2		v s	
Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER	Level 0.00 0.00 1.5 1.2		Level 0.00 0.00 1.5 1.2	mi	* m1	

```
Reavy vehicle adjustment, fHV
                                   0.980
                                              0.990
Driver population factor, fP
                                   1.00
                                              1.00
Flow rate, vp
                                   5845
                                              1360
                                                                  popn
                       Estimation of V12 Diverge Areas
                L -
                              (Equation 25-8 or 25-9)
                 EQ
                2 ...
                       0.551 Using Equation S
                 50
                v - v - (v - v) P = 3833 pc/h
                 12 R F R FD
                         Capacity Checks
                        Actual
                                     Maximum
                                                    LOS F?
    V = V
Fi F
                        5845
                                     7050
                                                    No
                        4485
                                     7050
                                                    No
     FO F
    v
                        1360
                                     2000
     R
    v v
                        2012 pc/h
                                     (Equation 25-15 or 25-16)
     3 or av34
Is v v
                > 2700 pc/h?
     3 or av34
Is v v
               > 1.5 v /2
     3 or av34
If yes, v = 3833
                                     (Equation 25-18)
                    Flow Entering Diverge Influence Area
                                                     Violation?
                    Actual
                                Max Desirable
    ¥
                    3833
                                4400
                                                    No
     12
               Level of Service Determination (if not F)_
Density,
                    D = 4.252 + 0.0086 v - 0.009 L = 32.7 pc/mi/ln
                                      12
Level of service for ramp-freeway junction areas of influence D
                         Speed Estimation
Intermediate speed variable,
                                        D = 0.550
                                         S
Space mean speed in ramp influence area,
                                         S = 52.3
                                         R
Space mean speed in outer lanes,
                                         S. + 67.4
                                         0
Space mean speed for all vehicles.
                                         S = 56.7
```

Fax:

Phone:

E-mail:

	Merge	Analys	15			
Date performed: 12/1 Analysis time period: PM P Freeway/Dir of Travel: SR 1 Junction: Sand Jurisdiction: Sant	& Peers 6/2008 eak Hour 4 NB Canyon Rd a Clarita Plus Proje			ns		
	Freew	ay Dat	ā			
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway		2	erge 5.0 272		mph vph	
	On Ra	mp Dat	a			
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel Length of second accel/decel	lane	1 3 6 5	5.0 00 00		mph vph ft ft	
Adj	acent Ramp	Data [if on	e exist	s)	
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp		17	0		vph £t	
	on to pc/h	IIndox	2200	Candias.	77	
Junction Components	on to perm	Freewa		Ramp	1	Adjacent
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Ferrain type:		4272 0.95 1124 4 0 Level		600 0.95 158 2 0 Level		v s
Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER		1.5	mi.	1.5	mi mi	mil.

```
Heavy vehicle adjustment, fHV
                                    0.980
                                               0.990
Driver population factor, fP
                                    1.00
                                               1.00
Flow rate, vp
                                    4587
                                               638
                                                                   pcph
                       Estimation of V12 Merge Areas
                 D =
                               (Equation 25-2 or 25-3)
                 EQ
                       1.000 Using Equation 0
                v = v (P) - 4587 pc/h
                           _Capacity Checks
                         Actual.
                                      Maximum
                                                     LOS ET
    12
                         5225
                                      4700
                                                     Yes
                             po/h
                                      (Equation 25-4 or 25-5)
     3 or av34
Is v v
                > 2700 pc/h?
     3 or av34
     3 os av34
                     12
If yes, v = 4587
                                      (Equation 25-8)
                     Flow Entering Merge Influence Area
                                 Max Desirable
                    Actual
                                                      Violation?
  v
                    4587
                                 4600
    812
               Level of Service Determination (if not F)_
Density, D = 5.475 + 0,00734 v + 0.0078 v - 0.00627 L = 42.8 R R
                                                                  pc/mi/la
Level of service for ramp-freeway junction areas of influence F
                          Speed Estimation
Intermediate speed variable,
                                         M = 1.011
                                          S
Space mean speed in ramp influence area,
                                         S = 41.8
                                          R
Space mean speed in outer lames,
                                         5 = N/A
                                                      mph
Space mean speed for all vehicles,
                                         S = 41.8
```

Fax:

Phone:

E-mail:		re	X.			
	Dive	ge Anal	ysis			
Analyst: Agency/Co.: Date performed: Analysis time period: Freeway/Dir of Travel: Junction: Junisdiction: Analysis Year: Description: Vista Ca	SR 14 SB Sand Canyon Ro Santa Clarita 2012 Plus Pro		ditio	ons		
	Free	way Dat	a_			
Type of analysis Number of lanes in free Free-flow speed on free Volume on freeway	eway eway	3 6	ivers 5.0 546	ie	wbp	
	off F	amp Dat	a			
Side of freeway Number of lanes in ram; Free-Flow speed on ram; Volume on ramp Length of first accel/c Length of second accel.	iccel lane	1 3 4 5	5.0 10 00	e exist	mph vph ft ft	
Does adjacent ramp exist Volume on adjacent ramp Position of adjacent ramp Distance to adjacent ramp	st? emp		o		vph Et	
Cor	version to pc/h	Under	Base	Conditi	ons	
Junction Components		Freewa	У	Ramp		Adjacent Ramp
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v1: Trucks and buses Recreational vehicles Terrain type: Grade Length Trucks and buses PCE, E Recreational vehicle PC	er.	2546 0.96 663 4 0 Level 0.00 0.00 1.5	*	0.85 121 2 0 Level 0.00 0.00 1.5 1.2	* mi	VPA.

```
Heavy vehicle adjustment, fHV
                                     0.980
                                                0.990
Driver population factor, fP
                                     1.00
                                                1.00
Flow sate, vp
                                    2705
                                                487
                                                                    pcph
                       Estimation of V12 Diverge Areas
                1 -
                                (Equation 25-8 or 25-9)
                 EQ
                       0.670 Using Equation 5
                 P =
                 FD
                v = v + (v - v) E = 1973 pc/h
12 R F R ED
                            Capacity Checks
                         Actual
                                      Maximum
                                                     LOS F2
                         2705
                                      7050
                                                     No
     Si F
     3 = A - A
                         2218
                                      7050
                                                     No
     TO P P
                         487
                                      2000
     2.
    W W
                         732 pc/h
                                      (Equation 25-15 or 25-16)
     3 or av34
Is
               > 2700 pc/h2
   v v
     3 or av34
Is v v > 1.5 v /2
3 or av34 12
If yes, v = 1973
12A
                                      (Equation 25-18)
                    Flow Entering Diverge Influence Area
                    Actual
                                 Max Desirable
                                                      Violation?
    17
                    1973
                                 4400
     12
               Level of Service Determination (if not F)
                     D = 4.252 + 0.0086 v - 0.009 L = 16.7 R
Density,
                                                                 pc/mi/in
Level of service for ramp-freeway junction areas of influence B
                          Speed Estimation
Intermediate speed variable,
                                          D = 0.472
Space mean speed in ramp influence area,
                                          S = 54.1
Space mean speed in outer lames,
                                          S = 71.3
Space mean speed for all vehicles,
                                          $ = 57.9
```

Fax:

Merge Analysis

Phone:

E-mail:

Analyst:

Freeway/Dir of Travel: Junction: Jurisdiction:	Fehr & Pes 12/16/2006 PM Peak Ho SR 14 SB Sand Canyo Santa Clar 2012 Plus on Ranch	our on Rd	Cone	iitic	ons			
		Freeway	Data					
Type of analysis Number of lanes in freew Free-flow speed on freew Volume on freeway			3	arge 5.0		mph		
		On Ramp	Data	1				
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/de Length of second accel/de			1 3: 7	ight 5.0 11 500		mph vph ft ft		
	Adjacent	Ramp Da	ta (if or	e exist	s)		
Does adjacent ramp exist Volume on adjacent Ramp Position of adjacent Ram Type of adjacent Ramp Distance to adjacent Ram	.p		No	2		vph ft		
Conv	ersion to	pc/h Un	der 1	Base	Conditi	ons		
Junction Components		Fr	oeway	4	Ramp		Adjace	ent
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade		0. 55 4	36 96 6 vel	9	7:1 0.98 181 2 0 Level		- January Company	vph v
Length Trucks and buses PCE, ET Recreational vehicle PCE		1.	70	mi	1,5 1.2	mī		md.

```
Heavy vehicle adjustment, fHV
                                     0.980
                                                 0.990
Driver population factor, fP
Flow rate, vp
                                     1.00
                                                 1.00
                                     2270
                                                 733
                                                                      poph
                        Estimation of V12 Merge Areas
                                 (Equation 25-2 or 25-3)
                  EQ
                 P = 0.619 Using Equation 1
                 v = v (P) = 1406 pc/h
                            Capacity Checks
                          Actual
                                       Maximum
                                                       LOS F?
     Q.
                          3003
                                       7050
     FO
                          864 pc/n
                                       (Equation 25-4 or 25-5)
     3 or av34
Is y
                 > 2700 pc/h?
     3 or av34
                 > 1.5 v /2
                                       No
     3 or av34
                       12
If yes, v = 1406
12A
                                       (Equation 25-8)
                       Flow Entering Merge Influence Area
                     Actual
                                  Max Desirable
                                                        Violation?
                     1406
                                  4600
     812
                Level of Service Determination (if not F)
Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 12.4 R _{\rm R}
                                                                    pc/mi/ln
Level of service for ramp-freeway junction areas of influence B
                         Speed Estimation
Intermediate speed variable,
                                           M = 0.249
                                            5
Space mean speed in ramp influence area,
                                           5 # 59.3
                                                        mon
Space mean speed In outer lanes,
                                           S = 63.7
Space mean speed for all vehicles,
                                           S = 60.5
                                                       mph
```

Phone: Fax: E-mail: Diverge Analysis Analyst: Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: PM Peak Hour Freeway/Dir of Travel: SR 14 NB Junction: Via Princessa Jurisdiction: Santa Clarita Analysis Year: 2012 Plus Project Conditions Description: Vista Canyon Ranch Freeway Data Type of analysis Diverge Number of lames in freeway Free-flow speed on freeway 65.0 Volume on freeway 5731 vph Off Ramp Data Side of freeway Right Number of lanes in ramp Free-Flow speed on ramp 35.0 mph Volume on ramp 971 vph Length of first accel/decel lane 500 ft Length of second accel/decel lane ft Adjacent Ramp Data (if one exists) Does adjacent ramp exist? Volume on adjacent ramp vph Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp Conversion to pc/h Under Base Conditions Junction Components Freeway Adjacent Ramp Volume, V (vph) 5731 vph Peak-hour factor, PHF 0.95 0.95 Peak 15-min volume, v15 1508 256 Trucks and buses 4 2 Recreational vehicles 0 0 Terrain type: Level Level Grade 0.00 0.00 Length 0.00 mi 0.00 mi

1.5

1.2

1.5

1.2

Trucks and buses PCE, ET

Recreational vehicle PCE, ER

```
Heavy vehicle adjustment, fHV
                                    0.980
                                               0.990
Driver population factor, fP
                                    1.00
                                               1.00
Flow rate, vp
                                    6153
                                               1032
                                                                    peph
                       Estimation of V12 Diverge Areas
                L m
                                (Equation 25-8 or 25-9)
                 EQ
                        0.559 Using Equation 5
                  FD
                 v = v + (v - v) P = 3893 pc/h
                 12 R F R FD
                           __Capacity Checks
                         Actual
                                      Maximum
                                                     LOS F?
                         6153
                                      7050
                                                     No
     Fi F
    V = V = V
                         5121
                                      7050
                                                     No
     FO F R
    7.7
                         1032
                                      2000
                                                     No
     R
                                      (Equation 25-15 or 25-16)
    V
        V
                         2260 pc/h
     3 or av34
                > 2700 pc/h?
    v v
     3 or av34
    v v > 1.5 v /2
     3 or av34
If yes, v = 3893
                                      (Equation 25-18)
        12A
                    Flow Entering Diverge Influence Area
                    Actual
                                 Max Desirable
                                                      Violation?
    v
                    3893
                                 4400
                                                      No
     12
               Level of Service Determination (if not F)_
Density.
                     D = 4.252 \pm 0.0086 v - 0.009 L = 33.2
                                       12
Level of service for ramp-freeway junction areas of influence D
                          Speed Estimation
Intermediate speed variable,
                                          D - 0.521
                                          5
Space mean speed in ramp influence area,
                                          S = 53.0
                                          R
Space mean speed in outer lanes,
                                          S = 66.4
                                                      mph
                                          â
Space mean speed for all vehicles,
                                          S = 57.3
                                                     mph
```

Fax:

Merce Analysis

Phone:

E-mail:

Analyst:					
Agency/Co.: Fehr & Peer					
Date performed: 12/16/2008	. 5				
Analysis time period: PM Peak Hou	-				
Freeway/Dir of Travel: SR 14 SB	11				
Junction: Via Princes	0.3				
Jurisdiction: Santa Clari					
Analysis Year: 2012 Plus E		11+1-	0.0		
Description: Vista Canyon Ranch	roject cond	ITLIO	ms		
	reeway Data	_		_	
Type of analysis	Me	rge			
Number of lames in freeway	4				
Free-flow speed on freeway	65	.0		mph	
Volume on freeway	23	70		abp	
	n Ramp Data				
Side of Freeway	Ri	ght			
Number of lanes in ramp	1				
Free-flow speed on ramp	35	. 0		mph	
Volume on ramp	72	5		uph	
Length of first accel/decel lane	50			£t	
Length of second socel/decel lane	-			ft	
### # P	lama Bata Is	f on	e exist	s:)	
	comb para in				
Does adjacent ramp exist?	No.				
Does adjacent ramp exist?				wph	
Does adjacent ramp exist? Volume on adjacent Ramp		j		abp	
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp		5		abp	
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp		j		aph	
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp	ble			ft	
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	ble	lase		ft	Adjadent
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	No oc/h Under E Freeway	lase	Conditi Ramp	ft	Adjacent Ramp
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp	No	lase	Conditi	ft	Adjadent
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to p Junction Components Volume, V (yph) Peak-hour factor, PHF	oc/h Under E Freeway 2370	lase	Conditi Ramp 725	ft	Adjacent Ramp
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to p Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15	oc/h Under E Freeway 2370 0.96	lase	Condition Ramp 725 0.95	ft	Adjacent Ramp vpl
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to p Junction Components Volume, V (vph) Peak 15-min volume, v15 Trucks and buses	Preeway 2370 0.96 617	lase	Condition Ramp 725 0.95	ft	Adjacent Ramp vpl
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to p Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles	Preeway 2370 0.96 617	lase	Conditi Ramp 725 0.95 191 2	ft	Adjacent Ramp
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to p Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles	Preeway 2370 0.96 617	lase	Condition Ramp 725 0.95 191 2	ft	Adjacent Ramp vpl
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to g Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type:	Preeway 2370 0.96 617	ase	Condition Ramp 725 0.95 191 2	ft ons	Aajacent Ramp vol
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp Conversion to g Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade	Preeway 2370 0.96 617	lase	Condition Ramp 725 0.95 191 2	ft ons_	Adjacent Ramp vpl

```
0.990
Heavy vehicle adjustment, EHV
                                    0.980
Driver population factor, £2
                                    1.00
                                                1.00
Flow rate, up
                                    2518
                                                771
                                                                     peph
                       Estimation of V12 Merge Areas
                 L -
                             [Equation 25-2 or 25-3)
                 P = 0.281 Using Equation 4
                v = v (P ) = 707 pc/≿
                         Capacity Checks
                         Actual
                                      Maximum
                                                      105 F?
                         3289
                                      9400
    .
                                                     No
     FO
                         905 pc/h
                                       (Equation 25-4 or 25-5)
    10
     3 or av34
Is v v
                > 2700 pc/h?
     3 or av34
   A &
                3 1.5 2 /2
     3 or av34
                       12
If yes, v = 1307
                                      (Equation 25-8)
                     Flow Entering Merge Influence Area
                     Actual
                                  Max Desirable
                                                       Violation?
                    1007
                                  4600
     12A
                Level of Service Determination (if not F)
Density, S = 5.475 + 0.00734 \text{ v} + 0.0078 \text{ v} - 9.00627 \text{ L} - 15.9 \text{ R}
                                                                   pc/mi/ln
Level of service for ramp-freeway junction areas of influence B
                          Speed Estimation
Intermediate speed variable,
                                          M = 0.309
Space mean speed in ramp influence area,
                                          3 = 57.9
Space mean speed in outer lanes,
                                          5 = 64.1
Space mean speed for all vehicles,
                                          S + 60.6 mph
```

Project: Vista Canyon Ranch HCM: 2000

 Scenario:
 2012 Plus Project Conditions w/ Mitigation
 PHF:
 1

 TOD:
 AM Peak Hr
 Analysis Period:
 Hourly
 # of Runs:
 10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd. Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	272	281	103	7	54.7	D	-
NB	T	133	159	120	9	51.2	D	
	R	360	355	99	24	9.8	Α	-
	Subtotal	765	795	104	-	34.0	С	-
	L	141	146	104	13	54.4	D	-
SB	T	130	131	101	11	49.8	D	-
	R	141	139	99	15	19.3	В	-
	Subtotal	412	416	101	-	41.2	D	-
	L	74	68	92	10	64.1	E	- ÷
EB	T	568	564	99	27	38.6	D	-
	R	296	296	100	18	13.4	В	-
	Subtotal	938	927	99		32.4	С	-
	L	230	219	95	8	58.9	E	*
WB	Т	1042	1035	99	24	30.6	С	-
	R	150	148	99	5	6.2	Α	
	Subtotal	1422	1402	99	-	32.5	С	
	Total	3537	3540	100		33.8	С	-

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	proach Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	520	471	91	19	165.9	F	-
NB	R	30	29	93	5	134.5	F	24
	Subtotal	550	499	91		164.1	F	
1 100	T	546	588	108	20	17.6	В	-
EB	R	513	516	101	28	7.3	Α	
	Subtotal	1059	1104	104	-	12.8	В	-
	L	362	356	98	23	43.3	D	-
WB	T	902	893	99	28	18.8	В	-
	Subtotal	1264	1249	99		25.7	С	-
	Total	2873	2852	99	-	44.9	D	-

Project: Vista Canyon Ranch HCM: 2000

Scenario: 2012 Plus Project Conditions w/ Mitigation PHF: 1

TOD: AM Peak Hr Analysis Period: Hourly # of Runs: 10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd. Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	T	493	561	114	23	15.8	В	-
NB	R	150	153	102	13	5.7	Α	*
	Subtotal	643	714	111	-	13.6	В	-
	L	170	169	99	14	26.6	С	-
SB	T	476	502	105	22	7.7	Α	-
	Subtotal	646	670	104	-	12.5	В	
	L	232	230	99	14	22.0	С	-
EB	R	206	202	98	19	4.1	Α	-
	Subtotal	438	432	99		13.6	В	
	Total	1727	1816	105	-	13.2	В	

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd. Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	90	93	103	7	8.0	Α	-
NB	T	372	377	101	18	9.1	Α	-
	R	5	6	120	3	6.4	Α	
	Subtotal	467	476	102	-	8.8	Α	-
	L	23	21	91	5	10.5	В	-
SB	T	339	320	94	17	13.4	В	
	R	380	386	102	18	11.9	В	
	Subtotal	742	727	98		12.5	В	-
	L	310	313	101	16	10.3	В	
EB	T	5	4	80	1	13.6	В	
	R	60	56	93	6	10.8	В	-
	Subtotal	375	374	100		10.5	В	-
	L	5	5	100	3	7.7	Α	-
WB	Т	10	12	120	3	7.8	Α	-
	R	21	24	114	4	7,6	Α	-
	Subtotal	36	41	114	-	7.7	Α	
	Total	1620	1617	100	-	10.8	В	-



Project: Vista Canyon Ranch HCM: 2000

Scenario: 2012 Plus Project Conditions w/ Mitigation PHF: 1

TOD: AM Peak Hr Analysis Period: Hourly # of Runs: 10

Intersection: 14: SR 14 SB Ramps & Via Princessa Type: Signalized

		Demand	٧	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	291	281	97	15	29.3	С	
NB	T	664	684	103	20	4.8	Α	-
	Subtotal	955	965	101		11.9	В	
	T	507	502	99	15	18.0	В	
SB	R	860	862	100	28	9.9	Α	-
	Subtotal	1367	1364	100		12.9	В	
	L	84	86	102	9	36.0	D	
WB	T	5	5	100	2	40.2	D	
	R	310	315	102	17	10.8	В	-
	Subtotal	399	406	102	-	16.5	В	-
	Total	2721	2735	101		13.1	В	-

Intersection: 15: SR 14 NB Ramps & Via Princessa Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	T	695	740	106	18	12.8	В	-
NB	R	151	150	99	14	5.3	Α	- *
	Subtotal	846	890	105	-	11.6	В	
	L	220	212	96	11	42.5	D	-
SB	T	371	384	104	14	3.3	Α	-
	Subtotal	591	596	101	-	17.2	В	
	L	260	271	104	14	33.4	С	
EB	R	155	161	104	12	10.1	В	-
	Subtotal	415	432	104	-	24.7	С	-
	Total	1852	1918	104	-	16.3	В	-



Project: Vista Canyon Ranch HCM: 2000

Scenario:2012 Plus Project Conditions w/ MitigationPHF:1TOD:PM Peak HrAnalysis Period:Hourly# of Runs:10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd. Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	316	314	99	13	49.0	D	-
NB	T	173	379	219	21	27.1	С	
	R	621	617	99	23	20.7	С	
	Subtotal	1110	1310	118	in the	29.3	С	-
	L	145	148	102	10	51.2	D	(+2)
\$B	Т	120	129	108	11	45.9	D	-
	R	85	87	102	9	13.3	В	-
	Subtotal	350	364	104		40.3	D	-
	L	123	114	93	12	66.5	Е	-
EB	T	846	851	101	26	47.9	D	**
	R	374	366	98	16	16.8	В	-
	Subtotal	1343	1331	99		40.9	D	-
	L	180	175	97	12	52.7	D	
WB	T	509	521	102	23	26.6	С	-
	R	110	109	99	15	5.0	Α	-
	Subtotal	799	805	101	- 1	29.3	С	-
	Total	3602	3811	106	- 1	34.4	С	-

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps Type: Signalized

		Demand	٧	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	340	339	100	18	20.6	С	-
NB	R	70	70	100	6	11.2	В	
	Subtotal	410	409	100	**	19.0	В	-
	Т	1151	1159	101	30	16.0	В	
EB	R	481	477	99	17	4.5	Α	-
	Subtotal	1632	1635	100	-	12.6	В	
	L	239	224	94	9	145.7	F	
WB	Т	459	441	96	18	8.8	Α	-
	Subtotal	698	665	95		55.0	Е	100
	Total	2740	2710	99		24.0	С	



Project: Vista Canyon Ranch HCM: 2000

 Scenario:
 2012 Plus Project Conditions w/ Mitigation
 PHF:
 1

 TOD:
 PM Peak Hr
 Analysis Period:
 Hourly
 # of Runs:
 10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd. Type: Signalized

		Demand	V	olume Serv	red	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	T	492	493	100	27	26.9	С	(77)	
NB	R	360	355	99	21	9.6	Α	-	
	Subtotal	852	848	100		19.6	В		
	L	240	243	101	17	31.5	С	-	
SB	T	394	432	110	20	10.7	В	-	
	Subtotal	634	675	106		18.2	В	1,000	
	L	818	811	99	22	35.8	D	-	
EB	R	394	398	101	18	7.4	Α	-	
	Subtotal	1212	1209	100	-	26.4	С	-	
	Total	2698	2732	101		22.3	С		

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd. Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	5	5	100	2	5.6	Α	-
NB	T	629	619	98	15	8.1	Α	-
	R	10	10	100	3	6.8	Α	-
	Subtotal	644	634	98		8.1	A	-
	L	32	32	100	7	8.6	Α	-
SB	Т	496	728	147	25	8.2	Α	-
	R	30	28	93	8	9.0	Α	-
	Subtotal	558	788	141	144	8.3	Α	-
	L	40	41	103	4	4.5	Α	
EB	T	5	4	80	2	6.4	Α	
	R	5	5	100	2	3.9	Α	- 6
	Subtotal	50	50	100	* 1	4.6	A	
	L	5	4	80	2	6.8	Α	- 19
WB	Т	5	5	100	2	6.6	Α	
	R	43	44	102	7	5.6	Α	
	Subtotal	53	53	100	- #T T	5.8	Α	
	Total	1305	1525	117	-	8.0	Α	-



Project: Vista Canyon Ranch HCM: 2000

Scenario: 2012 Plus Project Conditions w/ Mitigation PHF: 1

TOD: PM Peak Hr Analysis Period: Hourly # of Runs: 10

Intersection: 14: SR 14 SB Ramps & Via Princessa Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	165	160	97	8	55.5	E	
NB	T	944	956	101	25	1.6	Α	-
	Subtotal	1109	1115	101	-	9.3	Α	
	T	899	888	99	18	21.1	С	
\$B	R	560	564	101	27	7.4	Α	-
	Subtotal	1459	1453	100	-	15.8	В	
	L	167	162	97	8	44.9	D	-
WB	T	10	10	100	4	46.9	D	-
	R	300	296	99	14	16.5	В	-
	Subtotal	477	468	98		27.0	С	-
	Total	3045	3035	100	-	15.1	В	

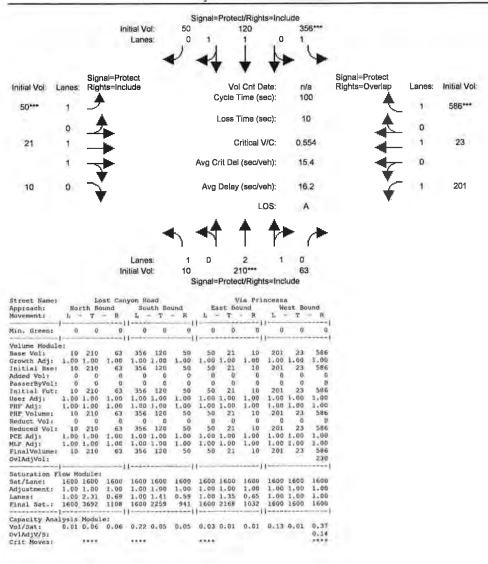
Intersection: 15: SR 14 NB Ramps & Via Princessa Type: Signalized

	1	Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Т	469	475	101	15	31.2	С	-
NB	R	144	150	104	8	10.6	В	
	Subtotal	613	624	102	-	26.3	С	
	L	510	501	98	17	16.8	В	-
SB	Т	556	548	99	19	12.9	В	-
	Subtotal	1066	1048	98		14.8	В	
	L	640	642	100	21	33.3	С	
EB	R	331	331	100	16	24.2	С	
	Subtotal	971	973	100	-	30.2	С	
	Total	2650	2645	100		23.2	С	



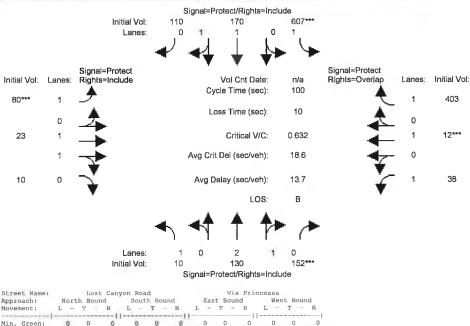
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) 2012 Plus Project Mitigation AM

Intersection #16: Via Princessa/Lost Canyon Road



Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) 2012 Plus Project Mitigation PM

Intersection #16: Via Princessa/Lost Canyon Road



Street Name:		Lo	st Can	yon R	oad	Via Pr					rincessa			
Approach:	No	rth Bo	ound	So	uth Bo	ound	E	ast Bo	und	W	est Bo	und		
Movement:	L	- T	- R	L ·	- T	- R	L ·	- T	- R	L ·	- T	- R		
****				1			1							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0		
		-	1	1-			1							
Volume Modul	e:													
Base Vol:	10		152	607		110	80	23	10	38	12	403		
Growth Adj:			1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Initial Bse:			152		170	110	8.0		10	30		403		
Added Vol:	0	0	0	0	0	0	0		0	0		0		
PasserByVol:		0	0	0	0	0	0			0		0		
Initial Fut:		130	152	607			80							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00		
PHF 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		
PHF Volume:	10	130	152	607	170	110	0.0	23	10	38	12	403		
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	10	130	152	607	170	110	80	23	10	38	12	403		
PCE 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		
MLF 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		
FinalVolume:	10	130	152	607	170	110	80	23	10	38	12	403		
OvlAdjVol:												0		
		-		1		1	1	-		-	-			
Saturation F	low M	odule:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600		
Adjustment:	1.00	1.00	1,00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Lanes:	1,00	2.00	1.00	1.00	1.21	0.79	1.00	1.39	0.61	1.00	1.00	1.00		
Final Sat.:	1600	3200	1600	1600	1943	1257	1600	2230	970	1600	1600	1600		
				1					I					
Capacity Ana	lysis	Modul	e:											
Vol/Sat:	0.01	0.04	0.10	0.38	0.09	0.09	0.05	0.01	0.01	0.02	0.01	0.25		
OvlAdjV/S:												0.00		
Crit Moves:			****	****			****				****			

	۶	•	1	†	↓	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR	SALONS ST	57,64		-	
Lane Configurations	M			स	ĵ.						
Sign Control	Stop			Free	Free						
Grade	0%			0%	0%						
Volume (veh/h)	61	50	20	10	10	421					
Peak Hour Factor	0.55	0.55	0.80	0.80	0.90	0.90					
Hourly flow rate (vph)	111	91	25	12	11	468					
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft) pX, platoon unblocked											
vC, conflicting volume	308	245	479								
vC1, stage 1 conf vol	300	240	4/3								
vC2, stage 2 conf vol											
vCu, unblocked vol	308	245	479								
tC, single (s)	6.4	6.2	4.1								
tC, 2 stage (s)	•										
tF (s)	3.5	3.3	2.2								
p0 queue free %	83	89	98								
cM capacity (veh/h)	669	794	1083								
Direction, Lane #	EB 1	NB 1	SB 1		15 45	White Wall		Blur of		100	WELL THE
Volume Total	202	38	479								
Volume Left	111	25	0								
Volume Right	91	0	468								
cSH	720	1083	1700								
Volume to Capacity	0.28	0.02	0.28								
Queue Length 95th (ft)	29	_ 2	0								
Control Delay (s)	11.9	5.7	0.0								
Lane LOS	В	_ A									
Approach Delay (s)	11.9	5.7	0.0								
Approach LOS	В										
Intersection Summary	100	S the sh	In Shall S		15	THE VIEW	16th 500				Part of
Average Delay			3.7								
Intersection Capacity Uti	llization	;	39.7%	IC	U Leve	of Service			Α		
Analysis Period (min)			15								

7: Soledad Canyon Rd. & Lost Canyon Rd.

	_	$\overline{}$		-	•	<i>></i>					
Movement	EBT	EBR	WBL	WBT	NBL	NBR	PER STATE	15.5 6	TOTAL ST	N 5 0 1 1 2	C
Lane Configurations	ተተጉ		ħ	ተተተ	M						
Sign Control	Free		,	Free	Stop						
Grade	0%			0%	0%						
Volume (veh/h)	950	290	175	1820	143	86					
Peak Hour Factor	0.85	0.85	0.90	0.90	0.40	0.40					
Hourly flow rate (vph)	1118	341	194	2022	358	215					
Pedestrians		• • • •									
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type					None						
Median storage veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume			1459		2351	543					
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol			1459		2351	543					
tC, single (s)			4.1		6.8	6.9					
tC, 2 stage (s)											
tF (s)			2.2		3.5	3.3					
p0 queue free %			58		0	56					
cM capacity (veh/h)			459		17	484					
Direction, Lane #	EB 1	EB 2	EB3	WB1	WB 2	WB3	WB 4	NB1	TOWN S	de literal	10000
Volume Total	447	447	565	194	674	674	674	572			
Volume Left	0	0	0	194	0	0	0	358			
Volume Right	0	0	341	0	0	0	0	215			
cSH	1700	1700	1700	459	1700	1700	1700	27			
Volume to Capacity	0.26	0.26	0.33	0.42	0.40	0.40	0.40	21.11			
Queue Length 95th (ft)	0	0	0	52	0	0	0	Err			
Control Delay (s)	0.0	0.0	0.0	18.5	0.0	0.0	0.0	Err			
Lane LOS				C				F			
Approach Delay (s)	0.0			1.6				Err F			
Approach LOS								r			
Intersection Summary	STEPPE ST	E S	A Laur	VIE -	27/11	- 300	St. T	R. RADIO	6313	1220	10-46
Average Delay			1348.4 57.7%						_		
	ntersection Capacity Utilization			ŀ	CU Lev	el of Se	rvice		В		
Analysis Period (min)			15								

	۶	-	-	1	+	4	1	†	-	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	777	ተተ ን		77	ተተው		1/1	ተተ	7	7	ተተ	7
Ideal Flow (vphpi)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4598		3433	5009		3433	3539	1546	1770	3539	1490
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4598		3433	5009		3433	3539	1546	1770	3539	1490
Volume (vph)	320	901	749	460	1433	123	369	542	169	136	715	540
Peak-hour factor, PHF	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. Flow (vph)	320	901	749	460	1433	123	369	542	169	136	715	540
RTOR Reduction (vph)	0	119	0	0	8	0	0	0	121	0	0	263
Lane Group Flow (vph)	320	1531	0	460	1548	0	369	542	48	136	715	277
Confl. Peds. (#/hr)			49			22			8			39
Confl. Bikes (#/hr)			2			4			2			6
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	15.1	38.1		19.2	42.2		16.7	32.0	32.0	11.7	27.0	27.0
Effective Green, g (s)	14.6	40.1		18.7	44.2		16.2	34.0	34.0	11.2	29.0	29.0
Actuated g/C Ratio	0.12	0.33		0.16	0.37		0.13	0.28	0.28	0.09	0.24	0.24
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	418	1536		535	1845		463	1003	438	165	855	360
v/s Ratio Prot	0.09	c0.33		c0.13	0.31		c0.11	0.15		0.08	c0.20	
v/s Ratio Perm									0.03			0.19
v/c Ratio	0.77	1.22dr		0.86	0.84		0.80	0.54	0.11	0.82	0.84	0.77
Uniform Delay, d1	51.0	39.9		49.4	34.7		50.3	36.4	31.8	53.4	43.2	42.4
Progression Factor	1.00	1.00		1.00	1.00		0.76	0.67	0.84	1.00	1.00	1.00
Incremental Delay, d2	7.4	22.3		12.6	4.8		8.6	0.9	0.2	26.0	7.7	10.6
Delay (s)	58.4	62.2		61.9	39.4		47.0	25.3	26.8	79.5	51.0	53.0
Level of Service	Ε	Ε		Ε	D		D	С	С	Ε	D	D
Approach Delay (s)		61.6			44.6			33.0			54.6	
Approach LOS		E			D			С			D	
Intersection Summary	5	di di		231				Middle		到四颗		
HCM Average Control Delay			50.0	HCM Level of Service					D			
HCM Volume to Capacity ratio			0.90	Cum of last times (a)					16.0			
Actuated Cycle Length (s)			120.0	Sum of lost time (s) ICU Level of Service					16.0			
Intersection Capacity Utilization			98.4%	10	SO Leve	i oi ser	vice		F			

15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Analysis Period (min)

c Critical Lane Group

	1	4	†	1	->	1						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	the same		2100	100	- 6	
Lane Configurations		7	个个分			ተተተ						
Sign Control	Stop		Free			Free						
Grade	0%		0%			0%						
Volume (veh/h)	0	291	919	130	0	1913						
Peak Hour Factor	0.75	0.75	0.90	0.90	0.95	0.95						
Hourly flow rate (vph)	0	388	1021	144	0	2014						
Pedestrians	72											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	6											
Right turn flare (veh)												
Median type	None											
Median storage veh)												
Upstream signal (ft)			702									
pX, platoon unblocked	0.88	0.88			0.88							
vC, conflicting volume	1837	485			1238							
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1671	127			987							
tC, single (s)	6.8	6.9			4.1							
tC, 2 stage (s)												
tF (s)	3.5	3.3			2.2							
p0 queue free %	100	48			100							
cM capacity (veh/h)	71	740			573							
Direction, Lane#	WB1	NB 1	NB 2	NB3	SB 1	SB 2	SB 3		1/12	- (D m 1)	W. S.	S. Indian
Volume Total	388	408	408	349	671	671	671					
Volume Left	0	0	0	0	0	0	0					
Volume Right	388	0	0	144	0	0	0					
cSH	740	1700	1700	1700	1700	1700	1700					
Volume to Capacity	0.52	0.24	0.24	0.21	0.39	0.39	0.39					
Queue Length 95th (ft)	77	0	0	0	0	0	0					
Control Delay (s)	15.1	0.0	0.0	0.0	0.0	0.0	0.0					
Lane LOS	С											
Approach Delay (s)	15.1	0.0			0.0							
Approach LOS	С											
Intersection Summary	o Mak	(Markey)	THE PERSON NAMED IN		Topped !	BOW	THE STATE OF	2,00	50,0	1.000	12/2/2	That
Average Delay			1.6									
Intersection Capacity Ut	ilization		46.0%	10	CU Leve	of Ser	vice		Α	ı		
Analysis Period (min)			15									

	۶	-	•	•	+	4	4	†	~	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		*	↑	7	ħ	ተተኩ		ሻ	ተተሱ	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00 1.00		1.00 1.00	1.00	1.00 0.93	1.00 1.00	0.91 0.99		1.00	0.91 1.00	
Frpb, ped/bikes Flpb, ped/bikes		1.00		1.00	1.00 1.00	1.00	1.00	1.00		1.00 1. 00	1.00	
Frt		0.90		1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1658		1770	1863	1472	1770	4914		1770	5070	
Flt Permitted		0.98		0.68	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1635		1274	1863	1472	1770	4914		1770	5070	
Volume (vph)	10	10	70	339	5	180	30	959	209	183	1650	30
Peak-hour factor, PHF	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. Flow (vph)	10	10	70	339	5	180	30	959	209	183	1650	30
RTOR Reduction (vph)	0	49	0	0	0	125	0	30	0	0	1	0
Lane Group Flow (vph)	0	41	0	339	5	55	30	1138	0	183	1679	0
Confl. Peds. (#/hr)						46			18			1
Confl. Bikes (#/hr)	_					1						
Turn Type	Perm			Perm		Perm	Prot	•		Prot	•	
Protected Phases Permitted Phases	4	4		0	8		5	2		1	6	
Actuated Green, G (s)	4	35.9		8 35.9	35.9	8 35.9	4.1	51.7		18.4	66.0	
Effective Green, g (s)		36.4		36.4	36.4	36.4	3.6	53.7		17.9	68.0	
Actuated g/C Ratio		0.30		0.30	0.30	0.30	0.03	0.45		0.15	0.57	
Clearance Time (s)		4.5		4.5	4.5	4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		496		386	565	447	53	2199		264	2873	
v/s Ratio Prot					0.00		0.02	0.23		c0.10	c0.33	
v/s Ratio Perm		0.03		c0.27		0.04						
v/c Ratio		0.08		0.88	0.01	0.12	0.57	0.52		0.69	0.58	
Uniform Delay, d1		29.9		39.7	29.2	30.2	57.4	23.8		48.4	16.8	
Progression Factor		1.00		1.00	1.00	1.00	1.06	0.64		1.03	1.36	
Incremental Delay, d2		0.1		19.6	0.0	0.1	7.9	0.9		3.0	0.4	
Delay (s) Level of Service		29.9 C		59.3 E	29.2 C	30.4 C	68.8	16.2 B		52.7 D	23.3 C	
Approach Delay (s)		29.9		E	49.1	C	E	17. 5		D	26.2	
Approach LOS		29.9 C			49.1 D			17.5 B			20.2 C	
	F 1075.00	Warrat Gere			7770		Towns or the last	-	THE W	HO VIII	THE STREET	7 3 47
Intersection Summary HCM Average Control D	elav	50 70 80	26.7	NOHE !	CMLe	el of Se	nvice	No Division	С	100	日日	-
HCM Volume to Capacit			0.69	П	OW LEV	7 0 1 01 36	VICE		C			
Actuated Cycle Length (120.0	9	um of k	ost time	(s)		8.0			
Intersection Capacity Uti		-	71.3%			of Ser			C			
Analysis Period (min) c Critical Lane Group			15			-: -3.			-			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		4 } Stop			∰ Stop		N,	∱ Stop		ď	∱ Stop	
Volume (vph)	85	30	80	70	40	5	30	152	30	5	149	123
Peak Hour Factor	0.75	0.75	0.75	0.85	0.85	0.85	0.90	0.90	0.90	0.75	0.75	0.75
Hourly flow rate (vph)	113	40	107	82	47	6	33	169	33	7	199	164
Direction, Lane#	EB 1	WB1	NB 1	NB 2	SB 1	SB 2		A I I	423		A GOLD	STORY.
Volume Total (vph)	260	135	33	202	7	363						
Volume Left (vph)	113	82	33	0	7	0						
Volume Right (vph)	107	6	0	33	0	164						
Hadj (s)	-0.12	0.13	0.53	-0.08	0.53	-0.28						
Departure Headway (s)	5.8	6.3	6.8	6.2	6.7	5.8						
Degree Utilization, x	0.42	0.24	0.06	0.35	0.01	0.59						
Capacity (veh/h)	562	503	487	536	510	582						
Control Delay (s)	12.8	11.2	9.1	11.3	8.5	15.5						
Approach Delay (s)	12.8	11.2	11.0		15.4							
Approach LOS	В	В	В		С							
Intersection Summary	200	71	- 白白	S1824	y "E oc"		Cally in	11 35	in la	7. 70	SPW2	17464
Delay			13.1									
HCM Level of Service			В									
Intersection Capacity Uti Analysis Period (min)	lization	•	40.9% 15	IC	CU Leve	of Serv	ice		Α			

	•	→	-	4	1	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR	11913	and the same	- India	N. 19. 14	THE THE
Lane Configurations	7	44	1		N.	7					
Sign Control		Free	Free		Stop						
Grade		0%	0%		0%						
Volume (veh/h)	172	210	230	50	110	249					
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.90					
Hourly flow rate (vph) Pedestrians	215	262	256	56	122	277					
Lane Width (ft)		1 12.0									
Walking Speed (ft/s)		4.0									
Percent Blockage		4.0									
Right turn flare (veh)		U									
Median type					None						
Median storage veh)					110110						
Upstream signal (ft)		580									
pX, platoon unblocked											
vC, conflicting volume	311				845	157					
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	311				845	157					
tC, single (s)	4.1				6.8	6.9					
tC, 2 stage (s)											
tF (s)	2.2				3.5	3.3					
p0 queue free %	83				51	68					
cM capacity (veh/h)	1246				250	860					
Direction, Lane #	EB1	EB 2	EB 3	WB1	WB 2	SB 1	SB 2	1 1 30	34.3		1
Volume Total	215	131	131	170	141	122	277				
Volume Left	215	0	0	0	0	122	0				
Volume Right cSH	0 1246	0 1700	4700	4700	56	0	277				
Volume to Capacity	0.17	0.08	1700 0.08	1700 0.10	1700 0.08	250 0.49	860 0.32				
Queue Length 95th (ft)	16	0.00	0.08	0.10	0.08	0. 49 62	35				
Control Delay (s)	8.5	0.0	0.0	0.0	0.0	32.5	11.2				
Lane LOS	0.0 A	0.0	0.0	0.0	0.0	52.5 D	В				
Approach Delay (s)	3.8			0.0		17,7					
Approach LOS	0.0			0.0		C					
Intersection Summary	15/8/15	100	Beer	2001		200	100	10 7 CV	A THE	STATE OF	15 (15)
Average Delay			7.5								
Intersection Capacity Uti	ilization		33.8%	IC	CU Leve	l of Ser	vice		Α		
Analysis Period (min)			15								

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	77	ተተተ	7	14/4	ተ	7	1/1/	ተተተ	7	44	ተተተ	77
ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	2787
Volume (vph)	180	758	250	182	558	70	160	394	135	330	1557	522
Peak-hour factor, PHF	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. Flow (vph)	180	758	250	182	558	70	160	394	135	330	1557	522
RTOR Reduction (vph)	0	0	189	0	0	52	0	0	83	0	0	236
Lane Group Flow (vph)	180	758	61	182	558	18	160	394	52	330	1557	286
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.6	27.5	27.5	9.9	28.8	28.8	9.3	44.0	44.0	18.6	53.3	53.3
Effective Green, g (s)	8.6	29.5	29.5	9.9	30.8	30.8	9.3	46.0	46.0	18.6	55.3	55.3
Actuated g/C Ratio	0.07	0.25	0.25	0.08	0.26	0.26	0.08	0.38	0.38	0.16	0.46	0.46
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	246	1250	389	283	1305	406	266	1949	607	532	2343	1284
v/s Ratio Prot	0.05	c0.15		c0.05	0.11		0.05	0.08		c0.10	c0.31	
v/s Ratio Perm			0.04			0.01			0.03			0.10
v/c Ratio	0.73	0.61	0.16	0.64	0.43	0.04	0.60	0.20	0.09	0.62	0.66	0.22
Uniform Delay, d1	54.6	40.1	35.5	53.3	37.2	33.5	53.6	24.7	23.6	47.4	25.1	19.4
Progression Factor	1.05	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.20	0.59	0.39
Incremental Delay, d2	9.2	1.1	0.3	3.7	0.4	0.1	2.6	0.2	0.3	1.4	1.3	0.3
Delay (s)	66.3	39.7	34.5	57.1	37.6	33.6	56.2	25.0	23.9	58.3	16.0	8.0
Level of Service	Ε	D	С	E	D	С	Е	С	С	Е	В	Α
Approach Delay (s)		42.6			41.6			32.0			20.1	
Approach LOS		D			D			С			С	
Intersection Summary	35	part (in)	10		- 17	W WEST	J. 1949	MATE OF	NO.	THE PARTY	E MAY	THE D
HCM Average Control De	elay		30.4	Н	CM Lev	el of Se	rvice		С			
HCM Volume to Capacity			0.63									
Actuated Cycle Length (s			120.0	S	um of lo	ost time	(s)		12.0			
			67 00/			el of Sen			С			
Intersection Capacity Util	ization	,	67.8%	IC	O LEVE	a oi sei	/ice					
intersection Capacity Otil Analysis Period (min) c Critical Lane Group	lization	,	15	ıc	O Leve	ei Oi Sen	/IC e		C			

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	第3年等人福祉等中国长期 5g
Lane Configurations	*5	ተተተ	ተተተ	7	7	*	
ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
Flt Permitted	0.22	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	409	5085	5085	1583	1770	1583	
Volume (vph)	40	1028	1142	100	40	10	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	40	1028	1142	100	40	10	
RTOR Reduction (vph)	0	0	0	20	0	9	
Lane Group Flow (vph)	40	1028	1142	80	40	1	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	101.2	101.2	94.2	94.2	8.3	8.3	
Effective Green, g (s)	103.2	103.2	96.2	96.2	8.8	8.8	
Actuated g/C Ratio	0.86	0.86	0.80	0.80	0.07	0.07	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
Lane Grp Cap (vph)	386	4373	4076	1269	130	116	
v/s Ratio Prot	0.00	c0.20	c0.22		c0.02		
v/s Ratio Perm	0.09			0.05		0.00	
v/c Ratio	0.10	0.24	0.28	0.06	0.31	0.01	
Uniform Delay, d1	1.4	1.5	3.0	2.5	52.7	51.5	
Progression Factor	1.00	1.00	1.66	2.58	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.2	0.1	0.5	0.0	
Delay (s)	1.5	1.6	5.2	6.5	53.2	51.6	
Level of Service	Α	Α	Α	Α	D	D	
Approach Delay (s)		1.6	5.3		52.9		
Approach LOS		Α	Α		D		
Intersection Summary	1. 1.		CONTRACT OF STREET	C. Car	5875	True I	2世界的 对自己的一个人
HCM Average Control D			4.6	H	ICM Lev	el of Serv	ice A
HCM Volume to Capacit	ty ratio		0.28				
Actuated Cycle Length (120.0	S	ium of k	ost time (s) 12.0
Intersection Capacity Ut			38.7%			el of Servic	•
Analysis Period (min)			15				
c Critical Lane Group							

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	1/1/	7	个个	7	77	^	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	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	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1533	3539	
Volume (vph)	952	200	200	697	371	610	
Peak-hour factor, PHF	1.00	1,00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	952	200	200	697	371	610	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	952	200	200	697	371	610	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		<u> </u>	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	24.4	54.8	8.4	54.8	22.4	22.4	
Effective Green, g (s)	24.4	54.8	8.4	54.8	22.4	22.4	
Actuated g/C Ratio	0.45	1.00	0.15	1.00	0.41	0.41	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1529	1583	542	1583	973	1447	
v/s Ratio Prot	c0.28		0.06		0.07	0.17	
v/s Ratio Perm		0.13		c0.44	0.09		
v/c Ratio	0.62	0.13	0.37	0.44	0.38	0.42	
Uniform Delay, d1	11.7	0.0	20.8	0.0	10.9	11.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.2	0.7	0.9	0.1	0.3	
Delay (s)	12.7	0.2	21.6	0.9	11.0	11.9	
Level of Service	В	Α	С	Α	В	В	
Approach Delay (s)	10.5		5.5			11.6	
Approach LOS	В		Α			В	
Intersection Summary	11-50	15-11	1	and the	AL ST		
HCM Average Control D	elay		9.4	Н	CM Lev	el of Servic	e A
HCM Volume to Capacit	y ratio		0.53				
Actuated Cycle Length (54.8	S	um of lo	st time (s)	4.0
Intersection Capacity Uti		;	53.3%			l of Service	
Analysis Period (min)			15				
c Critical Lane Group							

Vista Canyon Ranch 19: Soledad Canyon Rd. & Whites Canyon Rd.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተኈ		其其	ተተተ	7	44	个 个	7	14.54	^	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes Frt	1.00 1.00	1.00 0.97		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00		1.00 0.95	1.00 1.00	0.85 1.00	1.00 0.95	1.00 1.00	0.85 1.00	1.00 0.95	1.00 1.00	0.85 1.00
Satd. Flow (prot)	3433	4913		3433	5085	1554	3433	3539	1562	3433	3539	1551
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4913		3433	5085	1554	3433	3539	1562	3433	3539	1551
Volume (vph)	180	885	221	400	1621	349	165	305	130	561	460	510
Peak-hour factor, PHF	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. Flow (vph)	180	885	221	400	1621	349	165	305	130	561	460	510
RTOR Reduction (vph)	0	36	0	0	0	60	0	0	19	0	0	113
Lane Group Flow (vph)	180	1070	Ö	400	1621	289	165	305	111	561	460	397
Confl. Peds. (#/hr)			6			11			7			6
Confl. Bikes (#/hr)									2			
Turn Type	Prot			Prot		pm+ov	Prot		om+ov	Prot		Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	9.4	42.1		17.0	49.7	68.7	9.6	21.9	38.9	19.0	31.3	31.3
Effective Green, g (s)	9.4	44.1		17.0	51.7	70.7	9.6	23.9	40.9	19.0	33.3	33.3
Actuated g/C Ratio	0.08	0.37		0.14	0.43	0.59	0.08	0.20	0.34	0.16	0.28	0.28
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	269	1806		486	2191	916	275	705	584	544	982	430
v/s Ratio Prot	0.05	c0.22		c0.12	c0.32	0.05	c0.05	0.09	0.03	c0.16	0.13	
v/s Ratio Perm						0.14			0.04			c0.26
v/c Ratio	0.67	0.59		0.82	0.74	0.32	0.60	0.43	0.19	1.03	0.47	0.92
Uniform Delay, d1	53.8	30.7		50.0	28.5	12.4	53.3	42.1	27.9	50.5	36.0	42.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.5	1.4		10.3	2.3	0.1	2.5	0.7	0.1 27.9	46.8	0.6	25.8
Delay (s) Level of Service	66.3 E	32.1 C		60.3 E	30.8 C	12.5 B	55.9 E	42.8 D	27.9 C	97.3 F	36.6 D	67.9 E
Approach Delay (s)		36.9		_	33.1	Ь	_	43.2	C	Г	69.3	_
Approach LOS		50.5 D			33.1 C			43.2 D			09.3 E	
Intersection Summary	Disco.	ENDO	BHILL	Section 1	PER DE	(SI)	P. 1900	The July	600	207-1	100	25
HCM Average Control De	elay		44.6	F	ICM Lev	el of Se	ervice		D			
HCM Volume to Capacity	/ ratio		0.77									
Actuated Cycle Length (s	s)		120.0	S	ium of lo	st time	(s)		12.0			
Intersection Capacity Util	ization		78.2%	10	CU Leve	el of Ser	vice		D			
Analysis Period (min)			15									
c Critical Lane Group												

	1	-	*	1	+-	4	1	†	~	-	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	LLL	444		Label	444	7	7	ተተተ	74	444	444	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s) Lane Util. Factor	4.0 0.94	4.0 0.91		4.0 0.94	4.0 0.86	4.0 0.86	4.0 1.00	4.0 0.91	4.0 1.00	4.0 0.94	4.0 0.86	4.0
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.86 0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5057		4990	4806	1362	1770	5085	1575	4990	4631	1352
FIt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5057		4990	4806	1362	1770	5085	1575	4990	4631	1352
Volume (vph)	270	516	20	256	1242	426	20	530	252	552	1290	1190
Peak-hour factor, PHF	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. Flow (vph)	270	516	20	256	1242	426	20	530	252	552	1290	1190
RTOR Reduction (vph)	0	3	0	0	0	51	0	0	14	0	30	102
Lane Group Flow (vph)	270	533	0	256	1242	375	20	530	238	552	1633	715
Confl. Peds. (#/hr) Confl. Bikes (#/hr)									3 1			1
Turn Type	Prot			Prot		am±ov.	Prot			Prot		nma I 011
Protected Phases	7	4		3	8	om+ov 1	5	2	pm+ov 3	Prot 1	6	pm+ov 7
Permitted Phases	,	7		3		8	5	4	2	•	U	6
Actuated Green, G (s)	30.3	21.2		54.1	45.0	69.3	3.8	22.7	76.8	24.3	43.2	73.5
Effective Green, g (s)	31.3	23.2		55.1	47.0	72.3	4.8	24.7	79.8	25.3	45.2	76.5
Actuated g/C Ratio	0.22	0.16		0.38	0.33	0.50	0.03	0.17	0.55	0.18	0.31	0.53
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	1082	813		1905	1565	682	59	870	915	875	1451	754
v/s Ratio Prot	0.05	0.11		0.05	c0.26	0.10	0.01	c0.10	0.10	0.11	c0.35	c0.21
v/s Ratio Perm						0.18			0.05			0.32
v/c Ratio	0.25	0.66		0.13	0.79	0.55	0.34	0.61	0.26	0.63	1.13	0.95
Uniform Delay, d1	46.8	56.8		29.1	44.2	24.8	68.2	55.3	16.8	55.2	49.6	32.0
Progression Factor Incremental Delay, d2	1.00 0.0	1.00 2.0		1.00 0.0	1.00 3.2	1.00 0.5	1.00 1.2	1.00 1.6	1.00 0.1	1.00	1.0 0 66.1	1.00 20.6
Delay (s)	46.8	58.8		29.1	47.4	25.3	69.4	56.9	16.9	1.1 56.3	115.6	52.6
Level of Service	70.0 D	50.5 E		23.1 C	77.7 D	23.3 C	63.4 E	50.5 E	10.9 B	50.5 E	F	52.0 D
Approach Delay (s)		54.8		Ū	40.1	•	_	44.7		_	87.8	
Approach LOS		D			D			D			F	
Intersection Summary	- E-10	tolone.	10	SHA P	To The same		035	1 7 7	U 151	2 1,24		decal
HCM Average Control D	elay		64.5	H	ICM Lev	el of Se	rvice		E			
HCM Volume to Capacity	y ratio		0.94									
Actuated Cycle Length (s			144.3		ium of lo				12.0			
Intersection Capacity Uti	lization	3	39.7%	10	CU Leve	of Sen	/ice		E			
Analysis Period (min)			15									
c Critical Lane Group												

Vista Canyon Ranch 21: Placerita Canyon Rd. & Sierra Hwy

	۶	→	*	-	+	1	1	†	~	-	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ተተተ	74	7	ተተተ	7	A	1		A	1	
ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	3350		1770	3495	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	3350		1770	3495	
Volume (vph)	10	491	170	170	366	305	40	252	140	160	1771	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	517	179	200	431	359	42	265	147	168	1864	168
RTOR Reduction (vph)	0	0	86	0	0	308	0	54	0	0	5	0
Lane Group Flow (vph)	11	517	93	200	431	51	42	358	0	168	2027	0
Turn Type	Split		Perm	Split		Perm	Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases			6			2						
Actuated Green, G (s)	15.4	15.4	15.4	18.1	18.1	18.1	3.1	61.1		16.3	74.3	
Effective Green, g (s)	15.4	15.4	15.4	18.1	18.1	18.1	3.1	61.1		16.3	74.3	
Actuated g/C Ratio	0.12	0.12	0.12	0.14	0.14	0.14	0.02	0.48		0.13	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	215	617	192	252	725	226	43	1613		227	2046	
v/s Ratio Prot	0.01	c0.10		c0.11	0.08		0.02	0.11		c0.09	c0.58	
v/s Ratio Perm			0.06			0.03						
v/c Ratio	0.05	0.84	0.48	0.79	0.59	0.23	0.98	0.22		0.74	0.99	
Uniform Delay, d1	49.3	54.5	52.0	52.6	51.0	48.2	61.9	19.1		53.3	26.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	9.7	1.9	15.7	1.3	0.5	127.2	0.1		12.2	17.7	
Delay (s)	49.4	64.2	54.0	68.3	52.3	48.7	189.1	19.2		65.4	43.6	
Level of Service	D	Ε	D	E	D	D	F	В		Ε	D	
Approach Delay (s)		61.4			54.2			34.9			45.3	
Approach LOS		E			D			С			D	
Intersection Summary	of the	12.5	P 200		111	12.16	MA SIN			THE STREET		N=3
HCM Average Control D	elav		48.9	Н	CM Le	vel of S	ervice		D			
HCM Volume to Capacity			0.94	•					_			
Actuated Cycle Length (s			126.9	S	um of l	ost time	(s)		16.0			
Intersection Capacity Uti			89.6%			el of Se			E			
Analysis Period (min)			15						_			
c Critical Lane Group												

Vista Canyon Ranch 22: SR 14 SB Ramps & Sierra Hwy

	1	4	†	~	-	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT		The Horty	Jan 1	To/Ital	E FAT
Lane Configurations	7	7	1		*	ተተ					
Sign Control	Stop	•	Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	330	10	472	95	790	1761					
Peak Hour Factor	0.70	0.70	0.90	0.90	0.90	0.90					
Hourly flow rate (vph)	471	14	524	106	878	1957					
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)			768								
pX, platoon unblocked											
vC, conflicting volume	3311	315			630						
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	3311	315			630						
tC, single (s)	6.8	6.9			4.1						
tC, 2 stage (s)											
tF (s)	3.5	3.3			2.2						
p0 queue free %	0	98			7						
cM capacity (veh/h)	0	681			948						
Direction, Lane #	WB 1	WB2	NB 1	NB 2	SB 1	SB 2	SB 3		NIE AU		gn 170
Volume Total	471	14	350	280	878	978	978				
Volume Left	471	0	0	0	878	0	0				
Volume Right	0	14	0	106	0	0	0				
cSH	0	681	1700	1700	948	1700	1700				
Volume to Capacity	993.05	0.02	0.21	0.16	0.93	0.58	0.58				
Queue Length 95th (ft)	Err	2	0	0	357	0	0				
Control Delay (s)	Err F	10.4	0.0	0.0	35.2	0.0	0.0				
Lane LOS	9705.2	В	0.0		E						
Approach Delay (s) Approach LOS	9705.2 F		0.0		10.9						
Charles and the Control		-	mene			-	-	the land			The same of the sa
Intersection Summary	1	The state of	004.0	200	THE R. P. LEWIS CO., LANSING	STEP OF	Z ALIV	5.77 Tres	The same	- with	15 15 16
Average Delay Intersection Capacity U Analysis Period (min)	tilization		201.2 88.1% 15	IC	CU Leve	of Ser	vice		E		

23: Placerita Canyon Rd. & SR 14 NB Ramps

	1	→	*	*	+	1	1	1	1	-	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations Sign Control Grade		↑↑ Free 0%	7		∱†≽ Free 0%			र्भ Stop 0%	7"		Stop 0%	
Volume (veh/h)	0	141	210	0	441	10	400	0	50	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph) Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage	0	157	233	0	490	11	444	0	56	0	0	0
Right turn flare (veh)									30			
Median type Median storage veh) Upstream signal (ft)		718						None	00		None	
pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol	501			157			402	658	78	602	652	251
vC2, stage 2 conf vol												
vCu, unblocked vol	501			157			402	658	78	602	652	251
tC, single (s) tC, 2 stage (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			17	100	94	100	100	100
cM capacity (veh/h)	1059			1421			533	383	966	362	386	749
Direction, Lane#	EB1	EB 2	EB3	WB 1	WB2	NB 1	15.7	CER	A Free	Town In	Jensey W	
Volume Total	78	78	233	327	174	500						
Volume Left	0	0	0	0	0	444						
Volume Right	0	0	233	0	11	56						
cSH	1700	1700	1700	1700	1700	600						
Volume to Capacity	0.05	0.05	0.14	0.19	0.10	0.83						
Queue Length 95th (ft)	0	0	0	0	0	220						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	33.9						
Lane LOS						D						
Approach Delay (s) Approach LOS	0.0			0.0		33.9 D						
Intersection Summary	1592	3481	(S. J.)	1 1 11	100	2 2 27	100	R. St.	JUNI	5061	W. Y. L.	10100
Average Delay Intersection Capacity Uti Analysis Period (min)	ilization		12.2 41.3% 15	10	CU Leve	of Sen	/ice		Α			

6: Placerita Canyon Rd. & Sand Canyon Rd.

	۶	*	1	†		1	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	The second secon
Lane Configurations	A			4	(î		
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Volume (veh/h)	349	10	50	30	10	74	
Peak Hour Factor	0.90	0.90	0.75	0.75	0.80	0.80	
Hourly flow rate (vph)	388	11	67	40	12	92	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)	N1						
Median type	None						
Median storage veh)							
Upstream signal (ft) pX, platoon unblocked							
vC, conflicting volume	232	59	105				
vC1, stage 1 conf vol	232	99	103				
vC2, stage 2 conf vol							
vCu, unblocked vol	232	59	105				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)	• • •	0.2	•••				
tF(s)	3.5	3.3	2.2				
p0 queue free %	46	99	96				
cM capacity (veh/h)	722	1007	1486				
Direction, Lane #	EB 1	NB 1	SB 1	FELT	Bass	All Control	CARS TO LAND TO THE SAME AND
Volume Total	399	107	105				
Volume Left	388	67	0				
Volume Right	11	0	92				
cSH	728	1486	1700				
Volume to Capacity	0.55	0.04	0.06				
Queue Length 95th (ft)	84	4	0				
Control Delay (s)	15.8	4.8	0.0				
Lane LOS	С	Α					
Approach Delay (s)	15.8	4.8	0.0				
Approach LOS	С						
Intersection Summary	The s		The I	Bur Ch	r Vidio	THE WAY	
Average Delay			11.2				
Intersection Capacity Ut	ilization		37.6%	IC	:U Leve	l of Service	ce A
Analysis Period (min)			15				

	→	7	1	+	1	~					
Movement	EBT	EBR	WBL	WBT	NBL	NBR		,00	100 (7.4-	1401 - 1
Lane Configurations	444		1	<u> </u>	M						
Sign Control	Free			Free	Stop						
Grade	0%			0%	0%						
Volume (veh/h)	1500	234	139	860	402	245					
Peak Hour Factor	0.95	0.95	0.90	0.90	0.50	0.50					
Hourly flow rate (vph)	1579	246	154	956	804	490					
Pedestrians				1	1						
Lane Width (ft)				12.0	12.0						
Walking Speed (ft/s)				4.0	4.0						
Percent Blockage Right turn flare (veh)				0	0						
Median type Median storage veh) Upstream signal (ft)					None						
pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol			1826		2331	651					
vCu, unblocked vol			1826		2331	651					
tC, single (s)			4.1		6.8	6.9					
tC, 2 stage (s)											
tF (s)			2.2		3.5	3.3					
p0 queue free %			53		0	0					
cM capacity (veh/h)			331		17	410					
Direction, Lane#	EB 1	EB 2	EB 3	WB 1	WB2	WB3	WB4	NB 1		T. 200	Bull Street
Volume Total	632	632	562	154	319	319	319	1294			
Volume Left	0	0	0	154	0	0	0	804			
Volume Right	0	0	246	0	0	0	0	490			
cSH	1700	1700	1700	331	1700	1700	1700	26			
Volume to Capacity	0.37	0.37	0.33	0.47	0.19	0.19	0.19	49.91			
Queue Length 95th (ft)	0	0	0	59	0	0	0	Err			
Control Delay (s)	0.0	0.0	0.0	25.1	0.0	0.0	0.0	Err			
Lane LOS				D				F			
Approach Delay (s) Approach LOS	0.0			3.5				Err F			
Intersection Summary	N. E.	B. Co.	3 18	1.512		S.Vi San	E CY	01 11-16	207.30	W507 7	The state of
Average Delay Intersection Capacity Uti Analysis Period (min)	lization	_	060.2 39.2% 15	IC	CU Leve	el of Ser	vice		Ε		

	•	\rightarrow	7	1	—	•	4	†	-	1	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1/1/	^^		1/1/	ተ ቀጉ		1/1/	十 十	7	ሻ	^	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4592		3433	4919		3433	3539	1520	1770	3539	1473
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4592		3433	4919		3433	3539	1520	1770	3539	1473
Volume (vph)	700	1129	755	240	795	183	667	724	483	238	730	450
Peak-hour factor, PHF	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. Flow (vph)	700	1129	755	240	795	183	667	724	483	238	730	450
RTOR Reduction (vph)	0	79	0	0	28	0	0	0	306	0	0	295
Lane Group Flow (vph)	700	1805	0	240	950	0	667	724	177	238	730	155
Confl. Peds. (#/hr)			70			9			17			48
Confl. Bikes (#/hr)			7			2			5			1
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	29.5	49.9		13.2	33.6		33.4	30.3	30.3	19.6	16.5	16.5
Effective Green, g (s)	29.0	51.9		12.7	35.6		32.9	32.3	32.3	19.1	18.5	18.5
Actuated g/C Ratio	0.22	0.39		0.10	0.27		0.25	0.24	0.24	0.14	0.14	0.14
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	6.0
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	4.5
Lane Grp Cap (vph)	754	1805		330	1327		856	866	372	256	496	206
v/s Ratio Prot	0.20	c0.39		0.07	c0.19		0.19	c0.20		0.13	c0.21	
v/s Ratio Perm									0.12			0.11
v/c Ratio	0.93	1.18dr		0.73	0.72		0.78	0.84	0.48	0.93	1.47	0.75
Uniform Delay, d1	50.5	40.0		58.0	43.6		46.2	47.3	42.6	55.8	56.8	54.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.3	21.1		6.6	3.3		4.4	7.6	1.7	36.8	223.1	16.0
Delay (s)	69.8	61.2		64.6	46.9		50.5	55.0	44.3	92.6	279.8	70.6
Level of Service	E	Е		E	D		D	D	D	F	F	E
Approach Delay (s)		63.5			50.4			50.6			182.0	
Approach LOS		E			D			D			F	
Intersection Summary		Q1/157	265	10.00	Wall of	727-1	2.5 年	210-1911	F 15. 16.	19.57	I WY	300
HCM Average Control Do			81.5	Н	ICM Lev	el of Se	rvice		F			
HCM Volume to Capacity			1.00	_	£1-		(-)		40.0			
Actuated Cycle Length (s		.4.4	132.0		Sum of lo				16.0			
Intersection Capacity Util	iization	10	05.9%	IC	CU Leve	or Sen	vice		G			

Analysis Period (min) 15 dr Defacto Right Lane. Recode with 1 though lane as a right lane. c Critical Lane Group

	1	*	†	~	-	ļ					
Movement	WBL	WBR	NBT	NBR	SBL	SBT	PER NO	A Charles	- TO S		12 15
Lane Configurations		7	ተተሱ			ተተተ					
Sign Control	Stop		Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	0	251	1603	330	0	1576					
Peak Hour Factor	0.85	0.85	1.00	1.00	0.95	0.95					
Hourly flow rate (vph)	0	295	1603	330	0	1659					
Pedestrians	32										
Lane Width (ft)	12.0										
Walking Speed (ft/s)	4.0										
Percent Blockage	3										
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)			702								
pX, platoon unblocked	0.66	0.66			0.66						
vC, conflicting volume	2353	731			1965						
vC1, stage 1 conf vol											
vC2, stage 2 conf vol		_									
vCu, unblocked vol	2023	0			1437						
tC, single (s)	6.8	6.9			4.1						
tC, 2 stage (s)	0.5										
tF (s)	3.5	3.3			2.2						
p0 queue free %	100 32	58			100						
cM capacity (veh/h)		699	-24-50		302						
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	NOT -	7	1 19 /3	to the second
Volume Total	295	641	641	651	553	553	553				
Volume Left	0	0	0	0	0	0	0				
Volume Right	295	0	0	330	0	0	0				
cSH	699	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.42	0.38	0.38	0.38	0.33	0.33	0.33				
Queue Length 95th (ft)	53	0	0	0	0	0	0				
Control Delay (s)	13.9	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	0.0			0.0						
Approach Delay (s) Approach LOS	13.9 B	0.0			0.0						
Intersection Summary	12		10年初	11/6 (2)	10.0	All of	STAURA			1 6-16	
Average Delay Intersection Capacity Ut Analysis Period (min)	ilization		1.1 61.0% 15	10	CU Leve	el of Ser	vice		В		

	۶	→	*	•	—	4	1	†	~	1	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4		1	1	7	M	ተተው		7	ተ ቶን	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695		1770	1863	1539	1770	4965		1770	5049	
Fit Permitted		0.94		0.71	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1609	40	1323	1863	1539	1770	4965	004	1770	5049	
Volume (vph)	20	10	40	284	10	140	60	1923	291	216	1170	50
Peak-hour factor, PHF	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. Flow (vph)	20	10	40	284	10	140	60	1923	291	216	1170	50
RTOR Reduction (vph)	0	31	0	0	0	107	0	17	0	0	3	0
Lane Group Flow (vph)	0	39	0	284	10	33	60	2197	0	216	1217	0
Confl. Peds. (#/hr)						11			11			1
Confl. Bikes (#/hr)	_					2			5			_
Turn Type	Perm			Perm		Perm	Prot	•		Prot		
Protected Phases	4	4			8		5	2		1	6	
Permitted Phases	4	07.0		8	07.6	8	6.7	60.0		40.4	74.7	
Actuated Green, G (s) Effective Green, g (s)		27.6 28.1		27.6 28.1	27.6 28.1	27.6 28.1	6.7 6.2	62.0 64.0		16.4 15.9	71.7 73.7	
Actuated g/C Ratio		0.23		0.23	0.23	0.23	0.05	0.53		0.13	0.61	
Clearance Time (s)		0.23 4.5		4.5	4.5	4.5	3.5	6.0		3.5	6.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	1.5	4.5		1.5	4.5	
Lane Grp Cap (vph)		377		310	436	360	91	2648		235	3101	
v/s Ratio Prot		3/1		310	0.01	300	0.03	c0.44		c0.12	0.24	
v/s Ratio Perm		0.02		c0.21	0.01	0.02	0.03	CU.44		CO. 12	0.24	
v/c Ratio		0.02		0.92	0.02	0.02	0.66	0.83		0.92	0.39	
Uniform Delay, d1		36.1		44.8	35.4	36.0	55.9	23.4		51.4	11.8	
Progression Factor		1.00		1.00	1.00	1.00	0.80	1.42		1.00	1.00	
incremental Delay, d2		0.1		30.2	0.0	0.1	11.8	3.0		36.5	0.4	
Delay (s)		36.2		75.0	35.4	36.1	56.5	36.4		87.9	12.1	
Level of Service		D D		70.0 F	00. 7	D. 1	50.0 E	00. - D		67.6 F	В	
Approach Delay (s)		36.2		_	61.5		_	36.9		•	23.5	
Approach LOS		D			E			D D			C	
Intersection Summary	of the latest	5,50	STEEL	1/2		2-11	ST HEST	1000		- 1	1 5/5	70
HCM Average Control D	elav	M	34.9	Н	CM Lev	el of Se	rvice		С			- X
HCM Volume to Capacit			0.87		Section .	3. 3. 00						
Actuated Cycle Length (120.0	S	um of l	ost time	(s)		12.0			
Intersection Capacity Uti			38.4%			el of Ser			E			
Analysis Period (min)		·	15			,	-					
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			44		7	f)		7	4	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	100	50	40	30	40	10	40	167	70	10	134	146
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	111	56	44	33	44	11	47	196	82	12	158	172
Direction, Lane #	EB 1	WB1	NB 1	NB 2	SB 1	SB 2	313	S. A	MARKET	E I	1112	
Volume Total (vph)	211	89	47	279	12	329						
Volume Left (vph)	111	33	47	0	12	0						
Volume Right (vph)	44	11	0	82	0	172						
Hadj (s)	0.01	0.03	0.53	-0.17	0.53	-0.33						
Departure Headway (s)	5.8	6.1	6.4	5.7	6.4	5.5						
Degree Utilization, x	0.34	0.15	0.08	0.44	0.02	0.51						
Capacity (veh/h)	563	509	530	600	530	620						
Control Delay (s)	11.8	10.2	8.8	12.0	8.4	12.9						
Approach Delay (s)	11.8	10.2	11.5		12.8							
Approach LOS	В	В	В		В							
Intersection Summary	NO.	18 70	Mary !		1 1/11	1 12	10	1 300	10000	NO STATE	1900	no a
Delay			11.9									
HCM Level of Service			В									
Intersection Capacity Uti	lization		45.3%	IC	CU Leve	el of Serv	ice		Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	-	- That	- 53	To be	11/2016
Lane Configurations Sign Control Grade	7	↑↑ Free 0%	∱⊅ Free 0%		Stop 0%	7					
Volume (veh/h)	247	240	210	90	60	174					
Peak Hour Factor	0.95	0.95	0.85	0.85	0.80	0.80					
Hourly flow rate (vph) Pedestrians	260	253	247 3	106	75	218					
Lane Width (ft)			12.0								
Walking Speed (ft/s)			4.0								
Percent Blockage			0								
Right turn flare (veh) Median type Median storage veh)					None						
Upstream signal (ft) pX, platoon unblocked		580									
vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol	353				949	176					
vCu, unblocked vol	353				949	176					
tC, single (s)	4.1				6.8	6.9					
tC, 2 stage (s)											
tF (s)	2.2				3.5	3.3					
p0 queue free %	78				63	74					
cM capacity (veh/h)	1202				202	836					
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB2	SB 1	SB 2	To be a	4.00	A.C.	
Volume Total	260	126	126	165	188	75	218				
Volume Left	260	0	0	0	0	75	0				
Volume Right cSH	0 1202	1700	1700	4700	106	0	218				
Volume to Capacity	0.22	1700 0.07	1700 0.07	1700 0.10	1700 0.11	202 0.37	836 0.26				
Queue Length 95th (ft)	21	0.07	0.07	0.10	0.11	0.37 40	26				
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	33.0	10.8				
Lane LOS	0.0 A	0.0	0.0	0.0	0.0	33.0 D	10.0 B				
Approach Delay (s)	4.5			0.0		16.5	U				
Approach LOS				0.0		C					
Intersection Summary	5 8 9 9			31277	W - W	MENT -			100	178	WIRN F.
Average Delay			6.1								
Intersection Capacity Ut Analysis Period (min)	ilization		35.7% 15	Į(CU Leve	l of Sen	vice		Α		

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	44	ተተተ	7	ሻሻ	ተተተ	7	44	ተተተ	7	44	ተተተ	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1558	3433	5085	1561	3433	5085	1555	3433	5085	2746
Volume (vph)	220	894	120	265	677	140	620	1102	417	190	618	885
Peak-hour factor, PHF	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. Flow (vph)	220	894	120	265	677	140	620	1102	417	190	618	885
RTOR Reduction (vph)	0	0	87	0	0	99	0	0	112	0	0	227
Lane Group Flow (vph)	220	894	33	265	677	41	620	1102	305	190	618	658
Confl. Peds. (#/hr)			2			2			5			2
Confl. Bikes (#/hr)			2						1			1
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.5	31.0	31.0	10.8	33.3	33.3	22.6	48.5	48.5	9.7	35.6	35.6
Effective Green, g (s)	8.5	33.0	33.0	10.8	35.3	35.3	22.6	50.5	50.5	9.7	37.6	37.6
Actuated g/C Ratio	0.07	0.28	0.28	0.09	0.29	0.29	0.19	0.42	0.42	0.08	0.31	0.31
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5	1.5	4.5	4.5
Lane Grp Cap (vph)	243	1398	428	309	1496	459	647	2140	654	278	1593	860
v/s Ratio Prot	0.06	c0.18		c0.08	0.13		c0.18	0.22		0.06	0.12	
v/s Ratio Perm			0.02			0.03			0.20			c0.24
v/c Ratio	0.91	0.64	0.08	0.86	0.45	0.09	0.96	0.51	0.47	0.68	0.39	0.76
Uniform Delay, d1	55.4	38.3	32.2	53.8	34.5	30.7	48.2	25.7	25.0	53.7	32.2	37.2
Progression Factor	1.21	0.84	0.54	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.86	0.73
Incremental Delay, d2	32.1	1.2	0.1	19.6	0.4	0.1	25.0	0.9	2.4	5.0	0.7	5.9
Delay (s)	99.2	33.3	17.6	73.5	34.9	30.8	73.2	26.6	27.4	60.8	28.4	33.2
Level of Service	F	С	В	E	С	С	E	С	С	Е	С	С
Approach Delay (s)		43.5			43.8			40.3			34.6	
Approach LOS		D			D			D			С	
Intersection Summary	Market S	31 4 15	1	Will S	87117	Lord Hot	DE CONT	7 30	FEE	THE REAL PROPERTY.	of my lot	1
HCM Average Control D			40.0	Н	ICM Lev	vel of Se	ervice		D			
HCM Volume to Capacit			0.77									
Actuated Cycle Length (120.0			ost time			16.0			
Intersection Capacity Uti	lization		85.5%	IC	CU Leve	el of Ser	vice		E	+		
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	ሻ	ተተተ	ተተተ	7	M	7	
Ideal Flow (vphpi)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5085	5085	1583	1770	1583	
Flt Permitted	0.07	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	139	5085	5085	1583	1770	1583	
Volume (vph)	20	994	1681	50	140	80	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	20	994	1681	50	140	80	
RTOR Reduction (vph)	0	0	0	24	0	51	
Lane Group Flow (vph)	20	994	1681	26	140	29	
Turn Type	pm+pt			Perm		Perm	
Protected Phases	1	6	2		4		
Permitted Phases	6			2		4	
Actuated Green, G (s)	66.3	66.3	61.0	61.0	43.2	43.2	
Effective Green, g (s)	68.3	68.3	63.0	63.0	43.7	43.7	
Actuated g/C Ratio	0.57	0.57	0.52	0.52	0.36	0.36	
Clearance Time (s)	3.5	6.0	6.0	6.0	4.5	4.5	
Vehicle Extension (s)	2.5	2.5	4.5	4.5	2.0	2.0	
ane Grp Cap (vph)	97	2894	2670	831	645	576	
//s Ratio Prot	0.00	c0.20	c0.33		c0.08	5.5	
//s Ratio Perm	0.12	40.20	00.00	0.02	00.00	0.02	
//c Ratio	0.21	0.34	0.63	0.03	0.22	0.05	
Jniform Delay, d1	15.2	13.8	20.2	13.8	26.3	24.7	
Progression Factor	1.00	1.00	0.99	1.46	1.00	1.00	
ncremental Delay, d2	0.8	0.3	0.7	0.0	0.8	0.2	
Delay (s)	16.0	14.2	20.7	20.2	27.1	24.9	
evel of Service	В	В	C	C	C	C	
Approach Delay (s)		14.2	20.7	•	26.3	J	
Approach LOS		В	C		C		
ntersection Summary	THE PARTY	X TT All	-	1			
HCM Average Control E			18.9	H	ICM Le	vel of Service	ce B
ICM Volume to Capaci			0.46				42.2
Actuated Cycle Length (120.0			ost time (s)	12.0
ntersection Capacity Ut	ilization		46.9%	IC	CU Leve	el of Service	e A
Analysis Period (min)			15				
: Critical Lane Group							

Vista Canyon Ranch 18: Via Princessa & Whites Canyon Rd.

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	a contract of the second of the second of
Lane Configurations	ሻሻ	7	**	7	ሻሻ	44	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.85	1.00	0.85	1.00	1.00	
Fit Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00	1.00	0.40	1.00	
Satd. Flow (perm)	3433	1583	3539	1583	1448	3539	
Volume (vph)	661	1100	360	800	214	260	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	661	1100	360	800	214	260	
RTOR Reduction (vph)	0	0	0	0	0	0	
Lane Group Flow (vph)	661	1100	360	800	214	260	
Turn Type		Free		Free	pm+pt		
Protected Phases	4		2		1	6	
Permitted Phases		Free		Free	6		
Actuated Green, G (s)	16.7	46.5	12.0	46.5	21.8	21.8	
Effective Green, g (s)	16.7	46.5	12.0	46.5	21.8	21.8	
Actuated g/C Ratio	0.36	1.00	0.26	1.00	0.47	0.47	
Clearance Time (s)	4.0		4.0		4.0	4.0	
Vehicle Extension (s)	4.5		4.5		1.5	4.5	
Lane Grp Cap (vph)	1233	1583	913	1583	926	1659	
v/s Ratio Prot	0.19		0.10		0.03	0.07	
v/s Ratio Perm		c0.69		0.51	0.08		
v/c Ratio	0.54	0.69	0.39	0.51	0.23	0.16	
Uniform Delay, d1	11.8	0.0	14.2	0.0	7.2	7.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	2.5	0.5	1.2	0.0	0.1	
Delay (s)	12.5	2.5	14.7	1.2	7.2	7.2	
Level of Service	В	Α	В	Α	Α	A	
Approach Delay (s)	6.3		5.4			7.2	
Approach LOS	Α		Α			Α	
Intersection Summary		VER	To the		The state of	Mar Ph	
HCM Average Control D			6.1	Н	CM Lev	el of Servi	ce A
HCM Volume to Capacit			0.69				
Actuated Cycle Length (s			46.5	S	um of lo	st time (s)	0.0
Intersection Capacity Uti	lization	4	44.9%	IC	U Leve	of Service	e A
Analysis Period (min)			15				
c Critical Lane Group							

	۶	→	*	1	+	1	1	†	1	-	+	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	AL	ተተጉ		44	ተተተ	7	44	ተተ	7	ሻሻ	个个	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5014		3433	5085	1540	3433	3539	1518	3433	3539	1527
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5014		3433	5085	1540	3433	3539	1518	3433	3539	1527
Volume (vph)	580	1702	136	220	1047	551	324	596	240	543	418	190
Peak-hour factor, PHF	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. Flow (vph)	580	1702	136	220	1047	551	324	596	240	543	418	190
RTOR Reduction (vph)	0	6	0	0	0	16	0	0	4	0	0	154
Lane Group Flow (vph)	580	1832	0	220	1047	535	324	596	236	543	418	36
Confl. Peds. (#/hr)			18			23			27			13
Confl. Bikes (#/hr)			3			2			2			3
Turn Type	Prot			Prot		pm+ov	Prot		om+ov	Prot		Perm
Protected Phases	5	2		1	6	7	3	8	1	7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	26.2	49.2		11.8	34.8	57.1	28.0	28.7	40.5	22.3	23.0	23.0
Effective Green, g (s)	26.2	51.2		11.8	36.8	59.1	28.0	30.7	42.5	22.3	25.0	25.0
Actuated g/C Ratio	0.20	0.39		0.09	0.28	0.45	0.21	0.23	0.32	0.17	0.19	0.19
Clearance Time (s)	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	6.0
Vehicle Extension (s)	1.5	4.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	4.5
Lane Grp Cap (vph)	681	1945		307	1418	690	728	823	535	580	670	289
v/s Ratio Prot	0.17	c0.37		0.06	0.21	c0.13	0.09	c0.17	0.04	c0.16	0.12	
v/s Ratio Perm						0.22			0.12			0.02
v/c Ratio	0.85	0.94		0.72	0.74	0.78	0.45	0.72	0.44	0.94	0.62	0.12
Uniform Delay, d1	51.0	39.0		58.5	43.2	30.8	45.2	46.7	35.4	54.1	49.2	44.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	10.7		6.5	2.3	5.0	0.2	3.6	0.2	22.4	2.3	0.3
Delay (s)	63.8	49.6		65.0	45.6	35.8	45.4	50.4	35.6	76.5	51.5	44.8
Level of Service	E	D		E	D	D	D	D	D	Ε	D	D
Approach Delay (s)		53.0			44.9			45.9			62.2	
Approach LOS		D			D			D			Ε	
Intersection Summary	(D) (F)		VIC VIE	Valle I	Stotes	W180	1360		- 1-1-	The state	The Mark	
HCM Average Control De	elay		51.1	Н	CM Le	vel of Se	rvice		D			
HCM Volume to Capacity			0.88									
Actuated Cycle Length (s			132.0	s	um of k	ost time	(s)		16.0			
Intersection Capacity Util			89.7%			el of Sen			E			
Analysis Period (min)			15									
c Critical Lane Group												
- (-												

Vista Canyon Ranch 20: Valencia Blvd. & Bouquet Canyon Rd.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	444	ተተው		444	ተተው	7	7	ተተተ	7	1414	ተተጉ	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91		0.94	0.86	0.86	1.00	0.91	1.00	0.94	0.86	0.86
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4990	5079		4990	4806	1343	1770	5085	1546	4990	4797	1362
Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4990	5079	40	4990	4806	1343	1770	5085	1546	4990	4797	1362
Volume (vph)	1190	1400	10	157	1018	267	20	1440	220	800	1420	750
Peak-hour factor, PHF	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. Flow (vph)	1190	1400	10	157	1018	267	20	1440	220	800	1420	750
RTOR Reduction (vph)	1400	1	0	0 457	0	0	0	0	1	0	1	106
Lane Group Flow (vph)	1190	1409	0	157	1018	267	20	1440	219	800	1437	626
Confl. Peds. (#/hr) Confl. Bikes (#/hr)			9			10			12 2			
	Drot		_	Deet		1	Deat			Dest		
Turn Type Protected Phases	Prot	4		Prot		om+ov	Prot		om+ov	Prot	-	om+ov
Permitted Phases	7	4		3	8	1	5	2	3	1	6	7
Actuated Green, G (s)	30.1	55.4		10.0	35.3	8 64.9	4.0	40.0	2 50.0	20.6	GE G	6 95.7
Effective Green, g (s)	31.1	55.4 57.4		11.0	35.3 37.3	67.9	5.0	40.0 42.0	53.0	29.6 30.6	65 .6 67.6	95.7 98.7
Actuated g/C Ratio	0.20	0.37		0.07	0.24	07.9	0.03	0.27	0.34	0.19	0.43	0.63
Clearance Time (s)	5.0	6.0		5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Vehicle Extension (s)	1.5	3.5		1.5	4.5	1.5	1.5	4.5	1.5	1.5	4.5	1.5
Lane Grp Cap (vph)	988	1857	_	350	1142	615	56	1360	522	973	2065	856
v/s Ratio Prot	c0.24	0.28		0.03	c0.21	0.08	0.01	c0.28	0.03	c0.16	0.30	0.14
v/s Ratio Perm	00.Z-1	0.20		0.00	UU.Z 1	0.11	0.01	CO.20	0.03	CO. 10	0.50	0.14
v/c Ratio	1.20	0.76		0.45	0.89	0.43	0.36	1.06	0.42	0.82	0.70	0.73
Uniform Delay, d1	63.0	43.7		70.1	57.9	31.1	74.4	57.5	40.1	60.6	36.3	20.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	101.7	1.9		0.3	9.4	0.2	1.4	41.6	0.2	5.4	1.2	2.8
Delay (s)	164.7	45.6		70.4	67.3	31.3	75.8	99.1	40.3	66.0	37.6	22.8
Level of Service	F	D		E	E	C	E	F	D.	E	D	C
Approach Delay (s)	•	100.1		_	61.0		_	91.1	_	_	41.6	J
Approach LOS		F			E			F			D	
Intersection Summary	3/10		双极联合	N. Ore	diam's	The Will	20	4000	100	E PARTIE		action)
HCM Average Control D			71.9	Н	CM Lev	el of Se	rvice		E			
HCM Volume to Capacit	y ratio		1.00									
Actuated Cycle Length (•		157.0			st time			16.0			
Intersection Capacity Uti	ilization	10	03.3%	10	CU Leve	of Sen	/ice		G			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	ተተተ	7	J.	ተተተ	7	7	ተ ጉ		1	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	3406		1770	3521	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	3406		1770	3521	
Volume (vph)	20	489	120	30	464	90	140	1489	500	40	578	20
Peak-hour factor, PHF	0.90	0.90	0.90	0.85	0.85	0.85	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	543	133	35	546	106	147	1567	526	42	608	21
RTOR Reduction (vph)	0	0	118	0	0	92	0	23	0	0	1	0
Lane Group Flow (vph)	22	543	15	35	546	14	147	2070	0	42	628	0
Turn Type	Split		Perm	Split		Perm	Prot			Prot		
Protected Phases	6	6		2	2		3	8		7	4	
Permitted Phases			6			2						
Actuated Green, G (s)	16.0	16.0	16.0	18.6	18.6	18.6	15.9	84.1		3.1	71.3	
Effective Green, g (s)	16.0	16.0	16.0	18.6	18.6	18.6	15.9	84.1		3.1	71.3	
Actuated g/C Ratio	0.12	0.12	0.12	0.13	0.13	0.13	0.12	0.61		0.02	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	590	184	239	686	214	204	2079		40	1822	
v/s Ratio Prot	0.01	c0.11		0.02	c0.11		c0.08	c0.61		0.02	0.18	
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.11	0.92	0.08	0.15	0.80	0.07	0.72	1.00		1.05	0.34	
Uniform Delay, d1	54.5	60.3	54.4	52.6	57.8	52.0	58.8	26.7		67.4	19.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	19.8	0.2	0.3	6.4	0.1	11.8	18.6		157.5	0.1	
Delay (s)	54.7	80.1	54.6	52.9	64.1	52.2	70.6	45.3		224.8	19.6	
Level of Service	D	F	D	D	E	D	Е	D		F	В	
Approach Delay (s)	_	74.4		_	61.7			46.9			32.5	
Approach LOS		E			E			D			С	
Intersection Summary	27/2	HEE			10.5	600	F 3	1	- ZW		10 July	
HCM Average Control D			51.5	H	CM Le	vel of Se	ervice		D			
HCM Volume to Capacit	y ratio		0.96									
Actuated Cycle Length (s)		137.8			ost time			16.0			
Intersection Capacity Uti	ilization		86.6%	10	CU Leve	el of Sei	vice		E			
Analysis Period (min)			15									
c Critical Lane Group												

	1	4	1	~	\	↓					
Movement	WBL	WBR	NBT	NBR	SBL	SBT	THEAT	Mr. No	WE .	TO ALL S	7.15.76
Lane Configurations	ሻ	7	†		ሻ	十个					
Sign Control	Stop		Free			Free					
Grade	0%		0%			0%					
Volume (veh/h)	110	10	1569	30	200	528					
Peak Hour Factor	0.50	0.50	0.95	0.95	0.95	0.95					
Hourly flow rate (vph)	220	20	1652	32	211	556					
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type	None										
Median storage veh)											
Upstream signal (ft)	0.45	0.45	768		0.45						
pX, platoon unblocked		0.45			0.45						
vC, conflicting volume	2366	842			1683						
vC1, stage 1 conf vol											
vC2, stage 2 conf vol	2016	0			1204						
vCu, unblocked vol	2816 6. 8	0 6.9			1294 4.1						
tC, single (s) tC, 2 stage (s)	0.0	6.9			4.1						
tF (s)	3.5	3.3			2.2						
p0 queue free %	0.0	96			12						
cM capacity (veh/h)	1	487			239						
A CONTRACTOR OF THE PARTY OF TH			EINS	ENTE OF		00.0	00.0	-	and the same	-	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2 582	SB 1	SB 2 278	SB 3 278		Note ON	The second	2 0
Volume Left	220 220	0	0	0	211	0	0				
Volume Right	0	20	0	32	0	0	0				
cSH	1	487	1700	1700	239	1700	1700				
Volume to Capacity	292.56	0.04	0.65	0.34	0.88	0.16	0.16				
Queue Length 95th (ft)		3	0.00	0.54	183	0.10	0.10				
Control Delay (s)	Err	12.7	0.0	0.0	75.5	0.0	0.0				
Lane LOS	F	В.	0.0	0.0	F	0.0					
Approach Delay (s)	9166.8	_	0.0		20.7						
Approach LOS	F										
Intersection Summary	-6-3	Winds and		ALL SE	A. Chair	2.0	N. I.S.	100		10000	0.0/- 10.7
Average Delay			823.9								
Intersection Capacity U	Itilization	•	71.5%	IC	CU Leve	of Ser	vice		C		
Analysis Period (min)			15								

	*	-	*	1	4-	*	1	†	~	1	1	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ተተ	7		1			ર્લ	7			
Sign Control		Free			Free			Stop			Stop	
Grade	_	0%		_	0%			0%		_	0%	
Volume (veh/h)	0	329	290	0	84	10	500	0	130	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph) Pedestrians	0	366	322	0	99	12	556	0	144	0	0	0
Lane Width (ft)								1 12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								4.0				
Right turn flare (veh)								U	30			
Median type								None	30		None	
Median storage veh)								110110			Hone	
Upstream signal (ft)		718										
pX, platoon unblocked												
vC, conflicting volume	111			367			416	477	184	360	471	55
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	111			367			416	477	184	360	471	55
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF(s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			0	100	83	100	100	100
cM capacity (veh/h)	1477			1188			520	485	826	471	489	1000
Direction, Lane#	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	- 10	19 15	596	400	-07-10	STATE OF
Volume Total	183	183	322	66	45	700						
Volume Left	0	0	0	0	0	556						
Volume Right	0	0	322	0	12	144						
cSH	1700	1700	1700	1700	1700	655						
Volume to Capacity	0.11	0.11	0.19	0.04	0.03	1.07						
Queue Length 95th (ft) Control Delay (s)	0 0.0	0 0 .0	0 0.0	0	0	481						
Lane LOS	0.0	0.0	0.0	0.0	0.0	71.1 F						
Approach Delay (s)	0.0			0.0		71.1						
Approach LOS	0.0			0.0		F						
Intersection Summary	TV	e la la	1000	1	4	- SA	NO.	BISCES,	- 10 Re 10	10	- 23	215 CE
Average Delay			33.2									
Intersection Capacity Uti	ilization	•	43.6%	IC	CU Leve	l of Serv	/ice		Α			
Analysis Period (min)			15									

Project: Vista Canyon Ranch HCM: 2000

Scenario:

2015 Plus Project Conditions

PHF:

1

TOD:

AM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

		Demand	٧	olume Serv	ed	Delay/Veh (sec)				
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev		
	L	290	241	83	13	48.3	D	-		
NB	T	147	157	107	8	41.6	D	_		
	R	375	314	84	15	11.4	В	-		
	Subtotal	812	712	88		30.6	C	_		
	L	140	140	100	12	53.4	D			
SB	T	174	175	101	8	51.3	D	_		
	R	171	172	101	11	25.2	С			
	Subtotal	485	487	100	-	42.7	D			
	L	80	75	94	10	70.5	E	_		
EB	T	651	653	100	10	51.9	D	-		
	R	343	342	100	19	20,2	С	-		
	Subtotal	1074	1070	100	-	43.1	D	_		
	L	328	267	81	10	63.9	E	••		
WB	Т	1341	1124	84	45	34.6	С			
	R	170	136	80	11	7.4	Α	_		
	Subtotal	1839	1526	83	1 - 1	37.3	D	-		
	Total	4210	3795	90	-	38.4	D	_		

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps Type: Signalized

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	L	846	483	57	48	1831.0	F	
NB	R	60	37	62	6	1774.4	F	
	Subtotal	906	520	57	_	1826.9	F	_
	Т	636	667	105	29	10.8	В	-
EB	R	520	496	95	16	3.6	Α	-
	Subtotal	1156	1162	101	_	7.7	A	· -
	L	360	366	102	10	93.8	F	_
WB	T	993	988	99	32	61,6	E	-
	Subtotal	1353	1354	100	-	70.3	E	_
	Total	3415	3036	89	-	347.1	F	-

Project: Vista Canyon Ranch HCM:

2000

Scenario:

2015 Plus Project Conditions

PHF:

1

TOD:

Analysis Period: AM Peak Hr

Hourly

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

				117						
		Demand	V	olume Serv	ed	Delay/Veh (sec)				
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev		
	Т	562	485	86	16	13,2	В	_		
NB	R	238	188	79	14	5.8	A	-		
	Subtotal	800	673	84	-	11.2	В	-		
	L	223	207	93	10	115.7	F			
SB	Ť	601	600	100	18	18.7	В	**		
	Subtotal	824	807	98	**	43.6	D	-		
	L	230	227	99	20	22.2	C	+		
EB	R	240	242	101	8	10.8	В	-		
	Subtotal	470	469	100		16.3	В			
	Total	2094	1948	93	-	25.8	C			

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd. Type: Un-Signalized

		Demand	٧	olume Serv	red	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De
	L	136	98	72	9	1096.4	F	9
NB	T	480	337	70	10	1116.9	F	
	R	5	4	80	2	1159.4	F	-
	Subtotal	621	439	71	-	1112.7	F	-
	L	20	16	80	3	212.1	F	-
SB	T	390	366	94	12	163.6	F	-
	R	491	451	92	22	147.9	F	-
	Subtotal	901	834	93		156.0	F	-
	L	360	313	87	8	476.4	F	-
EB	T	11	9	82	3	508.8	F	-
	R	108	97	89	10	477.7	F	-
	Subtotal	479	418	87	-	477.4	F	-
	L	5	5	80	2	9.0	A	-
WB	T	23	26	113	4	12.1	В	-
	R	20	22	110	4	8,1	Α	_
	Subtotal	48	52	108	1 -	10,2	В	+
	Total	2049	1743	85	-	469.8	F	-



Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 Plus Project Conditions

PHF:

1

TOD:

AM Peak Hr Analysis Period:

Hourly

of Runs:

10

Intersection: 14: SR 14 SB Ramps & Via Princessa

Type: Signalized

		1.000		-							
		Demand	,	Volume Serv	ed	Delay/Veh (sec)					
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev			
	L	289	163	56	7	292.1	F				
NB	T	633	386	61	33	17.6	В	-			
	Subtotal	922	549	60	-	99.1	F	-			
	T	679	294	43	25	2292.2	F				
SB	R	870	445	51	41	1541.9	F	**			
	Subtotal	1549	739	48		1840.4	F	-			
	L	80	48	60	9	974.4	F	_			
WB	T	5	3	60	1	832.9	F	_			
	R	290	255	88	33	174.5	F	-			
	Subtotal	375	306	82	-	306.9	F	•			
	Total	2846	1594	56	-	946.3	F				

		Demand	V	olume Serv	ed	D	elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Т	702	494	70	34	166.2	F	
NB	R	120	74	62	9	6.1	Α	-
	Subtotal	822	568	69	-	145.3	F	-
	L	240	99	41	12	105.3	F	_
SB	T	519	247	47	16	251.8	F	-
	Subtotal	759	345	45	-	210.0	F	-
	L	220	103	47	10	1880.6	F	_
EB	R	313	112	36	11	3653.5	F	
	Subtotal 533 214	214	40		2805.1	F	-	
	Total	2114	1128	53	-	670.8	F	-

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 Plus Project Conditions

PHF:

1

TOD:

PM Peak Hr

Analysis Period:

Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

	1.	Demand	V	olume Serv	red		elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De
	L	320	285	89	21	47.7	D	-
NB	T	199	382	192	16	27.5	С	-
	R	672	589	88	21	20.1	С	-
	Subtotal	1191	1256	105	-	28.6	С	_
	L	150	145	97	15	56.8	Е	-
SB	T	142	135	95	11	67.8	E	_
	R	107	104	97	9	26.9	С	-
	Subtotal	399	383	96		52.6	D	
	L	158	144	91	14	295.0	F	-
EB	Т	973	869	89	18	312.6	F	-
	R	514	437	85	30	300.2	F	-
	Subtotal	1646	1450	88		307.1	F	-
	L	301	198	66	23	141.1	F	-
WB	T	647	481	74	46	22.4	C	-
	R	140	97	69	10	4.8	Α	-
	Subtotal	1088	777	71	-	50.6	D	-
	Total	4323	3866	89	-	139.8	F	-

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

		Demand	٧	olume Serv	red		elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Ĺ	558	256	46	32	2352.6	F	
NB	R	120	60	50	11	2217.6	F	_
	Subtotal	678	316	47		2327.1	F	_
Coarre	Т .	1265	1130	89	33	4.8	A	-
EB	R	520	469	90	16	2.8	Α	-
	Subtotal	1785	1599	90	8-9	4.2	A	_
	L	300	247	82	12	558.2	F	_
WB	Ť	530	496	94	53	98.1	F	-
	Subtotal	830	743	90	_	251.2	F	-
	Total	3293	2658	81	_	349.5	F	-

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 Plus Project Conditions

PHF:

1

TOD:

PM Peak Hr

Hourly Analysis Period:

of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

		Demand		Volu	ıme Serv	ed		Del	ay/Veh (sec))
Approach	Movement	Volume	Avg		%	Std Dev	Avg		LOS		Std Dev
	T	601	478	1	80	14	23.9		C		-
NB	R	533	427	1	80	16	10.2		В		
	Subtotel	1134	904		08	-	17.5		В	1	-
	Ļ	364	270		74	11	191.2		F		-
SB	T	543	483		89	31	48.1		D		-
	Subtotal	907	754		63	- 1	99.4	1	F		-
	L	810	786		97	38	60.0	1	E		-
EB	R	455	430		95	28	91.7		F		-
	Subtotal	1265	1216	19	98	-	71.2		E		-
	Total	3306	2874	1	87	-	61.7		E		

Intersection: 5: Lost Canyon Rd. & Sand Canyon Rd.

Type: Un-Signalized

Approach	Movement	Demand Volume	V	olume Serv	/ed	Delay/Veh (sec)				
			Avg	%	Ste	d Dev	Avg	LOS	Std Dev	
	L	43	30	70		6	1020.7	F		
NB	T	750	517	69		12	1060.7	F	-	
	R	10	6	60		2	984.4	F		
	Subtotal	803	553	69		-	1057.7	F	-	
SB	L	30	25	83		5	161.2	F		
	T	620	727	117		23	139.4	F	-	
	R	118	99	84		15	142.4	F		
	Subtotal	768	851	111			140.4	F	-	
_	L.	194	193	99		10	17.4	C	-	
EB	T	24	22	92		5	18.2	C	-	
	R	67	64	96		8	14.4	В	-	
	Subtotal	285	279	98		-	16.8	C	-	
WB	L.	5	4	80		2	9.1	A	-	
	T	15	17	113		6	12.1	В	-	
	R	50	54	108		11	8.4	Α	-	
	Subtotal	70	74	106			9.3	Α	-	
	Total	1926	1758	91		-	403.8	F	-	

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 Plus Project Conditions

PHF:

1

TOD:

PM Peak Hr

Analysis Period: Hourly

of Runs:

10

Intersection: 14: SR 14 SB Ramps & Via Princessa

Type:

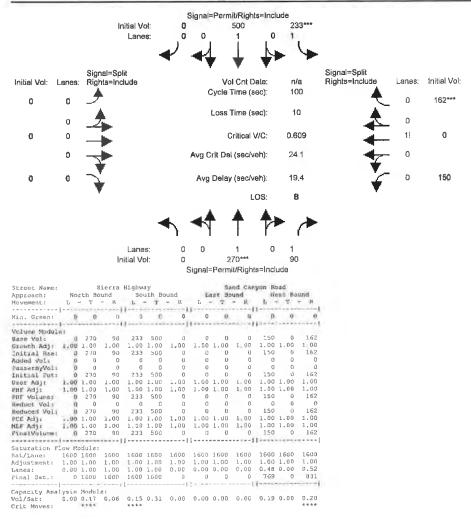
Signalized

Approach	Movement	Demand Volume	V	olume Serv	ed	Delay/Veh (sec)				
			Avg	%	Std Dev	Avg	LOS	Std De		
	L	342	201	59	12	221.8	F	-		
NB	T	1011	611	60	31	15.9	В	_		
	Subtotal	1353	812	60	-	66.8	E	-		
	T	1071	636	59	26	1234.6	F	_		
SB	R	550	351	64	23	921.8	F	_		
	Subtotal	1621	987	61	-	1123.4	F	-		
WB	L	150	104	69	14	823.6	F	-		
	T	10	7	70	2	798.4	F			
	R	320	252	79	37	308.9	F	-		
	Subtotal	480	364	76		F	[**)			
	Total	3454	2163	63		616.3	F			

Approach	Movement	Demand Volume	V	olume Serv	ed	Delay/Veh (sec)			
			Avg	%	Std Dev	Avg	LOS	Std Dev	
NB	T	903	592	66	26	148.8	F	_	
	R	140	98	70	10	9.7	Α		
	Subtotal	1043	690	66	_	129.1	F	-	
	L	560	333	59	19	39.3	D		
SB	T	661	408	62	22	109.0	F		
	Subtotal	1221	741	61	_	77.7	E	-	
	L	450	226	50	21	1596.8	F	_	
EB	R	429	178	41	12	2703.8	F		
	Subtotal	879	404	46	_	2083.8	F	-	
	Total	3143	1835	58	-	538.2	F		

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim Plus Project AM

Intersection #1: Sand Canyon Road/Sierra Highway



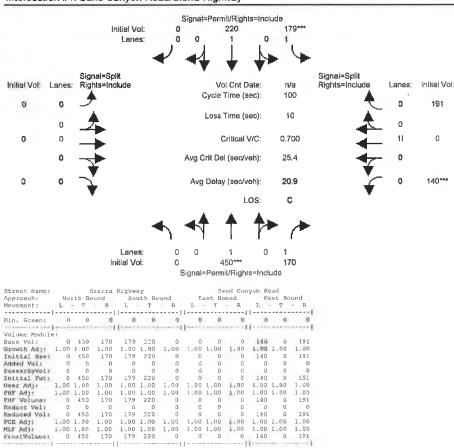
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim Plus Project PM

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140***

Intersection #1: Sand Canyon Road/Sierra Highway

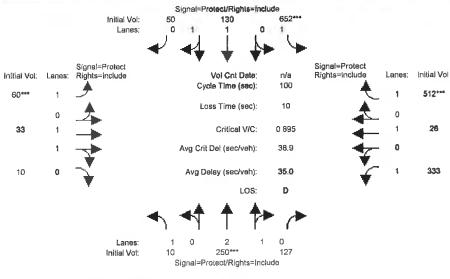


| Saturation | Flow | Module: | Saturation | Flow | Module: | Saturation | Saturati

Saturation Flow Module:

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim Plus Project AM

Intersection #16: Via Princessa/Lost Canyon Road



Nerecc Hame.	Lost Canyon Road North Bound South Bound						From Dound Work Bound					
Approacn: Movement:	NO.	EED BC	nuno.	201	TCW DO	una		18L DC	runa n	T	m m	nu nu
Movement:		- 1	- K	Inner	- 1	- 4	hanne.	- 1	- 8	1	- L	- N
Min. Green:	0	ð	D	0	Q	10	0	٥	0	0	Q.	0
Volume Module				1			,	-				
Base Vali		250	127	652	130	50	60	33	10	333	26	512
Growth Adj:						1,00			1.00			
Initial Boos				652					10			
Added Vol:	0	0	0	n	0	-0	- 0	0	0	0.00	n	0
Added Vol: PassorByVol:	0	B	Ω	0	n	ă	- 0	n	0	0	a	D
Initial Tut:	10	250	127	652	130	50	60	33	1.0	333	26	512
User Adys				1.00		1.00		1.00	1.00		1.00	
PRF Adli			1.00	1.00	1.00	1.00	1.00	1,00	1.00	1.00	1.00	3,00
SHE VALUMAT	1.0	250	127	652	130	50	60	33	10	333	26	435
Reduct Vol:	0	0	0	0	0	0	D	0	0	D	0	0
Reduced Vol:	10	250	127	652	130	50	60	33	10	3.33	26	435
PCE Adja	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adji	1.00	1.00	1,00						L.00			
FinalVolume:	10	250	127	652	130	50	60	33	1.0	333	2.6	435
**********							1					
Saturation F												
Sat/Lane:												1600
Adjustment:	1.00	1.00				1.00	1.00				1.00	
Lanes:									0.47			
Final Sat.:									744			
				1			[1		
Capacity Ana:	lysis	Modul	8:									
Vol/Sat:	0.01	0.08	0.08	0.41	0.06	0,06	0.04	0.01	0.01	0.21	0 02	0.27
Crit Moves:		4 * * *					****					

Initial Vol:

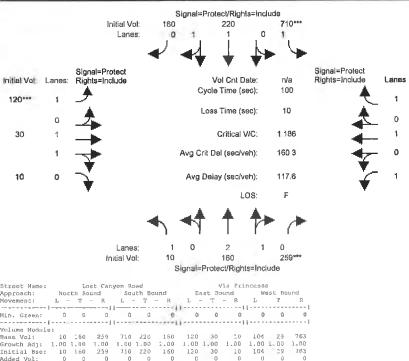
763***

104

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim Plus Project PM

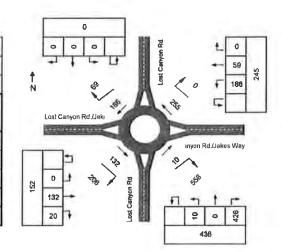
Intersection #16: Via Princessa/Lost Canyon Road

COMPARE



pries walle:		P(DEC CAL	raou io	040			,	A TSI ETT	HUESS	ш	
Approach:	No	eth 80	bnac	So	uth Bo	nund	E	ast 3	ound	W	est Bo	und
Movement:	L	- т	- R	I.	- T	R	L -	- m	- R	L	T	R
			1	1			1			1		
Min. Graen:	Ð	-0	۵	D	0	0	0	0	0	0	19	0
)	1			*****			1		
Volume Modul												
Base Vol:												763
Growth Adg:						1.00				1.00		1.00
Initial Bae:									10			
Added Vol:				0		0						0
PasserByVol:									0			
Initial Fut:												
User Adj:					1.00	1,00		1,00			1 00	0.85
PHF Adj:			1.00		1.00	1.00		1,00			1.00	1.00
PHP Volume:			259		220				10		29	649
Reduct Vol:												
Reduced Vol:	10	1 50	259	710	220	160	120	30	1.0	104	29	б49
PCE Adj:												
MLF Adj:												1.00
FinalVolume:												
				1					1	1		
Saturation P												
Sat/Lang:												1600
Adjustment:										1.30		1.00
Lanea:												
Final Sac.:												
*********												1
Capacity Ana												
Vol/Sat:	0.01	0.05	0.16	0.44	0.12	0.12		0.01	10.0	0.07	0.02	
Crit Moves:			4000									

Type of Des	sign (1 - Ur	ban & Rural	Single Lane	or 2 - Uri	ban Compact)		2		
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd./Jake	s Way		
PHF	0.92	Time	АМ	N-S	Lost Canyo	n Rd.			
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue** (ft)		
North	436	132	1112	0.43	6	Α	50		
South									
East	152	186	1072	0.15	4	Α	25		
West	245	10	1203	0.22	4	Α	25		
All	833				5	Α			



Source: Roundabouts: An Informational Guide (FHWA, 2000)

Capacity calculation is valid for Inscribed diameters of 25 to 55 m (80 to 180 ff)

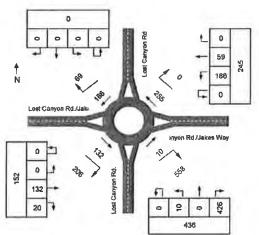
Does not account for flared entry lanes or pedestrian effects

* LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000

** Assumes a queued vehicle length of 25 feet

ROUNDABOUT OPERATIONS ANALYSIS (HCM 2000 - AVERAGE VALUES)

Type of Dea	sign	Single-Land	e Roundabou	ıt				
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd./Jake	s Way	
PHF	0.92	Time	AM	N-S	Lost Canyo	n Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue** (ft)	
North	436	132	1140	0.42	10	В	50	
South		1						
East	152	186	1090	0.15	9	Α	25	
West	245	10	1261	0,21	9	Α	25	
All	833				10	Α		



Capacity based on average of upper and lower values provided in Highway Capacity Manual 2000 Includes a "+5" factor to account for start-up delay under higher v/c ratios, so the delay for lower v/c ratios may be over-estimated. Does not account for flared entry lanes or pedestrian effects.

- *LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000
- ** Assumes a queued vehicle length of 25 feet

ROUNDABOUT OPERATIONS ANALYSIS (NCHRP 572)

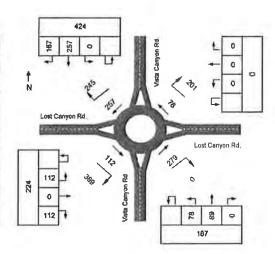
Type of Des	sign	Single-Land	Roundabou	ut				
Period (hr)	0.25	Date	2009	E-W	Lost Canyon Rd./Jakes Wa			
PHF	0.92	Time	AM	N-S	Lost Canyo	n Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS	Queue** (ft)	
North	436	132	990	0.48	12	В	75	
South								
East	152	186	938	0.18	10	Α	25	
West	245	10	1119	0.24	9	Α	25	
Alt	833				11	В		

0 0 0 0 59 245 188 0 Lost Canyon Rd./Jako returnally unyon Rd. Hakes Way 0 0 52 132 2 428 20 a 0

Source: NCHRP 572: Roundabouts in the United States (TRB, 2007)

Includes a "+5" factor to account for start-up delay under higher v/c ratios, so the delay for lower v/c ratios may be over-estimated. Does not account for flared entry lanes or pedestrian effects.

Type of Des	sign (1 - Ur	rban & Rural	Single Lane	or 2 - Url	oan Compact)		2	
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd.		
PHF	0.92	Tíme	AM	N-S	Vista Canyo	n Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue** (ft)	
North	167	112	1127	0.16	4	Α	25	
South	424	78	1152	0.40	5	Α	50	
East	224	257	1020	0.24	5	Α	25	
West								
All	815				5	Α		



Source: Roundabouts: An Informational Guide (FHWA, 2000)

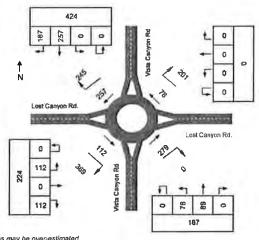
Capacity calculation is valid for inscribed diameters of 25 to 55 m (80 to 180 ft)

Does not account for flared entry lanes or pedestrian effects

*LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000

ROUNDABOUT OPERATIONS ANALYSIS (HCM 2000 - AVERAGE VALUES)

Type of Des	sign	Single-Land	Single-Lane Roundaboul					
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd.		
PHF	0.92	Time	AM	N-S	Vista Canyo	n Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue** (ft)	
North	167	112	1159	0.16	9	Α	25	
South	424	78	1192	0.39	10	Α	50	
East	224	257	1027	0,24	10	Α	25	
West								
All	815				10	Α		

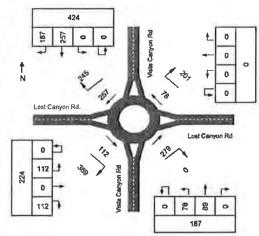


Capacity based on average of upper and lower values provided in Highway Capacity Manual 2000 includes a "+5" factor to account for start-up delay under higher v/c ratios, so the datay for lower v/c ratios may be over-estimated.

Does not account for flared entry lanes or pedestrian effects

ROUNDABOUT OPERATIONS ANALYSIS (NCHRP 572)

Type of Des	sign	Single-Land	e Roundabou	ıt			
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd.	
PHF	0.92	Time	AM	N-S	Vista Canyo	on Rd.	
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS	Queue**
North	167	112	1010	0.18	9	Α	25
South	424	78	1045	0.44	11	В	50
East	224	257	874	0.28	11	В	25
West							
All	815				11	В	



Source: NCHRP 572: Roundabouts in the United States (TRB, 2007)

Includes a "+5" factor to account for start-up delay under higher v/c ratios, so the delay for lower v/c ratios may be over-estimated.

Does not account for flared entry lanes or pedestrian effects,

^{**} Assumes a queued vehicle length of 25 feet

^{*}LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000
** Assumes a queued vehicle length of 25 feet

Type of Des	sign (1 - Ur	ban & Rural	Single Lane	or 2 - Url	ban Compact)		2	
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd /Jakes Way		
PHF	0.92	Time	РМ	N-S	Lost Canyo	n Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue*** (ft)	
North	367	109	1129	0.35	5	Α	50	
South								
East	119	652	728	0.18	6	Α	25	
West	637	20	1195	0.76	12	В	200	
All	1323				9	Α		



Source: Roundabouts: An Informational Guide (FHWA, 2000)

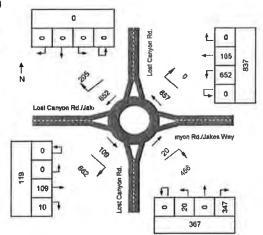
Capacity calculation is valid for inscribed diameters of 25 to 55 m (80 to 180 ft).

Does not account for flared entry lanes or pedestrian effects.

*LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000
** Assumes a queued vehicle length of 25 feet

ROUNDABOUT OPERATIONS ANALYSIS (HCM 2000 - AVERAGE VALUES)

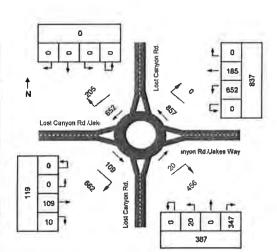
Type of Des	ign	Single-Lane	Roundabou	ıt				
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd./Jake	s Way	
PHF	0.92	Tìme	РМ	N-S	Lost Canyo	Lost Canyon Rd		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue** (ft)	
North	367	109	1162	0.34	10	Α	50	
South								
East	119	652	739	0,17	11	В	25	
West	837	20	1251	0.73	15	С	175	
All	1323				13	В		



Capacity based on average of upper and lower values provided in Highway Capacity Manual 2000 Includes a "+5" factor to account for start-up delay under higher v/c ratios, so the delay for lower v/c ratios may be over-estimated.

ROUNDABOUT OPERATIONS ANALYSIS (NCHRP 572)

Type of Des	sign	Single-Land	e Roundabou	ıt				
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd./Jake	es Way	
PH₽	0.92	Time	PM	N-S	Lost Canyon	n Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS	Queue** (ft)	
North	367	109	1013	0.39	11	В	50	
South			1					
East	119	652	589	0.22	13	В	25	
West	837	20	1108	0,82	21	С	250	
All	1323				18	С		

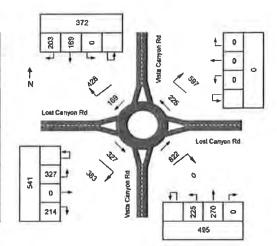


Source: NCHRP 572: Roundabouts in the United States (TRB, 2007)

Includes a "+5" factor to account for start-up datay under higher v/c ratios, so the delay for lower v/c ratios may be over-estimated. Does not account for flared entry lanes or pedestrian effects.

Does not account for flared entry lanes or pedestrian effects *LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000
** Assumes a queued vehicle length of 25 feet

Type of Des	sign (1 - Ur	ban & Rural	Single Lane	or 2 - Url	oan Compact)		2		
Period (hr)	0.25	Date	2009	E-W	Lost Canyo	n Rd.			
PHF	0.92	Time	PM	N-S	Vista Canyo	n Rd.			
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue** (ft)		
North	495	327	968	0.56	8	Α	100		
South	372	225	1044	0.39	6	Α	50		
East	541	169	1085	0.54	7	Α	75		
West									
All	1408				7	Α			



Source: Roundabouts: An Informational Guide (FHWA, 2000)

Capacity calculation is valid for inscribed diameters of 25 to 55 m (80 to 180 ft).

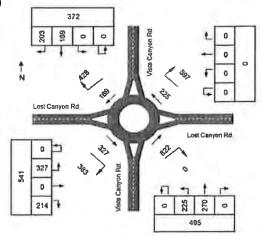
Does not account for flared entry lanes or pedestrian effects.

*LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000

** Assumes a queued vehicle length of 25 feet

ROUNDABOUT OPERATIONS ANALYSIS (HCM 2000 - AVERAGE VALUES)

Type of Des	sign	Single-Lane	gle-Lane Roundabout					
Period (hr)	0.25	Date	2009	E-W	Lost Canyo			
PHF	0.92	Time	РМ	N-S	Vista Canyo	n Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS*	Queue** (ft)	
North	495	327	969	0.56	13	В	100	
South	372	225	1055	0.38	11	В	50	
East	541	169	1105	0.53	12	В	75	
West								
All	1408				12	В		



Capacity based on average of upper and lower values provided in Highway Capacity Manual 2000

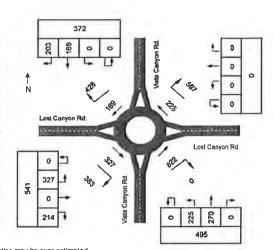
Includes a "+5" factor to account for start-up delay under higher v/c ratios, so the delay for lower v/c ratios may be over-estimated.

Does not account for flared entry lanes or pedestrian effects.

- *LOS criteria for unsignalized intersections from the Highway Capacity Manual 2000
 **Assumes a queued vehicle length of 25 feet

ROUNDABOUT OPERATIONS ANALYSIS (NCHRP 572)

Type of Des	sign	Single-Lane	Roundabou	ıt				
Period (hr)	0.25	Date	2009	E-W	Lost Canyon Rd.			
PHF	0.92	Time	PM	N-S	Vista Canyo	Vista Canyon Rd.		
Approach	Total Volume (vph)	Circ. Flow (vph)	Capacity (vph)	v/c	Control Delay (sec)	LOS	Queue**	
North	495	327	815	0.66	18	С	125	
South	372	225	902	0.45	12	В	50	
East	541	169	954	0.62	15	В	100	
West								
All	1408				15	С	1	



Source: NCHRP 572: Roundabouts in the United States (TRB, 2007)

includes a "+5" factor to account for start-up delay under higher v/c ratios, so the delay for lower v/c ratios may be over-estimated.

Does not account for flared entry lanes or pedestrian effects.

	Operational Ana	ılysis	Killian - Control
Analyst:			_
Agency or Company:	Fenr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:			
Freeway/Direction:	SR 14 NB		
From/To:	Via Princessa to	Sand Canyon	
Jurisdiction:	Santa Clarita	dend danyon	
	2015 Plus Projec	t Conditions	
Description: Vista Ca		3 110 00 00 00 000	
	Flow Inputs and	Adjustments	
Volume, V		2330	7eh/h
Peak-hour factor, PHF		¢.93	
Peak 15-min volume, v1	5	626	v
Prucks and buses		4	0
Recreational vehicles		C	9
Terrain type:		Level	
Grade		0.00	A.
Segment length		0.60	(U.F.
Trucks and buses PCE,		1,5	
Recreational vehicle P		1.2	
Heavy vehicle adjustme		0.980	
Driver population fact	or, Ep	1.00	Co. 44, 4413
Flow rate, vp		639	pc/h/ln
	Annual Control of the	nd Addustments	
	Speed Inputs an	ra rasjadencire	
		12.0	ft.
Right-shoulder lateral		12.0 6.0	ft
Right-shoulder lateral Interchange density		12.0 6.0 0.50	ft
Right-shoulder lateral Interchange density Number of lanes, N		12.0 6.0 0.50	ft
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed:		12.0 6.0 0.50 4 Measured	ft Interchange/ml
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS	clearance	12.0 6.0 0.50 4 Measured 65.0	ft interchange/mi mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment,	clearance	12.0 6.0 0.50 4 Measured 65.0	ft interchange/mi mi/h mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adju	clearance ELW stment, FLC	12.0 6.0 0.50 4 Measured 65.0 0.0	ft interchange/mi mi/h mi/h mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adju Interchange density ad	clearance ELW stment, FLC justment, flD	12.0 6.0 0.50 4 Measured 65.0 0.0	ft interchange/mi mi/h mi/h mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adju Interchange density ad Number of lanes adjust	clearance ELW stment, FLC justment, flD	12.0 6.0 0.50 4 Measured 65.0 0.0 0.0	ft interchange/ml mi/h mi/h mi/h mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adju Interchange density ad Number of lanes adjust	clearance ELW stment, FLC justment, flD	12.0 6.0 0.50 4 Measured 65.0 0.0	ft interchange/mi mi/h mi/h mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adju Interchange density ad Number of lanes adjust	clearance ELW stment, FLC justment, flD	12.0 6.0 0.50 4 Measured 65.0 0.0 0.0 0.0 1.5 65.0 Urban Freeway	ft interchange/ml mi/h mi/h mi/h mi/h
Lane width adjustment, isteral clearance adju Interchange density ad Number of lanes adjust Free-flow speed, FFS	clearance ELW stment, fLC justment, fID ment, fN	12.0 6.0 0.50 4 Measured 65.0 0.0 0.0 0.0 1.5 65.0 Urban Freeway	ft interchange/ml mi/h mi/h mi/h mi/h mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adju Interchange density ad Number of lanes adjust Free-flow speed, FFS	clearance ELW stment, fLC justment, fID ment, fN	12.0 6.0 0.50 4 Measured 65.0 0.0 0.0 0.0 1.5 65.0 Urban Freeway	ft interchange/ml mi/h mi/h mi/h mi/h mi/h mi/h
Right-shoulder lateral Intarchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adjust Interchange density ad Number of lanes adjust Free-flow speed, FFS Flow rate, vp Free-flow speed, FFS	elearance ELW stment, fLC justment, fID ment, fN LOS and Perform	12.0 6.0 0.50 4 Measured 65.0 0.0 0.0 0.0 1.5 65.0 Urban Freeway	ft interchange/mi mi/h mi/h mi/h mi/h mi/h mi/h
Right-shoulder lateral Interchange density Number of lanes, N Free-flow speed: FFS or BFFS Lane width adjustment, Lateral clearance adjust Interchange density ad Number of lanes adjust Free-flow speed, FFS Flow mate, vp	elearance ELW stment, fLC justment, fID ment, fN LOS and Perform	12.0 6.0 0.50 4 Measured 65.0 0.0 0.0 0.0 1.5 65.0 Urban Freeway	ft interchange/ml mi/h mi/h mi/h mi/h mi/h mi/h

Level of service, LOS A

Phone: E-mail:		Fax:	
	Operational Ana	lysis	
Analyst:			
	Fehr & Peers		
	12/16/2008		
	AM Peak Hour		
	SR 14 NB		
	Sand Canyon to S	oledad Canvon	
	Santa Clarita		
	2015 Plus Projec	t Conditions	
Description: Vista Cany			
	_Flow Inputs and	Adjustments	
Volume, V		2321	veh/h
Peak-hour factor, PHF		0.93	
Peak 15-min volume, v15		624	v
Trucks and buses		4	i
Recreational vehicles		0	•
Terrain type:		Level	
Grade		0.00	1
Segment length		0.00	mi
Trucks and buses PCE, E1		1.5	
Recreational vehicle PCE		1.2	
Heavy vehicle adjustment		0.980	
Driver population factor	, fp	1.00	
Flow rate, vp		849	pc/h/ln
	_Speed Inputs an	d Adjustments	
Lane width		12.0	ft
Right-shoulder lateral o	:Learance	6.0	£t
Interchange density		0.50	interchange/mi
Number of lanes, N		3	
Free-flow speed:		Measured	
		65.0	mi/h
FFS or BFFS			
FFS or BFFS Lame width adjustment, i		0.0	mi/h
FFS or BFFS Lace width adjustment, i Lateral clearance adjust	ment, fLC	0.0	mi/h
FFS or BFFS Lane width adjustment, in Lateral clearance adjust Interchange density adju	ment, fLC stment, fID	0.0	mi/h mi/h
FFS or BFFS Lane width adjustment, f Lateral clearance adjust Interchange density adju Number of lanes adjustme	ment, fLC stment, fID	0.0 0.0 3.0	mi/h mi/h mi/h
FFS or BFFS Lane width adjustment, in Lateral clearance adjust Interchange density adju	ment, fLC stment, fID	0.0	mi/h mi/h mi/h mi/h
FFS or BFFS Lane width adjustment, f Lateral clearance adjust Interchange density adju Number of lanes adjustme	ment, fLC stment, fID	0.0 0.0 3.0 65.0 Urban Freewa	mi/h mi/h mi/h mi/h
FFS or BFFS Lane width adjustment, is Lateral clearance adjust Interchange density adju Number of lanes adjustme Free-flow speed, FFS	ment, flC istment, flD ent, fN	0.0 0.0 3.0 65.0 Urban Freewa	mi/h mi/h mi/h mi/h
FFS or BFFS Lane width adjustment, is Lateral clearance adjust Interchange density adju Number of lanes adjustme Free-flow speed, FFS Flow rate, up	ment, flC istment, flD ent, fN	0.0 0.0 3.0 65.0 Urban Freewa	mi/h mi/h mi/h mi/h y pc/h/ln
FFS or BFFS Lane width adjustment, is Lateral clearance adjust Interchange density adju Number of lanes adjustme Free-flow speed, FFS Flow rate, up Free-flow speed, FFS	ment, flC istment, flD int, fN _LOS and Perform	0.0 0.0 3.0 65.0 Urban Freewa mance Measures	mi/h mi/h mi/h mi/h y pc/h/ln mi/h
FFS or BFFS Lane width adjustment, is Lateral clearance adjust Interchange density adju Number of lanes adjustme Free-flow speed, FFS Flow rate, up	ment, flC istment, flD int, fN _LOS and Perform	0.0 0.0 3.0 65.0 Urban Freewa	mi/h mi/h mi/h mi/h y pc/h/ln

Level of service, LOS

Fax:

Phone:

E-mail:			
	_Cperational An	alysis	
Analyst:			
	Fehr & Peers		
	12/16/2008		
	PM Peak Hour		
Freeway/Direction:			
	Via Princessa t	sand Canvon	
	Santa Clarita	o dana conyon.	
	2015 Flus Proje	or Conditions	
Description: Vista Cany	on Ranch	or onidations	
	Flow Inputs an	d Addustments	
1071		10000	0.255
Volume, V		6265	veh/h
Peak-hour factor, PHF		0.95	
Peak 15-min volume, vi5		1649	v
Trucks and buses		4	1
Recreational vehicles		0	8
Terrain type:		Level	
Grade		0.00	A
Segment Length		0.00	md.
Frucks and buses FCE, ET		1.5	
Recreational vehicle PCE	. BR	1.2	
Reavy vehicle adjustment		0.980	
river population factor		1.00	
Flow rate, vp		2242	pc/n/ln
	_Speed Inputs a	nd Adjustments	
Lane width		12.0	ft.
Right-shoulder lateral c	Lagrence	6.0	16
Interchange density	Teargine	0.50	A 4
Number of lames, N		3	interchange/mi
Free-flow speed:		Measured	Section .
FFS or BFFS	-100	65.0	mi/h
Lane width adjustment, f		0.3	mi/h
Lateral clearance adjust	ment, il	0.0	m1/h
Interchange density adju	siment, 510	0.0	加上が
Number of lanes adjustme	nt, fN	3.0	mi/h
Free-flow speed, FFS		65.0	mi/h
		Urpan Freewa	ry .
	LOS and Porfor	mance Measures	
Flow rate, vp		2242	pg/h/ln
Free-flow speed, FFS		65.0	mi/h
Average passenger-car sp	eed, S	55.8	pi/h
Number of lanes, N	North St.	3	
Density, D		40.2	pg/mi/in
nenexty a		9,671-6	SELUTIFIE

Level of service, LOS

2

Phone: E-mail:		Fax:	
	Operational And	alysis	
- Augustus			
Analyst: Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	PM Peak Hour		
Freeway/Direction:	SR 14 NB		
From/To:	Sand Canyon to	Soleded Canvon	
Jurisdiction:	Santa Clarita	Josepha Cunyon	
Analysis Year:	2015 Plus Projec	et Conditions	
Description: Vista Car			
	Flow Inputs and	d Adjustments	
Volume, V		5923	veh/h
Peak-hour factor, PHF		0.95	1 2.07 10
Peak 15-min volume, vi	5	1559	V
Trucks and buses		4	V
Recreational vehicles		0	-
Terrain type:		Level	
Grade		0.00	4
Segment length		0.00	mi
Trucks and buses PCE, 1	ET	1.5	
Recreational vehicle Po		1.2	
Heavy vehicle adjustmen		0.980	
Driver population facto	or, fp	1.00	7.747965
Flow rate, vp		3180	pc/h/ln
	Speed Inputs a	nd Adjustments	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	ft
Interchange density		0.50	Interchange/mi
Number of lanes, N		2	
Free-flow speed:		Measured	-0.00
FFS or BFFS Lane width adjustment,	ETV	65.0	mi/h mi/h
Lateral clearance adjus		0.0	mi/h
Interchange density ad		0.0	mi/h
Number of lanes adjust		4.5	mi/h
Free-flow speed, FFS		65.0	mi/h
See- seen about the		Urban Freeway	17727 6.750
	LOS and Perform	The state of the s	
	bos and reffor	mance measures	
Flow rate, vp		3180	pc/h/ln
Free-flow speed, FFS		65.0	mi/h
Average passenger-car :	speed, S	2	mi/h
Number of lanes, N Density, D		2	pc/mi/ln

Level of service, LOS F

Phone: E-mail:		Faxt	
	Operational Ana	alysis	
Analyst:			
Agency or Company:	Fehr & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	AM Peak Hour		
Freeway/Direction:	SR 14 SB		
From/To:	Soledad Canyon t	to Sand Canyon	
Jurisdiction:	Santa Clarita	& was the towns	
Analysis Year: Description: Vista Cany	2015 Plus Projection Ranch	ot Conditions	
	Flow Inputs and	1 Adjustments	
Yes Alvania W		1646	web its
Volume, V		4545	veh/h
Peak-hour factor, PHF		0.94	
Peak 15-min volume, v15		1209	V
Trucks and buses		4	1
Recreational vehicles		0	8
Terrain type:		Level	
Grade		0.00	4
Segment length		0.00	m.i.
Trucks and buses PCE, ET		1.5	
Recreational vehicle PCE	, ER	1.2	
Heavy vehicle adjustment	, fHV	0.980	
Driver population factor	, fp	1.00	
Flow rate, vp		2466	pc/h/ln
	_Speed Inputs an	nd Adjustments	
Lane width		12.0	ft
Right-shoulder lateral o	learance	6.0	ft
Interchange density		0.50	interchange/mi
Number of lanes, N		2	
Free-flow speed:		Measured	
FFS or BFFS		100000000000000000000000000000000000000	mi/h
Lane width adjustment, i	ELW		mi/h
		200	mi/h
Lateral clearance adjust	ment, ILC	0.0	
Lateral clearance adjust Interchange density adju			
Interchange density adju	stment, fID	8.0	mi/h
Interchange density adju Number of lanes adjustme	stment, fID	0.0	mi/h mi/h
Interchange density adju	stment, fID	0.0 4.5	mi/h mi/h mi/h
Interchange density adju Number of lanes adjustme	stment, fID	0.0 4.5 65.0 Urban Preeway	mi/h mi/h mi/h
Interchange density adju Number of lanes adjustme Free-flow speed, FFS	stment, fID ent, fN	0.0 4.5 65.0 Urban Freeway	mi/h mi/h mi/h
Interchange density adju Number of lanes adjustme Free-flow speed, FFS Flow rate, vp	stment, fID ent, fN	0.0 4.5 65.0 Urban Freeway mance Measures	mi/h mi/h mi/h
Interchange density adju Number of lanes adjustme Free-flow speed, FFS Flow rate, vp Free-flow speed, FFS	estment, fID ent, fN _LOS and Perform	0.0 4.5 65.0 Urban Freeway mance Measures 2466 65.0	mi/h mi/h mi/h pc/h/ln mi/h
Interchange density adju Number of lanes adjustme Free-flow speed, FFS Flow rate, vp Free-flow speed, FFS Average passenger-car sp	estment, fID ent, fN _LOS and Perform	0.0 4.5 65.0 Urban Freeway mance Measures 2466 65.0	mi/h mi/h mi/h
Interchange density adju Number of lanes adjustme Free-flow speed, FFS Flow rate, vp	estment, fID ent, fN _LOS and Perform	0.0 4.5 65.0 Urban Freeway mance Measures 2466 65.0	mi/h mi/h mi/h pc/h/ln mi/h

Level of service, LOS

T.

Fax:

0.50

65.0

0.0

0.0

0.0

3.0

65.0

Urban Freeway

Measured

interchange/mi

mi/h

mi/h

mi/h

mi/h

mi/h

mi/h

Phone:

E-mail:

Interchange density

FFS or BFFS

Free-flow speed, FFS

Lane width adjustment, fLW

Lateral clearance adjustment, fLC

Number of lanes adjustment, fN

Interchange density adjustment, fID

Number of lanes, N Free-flow speed:

Operational Analysis Analyst: Agency or Company: Fehr & Peers Date Performed: 12/16/2008 Analysis Time Period: PM Peak Hour Freeway/Direction: SR 14 SB From/To: Soledad Canyon to Sand Canyon Jurisdiction: Santa Clarita Analysis Year: 2015 Plus Project Conditions Description: Vista Canyon Ranch Flow Inputs and Adjustments Volume, V 3058 veh/h Peak-hour factor, PHF 0.96 Peak 15-min volume, v15 796 Trucks and buses 4 Recreational vehicles 0 Terrain type: Level Grade 0.00 Segment length 0.00 mi Trucks and buses PCE, ET 1.5 Recreational vehicle PCE, ER 1.2 Heavy vehicle adjustment, fHV 0.980 Driver population factor, fp 1.00 Flow rate, vp 1083 pc/h/ln Speed Inputs and Adjustments Lane width 12.0 Right-shoulder lateral clearance 6.0

Los and Peri	Formance Measures_	
Flow rate, vp Free-flow speed, FFS	1083 65.0	pc/h/ln mi/h
Average passenger-car speed, S Number of lanes, N	65_0 3	mi/h
Density, D	16.7	pc/mi/ln

Level of service, LOS

В

Phone: E-mail:		Fax:	
	Operational Ana	lunie	
		-1010	
Analysti			
Agency or Company:	Fent & Peers		
Date Performed:	12/16/2008		
Analysis Time Period:	PM Peak Hour		
Freeway/Direction:	SR 14 SB	Service Control	
From/To: Jurisdiction:	Sand Canyon to 1	la Princessa	
Analysis Year:	Santa Clasita	t. War all blanch	
Description: Vista Can	2015 Plus Project you Ranch	ct Conditions	
	Flow Inputs and	Adjustments	
Talluma V		3466	Solom file
Volume, V Peak-hour factor, PHF		3200	veh/h
Peak 15-min volume, vis		0.96	
Trucks and buses		833	4
Recreational vehicles		0	1
Terrain type:		Level	5.
Grade		0.00	
Segment length		0.00	ma.
Trucks and buses PCE, E	T	1.5	340A
Recreational vehicle PC		1.2	
Heavy vehicle adjustmen	t, fHV	0.980	
Driver population facto		1.00	
Flow rate, vp		850	po/h/ln
	_Speed Inputs as	d Adjustments	
Lane width		12.0	ft
Right-shoulder lateral	clearance	6.0	Et
Interchange density		0.50	interchange/mi
Number of lanes, N		4	
Free-flow speed:		Measured	
FFS or BFFS	200	65.0	mi/h
Lane width adjustment,		0.0	mi/h
Lateral clearance adjus		0.0	mi/h
Interchange density adj Number of lanes adjusts	istment, 110	0.0	mi/t
Number of lanes adjusts Free-flow speed, FFS	enc, IN	1.5 65.0	mi/h
rios riow abacc, tra		Crban Freeway	m1/h
		Grown rreeway	
	LOS and Perform	mance Measures	
Flow rate, vp		850	pc/h/ln
Free-flow speed, FFS	TVENTAL TAN	65.4	ps/h
Average passenger-car s	peed, 5	65.0	=1/b
Number of lanes, N		13.1	pc/mi/ln
Density, D			

level of service, LOS

Leisch Method for Weaving Analysis

Data Input

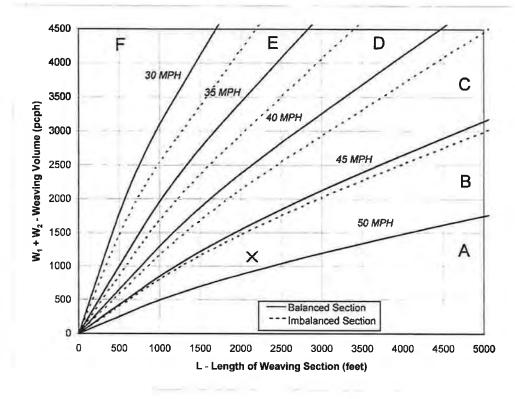
Number of Entering Mainline Lanes
Number of Lanes in Weaving Section
Length of Weaving Section (feet)

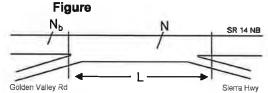
N _b	4
N	5
L	2,140

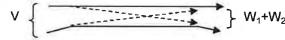
Project Information

Project Vista Canyon Ranch
Scenario 2015 PP Conditions - AM
Freeway SR 14 NB
On-ramp Golden Valley Rd
Off-ramp Sierra Hwy

Total Weaving Section (V)		On-ramp to Mainline (W ₁)		Mainline to Off-ramp (W ₂)	
Volume (vph)*	3,043	_Volume (vph)*	500	Volume (vph)*	540
Truck Percentage	40%	Truck Percentage	20%	Truck Percentage	20%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	3,652	_Volume (pcph)	550	Volume (pcph)	594







Capacity Analysis

- Is the weaving section balanced (Y / N)?

 [If optional exit lane, then "Y". Otherwise "N".]
- 2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?

If below the 50 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F.

45 MPH

3. Interpolated Weaving Speed (S_w, mph)
4. Weaving Intensity Factor (k)
5. Service Volume (SV, peph)

and

50 MPH

5. Service Volume (SV, pcph)
SV = (1/N)*[V + (k - 1)*min(W₁, W₂)]
6. Level of Service (LOS)

A

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

Leisch Method for Weaving Analysis

Data Input

Number of Entering Mainline Lanes
Number of Lanes in Weaving Section
Length of Weaving Section (feet)

N _b	3
N	4
1	2 140

Project Information

Project Vista Canyon Ranch
Scenario 2015 PP Conditions - PM
Freeway SR 14 NB
On-ramp Golden Valley Rd
Off-ramp Sierra Hwy

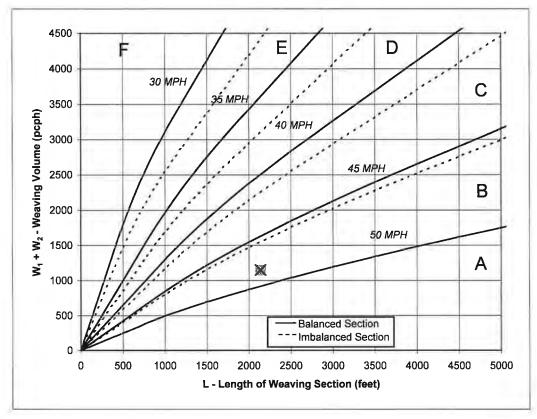
Total Weaving Section (V)		On-ramp to Main	<u>line (W₁)</u>	Mainline to Off-ramp (W	
Volume (vph)*	6,937	_Volume (vph)*	320	Volume (vph)*	726
Truck Percentage	40%	Truck Percentage	20%	Truck Percentage	20%

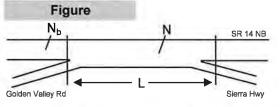
PCE for Trucks
Volume (pcph)

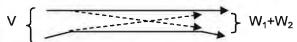
_		
3	40%	Truck Percentag
	1.5	PCE for Trucks
	8,324	Volume (pcph)

320	volume (vpm)
20%	Truck Percentage
1.5	PCE for Trucks
352	Volume (pcph)

	700	
3	199	







Capacity Analysis

- Is the weaving section balanced (Y / N)?

 [If optional exit lane, then "Y". Otherwise "N".]

 Y
- 2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?

45 MPH and 50 MPH

If below the 50 MPH curve, out of the realm of weaving.

If left of the 30 MPH curve, LOS is F.

- 3. Interpolated Weaving Speed (S_w, mph)
 4. Weaving Intensity Factor (k)
- <u>48.4</u> 1.45
- 5. Service Volume (SV, pcph) SV = $(1/N)*[V + (k - 1)*min(W_1, W_2)]$

6. Level of Service (LOS)

2,121 F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

^{*} Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

Leisch Method for Weaving Analysis

Data Input

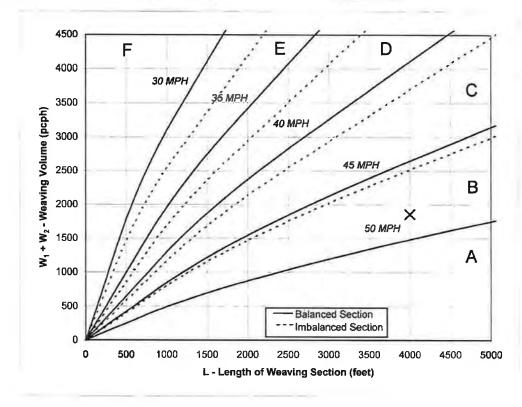
Number of Entering Mainline Lanes Number of Lanes in Weaving Section Length of Weaving Section (feet)

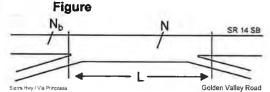
N _b	3
N	4
L	4,000

Project Information

Project Vista Canyon Ranch
Scenario 2015 PP Conditions - PM
Freeway SR 14 SB
On-ramp Sierra Hwy / Via Princessa
Off-ramp Golden Valley Road

Total Weaving Se	ction (V)	On-ramp to Main	<u>line (W₁)</u>	Mainline to Off-ra	$amp(W_2)$
Volume (vph)*	4,272	_Volume (vph)*	1,552	Volume (vph)*	140
Truck Percentage	40%	Truck Percentage	20%	Truck Percentage	20%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	5,126	Volume (pcph)	1,707	Volume (pcph)	154







Capacity Analysis

- 1. Is the weaving section balanced (Y / N)?
 [If optional exit lane, then "Y". Otherwise "N".]
- 2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?

and

If below the 50 MPH curve, out of the realm of weaving.
If left of the 30 MPH curve, LOS is F.

45 MPH

- 3. Interpolated Weaving Speed (S_w, mph)
 48.2
 4. Weaving Intensity Factor (k)
 1.72
- 4. Weaving Intensity Factor (k) 1.72 5. Service Volume (SV, pcph) $SV = (1/N)^*[V + (k - 1)^*min(W_1, W_2)]$ 1,309 6. Level of Service (LOS) C

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: Do not adjust by a Peak Hour Factor (PHF). The methodology incorporates the PHF in the Service Volume tables.

Source: Completion of Procedures for Analysis and Design of Traffic Weaving Sections, Jack E. Leisch & Associates, September 1983. Fehr & Peers

N

50 MPH

Fax:

Phone:

E-mail:

Dive	rge Analysis			
Analyst: Agency/Co.: Febr & Peers Date performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 NB Junction: Sand Canyon R Jurisdiction: Santa Clarita Analysis Year: 2015 Plus Propescription: Vista Canyon Ranch		ons		
Free	eway Data			
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway	Divero 4 65.0 2330		mph vph	
0ff	Ramp Data			
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/decel lane Length of second accel/decel lane	Right 1 35.0 470 500		mph vph ft ft	
Adjacent Ram	p Data (if or	nė exist:	3]	
Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp	No		vph ft	
Conversion to pc/	b D-4 D	e		
Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles	Freeway 2330 0.93 626 4	Ramp 470 0.80 147 2		Adjacent Ramp vph v 3
Terrain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE, ER		Lavel 0.00 0.00 1.5 1.2	t mi	% ma

```
Heavy vehicle adjustment, fHV
                                  0.980
                                             0.990
Driver population factor, fP
                                  1.00
                                             1.00
Flow rate, vp
                                  2555
                                             593
                                                                 pcph
                     Estimation of V12 Diverge Areas
               1 -
                              (Equation 25-8 or 25-9)
                EG
               P = 0.436 Using Equation 8
                FD
                v = v + (v - v) P = 1448 \text{ pc/h}
                12 R F R FD
                        Capacity Checks_
                        Actual
                                    Maximum
                                                  LOS F?
    v + v
                        2555
                                    9400
                                                  No
     Ei E
    v - v - v
                       1962
                                    9400
                                                  No
     EO E R
    12
                        593
                                    2000
    R
       v
                       553 pc/h
    v
                                    (Equation 25-15 or 25-16)
    3 or av34
Is v v > 2700 pc/h?
    3 or av34
Is v v > 1.5 v /2
3 or av34 12
If yes, v = 1448
                                    (Equation 25-18)
                   Flow Entering Diverge Influence Area
                                                   Violation?
                   Actual
                              Max Desirable
                   1448
                               4400
    v
                                                   No
    12
              Level of Service Determination (if not F)
                    D = 4.252 + 0.0086 v \sim 0.009 L = 12.2
                                                              pc/mi/ln
                    R
                                    12
                                          D
Level of service for ramp-freeway junction areas of influence B
                      Speed Estimation
Intermediate speed variable,
                                        D = 0.481
                                        S
Space mean speed in ramp influence area,
                                        S = 53.9
                                                   mph
Space mean speed in outer lanes,
                                        s < 71.3
                                                   mph
                                        0
Space mean speed for all vehicles,
                                       S - 60.3 mph
```

Fax:

Phone:

E-mail:

	Merge	Analysi:	5				
Date performed: 12/1 Analysis time period: AM P Freeway/Dir of Travel: Sand Junction: Sand Sant	4 NB Canyon Rd a Clarita Plus Proje	ct Cond:	itia	ns			
	Freew	ay Data					
Type of analysis Number of lanes in freeway Free-flow speed on freeway Volume on freeway		Me: 3 65 18			mph vph		
	On Ra	mp Data					
Side of freeway Number of lanes in ramp Free-flow speed on ramp Volume on ramp Length of first accel/decel Length of second accel/decel		R16 35 46: 50:	1		mph vph ft ft		
Adj	acent Ramp	Data (i:	E on	e exist	s)		
Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp		No			vph ft		
Conversi	on to pc/h	Under B	ase	Conditi	ons		
Junction Components		Freeway		Ramp		Adjácent Ramp	
Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade		1860 0.93 500 4 0 Level	de	461 0.85 136 2 0 Level	96		vph v t
Length Trucks and buses PCE, ET Recreational vehicle PCS, ER		1.5 1.2	mi	1.5	mì	π ±	

Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 2040 548 pcph Estimation of V12 Merge Areas 1 + (Equation 25-2 or 25-3) EQ P = 0.591 Using Equation 1 FM v * v (P) = 1207 pc/h 12 F FM Capacity Checks Actual Maximum LOS F? v 2588 7050 No FO 833 pc/h (Equation 25-4 or 25-5) 3 or av34 Is v v > 2700 pc/h? 3 or av34 Is v v > 1.5 v /2 3 or av34 12 If yes, v = 1207 (Equation 25-8) _Flow Entering Merge Influence Area_ Violation? Actual Max Desirable 1207 4600

R12 Level of Service Determination (if not F) Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 15.8 R I2 A Level of service for ramp-freeway junction areas of influence B Speed Estimation Intermediate speed variable, M = 0.3095 Space mean speed in ramp influence area, s = 57.9R Space mean speed in outer lanes, S = 63.8 mph Ō Space mean speed for all vehicles, S = 59.7 mph

Phone: Fax: E-mail: Diverge Analysis Analyst: Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 5B Junction: Sand Canyon Rd Jurisdiction: Santa Clarita Analysis Year: 2015 Plus Project Conditions Description: Vista Canyon Ranch Freeway Data Type of analysis Diverge Number of lanes in freeway Free-flow speed on freeway 65.0 **Moh** Volume on freeway 4556 vph Off Ramp Data Side of freeway Right Number of lanes in ramp Free-Flow speed on ramp 35.0 mph Volume on ramp 906 vph Length of first accel/decel lane 500 ft Length of second accel/decel lane Et Adjacent Ramp Data (if one exists) Does adjacent samp exist? Volume on adjacent ramp vph Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp £t Conversion to pc/h Under Base Conditions Junction Components Freeway Ramp Adjacent Ramp Volume, V (vph) 4556 906 Peak-hour factor, PEF 0.94 0.90 Peak 15-min volume, v15 1212 252 Trucks and buses Recreational vehicles Ó 0

Level

0.00

0.00

1.5

1.2

Level

0.00

0.00

1.5

1.2

mi

mí.

Terrain type:

Grade

Length

Trucks and buses PCE, ET

Recreational vehicle PCE, ER

Heavy vehicle adjust Driver population fa Flow rate, vp		1.00 1	.990 .00 017	рсри
	Estimation	of V12 Diverge A	reas	
	Q (1	Equation 25-8 or	25-9)	
2		sing Equation 0		
	2 R F R	P = 4944 pc FD	/h	
	Capa	eity Checks		
v = v Fi F	Actual 4944	Maximum 4700	LOS F?	
V = V - V FO F R	3927	4700	No	
V R	1017	2000	No	
v v 3 or av34	0 pc/1	(Equation 2	5-15 or 25-16)	
	2700 pc/h?	No		
Is v v > 3 or av34	1.5 v /2	No		
If yes, v = 4944 12A		{Equation 2	5-18}	
		Diverge Influenc		
v 12	Actual 4944	Max Desirable 4400	Violation? Yes	
	el of Service De	etermination (if	not F)	
Density,	В.	0.0086 v - 0.009	D	pc/m1/ln
Level of service for	ramp-freeway j	inction areas of	influence F	
	Speed 1	Estimation		
Intermediate speed v	ariable,	D = 0.	520	
Space mean speed in	ramp influence		.l mph	
Space mean speed in	outer lanes,		/A mph	
Space mean speed for	all vehicles,	S = 53	.1 mph	

Phone:

Terrain type:

Grade

Length

Trucks and buses PCE, ET

Recreational vehicle PCE, ER

Fax: E-mail: Merge Analysis Analyst: Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 SB Junction: Sand Canvon Rd Jurisdiction: Santa Clarita Analysis Year: 2015 Plus Project Conditions Description: Vista Canyon Ranch Freeway Data Type of analysis Merge Number of lanes in freeway 2 Free-flow speed on freeway 65.0 πρħ Volume on freeway 3650 On Ramp Data Side of freeway Right Number of lames in ramp Free-flow speed on ramp 35.0 mph Volume on ramp 9.80 vph Length of first accel/decel lane 1500 ET Length of second accel/decel lane Adjacent Ramp Data (if one exists) Does adjacent ramp exist? Volume on adjacent Ramp Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramo Conversion to pc/h Under Base Conditions Junction Components Freeway Adjacent Ramp Ramp Volume, V (vph) 3650 880 Peak-hour factor, PHF 0.94 0.88 Peak 15-min volume, v15 971 250 Trucks and buses 4 2 Recreational vehicles Ó 0

Level

1.5

Level

1.5

m.2

8

mí

```
Heavy vehicle adjustment, fHV
                                    0.980
                                               0.990
Driver population factor, fP
                                    1.00
                                               1.00
Flow rate, vp
                                    3961
                                               1010
                                                                   peph
                      Estimation of V12 Merge Areas
                1 E
                               (Equation 25-2 or 25-3)
                 EQ
                P -
                       1.000 Using Equation 0
                 FM
                v = v (P ) = 3961 pc/h
                 12 F FM
                           Capacity Checks
                         Actual
                                      Maximum
                                                    LOS F?
    V
                         4971
                                      4700
                                                    Yes
     FO
                         0 pc/h
                                      (Equation 25-4 or 25-5)
     3 or av34
                > 2700 pc/h?
       A
     3 or av34
    ♥ > 1.5 ∀ /2
     3 or av34
                   12
If yes, v = 3961
                                      (Equation 25-8)
                     Flow Entering Merge Influence Area
                    Actual
                                Max Desirable
                                                     Violation?
                    3961
                                 4600
     R12
               Level of Service Determination (if not F)
Density, D = 5.475 + 0.00734 \text{ v} + 0.0078 \text{ v} - 0.00627 \text{ L} = 34.4 pc/mi/ln}
                                    12
                          R
Level of service for ramp-freeway junction areas of influence F
                   Speed Estimation
Intermediate speed variable,
                                         M = 0.778
                                          S
Space mean speed in ramp influence area,
                                         S = 47.1
                                          R
Space mean speed in outer lanes,
                                         S = N/A
```

0

s = 47.1

mph

Space mean speed for all vehicles,

Fax:

Phone:

Recreational vehicles

Trucks and buses PCE, ET

Recreational vehicle PCE, ER

Terrain type:

Grade

Length

E-mail: Diverge Analysis Analyst: Agency/Co.: Fehr & Peers Date performed: 12/16/2008 Analysis time period: AM Peak Hour Freeway/Dir of Travel: SR 14 NB Junction: Via Princessa Jurisdiction: Santa Clarita Analysis Year: 2015 Plus Project Conditions Description: Vista Canyon Ranch Freeway Data_ Type of analysis Diverge Number of lanes in freeway Free-flow speed on freeway 65.0 Volume on freeway 2503 vph Off Ramp Data_ Side of freeway Right Number of lanes in ramp Free-Flow speed on ramp 35.0 mph Volume on ramp 533 vph Length of first accel/decel lane Length of second accel/decel lane 500 £τ £t Adjacent Ramp Data (if one exists) Does adjacent ramp exist? Volume on adjacent ramp Position of adjacent ramp Type of adjacent ramp Distance to adjacent ramp ft Conversion to pc/h Under Base Conditions Junction Components Freeway Ramp Adjacent Ramp Volume, V (vph) 2503 533 Peak-hour factor, PHF 0.93 0.85 Peak 15-min volume, v15 673 157 Trucks and buses

0

Level

0.00

0.00

1.5

0

mi

Level

0.00

0.00

1.5

mi

mi

Heavy vehicle adjustm Driver population fac Flow rate, vp	ent, fHV tor, fP	1.00	0.990 1.00 533	peph
	Estimation	of V12 Diverge A	lreas	
L	, –	quation 25-8 or	25-9)	
5 EQ	= 0,436 Us	ing Equation 8		
	= v + (v - v)	P = 1554 pc	e/h	
	Capac	ity Checks		
v « v Fi F	Actual 2745	Maximum 9400	LOS F?	
V = V - V FO F R	2112	9400	No	
v R	633	2000	So	
v v 3 or av34	595 pc/h	(Equation :	25-15 or 25-161	
	700 pc/h?	No		
	-5 v /2	No		
f yes, v = 1554	* &	(Equation 2	25-18)	
v 1.2	Actual 1554	Diverge Influenc Max Desirable 4400 termination (if	Violation? No	
Density.	D = 4.252 + 0 R	.0086 v - 0.009	D L = 13.1	pc/mi/L
Sever of service for	5.7.0	stimation	THITTGEHICE P	
Intermediate speed va	riable,	D = 0.	.485 3.8 mph	

S = 71.3

s = 60.2

Space mean speed in outer lanes,

Space mean speed for all vehicles,

Phone: E-mail:		Ear				
	Dive	rge Analy	sis			
Date performed: Analysis time period: Freeway/Dir of Travel: Junction: Jurisdiction:	SR 14 NB Sand Canyon Ro Santa Clarita 2015 Plus Pro-		iitic	ons		
	Free	away Data				
Type of analysis Number of lanes in freew Free-flow speed on freew Volume on freeway	ay	3 65 62	65		mph	
25 - 1 - 12 - 2	OFF	Ramp Data	-			
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accel/de Length of second accel/d	cel lane	1 35 22 50	65		mph upr ft ft	
Does adjacent ramp exist Volume on adjacent ramp Position of adjacent ram Type of adjacent ramp Distance to adjacent ram	P	No			vph	
Conv	ersion to pc/	Under B	ase	Conditi	ons	
Junction Components	and the second s	Freeway		Ramp		Adjacent
Volume, V (vph) Peak-hour factor, PAF Peak 15-min volume, vis Trucks and buses Recreational vehicles Termain type: Grade Length Trucks and buses PCE, ET Recreational vehicle PCE		6265 C.95 1649 4 0 Level 0.00 C.CO	m.1		h mi	Ramp PDh

```
Heavy vehicle adjustment, fRV
                                  0.980
                                             0.990
Driver population factor, fP
                                  1.00
                                             1.00
Flow sate, vp
                                  6727
                                             1420
                                                                popn
                     Estimation of VI2 Diverge Areas
                              (Equation 25-8 or 25-9)
                EQ
                     0.527 Using Equation 5
                FD
               12 R F R FO
                        Capacity Checks
                       Actual
                                    Maximum
                                                  LOS P?
    4 - 4
                       6727
                                    7050
                                                  No
     Fi F
    v = v = v
                       5307
                                    7050
                                                  No
     FO F B
                       1420
                                    2000
                                                  Na
     8
    0 0
                       2513 pc/h
                                   (Equation 25-15 or 25-16)
    3 or av34
              > 2700 pc/h?
     3 or av34
    v v > 1.5 v /2
3 or av34 12
15 yes, v - 4214
                                    (Equation 25-18)
                   Flow Entering Diverge Influence Area
                   Actual
                               Max Desirable
                   4234
                              4400
    4
                                                  No
     12
              Level of Service Determination (if not F)
Density,
                    D = 4.252 + 0.0086 v - 0.009 L = 36.0
R
Level of service for ramp-freeway junction areas of influence E
                        Speed Estimation
Intermediate speed variable,
                                       0 + 0.556
                                        5
Space mean speed in ramp influence area,
                                       $ = 52.2
                                        2
Space mean speed in outer lanes,
                                       S n 65.4
```

S = 56.5 mph

Space mean speed for all vehicles,

Fax:

Phone:

		Merge J	inalysi	5_				
Analyst:								
	Fehr 6 P	0000						
Date performed:	12/16/20							
Analysis time period:								
Freeway/Dir of Travel:								
Junction:	Sand Can							
Jurisquetion:	Santa Cl							
Analysis Year:					52			
Description: Vista Can	2015 Plu lyon Ranch		t Conc	11.110	ns			
	**		y Data	1				
ents the strong of			7					
Type of analysis				rge				
Number of lanes in free			2					
Free-flow speed on free	sway			0.0		ngh		
Volume on freeway			50	40		dda		
		_On Ran	ep Data					
Side of freeway			8.1	aht				
Number of lanes in rame	3		1					
Free-flow speed on ramp		35.0			mph			
Volume on ramp		897			voh			
Length of first accel/c	legel lane				ft			
Length of second accel/						ft		
	Adjaces	c Ramp I	Data (1	E or	e exist	3)		
Does adjacent ramp exis	1.7		Ne					
Volume on adjacent Ramo			147			vph		
Position of adjacent Ra						A 7587		
Type of adjacent Ramp								
	S 40 40					ft		
	rinin							
Distance to adjacent Ra	imp eversion t	o pc/h t	Jnder H	Base	Conditi	ons		
Distance to adjacent Ra							Act agent	-
Distance to adjacent Ra			Inder Freeway		Conditi Ramp		Acjacent Ramo	
Distance to adjacent RaCoc		4					Acjacent Ramp	vel
Distance to adjacent Ra Con Junction Components Volume, V (vph)		1	Freeway		Ramp 697			vpl
Distance to adjacent Ra Con Junction Components Volume, V (vph) Peak-hour factor, PHF	version t		Freeway 5040 0.95		Bamp 697 0.95			
Distance to adjacent Ra Con Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, v15	version t		Freeway		897 0.98 236			٧
Distance to adjacent Ra Cor Junction Components Volume, V (vph) Peak 16-min volume, vif Trucks and buses	version t		Freeway 5040 0.95 1326		897 0.95 236			V
Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, vis Trucks and buses Recreational vehicles	version t		Freeway 5040 0.95 1326	ó	897 0.95 236 2			٧
Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, vif Trucks and buses Recreational vehicles Terrain type:	version t		Freeway 5040 0.95 1326	6	897 0.95 236		Ramp	*
Distance to adjacent Ra Con Junction Components Volume, V (vph) Peak-hour factor, PNF Peak 15-min volume, vis Trucks and buses Recreational vehicles Terrain type: Grade	version t		Freeway 5040 0.95 1326	*	Ramp 697 0.99 236 2 0 Level	95	Ramp 8	8
Junction Components Volume, V (vph) Peak-hour factor, PHF Peak 15-min volume, vis Trucks and buses Recreational vehicles Terrain type:	eversion t		Freeway 5040 0.95 1326	6	Ramp 697 0.99 236 2 0 Level		Ramp 8	*

```
Heavy vehicle adjustment, fBV
                                    0.980
                                               0.995
Driver population factor, fP
                                    1.00
                                                1,00
Flow rate, vp
                                                954
                                    5411
                                                                    poph
                       Estimation of Vi2 Merge Areas
                                (Equation 25-2 or 25-3)
                 P = 1.000 Using Equation D
                v = v (P ) = 5411 pc/h
                 12 F FM
                          ___Capacity Checks_
                         Actual
                                      Maximum
                                                     LOS E?
                         6365
                                                     Yes
     FO
                         C pc/h
                                      (Equation 25-4 or 25-5)
     3 or av34
                > 2700 pc/h?
        120
     3 or av34
              > 1.5 v /2
     3 or av34
If yes, v = $411
12A
                                      (Equation 25-8)
                      Flow Entering Merge Influence Area
                    Actual
                                 Max Desirable
                                                      Violation?
                    5411
     RIZ
               Level of Service Determination (if not F)
Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 51.5 R R
                                                                  pc/ml/ln
Level of service for camp-freeway junction areas of influence ?
                          Speed Estimation
Intermediate speed variable.
                                          K = 2.552
Space mean speed in ramp influence area,
                                          5 = 6.3
Space mean speed in outer lanes,
                                          S = N/A
                                                      mph
Space mean speed for all vehicles.
                                          $ = 6.3
```

Sax:

Phone:

F-mail-

E-mail:				
Dive	rge Analysi	3		
	, , , , , , , , , , , , , , , , , , , ,			
Analyst:				
Agency/Co.: Fehr & Peers				
Date performed: 12/16/2008				
Analysis time period: PM Peak Hour				
Freeway/Dir of Travel: SR 14 SB				
Junction: Sand Canyon R				
Jurisdiction: Santa Clarita				
Analysis Year: 2015 Plus Pro	iject Condit:	Lons		
Description: Vista Canyon Ranch				
Fre	eway Data			
Type of analysis	Dive	riio		
Number of lanes in freeway	3	90		
Free-flow speed on fracway	65.0		mph	
Volume on freeway	3058		vph	
The state of the s	3030		v Pii	
Off	Ramp Data			
Side of freeway	Right			
Number of lanes in ramp	1			
Free-Flow speed on ramp	35.0		mph	
Volume on ramp	678		vph	
Length of first accel/decel lane	500		£ī	
Length of second accel/decel lane			ft	
Adjacent Ram	p Data (if o	one exist	5)	
Does adjacent ramp exist?	No			
Volume on adjacent ramp	24.0		vph	
Position of adjacent ramp			A [2-11	
Type of adjacent ramp				
Distance to adjacent ramp			ft	
Conversion to pc/	h Under Base	Conditi	กกร	
Junction Components	Freeway	Ramp		Adjacent Ramp
Volume, V (vph)	3058	678		vph
Peak-hour factor, PHF	0.96	0.85		•
	796	199		V
Peak 15-min volume, v15		-		¥
Peak 15-min volume, v15 Trucks and buses	4	2		
Peak 15-min volume, v15 Trucks and buses Recreational vehicles	4	0		4
Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type:	4 0 Level	0 Level		
Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade	4 0 Level 0-00 %	0 Level 0.00	4	
Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade Length	4 0 Levei 0.00 %	0 Level 0.00	a mi	*
Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type: Grade	4 0 Level 0-00 %	0 Level 0.00	_	8

```
Heavy vehicle adjustment, fHV
                                   0.980
                                              0.990
Driver population factor, fP
                                   1.00
                                              1.00
Flow rate, vp
                                    3249
                                              806
                                                                  pcph
                     Estimation of V12 Diverge Areas
                <u>r</u> =
                               (Equation 25-8 or 25-9)
                 £Q
                P =
                      0.642 Using Equation 5
                 FD
                v = v + (v - v) P = 2374 pc/h
                 12 R F R FD
                         Capacity Checks
                        Actual
                                     Maximum
                                                    LOS F?
    v = v
                        3249
                                     7050
     Fi F
    v = v - v
                        2443
                                     7050
     FO F R
    w
                        806
                                     2000
    R
       v
                        875 pc/h
    Ψ
                                     (Equation 25-15 or 25-16)
    3 or av34
Is v v > 2700 \text{ pc/h}?
     3 or av34
Is v v > 1.5 v / 2
     3 or av34
                    12
If yes, v = 2374
12A
                                     (Equation 25-18)
                   Flow Entering Diverge Influence Area
Actual Max Desirable Violation?
                    2374
                                4400
    V
               Level of Service Determination (if not F)
                     D = 4.252 + 0.0086 v + 0.009 L = 20.2
R D
                                                                pc/mi/ln
Level of service for ramp-freeway junction areas of influence C
                        Speed Estimation
Intermediate speed variable,
                                         D - 0.501
                                         S
Space mean speed in ramp influence area,
                                         S = 53.5
                                         R
Space mean speed in outer lanes,
                                         S = 71.3
                                         0
Space mean speed for all vehicles,
                                         S = 57.3 mph
```

Phone: E-mail: Fax:

Merge Analysis

Analyst:

Agency/Co.:

Date performed: 12/16/2008 Analysis time period: PM Peak Hour

Freeway/Dir of Travel: SR 14 SB Junction:

Sand Canyon Rd Jurisdiction: Santa Clarita

Analysis Year: 2015 Plus Project Conditions Description: Vista Canyon Ranch

Type of analysis Number of lanes in freeway

3 Free-flow speed on freeway 65.0 2380

Volume on freeway

voh

Merge

On Ramp Data

Freeway Data

Side of freeway Right Number of lanes in ramp Free-flow speed on ramp 35.0 Volume on ramp 820 vph Length of first accel/decel lane 1500 £t Length of second accel/decel lane Et

Fehr & Peers

_Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?

Volume on adjacent Ramp Position of adjacent Ramp

Type of adjacent Ramp

Distance to adjacent Ramp

vph

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2380	820		vph
Peak-hour factor, PHF	0.96	0.98		-
Peak 15-min volume, v15	620	209		V
Trucks and buses	4	2		8
Recreational vehicles	0	0		용
Terrain type:	Level	Leve_		
Grade	8		8	6
Length	ma		mi	ni
Trucks and buses PCE, ET	1.5	1.5		
Recreational vehicle PCE, ER	1.2	1.2		

Heavy vehicle adjustment, fHV 0.980 0.990 Driver population factor, fP 1.00 1.00 Flow rate, vp 2529 845

Estimation of V12 Merge Areas

poph

L = (Equation 25-2 or 25-3) ΕQ 0.619 Using Equation 1 5 -FM v = v (P) = 1567 pc/h12 F FM

Capacity Checks

Actual Maximum LOS F? v 3374 7050 No FO 962 pc/h (Equation 25-4 or 25-5) 3 or av34 > 2700 pc/h? " 3 or av34 v v > 1.5 v /2 3 or av34 12 If yes, v = 1567 (Equation 25-8)

Flow Entering Merge Influence Area Actual Max Desirable Violation? 1567 4600 No R12 Level of Service Determination (if not F)_

Density. D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 14.5R 12

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M = 0.260S Space mean speed in ramp influence area, S = 59.0 mph Space mean speed in puter lanes, 5 - 63.3 mph 0 Space mean speed for all vehicles, 5 = 60.2 mph

Fax:

Phone:

E-mail:		Fax	::				
	Diver	ge Analy	513				
Analyst: Agency/Co.: Date performed: Analysis time period: Freeway/Dir of Travel: Junction: Jurisdiction: Analysis Year: Description: Vista Can	SR 14 NB Via Princessa Santa Clarita 2015 Plus Proj	ect Cond	litio	រកន			
	Free	way Data	-				
Type of analysis Number of lanes in free Free-flow speed on free Volume on freeway		3 65	.0 04		mph vph		
	Off R	amp Date					
Side of freeway Number of lanes in ramp Free-Flow speed on ramp Volume on ramp Length of first accsl/decel lane Length of second accel/decel lane		Right 1 35.0 879 500			mph vph ft ft		
	Adjacent Ramp	Data (i	f or	ne exist	s)		
Does adjacent ramp exis Volume on adjacent ramp Position of adjacent ra Type of adjacent ramp Distance to adjacent ra	mp	Хc)		⊽ph ft		
Con	version to pc/h	Under E	ase	Conditi	ons	·	
Junction Components Volume, V (vph)		Freeway	,	Ramp 879		Adjacent Ramp	wah
Peak-hour factor, PHF Peak 15-min volume, v15 Trucks and buses Recreational vehicles Terrain type:		0.95 1685 4 0 Level		0.95 231 2 0 Level			vph v %
Grade Længth Trucks and buses PCE, E Recreational vehicle PC				0.00 0.00 1.5 1.2	* mi	r.	i

```
Heavy vehicle adjustment, fHV
                                 0.980
                                           0.990
Driver population factor, fP
                                 1.00
                                           1.00
Flow rate, vp
                                 6876
                                            935
                                                              pcph
                   Estimation of V12 Diverge Areas
               L =
                             (Equation 25-8 or 25-9)
               P = 0.545 Using Equation 5
               FD
               v = v + (v - v) P = 4173 pc/h
               12 R F R FD
                       Capacity Checks
                       Actual
                                   Maximum
                                                 LOS F?
    v = v
                       6876
                                   7050
                                                 No
    Fi F
    v = v - v
                       5941
                                   7050
                                                 No
    FO F R
    v
                       935
                                   200G
    R
    R
V V
                       2703 pc/h
                                   (Equation 25-15 or 25-16)
3 or av34
Is v v > 2700 pc/h?
    3 or av34
Is v v > 1.5 v / 2
    3 or av34
                   12
If yes, v = 4176
                                   (Equation 25-18)
                  4400
    V
                   4176
    12A
              Level of Service Determination (if not F)
                   D = 4.252 + 0.0086 \text{ v} - 0.009 \text{ L} = 35.7 \text{ pc/mi/ln}
Density,
Level of service for ramp-freeway junction areas of influence E
                       Speed Estimation
Intermediate speed variable,
                                      D - 0.512
                                       S
Space mean speed in ramp influence area,
                                      S = 53.2
                                                 mph
                                       R
Space mean speed in outer lanes,
                                      S = 64.7
                                       0
Space mean speed for all vehicles,
                                      S = 57.2 mph
```

Fax:

Phone:

E-mail:						
	Merge	a Analysi	8			
Analyst: Agency/Co.: Date performed: Analysis time perlod:	Fehr & Peers 12/16/2008 PM Peak Hour					
Freeway/Dir of Travel: Junction: Jurisdiction: Analysis Year:	SR 14 SB Via Princessa Santa Clarita 2015 Plus Proj	ject Cond	litzo	ons		
Description: Vista Can	5	eway Data				
Type of analysis		Mo	rge			
Number of lanes in free	VEW	4				
Free-flow speed on free		69	.0		mph	
Volume on freeway	200		20		vph	
	On I	Ramp Data				
Side of freeway		RJ	ght			
Number of lanes in ramp	1	1				
Free-flow speed on ramp	i	35	-0		mph	
Volume on samp		8.9	2		uph	
Length of first accel/c	lecel lane	50	0		źŧ	
Length of second accel/	decel lane				Et	
	_Adjacent Ramp	p Data 11	i or	ne exist	s)	
Does adjacent ramp exis		No	ě.			
Volume on adjacent Ramp					vpn	
Position of adjacent Ra	mp					
Type of adjacent Ramp Distance to adjacent Ra	THE				Et	
			638	2		
The state of the s	version to pc/				0118	Consendo
Junction Components		Freeway	9	Ramp		Adjacent Ramp
Volume, V (vph)		2720		892		vph
Peak-hour factor, PHF		0.95		0.95		
Peak 15-min volume, v13		708		235		9
Trucks and buses		4		2		
Recreational vehicles		0		0		
Terrain type: Grade		Level		Level		
Length					4	4
Trucks and buses PCE, 3	10	1.5	ms.	1.5	TILL	mi
Recreational vehicle Po		1.2		1.2		
near character thursday to	44	4.6				

```
Heavy vehicle adjustment, fHV
                                     0.980
                                                0,990
Driver population factor, fF
                                     1.00
                                                1.00
Flow rate, vp
                                     2890
                                                948
                                                                     paph
                       Estimation of V12 Merge Areas
                                (Equation 25-2 or 25-3)
                 EQ
                 P ...
                        0.099 Using Equation 4
                 FM
                 V + V (F ) = 287 pc/h
                 12 F FR
                          Capacity Checks
                         Actual
                                       Maximum
                                                     LOS F7
    "
                         3838
                                      9400
     50
                         1301 pc/h
                                       (Equation 25-4 or 25-5)
     3 pr av34
                 > 2700 pc/h?
Is
     3 05 6034
   v
                5 1.5 ± /2
         10
     3 or av34
                       12
If yes, v = 1156
                                      (Equation 25-8)
                      _Flow Entering Merge Influence Area
                                                      Violetion?
                     Actual
                                 Mak Desirable
                                  4660
                    1156
     12A
               Level of Service Determination (if not F)
Density, D = 5.475 \pm 0.00734 v \pm 0.0078 v - 0.00527 L = 18.3 R
                                                                   pc/mi/ln
Level of service for ramp-freeway junction areas of influence B
                           Speed Estimation
Intermediate speed variable,
                                          M = 0.318
Space mean speed in ramp influence area,
                                          $ - 57.7
Space mean speed in outer lanes,
                                          5 - 63.7
Space mean speed for all vehicles,
                                          $ = 60.2
```

SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 Plus Project Conditions w/ Mitigation

PHF:

1

TOD:

AM Peak Hr

Analysis Period: Hourly

of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type:	Signalized
Type:	Signalized

						. JP			
		Demand		Volume Serv	red	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std De	
	L	290	294	101	21	61.8	E		
NB	T	147	182	124	10	57.2	E		
	R	375	382	102	15	11.0	B	-	
	Subtotal	812	858	106	-	38.2	D		
SB	L	140	141	101	6	57.0	E		
	1	174	177	102	12	53.5	D		
	R	171	164	96	16	24.7	C	-	
	Subtotal	486	482	99	60	44.7	D		
	Ļ	80	76	95	8	66.0	E	-	
EB	T	651	663	102	28	47.9	D	-	
	R	343	342	100	24	16.5	В	-	
	Subtotal	1074	1081	101	-	39.2	D	-	
	L	328	315	96	13	64.2	E	-	
WB	T	1341	1349	101	35	28.9	C	-	
	R	170	167	98	15	12.0	В	_	
	Subtotal	1839	1830	100	-	33.4	C	-	
	Total	4210	4250	101	-	37.1	D		

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

	1000
Type:	Si
rvbe:	OI

Signalized

		Demand	Demand Volume Served			Delay/Veh (sec)		
Approach Move	Movement	nent Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	Ł	846	796	94	21	157.6	F	-
NB	R	60	59	98	8	153.1	F	
	Subtotal	906	855	94	-	157.3	F	-
	T	636	703	110	22	21.5	С	-
EB	R	520	532	102	24	7.4	Α	-
	Subtotal	1156	1235	107	-	15.4	В	-
	L	360	357	99	15	52.0	D	1
WB	T	993	982	99	18	23.6	C	4
	Subtotal	1353	1338	99	-	31.2	C	+
	Total	3415	3428	100	-	57.0	E	-

SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Project: Vista Canyon Ranch HCM: 2000

Scenario: 2015 Plus Project Conditions w/ Mitigation PHF: 1
TOD: AM Peak Hr Analysis Period: Hourly # of Runs: 10

		Damand	V	olume Serv	ed	D	elay/Veh (s	ec)
Approach	Movement	Demand Volume	Avg	%	Std Dev	Avg	Los	Std Dev
	Ť	562	634	113	29	18.3	В	. 111 27
NB	R	238	237	100	16	7.8	A	-
	Subtotal	800	871	109	-	15.4	В	
	L	223	220	99	12	29.5	C	-
SB	T	601	644	107	22	8.3	A	-
	Subtotal	824	865	105	-	13.7	В	_
	L	230	229	100	19	23.7	C	. –
EB	R	240	239	100	10	4.8	A	_
	Subtotal	470	468	100	-	14.1	В	
	Total	2094	2204	105		14.4	В	4

		Demand	V	olume Serv	ed	Delay/Veh (sec)			
Approach	oach Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	L	136	139	102	9	15.9	В		
NB	Т	480	490	102	27	16.5	В	-	
	R	5	6	120	2	15.6	В	-	
	Subtotal	621	635	102	100	16.4	В	-	
	L	20	18	90	4	32.6	C	-	
SB	Т	390	394	101	19	26.5	C		
	R	491	483	98	18	24.5	C	_	
	Subtotal	901	895	99	1 = 1	25.5	C		
	L	360	360	100	10	24.2	С	-	
EB	T	11	11	100	2	24.9	C	· ·	
	R	108	107	99	7	25.5	С	-	
	Subtotal	479	478	100	-	24.5	C	-	
	L	5	5	100	2	11.0	В	-	
WB	Т	23	22	96	4	14.0	В	_	
	R	20	21	105	4	11.9	В	-	
	Subtotal	48	48	100	-	12.7	В	-	
	Total	2049	2056	100	-	22.2	С	_	



1

SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Project:Vista Canyon RanchHCM:2000Scenario:2015 Plus Project Conditions w/ MitigationPHF:1

TOD: AM Peak Hr Analysis Period: Hourly # of Runs: 10

Intersection: 7: Soledad Canyon Rd. & Lost Canyon Rd. Type: Signalized

							7 - 2 - 2		
		Demand	emand Volume Serve		red	0	Delay/Veh (sec)		
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	L	143	141	99	10	21.6	C	-	
NB	R	86	88	102	10	7.9	Α	-	
	Subtotal	229	229	100		16.3	В	100	
	T	950	954	100	30	14.2	В	-	
EB	R	290	288	99	10	8.7	Α		
	Subtotal	1240	1242	100	-	12.9	В	_	
	L.	175	165	94	9	32.2	C	-	
WB	Ť	1820	1780	98	21	12.2	В	-	
	Subtotal	1995	1945	97	-	13.9	В	-	
	Total	3464	3415	99	1. 4. 1	13.7	В	_	

SIMTRAFFIC LEVEL OF SERVICE REPORT **Including Upstream Delays**

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

Approach

NB

SB

WB

Movement

Subtotal

R

Subtotal

R

Subtotal

Total

2015 Plus Project Conditions w/ Mitigation

Avg

283

659

941

697

874

1570

75

6

295

376

2887

PHF:

1

TOD:

AM Peak Hr

Hourly Analysis Period:

Volume Served

%

98

104

102

103

100

101

94

120

102

100

101

Std Dev

26

23

22

36

8

3

14

40.7

10.8

16.7

15.2

18.7

of Runs:

10

Intersection: 14: SR 14 SB Ramps & Via Princessa

Demand Volume

289

633

922

679

870

1549

80

5

290

375

2846

2114

Total

2220

Signalized Type:

	Delay/Veh (se	ec)
Avg	LOS	Std Dev
38.0	D	
4.2	Α	_
14.3	В	
21.2	C	-
10.6	В	
15.3	8	-
37.7	D	_

D

В

B

В

		Demand	٧	olume Serv	red	D	elay/Veh (se	ec)	
Approach	Movement	proach Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	T	702	772	110	37	16.5	Ð		
NB	R	120	121	101	11	6.7	Α		
	Subtotal	822	893	109	-	15.1	В	-	
	L	240	249	104	12	36.8	D	-	
SB	T	519	535	103	28	8.1	Α	-	
	Subtotal	759	784	103	-	17.2	В	-	
	L	220	219	99	13	31.1	С	-	
EB	R	313	324	104	12	23.7	С	-	
	Subtotal	533	543	102		26.7	C	-	

105

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Fulure Volume Alternative) Interim Plus Project Mitigation AM

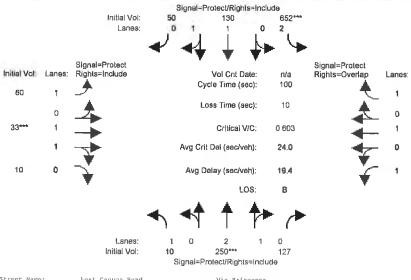
Initial Vol.

512

26

333***

Intersection #16: Via Princessa/Lost Canyon Road



Street Name:	Street Name: Lost Canyon Road Approach: North Bound South Bound						Via Princessa						
Approachi	No	rth B	prind	So	uth Bo	bauc	E	ast Bo	und	₩	est Bo	ound	
Movement:													
	-						1		-				
Min Green:													
			1]				1	11	1		j	
Volume Hodul													
Base Vol:	±0	250	127	652	130	50	50	33	1.0	333	26	512	
Growth 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	
Initial Bae:			127	652	130	50	60	33	10	333	26	512	
Added Voli	0	0	0	0	0	3	0	0	.0	0	0	0	
PassechyVel:	. 0	0	0	D	0	0	0		0	Ó	D	0	
Inttint futi			127	652	1.30	50	60	33	1.0	333	26	512	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.60	1.00	1.00	1.00	
PHF Adja	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1-00	1.00	1.00	
PHY Volume:	10	250	127	652	130	50	60	33	10	333	26	512	
Reduct Vol:			0	0	0	0	10	0	0	0	(1	0	
Reduced Vali			127	652	130	50	60	33	10	333	26	512	
PCE Ady:			1.00	1.00	1.00	1.00	1.00	1.00	L+60	1.00	1.00	3,00	
MLF Adj:			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1,00	1.00	1.00	
FinalValume:	10	250	127	652	130	50	60	3.3	10	333	2.6	512	
OvlAdjVol:												186	
	1			1	-100		1			1			
Saturation E	low M	odule;											
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Adjustment:	1.00	1.00	1.00	1.00	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Lanes;	1.00	2.00	1.00	2.00	1.44	0.56	1.00	1.53	0.47	1.00	1.00	1.00	
Final Sat.:	1600	3200	1600	3200	2311	889	1600	2456	744	1600	1600	1600	
	[
Capacity Ana	lysia	Modul	e:										
Vol/Sat:	0.01	0.08	0.08	0.20	0.06	0.06	0.04	0.01	0.01	0 = 21	0 = 0.2	0.32	
OvlAdjV/S:												0.12	
Crit Moues													

SIMTRAFFIC LEVEL OF SERVICE REPORT **Including Upstream Delays**

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 Plus Project Conditions w/ Mitigation

PHF:

TOD:

PM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 2: Soledad Canyon Rd. & Sand Canyon Rd.

Type: Signalized

		Demand	V	olume Serv	ed	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	L08	Std Dev	
	L	320	321	100	16	74.8	E	**	
NB	T	199	425	213	16	41.2	D	:**	
	R	672	658	98	24	35.0	C	977	
	Subtotal	1191	1403	118	-	46.0	D	-	
SB	L	150	146	97	16	54.5	D		
	т	142	138	97	8	50.1	D		
	R	107	103	96	9	14.9	8	-	
	Subtotal	399	387	97	-	42.4	D	-	
	L	158	157	99	15	102.7	F		
EB	T	973	942	97	36	99.7	F		
	R	514	507	99	23	50.5	D	-	
	Subtotal	1645	1605	98	-	84.4	F		
	L	301	281	93	24	71.6	E	-	
WB	Τ	647	651	101	45	26.3	C		
	R	140	134	96	8	9.4	Ã	**	
	Subtotal	1088	1086	98	-	36.2	D	***	
	Total	4323	4461	103		67.2	E		

Intersection: 3: Soledad Canyon Rd. & SR 14 SB Ramps

Type: Signalized

		Demand	V	olume Serv	red	Delay/Veh (sec)			
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
	L,	558	537	96	54	56.4	E		
NB	R	120	113	93	15	54.1	D		
	Subtotal	678	650	96	_	56.0	Ε	-	
	Т	1265	1234	98	41	20.6	C	-	
EB	R	520	508	98	20	5.0	A	-	
	Subtotal	1765	1742	98	-	16.1	В	_	
	L	300	237	79	10	587.7	F	-	
WB	Т	530	498	94	33	95.1	F		
	Subtotal	830	734	88	-	253.9	F	-	
	Total	3293	3126	95	_	80.3	F	_	

SIMTRAFFIC LEVEL OF SERVICE REPORT **Including Upstream Delays**

Project:

Vista Canyon Ranch

HCM:

2000

Scenario:

2015 Plus Project Conditions w/ Mitigation

PHF:

1

TOD:

PM Peak Hr

Analysis Period: Hourly # of Runs:

10

Intersection: 4: SR 14 NB Ramps & Sand Canyon Rd.

Type: Signalized

							-		
Approach	Movement	Demand		Volume Serv	ed	Delay/Veh (sec)			
		Volume	Avg	%	Std Dev	Avg	LOS	Std Dev	
NB	T	601	610	101	30	45.2	D		
	R	533	538	101	31	18.2	В	***	
	Subtotal	1134	1147	101	-	32.5	С		
	L	364	354	97	11	57.8	E		
SB	T	543	575	106	35	14.9	В		
	Subtotal	907	929	102	-	31.2	C		
	L	810	794	98	39	47.5	Ď	***	
EB	R	455	451	99	30	11.5	В	-	
	Subtotal	1266	1245	98		34.4	C		
	Total	3306	3321	100	-	32,9	C	-	

	Movement	Demand Volume	V	olume Serv	ed	Delay/Veh (sec)				
Approach			Avg	%	Std Dev	Avg	LOS	Std Dev		
	L	43	40	93	5	12.2	В	-		
NB	T	750	761	101	26	13.5	В	-		
	R	10	9	90	4	11.5	В	-		
	Subtotal	803	810	101		13.5	В			
SB	L	30	27	90	4	11.9	В			
	Т	620	831	134	33	11.1	В	-		
	R	118	115	97	11	11.3	В	-		
	Subtotal	768	973	127	-	11.1	В	-		
	L	194	193	99	9	12.0	В	-		
EB	Т	24	25	104	4	13.2	В	-		
	R	67	67	100	7	12.2	В	-		
	Subtotal	285	285	100	-	12.1	В			
	L.	5	4	80	2	11.9	В	-		
WB	T	15	16	107	3	14.2	В	-		
	R	50	51	102	8	12.3	В			
	Subtotal	70	72	103		12,7	В	-		
	Total	1926	2140	111		12.2	В	_		



SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Project: Vista Canyon Ranch HCM: 2000

 Scenario:
 2015 Plus Project Conditions w/ Mitigation
 PHF:
 1

 TOD:
 PM Peak Hr
 Analysis Period:
 Hourly
 # of Runs:
 10

Intersection: 7: Soledad Canyon Rd. & Lost Canyon Rd. Type: Signalized

		Demand	٧	olume Serv	ed		elay/Veh (se	ec)
Approach	Movement	Volume	Avg	%	Std Dev	Avg	LOS	Std Dev
	-L	402	401	100	14	39.7	D	100
NB	R	245	244	100	21	26.9	C	
j	Subtotal	647	644	100	-	34.9	C	-
	T	1500	1498	100	35	19.3	В	_
EB	R	234	237	101	18	9.7	A	-
	Subtotal	1734	1735	100	-	18.0	В	
	L	139	133	96	13	32.4	C	_
WB	T	860	856	100	22	10.8	В	-
-	Subtotal	999	989	99	-	13.7	В	-
	Total	3380	3368	100	*	20.0	В	_

SIMTRAFFIC LEVEL OF SERVICE REPORT Including Upstream Delays

Project: Vista Canyon Ranch HCM: 2000

Scenario: 2015 Plus Project Conditions w/ Mitigation PHF: 1

TOD: PM Peak Hr Analysis Period: Hourly # of Runs: 10

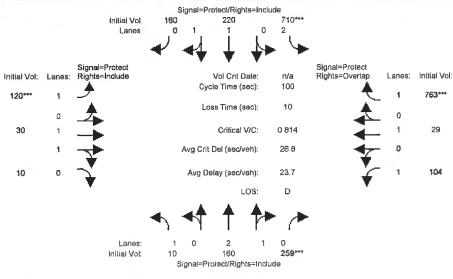
		-	14	olume Serv	and .	Delay/Veh (sec)					
		Demand Volume									
Approach	Movement	volume	Avg	%	Std Dev	Avg	LOS	Std De			
	L	342	339	99	21	23.7	C	-			
NB	Т	1011	1027	102	34	6.2	A	**			
	Subtotal	1353	1365	101	-	10.6	В	 .			
	T	1071	1032	96	40	100.1	F	••			
SB	R	550	553	101	12	20.0	C	_			
	Subtotal	1621	1585	98	-	72.2	E	_			
	L	150	149	99	9	23.3	C	· +			
WB	Т	10	10	100	2	24,1	С	 1			
	R	320	314	98	12	10.7	В	-			
	Subtotal	480	472	98	-	14.9	В	-			
	Total	3454	3422	99	-	39.7	D	_			

Signalized Type: Intersection: 15: SR 14 NB Ramps & Via Princessa Volume Served Delay/Veh (sec) Demand Approach Movement Volume LOS Std Dev Std Dev Avg % Avg T 903 904 100 28 41.1 D NB R 140 144 103 10 14.2 В 37.4 D Subtotal 1043 1049 100 15 29.4 C 560 537 96 SB T 661 9.0 A 647 98 34 В Subtotal 97 18.2 1221 1184 450 461 102 23 30.9 C ΕB R 429 430 100 21 25.2 C 101 28.1 C Subtotal 879 890 C 27.5 Total 3143 3122 99 -

	٠	→	*	•	-	•	1	†	/	-	↓	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	ተተ _ጉ		ሻሻ	ተተ _ጉ		14.54	十十	7	7	^	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4592		3433	4919		3433	3539	1521	1770	3539	1521
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4592		3433	4919		3433	3539	1521	1770	3539	1521
Volume (vph)	700	1129	755	240	795	183	667	724	483	238	730	450
Peak-hour factor, PHF	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. Flow (vph)	700	1129	755	240	795	183	667	724	483	238	730	450
RTOR Reduction (vph)	0	92	0	0	29	0	0	0	141	0	0	5
Lane Group Flow (vph)	700	1792	0	240	949	0	667	724	342	238	730	445
Confl. Peds. (#/hr)			70			9			17			48
Confl. Bikes (#/hr)			7			2			5			1
Turn Type	Prot			Prot			Prot		Perm	Prot		pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	25.8	46.0		9.5	29.7		25.9	37.6	37.6	19.9	31.6	57.4
Effective Green, g (s)	25.3	48.0		9.0	31.7		25.4	39.6	39.6	19.4	33.6	58.9
Actuated g/C Ratio	0.19	0.36		0.07	0.24		0.19	0.30	0.30	0.15	0.25	0.45
Clearance Time (s)	3.5	6.0		3.5	6.0		3.5	6.0	6.0	3.5	6.0	3.5
Vehicle Extension (s)	2.0	4.5		2.0	4.5		2.5	4.5	4.5	1.0	4.5	2.0
Lane Grp Cap (vph)	658	1670		234	1181		661	1062	456	260	901	725
v/s Ratio Prot	0.20	c0.39		c0.07	0.19		c0.19	0.20		c0.13	c0.21	0.12
v/s Ratio Perm									0.22			0.17
v/c Ratio	1.06	1.24dr		1.03	0.80		1.01	0.68	0.75	0.92	0.81	0.61
Uniform Delay, d1	53.4	42.0		61.5	47.2		53.3	40.7	41.7	55.5	46.2	27.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	53.3	44.6		65.6	5.9		37.3	2.1	7.7	33.4	6.1	2.0
Delay (s)	106.6	86.6		127.1	53.1		90.6	42.8	49.4	88.9	52.3	29.9
Level of Service	F	F		F	D		F	D	D	F	D	С
Approach Delay (s)		92.1			67.7			61.5			51.4	
Approach LOS		F			E			E			D	
Intersection Summary	*II / 1 (30)	S. E. S. Carlot	18 × 30 ×	3 80	(C -10)	- TAIS	Sel. 1000	HEIR	12 B)	91-100	6.5113	J. HEIV
HCM Average Control D	elav		71.7	H	ICM Le	vel of Se	ervice		Е			
HCM Volume to Capacit			0.99									
Actuated Cycle Length (132.0	Sum of lost time (s)				16.0				
Intersection Capacity Ut		1	05.9%	ICU Level of Service					G			
Analysis Period (min)			15									
dr Defacto Right Lane	Reco	de with		n lane a	s a righ	t lane.						
c Critical Lane Group					•							

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Future Volume Alternative) Interim Plus Project Mitigation PM

Intersection #16: Via Princessa/Lost Canyon Road



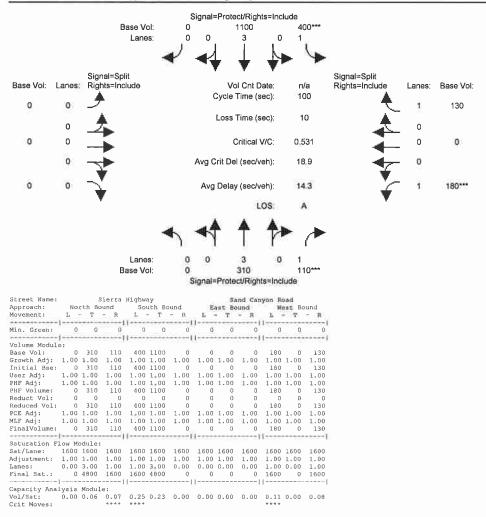
Street Name:							_	igi iat-	1 1010	PREZIBILI	13-1110	000	
Min. Green:	Street Name:		Lo	ost Car	iyon, R	oad		Via Princessa					
Min. Creen:	Approach:	No.	rth Bo	und	50	uth Bo	und	E	ast Bo	und	W	est Bo	und
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Movement:	L	- T	- R	L	- T	- R	L -	- T	- R	L	- T	- R
Volume Rodule: **nase Voli*** 10 165 259 710 220 160 120 30 10 104 29 763 **Growth Adjs** 100 1.					1			·		1	1		*****
Volume: Moduler: Andrew Vol: 10 165 259 710 220 160 120 30 10 104 29 763 Crowth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Min. Green:	D	0	0	0	Ç	Q	- 0	Ű	0	0	0	0
Name					1				- 4 0 0 0 0				freeze.
Caronta Adj: 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0	Volume Madul	0.1											
Initial Dse: 10 160 259 710 220 160 120 30 10 104 29 763 Added Volt 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 PasserbyVel: 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 PasserbyVel: 6 10 160 259 710 220 160 120 30 10 104 29 763 User Adj: 1.00 1,00 1,00 1,00 1,00 1,00 1,00 1,00	hase Volv	10	160	259	710	220	160	120	30	10	104	2.9	763
Addied Volt: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Growth 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
Added Volt: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Initial Bac:	10	160	259	710	220	160			10	104	29	763
National Points 10 160 259 710 220 160 120 30 10 104 29 763		Ü	0.	0	0	D	U	-0	0	0	0	O.	0
User Adj:	PasserByVelt	0	0	0	0	0	0	0	U	0	0	0	0
FHE Add:	initial Put:	10	160	259	710	220	160	120	30	10	104	29	763
Fire Volume: 10 160 259 710 220 160 120 30 10 104 29 763 focuse Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	User Ad):	1:00	1.00	1.00	1.00	1.00	1.00	1.00	1,00	1,00	1.00	1.00	1.00
Reduct Vol: 0	PHF Add:	1.80	1.00	1.00	1.00	1.30	1.00	1.00	1.00	1,00	1.00	1.00	1.00
Reducet Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	PHF Volume:	10	160	259	710	220	1.60	120	3.0	10	104		
FCE Adj; 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Reduct Vol:	0	0	0	0	0	0	0	0	0	0	D	Q
MLF Adj: .00 1.00	Reduced Vel:	10	160	259	710	220	160	120	30	10	104	29	763
Saturation Flow Module: Saturation Flow	FCE 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
Saturation Flow Module: Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 160	MLF Adj:	1,00	1.00	1,00	1.00	1.00	1,00						
Saturation Flow Module: Sat/Jane: 1600 1600 1600 1600 1600 1600 1600 160	FinalVolumer	10	160	259	710	220	160	120	30	10	104	29	
Saturation Flow Module: Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 160	OvlAdjVol:												
Sat/Lane: 1600 1600 1600 1600 1600 1600 1600 160				*****				1					1
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0													
Lanes: 1.00 2.00 1.00 2.00 1.60 0.84 1.00 1.50 0.50 1.00 1.00 1.60 Final Sat.: 1600 3200 1600 3200 1653 1347 1600 2400 600 1600 1600 1600 1600 1600 1600 16	Sat/Lane:	1600	1600					1600	1600				
Final Sat.: 1600 3200 1600 3200 1633 1347 1600 2400 800 1600 1600 1600 1600 1600 1600 160	Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1=00	1,00	1.00			
Capacity Analysis Module: Vol/Sat: 0 01 0.05 0.16 0.22 0.12 0.02 0.08 0.01 0.01 0.07 0.02 0.48 OvlAdjV/S: 0.26	Lanes:	1,00	2.00	1.00									
Capacity Analysis Module: Vol/Sat: 0:01 0.05 0.16 0.22 0.12 0.12 0.08 0.01 0.01 0.07 0.02 0.48 0.26 0.01 0.01 0.07 0.02 0.48	Final Sat.:	1600	3200	T600									
Vol/Sat: 0.01 0.05 0.16 0.22 0.12 0.12 0.08 0.01 0.01 0.07 0.02 0.48 0vlAdjV/s: 0.26								24000	-		1		
OvlAdjV/s: 0.26													
	Vol/Sat:	0 01	0.05	0.16	0.22	0,12	0,12	0.08	0.01	0.01	0.07	0.02	
Crit Moves:													
	Crit Moves:			6948	****								40+4

APPENDIX F:

TECHNICAL CALCULATIONS FOR CUMULATIVE CONDITIONS

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative No Project AM

Intersection #1: Sand Canyon Road/Sierra Highway



Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative No Project AM

Intersection #8: Soledad Canyon Road/Sierra Highway

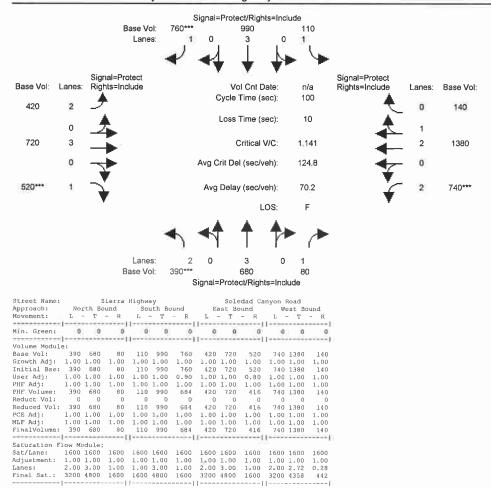
1600 1600 1600 1.00 1.00 1.00 1.00 1.00 3.00

1600 4800

1.00

Crit Moves: **** **** **** ****

1.00 1.00 2.00 3.00



1600 1600 1600 1600 1600 1600 1600

1.00

1.00

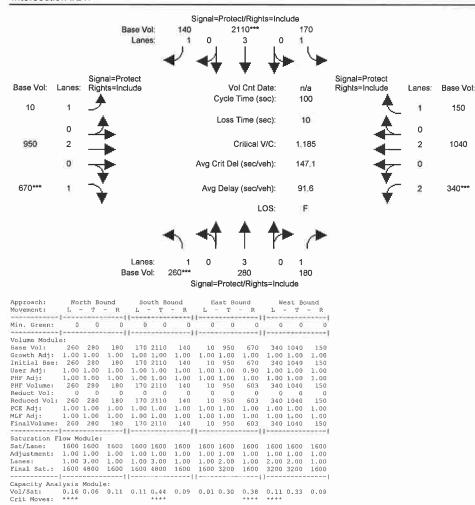
1.00 1.00 2.00 2.72

3200 4358

1.00

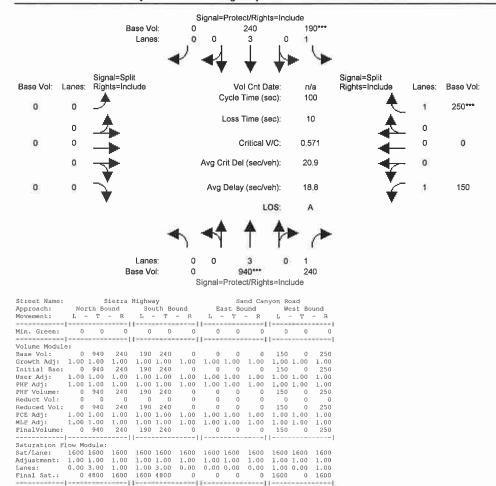
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative No Project AM

Intersection #21:



Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative No Project PM

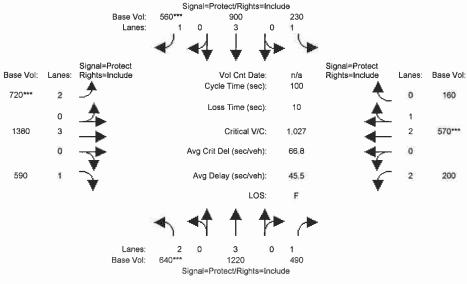
Intersection #1: Sand Canyon Road/Sierra Highway



Capacity Analysis Module:
Vol/Sat: 0.00 0.20 0.15 0.12 0.05 0.00 0.00 0.00 0.09 0.00 0.16
Crit Moves:

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative No Project PM

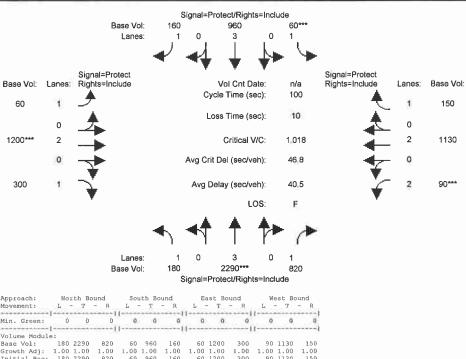
Intersection #8: Soledad Canyon Road/Sierra Highway



Street Name:			Sierra	Hiahwa	a v			Sole	edad Ca	пуоп Б	Road	
Street Name: Approach:	No:	rth B	ound	Soi	ith Bo	ound	Ea	ast Bo	ound	We	est Bo	ound
Movement:												
Min. Green:	0	0	0	0	0	0	. 0	0	0	. 0	0	0
Volume Module												
Base Vol:	640	1220	490	230	900	560	720	1380	590	200	570	160
Growth 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
Initial Bse:	640	1220	490	230	900	560	720	1380	590	200	570	160
User Adj:	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1,00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	640	1220	490	230	900	560	720	1380	472	200	570	160
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	640	1220	490	230	900	560	720	1380	472	200	570	160
PCE 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
MLF 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
FinalVolume:	640	1220	490	230	900	560	720	1380	472	200	570	160
	J								1	I		
Saturation F.	low Mo	odule	:									
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	1.00	3.00	1.00	2.00	3.00	1.00	2.00	2.34	0.66
Final Sat.:	3200	4800	1600	1600	4800	1600	3200	4800	1600	3200	3748	1052
				I		1						
Capacity Anal	lysis	Modu.	le:									
Vol/Sat:		0.25	0.31	0.14				0.29	0.30			0.15
Crit Moves:	****					****	++++				****	

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative No Project PM

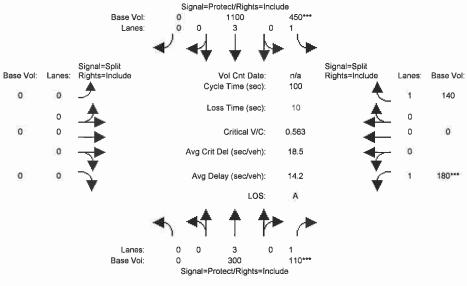
Intersection #21:



Approach:	No	rth Bo	ound	So	uth Bo	ound	Ea	ast Bo	ound	W	est Bo	ound
Movement:		- Т				- R				L ·		- R
Min. Green:	0	0	0	0	. 0	0	0	0	0	0	0	0
Volume Module									-			- "
Base Vol:	180	2290	820	60	960	160	60	1200	300	90	1130	150
Growth 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
Initial Bse:	180	2290	820	60	960	160	60	1200	300	90	1130	150
User Adj:	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF 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
PHF Volume:	100	2290	738	60	960	160	60	1200	300	90	1130	150
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	180	2290	738	60	960	160	60	1200	300	90	1130	150
PCE Adj:		1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00
MLF Adj:		1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00
FinalVolume:		2290	738	60		160		1200	300		1130	150
				1			1					
Saturation F.												
Sat/Lane:		1600	1600		1600	1600		1600	1600		1600	1600
Adjustment:		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Lanes:		3.00	1.00		3.00	1.00		2.00	1.00		2.00	1.00
Final Sat.:			1600		4800	1600	1600		1600	3200		1600
									1			
Capacity Ana												
Vol/Sat:	0.11	0.48	0.46	0.04	0.20	0.10	0.04	0.38	0.19	0.03	0.35	0.09
Crit Moves:		***		2040				***		****		

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative Plus Project AM

Intersection #1: Sand Canyon Road/Sierra Highway

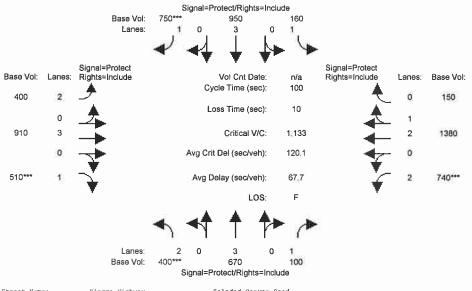


Street Name: Approach:	Mo	stb Ba	Sierra	Highwa	ay	und		Sa Sat Ba	ind Can			und
Movement:	L ·	- T	~ R	L	- T	- R	L	- T	- R	L ·	- T	- R
	0	0	0	0	0	0	0	0	.0	.0	0	a
Volume Module				1			1			1		
Base Vol:		300	110	450	1100	0	0	0	0	180	0	140
Growth Adj:			1.00		1.00	1.00		1.00	1.00		1.00	1.00
Initial Bse:		300	110	450		0	0	0	0	180	0	140
User Adj:			1.00		1.00	1.00		1.00	1.00		1.00	1.00
PHF Adi:			1.00		1.00	1.00		1.00	1.00		1.00	1.00
PHF Volume:			110		1100	1.00	0	0	0	180	1100	140
Reduct Vol:		0	0	0	0	0	0		0	100		0
Reduced Vol:	_			450		0	0	0	0	180	0	140
PCE Adi:	1900	1.00	1.00	1900	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:			100		1.00	1.00		1.00	1.00		1.00	1.00
FinalVolume:			110		1100	0	0	0	0	180	0	140
				1			1		1			
Saturation F.				20		17						
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adiustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	3.00	1.00	1.00	3.00	0,00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	4800	1600	1600	4800	0	0	0	0	1600	0	1600

Capacity Anal	lysis	Modul	.e:									
Vol/Sat:	0.00	0.06	0.07	0.28	0.23	0.00	0.00	0.00	0.00	0.11	0.00	0.09
Crit Moves:			****	***						****		

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative Plus Project AM

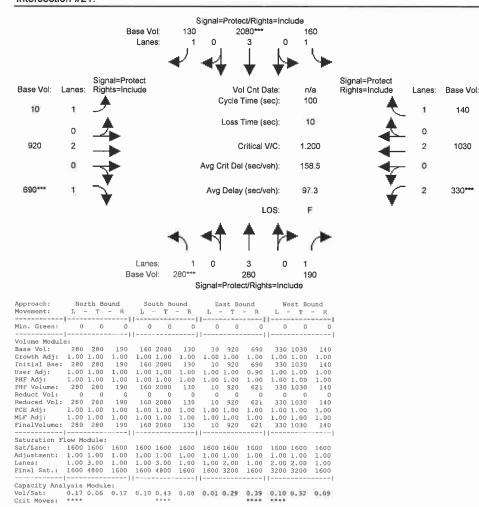
Intersection #8: Soledad Canyon Road/Sierra Highway



Street Name:		2	ierra	Highwa	ay			Sole	edad Ca	nyon l	Road	
Approach:	No	rth Bo	und	Sol	uth Bo	pund	E	ast Bo	ound	W	est Bo	ound
Movement:						- R						
		0			0			0			0	0
			*****	****						-		
Volume Module	e:											
Base Vol:	400	670	100	160	950	750	400	910	510	740	1380	150
Growth 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
Initial Bse:	400	670	100	160	950	750	400	910	510	740	1380	150
User Adj:	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.80	1.00	1.00	1.00
PHF Adj:	1,00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	400	670	100	160	950	675	400	910	408	740	1380	150
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	400	670	100	160	950	675	400	910	408	740	1300	150
	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF 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
FinalVolume:			100		950	675	400		408		1380	150
			~ [I			·I			
Saturation F.	low M	odule:										
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.00		1.00	1.00		1.00	2.00	3.00	1.00	2.00	2.71	0.29
Final Sat.:			1600	1600		1600		4800	1600		4329	471
							{			1		
Capacity Ana												
Vol/Sat:		0.14	0.06	0.10	0.20	0.42	0.13	0.19	0.26		0.32	0.32
Crit Moves:	****					****			****	***		

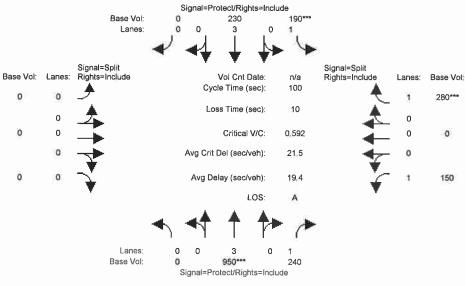
Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative Plus Project AM

Intersection #21:



Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative Plus Project PM

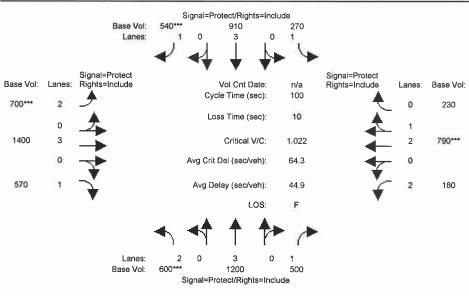
Intersection #1: Sand Canyon Road/Sierra Highway



Street Name:		5	Sierra	Highw	ay			Sa	nd Car	yon R	oad	
Approach:	No	rth Bo	ound	So	uth Bo	ound	Ε	ast Bo	ound	W	est Bo	und
Movement:	L	- T	- R	_ L -	- T	- R	L	- T	- R	- L ·	- T	- R
	there-			le-						1		
Min. Green:	0	0	0	. 0	0	0	.0	0	0	. 0	0	0
	1			1-2-2		1	1			j		
Volume Modul	e:											
Base Vol:	0	950	240	190	230	0	0	0	0	150	0	280
Growth 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
Initial Bse:	0	950	240	190	230	0	0	0	0	150	0	280
User 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
PHF 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
PHF Volume:	0	950	240	190	230	0	0	0	0	150	0	280
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	C
Reduced Vol:	0	950	240	190	230	0	0	0	0	150	0	280
PCE 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
MLF 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
FinalVolume:			240		230	-0	0	0	0	150	0	200
						****				1		
Saturation F	low M	odule:										
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	3.00	1.00	1.00	3.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	. 0	4800	1600	1600	4800	0	- 0	0	0	1600	0	1600
*******	ļ			1						-		
Capacity Ana	lysis	Modul	e:									
Vol/Sat:	0.00		0.15		0.05	0.00	0.00	0.00	0.00	0.09	0.00	0.17
Crit Moves:		++++		****								****

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative Plus Project PM

Intersection #8: Soledad Canyon Road/Sierra Highway

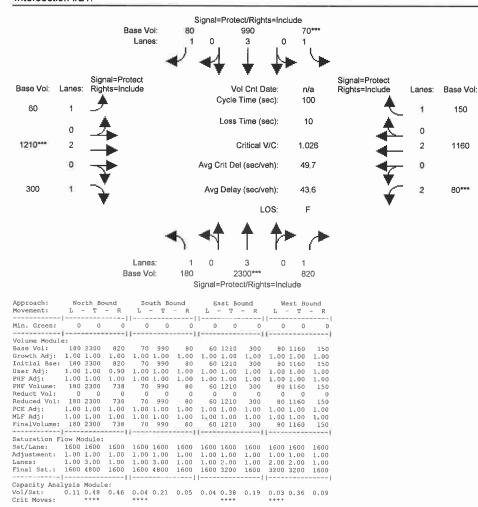


Street Name:		Sierra Highway					Soledad Canyon Road					
Approach:	No:	rth Bo	ound	So	uth Bo	ound	E	ast Bo	bund	We	est Bo	und
Movement:	L.	- T	- R	L.	- T	R	L ·	- т	~ R	ь -	- T	- B

Min. Green:	0	0	0		0		0		. 0	0	Ø.	
***			1				1					*****
Volume Module	e;											
Base Vol:	600	1200	500	270	910	540	700	1400	570	180	790	230
Growth 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
Initial Bse:	600	1200	500	270	910	540	700	1400	570	180	790	230
User Adj:	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.80	1.00	1.00	1.00
PHF 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
PHF Volume:	600	1200	500	270	910	406	700	1400	456	180	790	230
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	600	1200	500	270	910	486	700	1400	456	180	790	230
PCE 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
MLF 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
FinalVolume:	600	1200	500	270	910	486	700	1400	456	180	790	230
****										[
Saturation Fl	Low Mo	dule:										
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	1.00	3,00	1.00	2.00	3.00	1.00	2.00	2.32	0.68
Final Sat.:	3200	4800	1600	1600	4800	1600	3200	4800	1600	3200	3718	1002
	****					****						
Capacity Anal	lysis	Modu1	e:									
Vol/Sat:		0.25	0.31	0.17	0.19			0.29	0.28	0.06		0.21
Crit Moves:	****					****	****				****	

Level Of Service Computation Report ICU 1(Loss as Cycle Length %) (Base Volume Alternative) Cumulative Plus Project PM

Intersection #21:



APPENDIX G: VMT CALCULATIONS

HOUSEHOLD VMT ESTIMATE Project: Vista Canyon - Proposed Project Date: 7/20/2009 Inputs/Assumptions Home-Based Trip Production Proportions by Trip Purpose (a) **Proportion** to/from Home **Total Proportion** End HBW 0.24 0.28 HBO 0.62 0.72 NHB 0.14 0.01 (a) Source: SCVCTDM Model Update and Validation Report (2005). **Project Dwelling Units** Total Units = 1,117 Weekday Daily Trip Ends (b,c) Trip Ends Residential (HBW, HBO, and NHB generated from home location) 6,710 Residential (NHB trip associated with residents of home generated elsewhere on network) 1,092 (b) These are gross vehicle trips (with reductions taken for walk and transit trips) (c) ITE Trip Rate does not account for trips made by residents of the home once they leave the driveway. These are added here to account for the NHB trips of residents that occur elsewhere on Estimated Trip Lengths in miles (c) HBW **HBO** NHB Internal to Internal (II) 0.25 0.25 0.25 Internal to External (IX) 20.00 6.00 6.00 NHB (that occur elsewhere on the network) 6.00 (c) Based on OVOV land use element regarding journey to work data: about half of Santa Clarita residents work outside the City (principally to the south), which implies those trips have long HBW trip length. Avg travel time to work was 32 minutes from Census. According to model output, 58% of residential trips have an external trip end within 5 miles of project, indicating the HBO trip length is much less than HBW. Residential II and IX trip percentages (d) HBW нво NHB Ш 15.0% 10.0%

IA .		85.0%	
	TOTAL	100%	
(d) May be calculated using traffic model, trip generation worksheet, or regional data.			

90.0% 80.00% 100% 100%

.

Part A - VMT from Home-Based Trips (Made by Project's Residents)

internal/External_Irip Ends by Type	нвw	нво
II	281	484
IX	1,592	4,354

Internal/External VMT by Type HBW **HBO** 70 121 ΙX 31,833 26,122 SUM = 58.147

Part B- VMT from NHB Trips That Occur Elsewhere on the Network (Made by Project's Residents)

1,092 NHB Trips = NHB VMT = 6,554 20.00%

Part C- VMT from NHB Trips Attracted to Residential (Made by non-Project Residents) (e)

HB Attraction Trips= 67.1 HB Attraction VMT= 402.6

(e) Examples include deliveries to a home, dropping off children in a carpool, etc. VMT calculation assumes NHB IX trip length.

Conclusion - Total VMT and VMT per HH

Total VMT =	65,103
VMT per HH =	58

Reasonableness Checks	
Internal Resid. Trip Percentage Based on II and IX percentages =	11%
Internalization from Traffic Study =	1196

Note: VMT estimate does not fully take into account effects of non-residential portion of the project.

HOUSEHOLD VMT ESTIMATE

Project: Date: Draft OVOV Residential LU Designation

4/21/2009

Inputs/Assumptions

Home-Based Trip Production Proportions by Trip Purpose (a)

Proportion

		to/from Home
	Total Proportion	End
HBW	0.24	0.28
HBO	0.62	0.72
NHB	0.14	0.01

(a) Source: SCVCTDM Model Update and Validation Report (2005).

Project Dwelling Units

Total Units = 775

Weekday Daily Trip Ends (b,c)

Residential (HBW, HBO, and NHB generated from home location)
Residential (NHB trip associated with residents of home generated elsewhere on network)

Trip Ends 5,115 833

uno

(b) These are gross vehicle trips (with reductions taken for walk and transit trips)

5,948

(c) ITE Trip Rate does not account for trips made by residents of the home once they leave the driveway. These are added here to account for the NHB trips of residents that occur elsewhere on the network.

Estimated Trip Lengths in miles (c)

	HBW	HBO	NHB
Internal to Internal (II)	0.25	0.25	0.25
Internal to External (IX)	20.00	6.00	6.00
NHB (that occur elsewhere on the network)	6.00		

(c) Based on OVOV land use element regarding journey to work data: about half of Santa Clarita residents work outside the City (principally to the south), which implies those trips have long HBW trip length. Avg travel time to work was 32 minutes from Census. According to model output, 58% of residential trips have an external trip end within 5 miles of project, indicating the HBO trip length is much less than HBW.

Residential II and IX trip percentages (d)

		HBW	НВО	NHB
		0.0%	3.0%	20.00%
IX		100.0%	97.0%	80.00%
	TOTAL	100%	100%	100%

(d) May be calculated using traffic model, trip generation worksheet, or regional data.

Part A - VMT from Home-Based Trips (Made by Project's Residents)

Internal/External	Trip	Ends	by	Type
-------------------	------	-------------	----	------

	UD44	пво
II .	0	111
IX	1,427	3,577

Internal/External VMT by Type

	HBW HBW	HBU
	0	28
IX	28,549	21,462
	SUM =	50.038

Part B- VMT from NHB Trips That Occur Elsewhere on the Network (Made by Project's Residents)

NHB Trips =	833
NHB VMT =	4.996

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Part C- VMT from NHB Trips Attracted to Residential (Made by non-Project Residents) (e)

HB Attraction Trips=	51.15
HB Attraction VMT=	306.9

(e) Examples include deliveries to a home, dropping off children in a carpool, etc. VMT calculation assumes NHB IX trip length.

Conclusion - Total VMT and VMT per HH

Total VMT =	55,341
VMT per HH =	71

APPENDIX H: LOST CANYON ROAD SCHOOL ACCESS MEMO



Memorandum

Date:

November 21, 2008

To:

Glenn Adamick - Vista Canyon Ranch, LLC

From:

John Gard - Fehr & Peers

Subject:

Lost Canyon Road Circulation Study

RS08-2605

This memorandum evaluates circulation on Lost Canyon Road in the vicinity of Sulphur Springs Community School and Pinecrest School in Santa Clarita, California. The purpose of our evaluation is three-fold:

- Describe existing circulation in the vicinity of the two schools.
- Estimate changes in travel patterns resulting from the construction of the Vista Canyon Ranch Project.
- Identify recommendations to improve circulation and access to the schools.

Existing Circulation

Sulphur Springs Community School

This is a public K-6 elementary school located on the south side of Lost Canyon Road west of Sand Canyon Road. Instruction begins at 8:45 a.m. and ends at 3:15 p.m. Parents have several options for picking up and dropping off students. They may enter the westerly driveway of the one-way only parking lot located in the front of the school to pick up or drop off students. Alternatively, they may parallel park on the south side of Lost Canyon Road or park diagonally in a gravel area on the north side and walk their students across Lost Canyon Road.

According to the Sulphur Springs School District, approximately 50 percent of the students attending this school come from residential areas north of State Route 14. Students are transported by school buses, which use an adjacent parking lot just east of the school for student loading/unloading. Very limited levels of student walking and bicycling to school were observed, which could be expected given the considerable distance between the school and the residents it serves.

Pinecrest School

This school is also located on Lost Canyon Road directly east of Sulphur Springs Community School. It is a private school offering education from preschool through middle school. Pinecrest School begins at 8:30 a.m. and ends at noon, with the afternoon session ending at 3:00 p.m. The school is served by a westerly inbound-only driveway and an easterly outbound-only driveway.



Lost Canyon Road

The segment of Lost Canyon Road west of Sand Canyon Road has one lane in each direction, with a posted speed limit of 30 miles per hour (mph). The speed limit is 25 mph when students are present. A continuous sidewalk is provided on the south side from Sand Canyon Road across the frontage of the two schools. Lost Canyon Road, currently terminates just west of La Veda Avenue, but would be extended further west with the Vista Canyon Ranch project.

Fehr and Peers conducted field observations in the vicinity of the two schools in September 2008. All trips accessing the two schools must pass through the Lost Canyon Road/Sand Canyon Road intersection. Vehicle queues on Lost Canyon Road approaching this intersection spill back a considerable distance, creating the following effects:

- Inbound and outbound traffic to the Pinecrest School driveway is blocked.
- The ability for vehicles to exit the Sulphur Springs Community School driveway after dropping off students is hindered.

Since exclusive left turn pockets are not provided on Lost Canyon Road, queued vehicles waiting to enter the two school driveways frequently block through vehicles on Lost Canyon Road, which can then spill back to Sand Canyon Road.

Discussions with several parents and staff at these schools indicate that congestion and queuing becomes worse at the Lost Canyon Road/Sand Canyon Road intersection during adverse weather conditions or when an incident occurs on State Route (SR) 14.

Traffic Volumes

Fehr and Peers conducted traffic counts at the Lost Canyon Road/Sand Canyon Road intersection on Wednesday, October 8th from 7-9 a.m. and from 2-4 p.m. The morning peak hour occurred from 8-9 a.m. and the afternoon peak hour occurred from 2-3 p.m. The segment of Lost Canyon Road west of Sand Canyon Road carried approximately 850 morning peak hour vehicles and 550 afternoon peak hour vehicles.

The analysis focused on morning peak hour operations since Lost Canyon Road was busiest during the morning peak hour. Through traffic on Sand Canyon Road was comparable during both the morning and afternoon peak hours. The observed peak hour factor (i.e., percentage of hourly traffic during the peak 15-minute period) was used in the analysis.

Figure 1 displays the existing morning peak hour turning movement volumes at the Lost Canyon Road/Sand Canyon Road intersection. The intersection currently operates at Level of Service (LOS) E during the peak 15-minutes of the morning peak hour.



Existing Plus Project Circulation

The Vista Canyon Ranch (VCR) project would be a mixed-use transit-oriented development located south of SR 14 and west of La Veda Avenue. It would extend Lost Canyon Road westerly into the project site and provide new street connections to Soledad Canyon Road (under SR 14) and Via Princessa (via Lost Canyon Road and/or Jakes Way).

The VCR project will change travel conditions on Lost Canyon Road. The following describes the major changes that are expected:

- Because the VCR project would construct new dwelling units within close proximity to Sulphur Springs School, it is expected that some students that currently go to this school will be relocated to a new school and be replaced by students that reside in VCR. This scenario is currently anticipated in the Draft School Agreement between the Vista Canyon applicant and the Sulphur Springs School District.
 Assumption: 30 percent of the Sulphur Springs Community School students will reside in VCR with 25 percent of those students walking/bicycling to school.¹
- The extension of Lost Canyon Road through VCR will allow parents whose students currently attend Sulphur Springs School to access the school from the west, thereby avoiding the Sand Canyon Road/Lost Canyon Road intersection.
 <u>Assumption</u>: Of the remaining 70 percent of the Sulphur Springs Community School students, 25 percent are assumed to travel to/from the west to access the school. Also, 25 percent of Pinecrest School trips are assumed to travel to/from the west.²
- The VCR project includes land use that will generate new non-school-related trips. Although a Metrolink rail stop is planned at the site, new vehicle trips will be added to the external roadways. Some of these trips will use Lost Canyon Road to access Sand Canyon Road and SR 14.
 Assumption: VCR is assumed to add about 350 westbound trips and 160 eastbound

<u>Assumption</u>: VCR is assumed to add about 350 westbound trips and 160 eastbound (non-school-related) trips to Lost Canyon Road during the morning peak hour.³

Based on expected student enrollment information provided by JSB Development.

Estimated using Sulphur Springs Union Elementary School District attendance boundary map.

This preliminary analysis assumed that the VCR project would consist of 800 condos/townhomes, 50 apartments, 600,000 square feet of office, and 150,000 square feet of general retail. Project-added trips to Lost Canyon Road were estimated using ITE trip generation rates with reasonable reductions for internalization and transit mode share. The trip generation estimate also considers vehicle trips to/from the new Metrolink Station. Future reports will describe the project's trip generation characteristics in detail.



We reassigned the existing morning peak hour traffic volumes as described above. New trips generated by VCR were assigned to Lost Canyon Road and Sand Canyon Road, and added to the redistributed existing volumes. Figure 1 shows the resulting "existing plus project" volumes.

As shown on Figure 1, separate "existing plus project" traffic forecasts were developed for the following scenarios:

- <u>Scenario 1 (Traffic Signal)</u> assumes that a traffic signal is installed at the Lost Canyon Road/Sand Canyon Road intersection. The outbound-only school driveways on Lost Canyon Road would permit left- and right-turns.
- <u>Scenario 2 (Roundabout)</u> assumes that a single-lane roundabout is installed at the Lost Canyon Road/Sand Canyon Road intersection. Because the roundabout would permit eastbound u-turns, the outbound-only school driveways on Lost Canyon Road were assumed to permit right-turns only.

Under Existing Plus Project Scenario 1 (Traffic Signal), Lost Canyon Road directly west of Sand Canyon Road is projected to carry approximately 1,050 vehicles during the morning peak hour. Implementation of a roundabout (scenario 2) would increase this volume to 1,310 vehicles (due to u-turns).

Both scenarios assume that Lost Canyon Road is restriped to include a center left-turn lane along the school frontages.

Traffic Operations

Table 1 summarizes the morning peak hour LOS and average delay at the Lost Canyon Road/Sand Canyon Road intersection (technical calculations are attached).

Due to right-of-way constraints, the existing lane configurations at the intersection were maintained for the traffic signal scenario. A southbound right-turn overlap arrow was assumed. By not having dedicated left-turn lanes, it was necessary to assume the east-west, and north-south approaches operate with split-phasing, which is rather inefficient.

TABLE 1 – MORNING PEAK HOUR OPERATIONS AT LOST CANYON ROAD/SAND CANYON ROAD INTERSECTION			
Scenario	Average Delay ¹	Level of Service ²	
Existing Conditions – All-Way Stop	42	E	
Existing Plus Project - Scenario 1 (Traffic Signal)	44	D	
Existing Plus Project - Scenario 2 (Roundabout)	23	С	
Note: ¹ Average intersection delay is reported in seconds per vehicle. ² Level of Service is based on criteria from the Highway Capacity Manual 2000. All three scenarios modeled using SimTraffic micro-simulation model. Results are for peak 15-minute period.			



Table 1 shows that the roundabout scenario operates at LOS C while the traffic signal scenario operates at LOS D during the morning peak hour.

Recommended Circulation and Access Improvements

The following summarizes our recommendations to improve circulation and access in the vicinity of these schools (see Figure 2):

- Install a single-lane roundabout at the Lost Canyon Road/Sand Canyon Road intersection.
- Restripe Lost Canyon Road along the two school frontages to include one lane in each direction with a center left-turn lane. On-street parallel parking along the south side of the roadway should be maintained.
- Restrict the outbound-only driveways at each school to right-turns to minimize conflicting turning movements. Motorists desiring to travel west on Lost Canyon Road from these driveways can make a u-turn at the roundabout.
- Post a sign in the narrow raised median that prohibits eastbound u-turns near the bus driveway.
- Consider permitting parents to park in the off-street lot just east of Sulphur Springs School to pick-up and drop-off students.

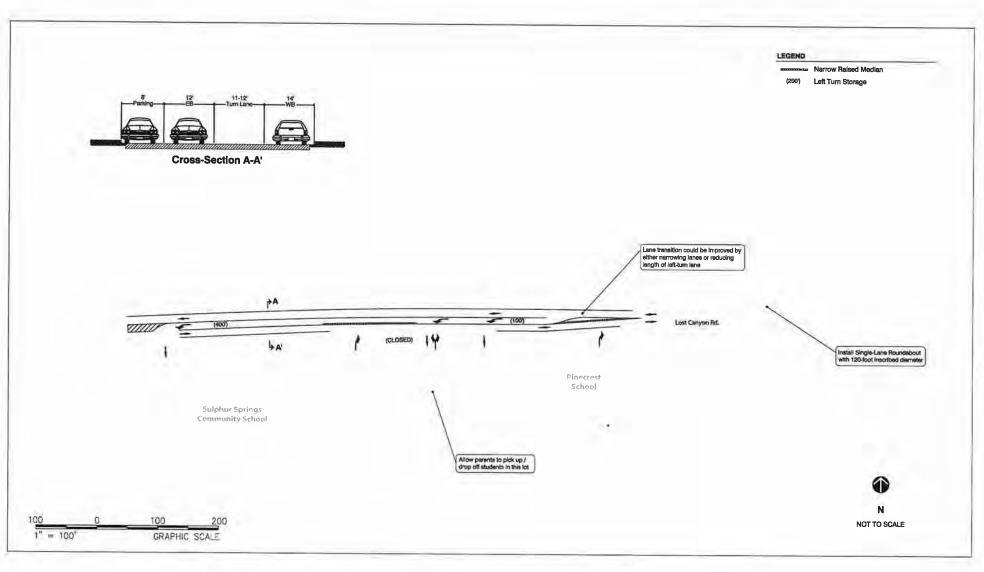
Figure 2 illustrates these recommendations including conceptual striping of the three-lane segment.

We understand that Alliance Land Planning and Engineering will be developing improvement drawings for Lost Canyon Road. We recommend that careful attention be given to the two-to three-lane transition directly west of the bridge over the wash. To increase the length of the transition (beyond what is shown on Figure 2), either a shorter left-turn lane to the Pinecrest School or reduced lane widths could be considered.

In August 2006, Roundabouts & Traffic Engineering (RTE) prepared a report entitled "Roundabout Feasibility Report – Lost Canyon Road/Sand Canyon Road". That study recommended a single-lane roundabout for the intersection and concluded that it would require a minor amount of additional right-of-way. A conceptual exhibit prepared by RTE of the roundabout is attached to this memo. RTE found that the roundabout could be designed to accommodate fire trucks and a WB-50 design truck.

We hope this information is helpful.

Attachments

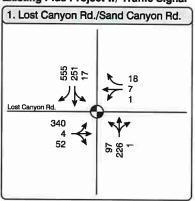




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Existing Conditions

Existing Plus Project w/ Traffic Signal



Existing Plus Project w/ Roundabout



LEGEND

- XX Morning (7-8 a.m.) Peak Hour Traffic Volume
- Study Intersection
- Stop Sign
- Traffic Signal

Plus Project Assumptions:

- 30% of the Sulphur Springs students assumed to reside in Vista Canyon Ranch.
- Of the remaining 70% of the Sulphur Springs students, 25% assumed to travel from the west to access the school.
- 25% of the Pinecrest vehicle trips assumed to travel from the west to access the school.
- Vista Canyon Ranch assumed to generate 345 westbound trips and 155 eastbound trip on Lost Canyon Road.

