

July 9, 2013

Mr. Homi Namdari
City of Escondido
201 N. Broadway
Escondido, CA 92025

LLG Reference: 3-13-2221

Subject: **Lexus Escondido Special Events – Traffic Assessment Letter**
Escondido, CA

Dear Homi:

Linscott, Law & Greenspan, Engineers (LLG) has completed the following traffic assessment letter to evaluate the potential maximum-capacity traffic-related impacts associated with the Lexus Escondido Special Event venue. The existing site consists of a Lexus automotive dealership and the Vintana restaurant with a large amount of banquet space. This letter report has been prepared as part of the Master Plan Modification (MPM) for hosting special events onsite and will be included in the Mitigated Negative Declaration (MND) prepared for this project.

Included in this letter report are the following:

- Project Description
- Study Area Description/Existing Conditions
- Trip Generation/Distribution/Assignment
- Analysis Methodology & Significance Criteria
- Existing, Existing + Project (Maximum Capacity) Analysis Results
- Access/Queuing Assessment (Maximum Capacity)
- Recommendations
- Summary & Conclusions

All figures and attachments referenced in the text are appended to the end of this letter.

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PROJECT DESCRIPTION

The site consists of the currently operating Lexus Escondido automotive dealership and the upscale restaurant, Vintana, together termed “The Centre” located at 1205 Auto Park Way just west of Interstate 15 (I-15) in the City of Escondido. The site currently holds special events such as concerts, hosted dinners, etc. inside The Centre banquet space. The “Project” component of the MPM is seeking to allow special events on the outdoor decks which could potentially draw several hundred people to the site.

Proposed event types range from business lunches, conference presentations, weddings, concerts, etc. Based on information provided by the applicant, the maximum number of patrons which could occupy the outdoor space for any given event would be 615 people. However, average event attendance would continue to range up to 200 people.

There would be no substantive special event traffic activity on the site during the AM commuter/school peak hours, and events at the site would be most likely to occur in the afternoon timeframes. Therefore, this traffic analysis focuses on the Project-added traffic that occurs during the mid-day and PM peak hours (generally 2:00-6:00PM). The *Trip Generation* section of this letter report discusses peak hour traffic in further detail.

While maximum-capacity events would be more likely to take place on weekend nights, this report focuses on the effect of maximum-capacity Project traffic during the peak hours of adjacent street traffic on a weekday, although it is anticipated that this would only occur a relatively few number of times over the course of the year. The Auto Park Way corridor serves a high intensity of industrial/automotive land uses which peak during the 4:00-6:00PM hours (typical of the work-to-home travel patterns). The nearby Del Dios Middle School also peaks for both vehicular and pedestrian traffic during the afternoon between 2:00-4:00PM (12:00-2:00PM on Thursdays). Therefore, the analysis included in this letter represents a hypothetical maximum-capacity event during these periods.

The maximum-capacity events analyzed in this report illustrate the potential impacts to the street system for a weekday during either the mid-afternoon peak hour (3:00PM start, 5:00PM finish) or the standard commuter peak hour (6:00PM start, 8:00PM finish). Again, it is not anticipated that the site will host two such maximum-capacity events on the same weekday.

Although a worst-case analysis is presented in this letter, in order to avoid in/out vehicular congestion along Auto Park Way during the peak period for weekday commuter traffic as well as pedestrian/vehicular conflicts at The Centre driveway on

school days, the Project proposes scheduling restrictions on events for the following attendance ranges:

- Up to 200 attendees;
- 201 to 449 attendees;
- 450 to 614 attendees; and
- Maximum capacity events of 615 attendees.

The *Recommendations* and *Summary & Conclusions* sections of this letter report provide further detail on these proposed measures.

STUDY AREA DESCRIPTION/EXISTING CONDITIONS

The Centre is located at 1205 Auto Park Way which is easily accessible via I-15 (See **Figure 1, Vicinity Map**). The following is a description of the study area roadways:

Auto Park Way is classified and currently built as a Four-Lane Major from Valley Parkway to 9th Avenue on the Escondido General Plan Mobility Element. From 9th Avenue to the I-15 Ramps, Auto Park Way is classified and currently built as a Six-Lane Super Major. Directly in front of the Project site at the Lexus Centre driveway, six lanes are provided, however the number 1 westbound lane ultimately traps into the left-turn lane at the Auto Park Way/9th Avenue intersection. Class II bike lanes are provided and parking is restricted along both sides of the roadway. Sidewalks, curbs and gutters are provided and the posted speed limit is 45 mph.

9th Avenue is classified as a Four-Lane Collector on the Escondido General Plan Mobility Element. From Valley Parkway to Auto Park Way, it is currently built as a two-lane divided roadway with a two-way left-turn lane (TWLTL). Bike lanes are not provided along the roadway and curbside parking is permitted intermittently. The posted speed limit is 35 mph.

It should be noted a school zone speed limit of 25 mph is posted along Auto Park Way and 9th Avenue in the vicinity of the Project.

Lexus Centre Driveway is currently configured as a right-in/right-out/left-in only driveway (left-turns out of the driveway onto westbound Auto Park Way are restricted). The westbound left-turn pocket from Auto Park Way is striped to provide 140 feet of storage for left-turning vehicles but theoretically extends to about 160 feet before tapering to the roadway median. Assuming a typical passenger vehicle requires about 22 to 25 feet of stacking space per lane, approximately six to seven vehicles could be stored in the left-turn lane prior to overflowing and conflicting with the number one westbound through lane on Auto Park Way.

Please see **Figure 2, Existing Conditions Diagram**, for an illustration of the study area road segments and intersections.

LLG commissioned 24-hour street segment counts, as well as 2:00-4:00PM (mid-day) and 4:00-6:00PM (evening) peak hour intersection counts in April and May 2013. See **Figure 3, Existing Traffic Volumes**. **Appendix A** contains copies of the existing traffic volumes.

TRIP GENERATION

There are no published trip generation rates for “special event”-type venues similar to that of the proposed Project. Therefore, the trip generation was developed based on site-specific characteristics. Four primary assumptions were identified for calculating the trip generation: 1) Event Times; 2) Attendance; 3) Restaurant Patronization; and 4) Vehicle Occupancy (carpooling). The following sections describe each of these assumptions in further detail.

Event Times

As previously mentioned, most large-scale events would likely occur on the weekends (Friday and Saturday nights). Area weekday traffic peaks during the 7:00-9:00AM and 4:00-6:00PM commuter timeframes, as well as during the 2:00-4:00PM timeframe for school letting out nearby

For purposes of providing a conservative analysis of the Project’s maximum capacity effect on peak weekday street traffic, two scenarios for event traffic were developed: those with a 3:00PM start time and events with a 6:00PM start time. It should be noted that two maximum-capacity events would not be expected to occur on the same day. Realistically, weekday maximum capacity events would be expected to occur at 7:00PM or later, which is outside of the commuter peak hour, and when ambient traffic is light. Maximum-capacity Project-related traffic would not be expected to occur during the morning commuter peak hours.

The Project proposes to separate maximum capacity (615 attendees) sequential events that could occur on the same day by imposing a one and a half hour window between event end and start times. Therefore, the 3:00PM event and 6:00PM event scenarios were analyzed individually. Traffic departing the 3:00PM event would not be expected to conflict with inbound traffic from a 6:00PM event start time because of this offset.

Attendance

The attendance expected for a maximum-capacity event would be 615 attendees, although typical events generally draw up to 200 people. For purposes of being conservative, the maximum attendance of 615 people was analyzed in this report.

Arrival/Departure Times

The upscale restaurant “Vintana” is located at the Lexus Centre. It would be likely that attendees of a special event onsite would patronize the restaurant, either for dinner and/or drinks before or after an event. For the 3:00PM events, the peak for attendee arrivals was assumed to be between 2:00-3:00PM. The peak departure time was assumed to be between 5:00-6:00PM. It was therefore assumed that 25% of event attendees would remain onsite after the show as patrons of the restaurant and 75% of attendees would leave immediately following the end of the event between 5:00-6:00PM.

The reverse of this logic would occur for 6:00PM events. The peak arrival time was assumed between 5:00-6:00PM. Twenty-five percent (25%) of the attendees that would patronize the restaurant prior to the start of the event would arrive prior to this time period, thus, 75% of attendees would arrive between 5:00-6:00PM. All attendees would leave the site between 8:00-9:00PM, outside the peak hours of adjacent street traffic.

Vehicle Occupancy

LLG conducted a vehicle occupancy survey at Humphrey’s Concerts by the Bay located on Shelter Island in the City of San Diego. This venue hosts similar special events, such as weddings and concerts, and was determined to be a comparable land use to that of the proposed Project. The survey was conducted on Wednesday April 17, 2013 between 6:00-7:30PM during the arrival time for a 7:30PM concert. The survey collected data for 127 vehicles. Of those 127 vehicles, the average vehicle occupancy ratio (VOR) was observed at 2.28 persons per vehicle.

Applying all assumptions discussed in the section above, the trip generation was calculated as shown in **Table 1**.

TABLE 1
 MAXIMUM CAPACITY PROJECT TRIP GENERATION

Trip Generator	Size	VOR ^a	# of Vehicles ^b	Daily Trip Ends (ADT)		PM Peak Hour											
				Trip Ends ^c	Volume	Rate ^d	In:Out		Volume			Rate ^e	In:Out		Volume		
							Split %	In	Out	Total	Split %		In	Out	Total		
3:00PM Event (school peak)						2:00-3:00PM (inbound)					5:00-6:00PM (outbound)						
Attendees	615 ppl	2.28	270	2	540	100%	100:0	270	0	270	75%	0:100	0	202	202		
6:00PM Event (commuter peak)						5:00-6:00PM (inbound)					8:00-9:00PM^f (outbound)						
Attendees	615 ppl	2.28	270	2	540	75%	100:0	202	0	202	—	—	—	—	—		

Footnotes:

- VOR = vehicle occupancy rate. Rate developed from statistical data collected on April 17, 2013 at Humphrey's Concerts by the Bay.
- # of vehicles = 615 attendees ÷ 2.28 persons per vehicle = 270 vehicles.
- Two-trip ends per vehicle = # of daily trips (accounts for one inbound and one outbound trip generated per vehicle)
- 3:00PM event represents all 270 vehicles arriving for the event start time. It was assumed approximately 75% of event attendees would leave the site following the event and 25% would remain on-site patronizing the restaurant.
- 6:00PM event represents 75% of the 270 vehicles arriving at the peak time before the show with 25% arriving prior to the 5:00-6:00PM time patronizing the on-site restaurant.
- The peak time following a 6:00PM event lies outside the peak hours for adjacent street traffic. Therefore, no analysis of the 8:00-9:00PM time period is provided.

As shown above, the total trips generated by a 3:00PM event assuming the maximum attendance of 615 attendees would be 270 inbound trips during the 2:00-3:00PM mid-day peak hour and 202 outbound trips during the 5:00-6:00PM peak hour. The total trips generated by a 6:00PM event assuming the maximum attendance of 615 attendees would be 202 inbound trips during the 5:00-6:00PM peak hour. Since the attendees departing the site between 8:00-9:00PM is outside the peak hours of adjacent street traffic, this scenario was not analyzed as part of this report.

TRIP DISTRIBUTION/ TRIP ASSIGNMENT

The trip distribution was based on a review of peak hour commuter travel patterns in the area. After reviewing the general flow of traffic in the area and since special event traffic is generally drawn from a wider regional base, professional judgment was made to distribute Project event traffic. It was assumed that 75% of Project traffic would be freeway oriented, 15% of local street traffic was oriented to/from the west, and 10% of local street traffic was distributed to/from the east. The study area is comprised of intersections and street segments that would be affected by the project during the peak hours.

As previously mentioned, the Lexus Centre driveway along Auto Park Way does not allow for left-turns out of the site in the westbound direction. Vehicles destined westerly on Auto Park Way would first need to travel east of I-15 to the La Terraza Boulevard intersection and make a U-turn maneuver to ultimately arrive at their westward destination.

See **Figure 4, Project Traffic Distribution, Figure 5, 3PM Event Project Traffic Volumes, Figure 6, 6PM Event Project Traffic Volumes, Figure 7 Existing + 3PM Event Project Traffic Volumes, and Figure 8 Existing + 6PM Event Project Traffic Volumes.**

ANALYSIS METHODOLOGY & SIGNIFICANCE CRITERIA

Analysis Methodology

The following scenarios are analyzed in this report:

- Existing
- Existing + 3:00PM Event
- Existing + 6:00PM Event

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities

of an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections.

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 16 of the *2000 Highway Capacity Manual (HCM)*, which is the latest version approved for use within the San Diego region. Calculations were completed with the assistance of the appropriate *Synchro* (version 7) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

Street segments were analyzed based upon the comparison of daily traffic volumes (ADT) to the City of Escondido's published *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics.

Significance Criteria

The City of Escondido Engineering Staff utilizes the following Significance Criteria:

1. Significant impact is determined on a roadway segment or intersection with the addition of project traffic, in accordance with SANTEC guidelines.
 - a. Decrease in LOS to LOS Mid-D or worse.
 - b. Greater than 2% V/C (Volume / Capacity) ratio at roadway segments operating at LOS Mid-D or worse.
 - c. Greater than 2 seconds of delay at intersections operating at LOS Mid-D or worse.
2. Mitigation measures are required when a roadway segment or an intersection is operating at a LOS Mid-D or worse and the project has a significant impact.
3. The Quality of life standards set out under the City of Escondido General Plan indicates that any project that adds 200 ADT or more to a roadway segment or intersection that operates at an LOS Mid-D, E or F should mitigate the impact or prepare an EIR for the City Council to approve over-riding findings.
4. Based on the City of Escondido Zoning Ordinance Article 46, Section 33-924, titled Coordination of CEQA, Quality of Life Standards and Growth Management Provisions, if the project adds more than two hundred (200) trips to a Circulation Element street with an LOS below LOS Mid-D, yet above LOS F, the project has a significant impact.

EXISTING + MAXIMUM CAPACITY PROJECT ANALYSIS

The section below provides the results of the Existing + 3:00PM Event and Existing + 6:00PM Event LOS analyses for maximum capacity events. This analysis presents the effects of a maximum capacity event during either of these peak periods; it is not anticipated or proposed that multiple maximum-capacity events occur on the same day.

As shown in the following tables, existing study area intersections and street segments are calculated to currently operate at acceptable LOS D or better. The exception to this being the segment of 9th Avenue west of Auto Park Way which is calculated to currently operate at LOS F.

Under both the Existing + 3:00PM Event and Existing + 6:00PM Event scenarios, each of the study area intersections would continue to operate at acceptable LOS D or better operations. Therefore, no significant Project-related impacts would be expected during the mid-day and PM peaks for adjacent street traffic.

Although the study segment of 9th Avenue would continue to operate at LOS F, the Project only adds a small amount of traffic (46 daily trips, or 0.004 V/C Δ) to this segment, which is less than the allowable 0.02 V/C Δ allowed by the City's criteria. Therefore, no significant Project-related impacts would be expected on an average daily traffic-basis.

It should be noted that the I-15/Auto Park Way/9th Avenue interchange is within Caltrans' jurisdiction. According to Caltrans' criteria, LOS D or better operations are considered acceptable. Since the operations at this interchange are calculated to operate at acceptable levels, no substantial traffic-related issues would be expected with the addition of Project traffic. In addition, the I-15 southbound on-ramp meter at Auto Park Way is not operational during weekday PM peak hours based on Caltrans correspondence, and is therefore not analyzed in this letter report.

U-Turns at Auto Park Way/9th Avenue

The primary entrance into the site from east of the Lexus Centre is via an uncontrolled westbound left-turn pocket on Auto Park Way. For purposes of being conservative, it was assumed that all 85% of Project trips oriented to/from the east would complete this left-turn maneuver to arrive onsite. It is, however, recognized that this movement would experience an influx of vehicles during the arrival time for an event and could potentially result in heavy queuing. It could also be expected that drivers would observe this occurrence and bypass the left-turn pocket to complete a U-turn at the Auto Park Way/ 9th Avenue intersection proceeding eastbound on Auto Park Way and making a right-turn into the site. In order to account for the changes in LOS that would result from this redirection of Project traffic, a subsequent

intersection analysis was prepared redistributing 15% of inbound vehicles to the Auto Park Way/ 9th Avenue intersection.

Tables 2 and **3** show the intersection and street segment analysis results. **Appendix B** contains copies of the Synchro LOS worksheets.

**TABLE 2
 INTERSECTION OPERATIONS – MAXIMUM CAPACITY EVENTS**

Intersection	Control Type	Peak Hour	Existing		Existing + 3PM Event (2:00-3:00PM and 5:00-6:00PM)		Δ Delay ^d	Existing + 6PM Event (5:00-6:00PM)		Δ Delay ^d	Sig?
			Delay ^a	LOS ^b	Delay	LOS		Delay	LOS		
1. Auto Park Wy/9 th Ave/ Shopping Ctr Dwy	Signal	MD	25.6	C	25.7	C	0.1	—	—	—	No
		PM	28.9	C	29.3	C	0.4	29.0	C	0.1	
2. Auto Park Wy/ Lexus Centre Dwy	MSSC ^c	MD	11.3	B	16.6	C	13.3	—	—	—	No
		PM	14.2	B	14.2	B	0.0	23.2	C	9.0	
3. Auto Park Wy/ I-15 SB Ramps	Signal	MD	26.6	C	27.4	C	0.8	—	—	—	No
		PM	30.6	C	38.6	D	8.0	31.0	C	0.4	
4. Auto Park Wy/ I-15 NB Ramps	Signal	MD	21.7	C	23.9	C	2.2	—	—	—	No
		PM	21.3	C	21.4	C	0.1	23.1	C	1.8	
5. 9 th Ave/ La Terraza Blvd	Signal	MD	10.0	A	10.0	A	0.0	—	—	—	No
		PM	12.0	B	18.7	B	6.7	12.1	B	0.1	
<i>With 15% Lexus Centre Driveway Bypass</i>											
1. Auto Park Wy/9 th Ave/ Shopping Ctr Dwy	Signal	MD	25.6	C	26.4	C	0.8	—	—	—	No
		PM	28.9	C	—	—	—	29.8	C	0.9	
2. Auto Park Wy/ Lexus Centre Dwy	MSSC ^c	MD	11.3	B	15.9	C	4.6	—	—	—	No
		PM	14.2	B	—	—	—	21.7	C	7.5	

Footnotes:

- Average delay expressed in seconds per vehicle.
- Level of Service.
- MSSC = Minor Street Stop-Controlled intersection. Westbound left-turn delay reported.
- Δ denotes the increase in delay due to Project. A change in delay is considerable only for locations operating at worse than Mid-LOS D. All intersections in the study area are operating at LOS C or better.

General Notes:

- Sig = Significant impact, yes or no.
- For 3:00PM events, MD = 2:00-3:00PM and PM = 5:00-6:00PM.
- For 6:00PM Events, PM = 5:00-6:00PM. No analysis is provided for the 8:00-9:00PM period.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 45.0	D	25.1 to 30.0	D
45.1 to 55.0	Mid-D	30.1 to 35.0	Mid-D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 3
 STREET SEGMENT OPERATIONS – MAXIMUM CAPACITY EVENTS

Street Segment	Existing Capacity (LOS E) ^a	Existing			Existing + 3:00PM <i>or</i> 6:00PM Event			Δ ^e	Sig?
		ADT	LOS	V/C	ADT	LOS	V/C		
9th Avenue									
1. Del Dios Rd to Auto Park Wy	10,000	14,410	F	1.441	14,456	F	1.445	0.004	No
Auto Park Way									
1. Valley Pkwy to 9 th Ave	34,200	15,270	B	0.446	15,308	B	0.448	0.001	No
2. 9 th Ave to Lexus Centre Dwy	43,500	28,970	C	0.666	29,051	C	0.668	0.002	No
3. Lexus Centre Dwy to I-15 Ramps	50,000	28,970	C	0.579	29,510	C	0.590	0.011	No

Footnotes:

- a. Capacities based on City of Escondido Roadway Classification & LOS table.
- b. Average Daily Traffic.
- c. Level of Service.
- d. Volume to Capacity ratio.
- e. Δ denotes a Project-induced increase in the Volume to Capacity ratio.
 For locations operating at worst than Mid-LOS D, a change in excess of 0.02 V/C is considered significant.
- f. Auto Park Way between 9th Avenue and the Lexus Centre Driveway provides three lanes in the eastbound direction and two lanes in the westbound direction. Five-lane capacity was used in the analysis.

LOS	V/C
A	0.00 ≥ 0.34
B	0.35 ≥ 0.54
C	0.55 ≥ 0.74
D	0.75 ≥ 0.80
Mid D	0.81 ≥ 0.89
E	0.90 ≥ 1.00
F	>1.00

General Notes:

1. Sig = Significant impact, yes or no.

ACCESS/QUEUING ASSESSMENT

The City has expressed concern over the potential for queuing at the Auto Park Way/ Lexus Centre Driveway. The critical queue relative to the Project site would be the westbound left-turn into the site. The existing pocket provides storage for approximately seven (7) vehicles assuming 22 feet per vehicle (160 feet of storage provided).

Table 4 shows the queuing analysis for the critical movement at the Lexus Centre Driveway. *Appendix B* also contains the queuing data in the analysis worksheets (*see circled data in pages 1, 4, 7, 10 and 13 of the Appendix*).

TABLE 4
 NEAR-TERM INTERSECTION QUEUING OPERATIONS
 MAXIMUM CAPACITY EVENTS

Intersection	Critical Movement	Storage (vehicles)	95 th Percentile Queue (vehicles) ^a				
			Existing		Existing + 3PM Event		Existing + 6PM Event
			MD	PM	MD	PM	PM
2. Auto Park Way/ Lexus Centre Driveway	WBL	7	1	1	3	1	4

Footnotes:

- a. 95th percentile queue is defined as the queue length (in vehicles) that has only a 5% probability of being exceeded.

General Notes:

1. Calculated queue lengths from Synchro are in "feet per lane". One vehicle length = 22 feet.

As shown in the table above, the analysis results from the *Synchro* software shows that the available storage of the westbound left-turn pocket can accommodate the queue at this critical movement with the addition of Project event traffic.

Event traffic typically occurs during the peak 15 minutes prior to the start of an event. Thus, the inbound flow of event traffic would be heaviest during this 15-minute period. Although the software results show adequate queuing operations for the two event scenarios, it would be more realistic to expect heavy queuing during the peak flow of inbound event traffic.

Queuing issues could arise due to the heavy flow of through traffic along Auto Park Way. Both the 2:00-3:00PM and 5:00-6:00PM peak hours experience a high volume of through traffic that could affect westbound left-turning vehicles at the driveway. It may be difficult for drivers to find sufficient gaps in the flow of eastbound traffic, thus preventing westbound left-turns from entering the Lexus Centre driveway. The back-up of vehicles in the left-turn pocket could ultimately overflow into the westbound through

lanes which may briefly restrict the flow of traffic in the Number 1 westbound through lane for the peak 15 minute period preceding an event at 6:00PM.

In addition, pedestrians from the nearby middle school were observed to traverse the sidewalk along the Project frontage during the 2:00-3:00PM time frame. Pedestrians would result in an additional traffic flow of which inbound left-turning vehicles would have to evaluate while awaiting a sufficient gap.

RECOMMENDATIONS

It is recommended that a Traffic Management Plan (TMP) be prepared to address any potential vehicular queuing and pedestrian conflicts at the Lexus Centre Driveway during the occurrence of large weekday special events (cumulatively amount to ≥ 450 attendees). The Centre has also proposed imposing restricting measures on event scheduling to avoid potential vehicular and pedestrian conflicts along Auto Park Way and the Project driveway for events of all sizes. These measures are described below:

- Measure 1. On- and off-site circulation for any event(s) of 200 persons or less will be sufficiently managed solely by The Centre's professional parking services.
- Measure 2. In addition to Measure #1, events with attendance ranging between 201 to 449 people would be restricted from having a start or end time within 30 minutes prior to the release of students and within one (1) hour after the release of students at the nearby Del Dios Middle School (termed "school blackout period") on active school days. (e.g. Monday, Tuesday, Wednesday and Friday school lets out at 2:42PM; Thursday school lets out at 12:21PM.)
- Measure 3. In addition to Measures #1 and #2, any combination of events with a cumulative attendance ranging between 450¹ to 614 people (e.g. two 250-person evening events) would be required to implement the proposed Traffic Management Plan on weekdays in addition to restricting start and end times within the school blackout period on active school days. (*The Traffic Management Plan is discussed in more detail under separate cover*).
- Measure 4. In addition to Measures #1, #2 and #3, any combination of events with a cumulative attendance amount to 615 people (e.g. one 250-person evening event and one 365-person event) would be required to implement the proposed Traffic Management Plan, restrict start and end times within the school blackout period, and impose a one and a half

¹ The threshold for an event size of 450 people would be expected to generate about 200 vehicles (450 people \div 2.28 VOR). The City guidelines identify 200 vehicle trips as a threshold for project-added traffic on the street system. Thus, the qualification of a 450-person event, or approximately 200 vehicles, as a "large" event triggering implementation of the TMP would be consistent with thresholds set by the City.

(1.5) hour window between the end of the first event and start time of the second event to allow all traffic from the first even to clear the site on weekdays and active school days.

SUMMARY & CONCLUSIONS

This letter report analyzed the traffic-related effects of the proposed Project would have on the study area street system in the immediate area during the occurrence of weekday special events. Based on information provided by the applicant, the maximum attendance expected for the worst-case scenario for events would be 615 people. Typical events would draw up to 200 people. Events were analyzed during the worst-case 2:00-3:00PM and 5:00-6:00PM peak hours during the peak periods for adjacent street traffic (school and work-to-home traffic). Actual Project operations would generally be expected to occur on weekends starting at 7:00PM outside of the typical weekday afternoon peak commuter hours; therefore this analysis provides the worst-case scenario of all 615 attendees arriving to the site for either a 3:00PM or 6:00PM event start time.

As shown in the analysis of the Existing + Project conditions for both the 3:00PM and 6:00PM event start times, LOS D or better operations were calculated throughout the study area. The exception to this was the 9th Avenue segment west of Auto Park Way which was calculated to operate at LOS F both without and with the Project. However, the Project only adds a small amount of traffic to this segment (46 ADT) which does not result in a significant Project-related impact. Given all other study area locations were calculated to operate efficiently with the addition of event traffic, the Project would have no significant adverse effects on peak hour and daily traffic within the vicinity of the Project.

It would, however, be realistic to expect queuing to occur on Auto Park Way for the westbound left-turn into the Lexus Centre driveway for the worst-case special events. The availability of sufficient gaps in the flow of eastbound traffic could be low during the peak hours, thus preventing westbound left-turns from entering the Lexus Centre driveway. In addition, pedestrian trips from the nearby middle school traverse the sidewalks along the Project frontage during the 2:00-3:00PM time frame.

It is therefore recommended that The Centre impose the proposed four (4) restricting measures for event scheduling mentioned in the *Recommendations* section of this letter, as well as prepare a Traffic Management Plan (TMP) for events amounting to a cumulative attendance of ≥ 450 people to address any potential vehicular queuing and pedestrian conflicts at the Lexus Centre Driveway during the occurrence of special events. (*The TMP is provided under separate cover in conjunction with this letter report*). **Table 5** summarizes these conclusions.

TABLE 5
SUMMARY OF RECOMMENDATIONS

Event Sizes	Recommended Weekday & School Day Traffic Measures			
	Measure 1	Measure 2	Measure 3	Measure 4
	Current On- & Off-Site Circulation Plan	“School Blackout” No Event Start or End Times within 30 mins Prior or 1 hour After End of School Day	Implementation of the TMP	1.5 Hour Window between Start and End Times of Events
0 to 200 attendees	X	–	–	–
201 to 449 attendees	X	X	–	–
450 to 614 attendees	X	X	X	–
615 attendees	X	X	X	X

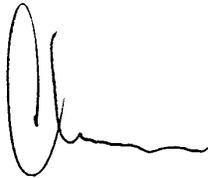
General Notes:

1. “X” = measure recommended.
2. Event sizes are cumulative. (e.g. two 200 person events = 400 people = Measures #1 and #2 are recommended.)

Please don’t hesitate to call us at (858) 300-8800 with any questions or to discuss these findings further.

Sincerely,

Linscott, Law & Greenspan, Engineers



Chris Mendiara
Associate Principal



Cara Leone Hilgesen
Transportation Planner III

cc: File

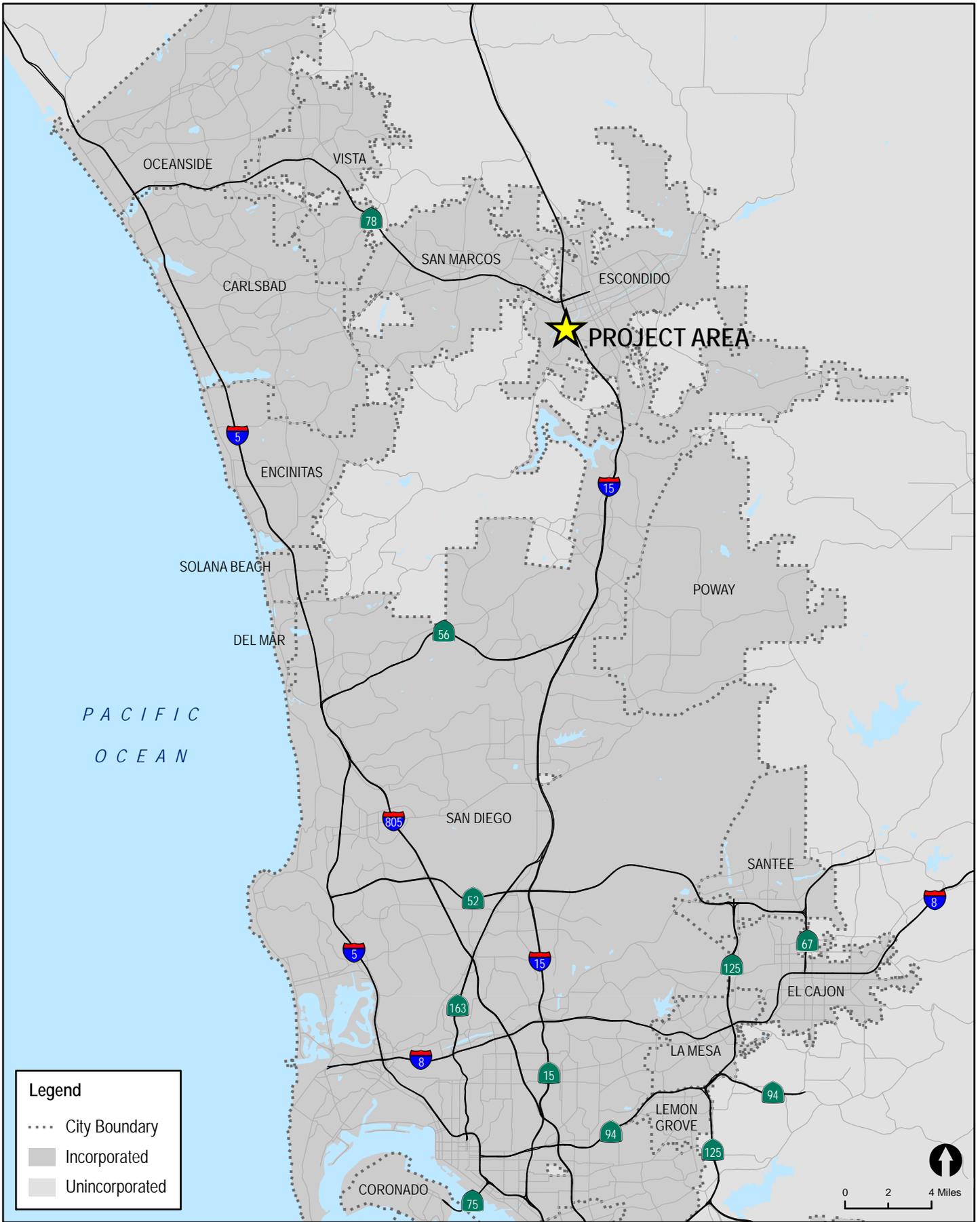
Attachments: Figure 1: Vicinity Map
Figure 2: Existing Conditions Diagram
Figure 3: Existing Traffic Volumes
Figure 4: Project Traffic Distribution
Figure 5: 3PM Event Project Traffic Volumes
Figure 6: 6PM Event Project Traffic Volumes



Figure 8: Existing + 6PM Event Project Traffic Volumes

Appendix A: Existing Traffic Counts

Appendix B: Synchro Intersection LOS & Queuing Analysis Sheets

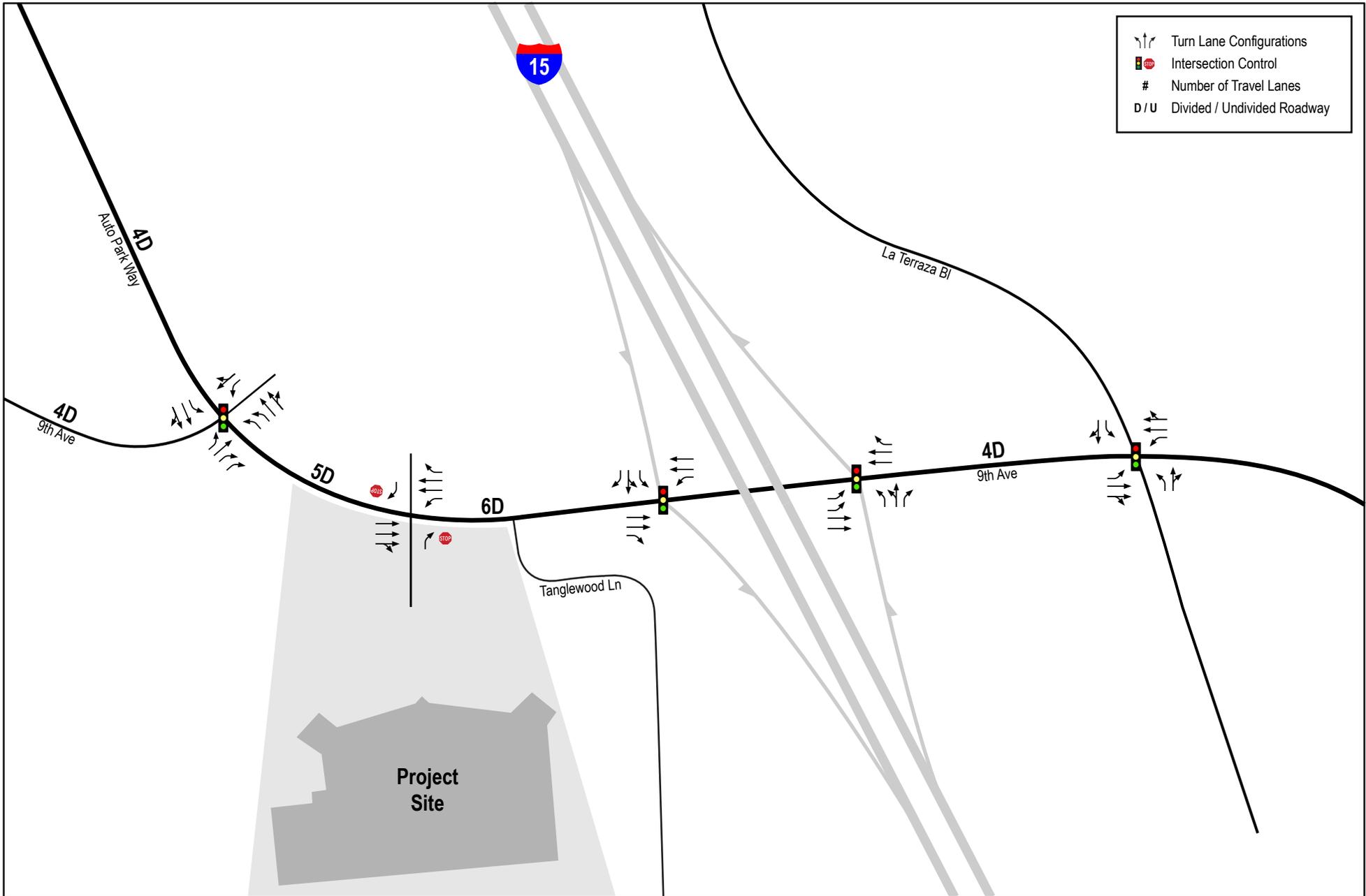


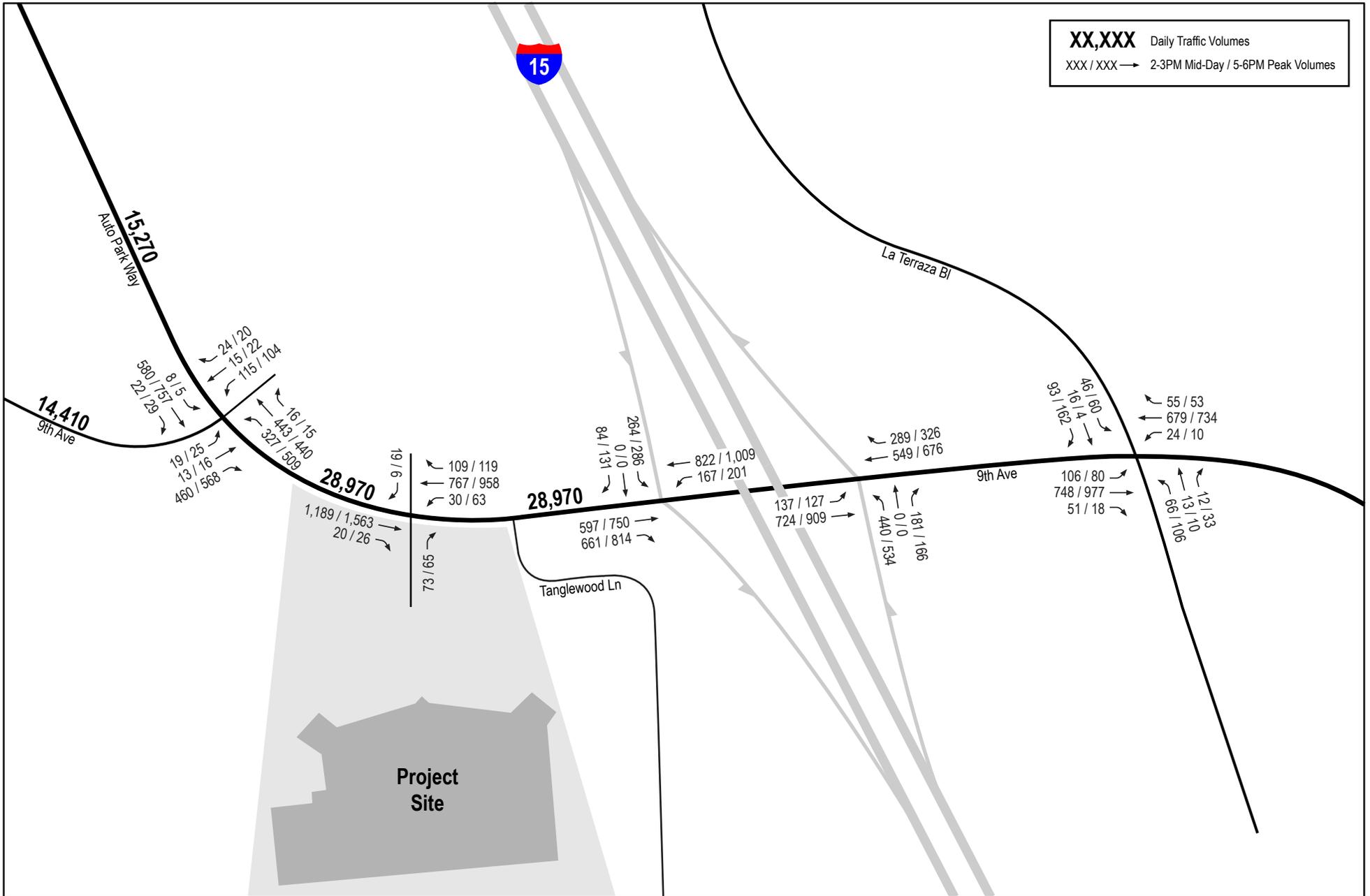
Legend

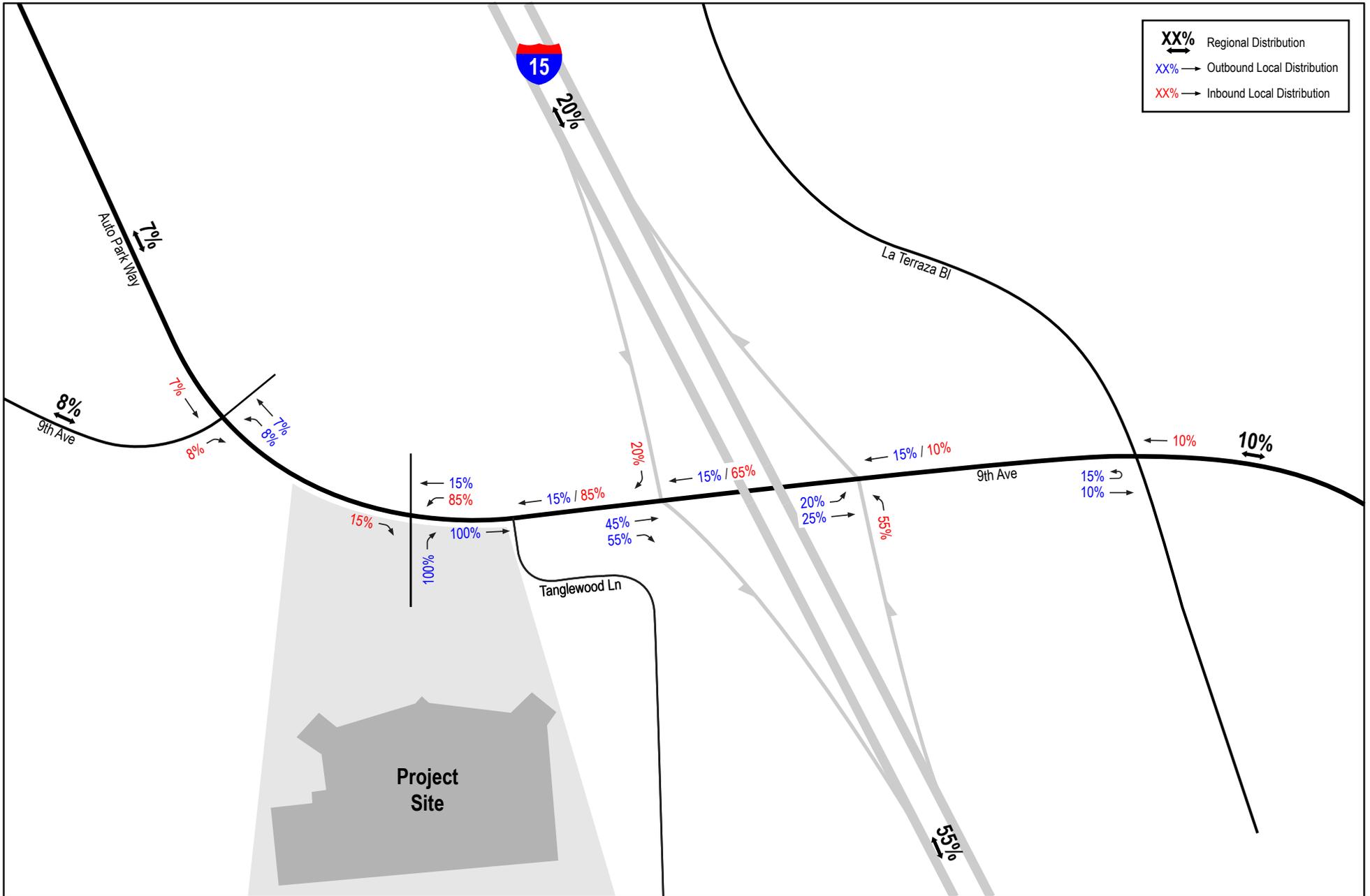
- City Boundary
- Incorporated
- Unincorporated

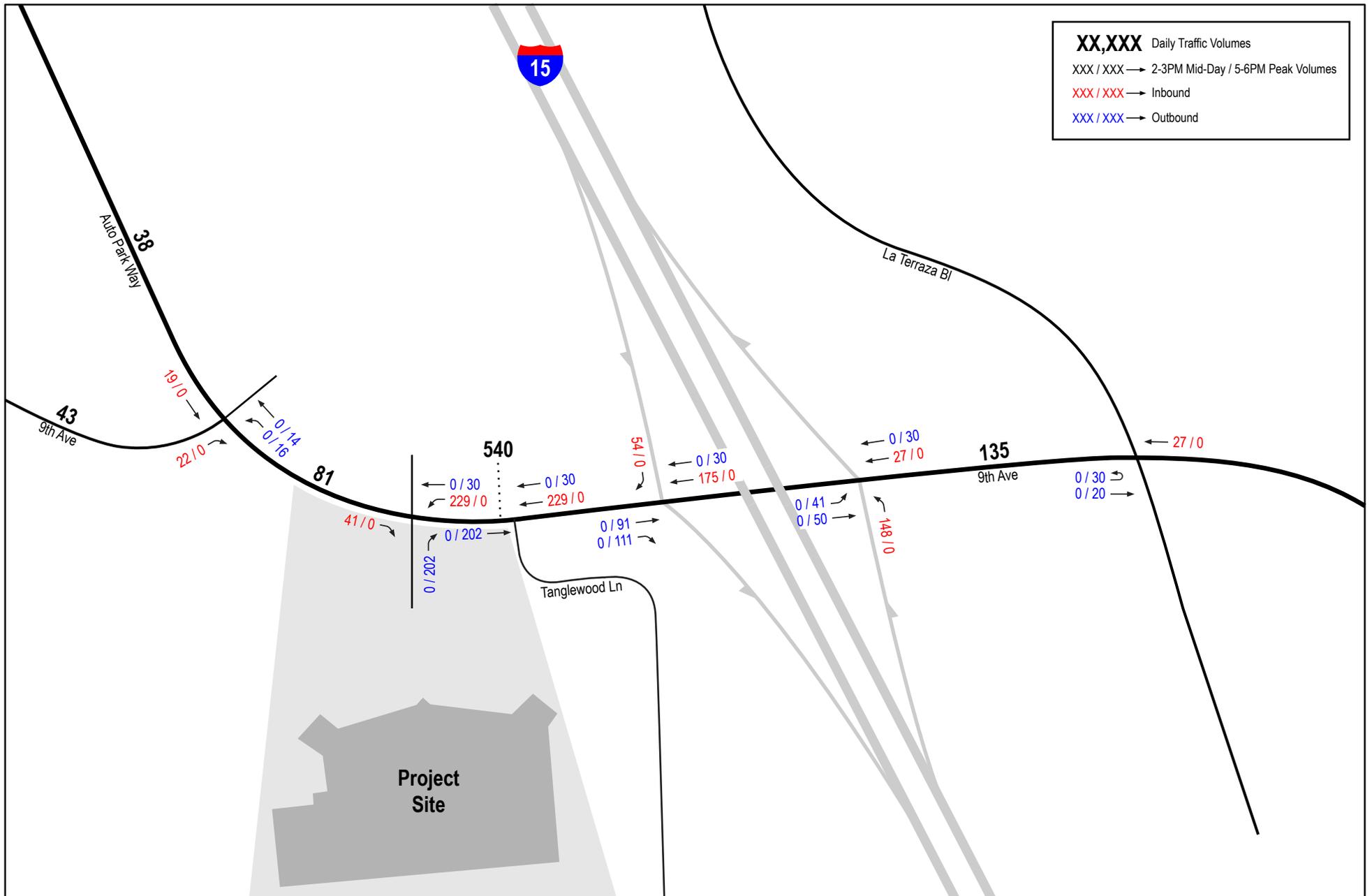
Figure 1

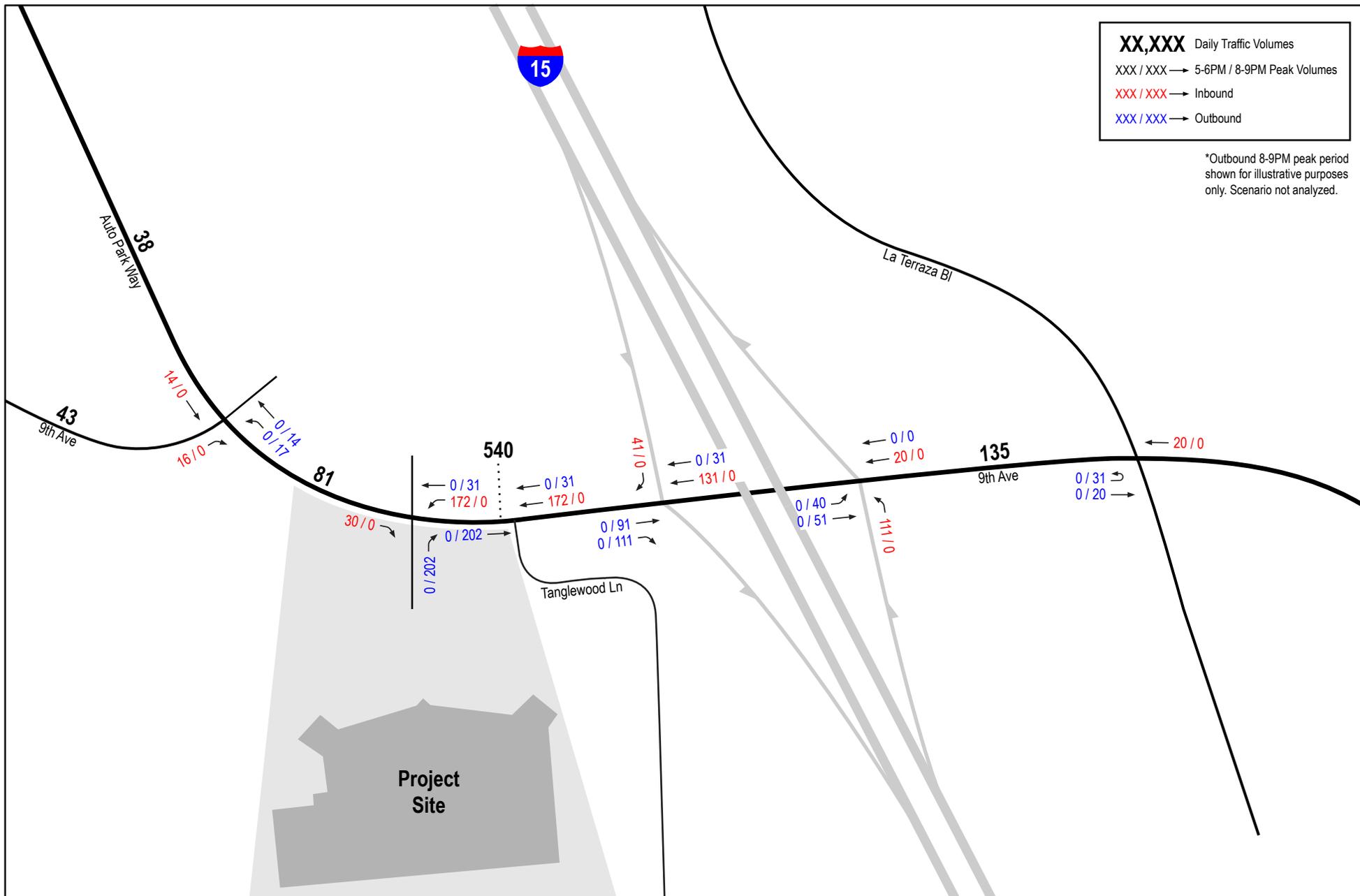
Vicinity Map

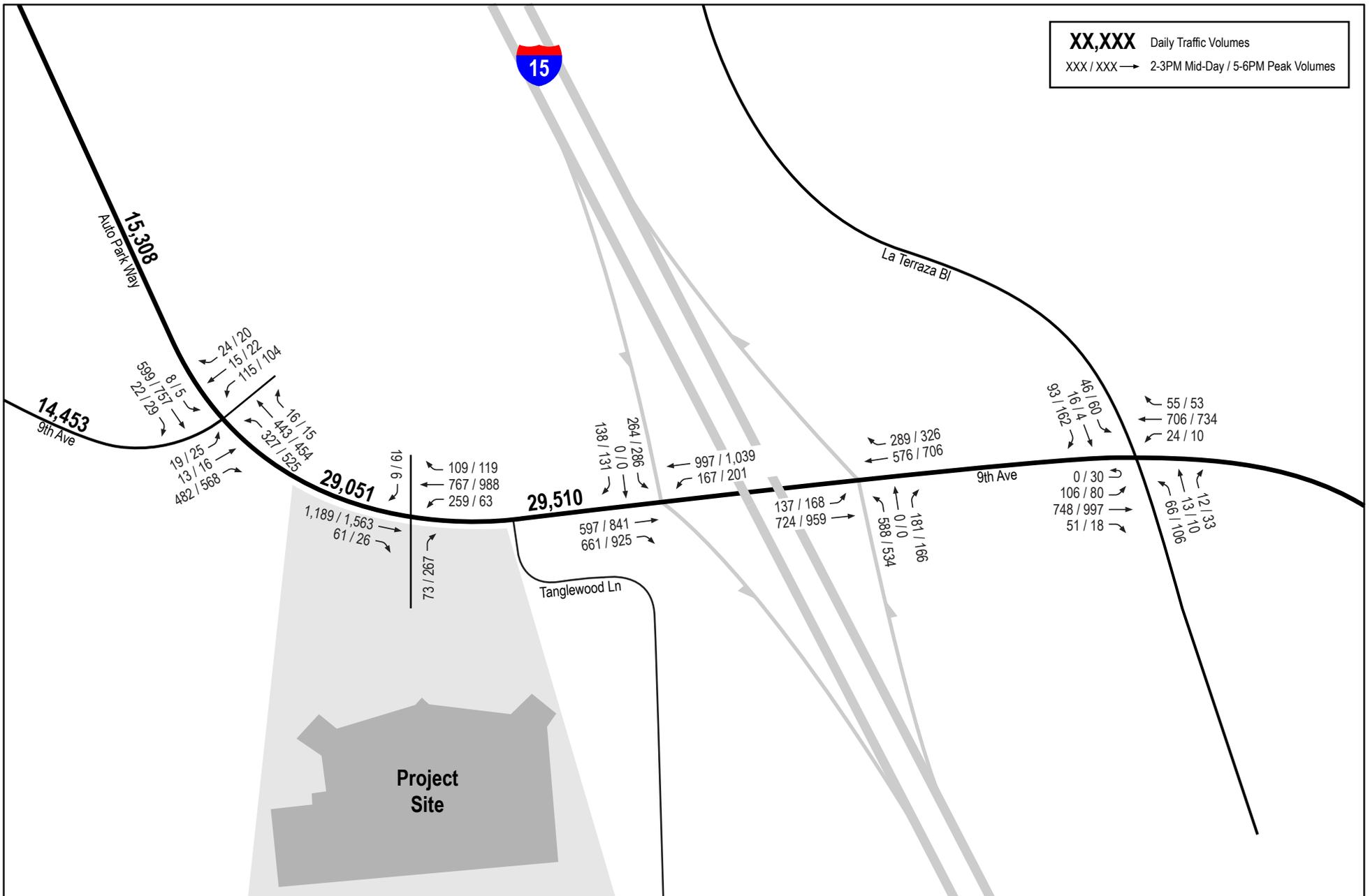


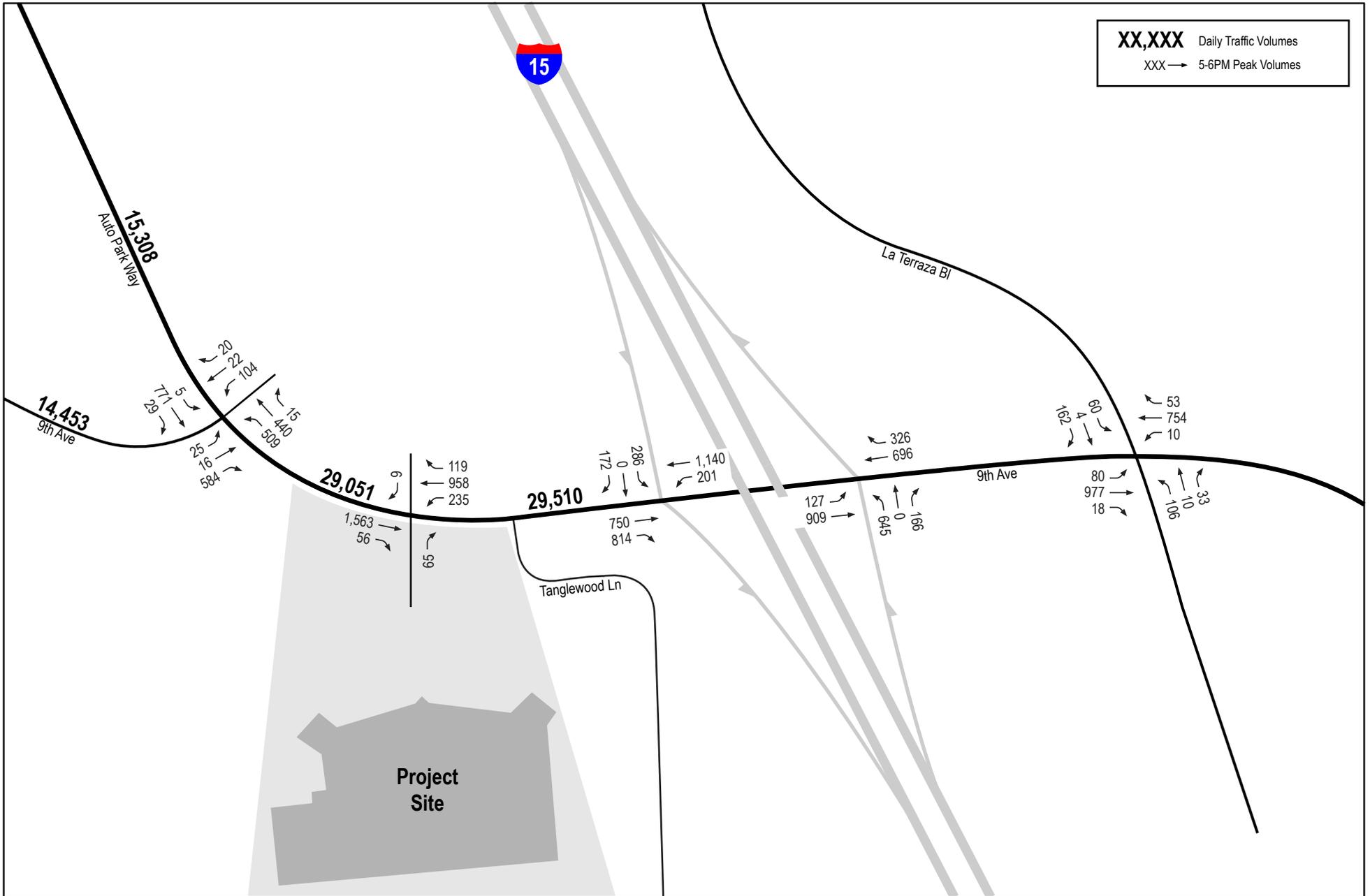












APPENDIX A

EXISTING TRAFFIC COUNTS

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ 9th Ave

Date of Count: Thursday, April 18, 2013

Analysts: LV/CD

Weather: Sunny

AVC Proj No: 13-0049



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ 9th Ave

Midday Period (2:00 PM - 4:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:00 PM	24	6	7	65	109	4	4	4	101	3	122	5	454
2:15 PM	36	1	5	91	105	4	3	2	90	0	138	5	480
2:30 PM	30	4	6	75	106	5	5	3	148	4	149	7	542
2:45 PM	25	4	6	96	123	3	7	4	121	1	171	5	566
3:00 PM	31	0	1	115	113	3	2	2	144	2	149	3	565
3:15 PM	33	3	7	100	115	1	4	3	130	2	170	5	573
3:30 PM	33	1	10	100	120	5	9	9	121	1	173	8	590
3:45 PM	38	3	7	91	114	3	2	2	160	1	189	6	616
Total	250	22	49	733	905	28	36	29	1,015	14	1,261	44	4,386

Midday Intersection Peak Hour : **3:00 PM - 4:00 PM**

Intersection PHF : **0.95**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	135	7	25	406	462	12	17	16	555	6	681	22	2,344
PHF	0.89	0.58	0.63	0.88	0.96	0.60	0.47	0.44	0.87	0.75	0.90	0.69	0.95
Movement PHF	0.87			0.95			0.90			0.90			0.95

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	30	3	5	87	99	4	7	4	136	4	205	7	591
4:15 PM	26	1	6	108	113	1	7	3	127	1	174	10	577
4:30 PM	20	2	9	107	154	2	5	6	133	1	196	6	641
4:45 PM	15	3	7	114	128	3	4	6	123	0	204	6	613
5:00 PM	23	7	8	114	126	6	6	5	143	0	197	5	640
5:15 PM	32	7	6	114	105	5	5	3	114	2	216	8	617
5:30 PM	22	3	2	134	112	2	7	4	147	2	189	6	630
5:45 PM	27	5	4	147	97	2	7	4	164	1	155	10	623
Total	195	31	47	925	934	25	48	35	1,087	11	1,536	58	4,932

PM Intersection Peak Hour : **4:30 PM - 5:30 PM**

Intersection PHF : **0.98**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	90	19	30	449	513	16	20	20	513	3	813	25	2511
PHF	0.70	0.679	0.833	0.985	0.833	0.667	0.833	0.833	0.897	0.375	0.941	0.781	0.98
Movement PHF	0.77			0.93			0.90			0.93			0.98

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ Lexus Escondido Drwy

Date of Count: Thursday, April 18, 2013

Analysts: LV/CD

Weather: Sunny

AVC Proj No: 13-0049



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ Lexus Escondido Drwy

Midday Period (2:00 PM - 4:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:00 PM	0	0	6	6	172	15	0	0	18	0	248	4	469
2:15 PM	0	0	10	9	190	32	0	0	19	0	283	5	548
2:30 PM	0	0	0	6	186	43	0	0	20	0	337	5	597
2:45 PM	0	0	3	9	219	19	0	0	16	0	321	6	593
3:00 PM	0	0	0	12	231	22	0	0	18	0	337	5	625
3:15 PM	0	0	1	23	215	23	0	0	11	0	348	7	628
3:30 PM	0	0	6	9	219	15	0	0	19	0	354	6	628
3:45 PM	0	0	2	12	206	30	0	0	22	0	417	2	691
Total	0	0	28	86	1,638	199	0	0	143	0	2,645	40	4,779

Midday Intersection Peak Hour : **3:00 PM - 4:00 PM**

Intersection PHF : **0.93**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	0	9	56	871	90	0	0	70	0	1,456	20	2,572
PHF	#####	#####	0.38	0.61	0.94	0.75	#####	#####	0.80	#####	0.87	0.71	0.93
Movement PHF		0.38			0.96			0.80			0.88		0.93

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	1	7	189	31	0	0	11	0	426	4	669
4:15 PM	0	0	2	16	220	18	0	0	10	0	368	4	638
4:30 PM	0	0	6	17	257	37	0	0	21	0	415	4	757
4:45 PM	0	0	1	16	244	21	0	0	17	0	398	4	701
5:00 PM	0	0	4	9	242	33	0	0	19	0	422	8	737
5:15 PM	0	0	2	15	222	23	0	0	17	0	409	6	694
5:30 PM	0	0	0	24	248	31	0	0	17	0	375	7	702
5:45 PM	0	0	0	15	246	32	0	0	12	0	357	5	667
Total	0	0	16	119	1,868	226	0	0	124	0	3,170	42	5,565

PM Intersection Peak Hour : **4:30 PM - 5:30 PM**

Intersection PHF : **0.95**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	0	13	57	965	114	0	0	74	0	1644	22	2889
PHF	#####	#####	0.542	0.838	0.939	0.77	#####	#####	0.881	#####	0.974	0.688	0.95
Movement PHF		0.54			0.91			0.88			0.97		0.95

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ I-15 SB Ramps

Date of Count: Thursday, April 18, 2013

Analysts: LV/CD

Weather: Sunny

AVC Proj No: 13-0049



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ I-15 SB Ramps

Midday Period (2:00 PM - 4:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:00 PM	49	0	17	35	176	1	0	0	0	0	121	149	548
2:15 PM	63	0	27	43	204	1	0	0	0	0	139	152	629
2:30 PM	72	0	27	39	208	0	0	0	0	0	157	193	696
2:45 PM	80	0	13	48	234	0	0	0	0	0	180	167	722
3:00 PM	74	1	21	36	244	0	0	0	0	0	186	173	735
3:15 PM	82	0	27	34	234	0	0	0	0	0	170	178	725
3:30 PM	51	0	16	41	227	0	0	0	0	0	197	195	727
3:45 PM	72	0	15	30	233	0	0	0	0	0	206	209	765
Total	543	1	163	306	1,760	2	0	0	0	0	1,356	1,416	5,547

Midday Intersection Peak Hour : **3:00 PM - 4:00 PM**

Intersection PHF : **0.96**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	279	1	79	141	938	0	0	0	0	0	759	755	2,952
PHF	0.85	0.25	0.73	0.86	0.96	#####	#####	#####	#####	#####	0.92	0.90	0.96
Movement PHF		0.82			0.96		#DIV/0!				0.91		0.96

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	78	1	21	51	206	0	0	0	0	0	208	225	790
4:15 PM	85	0	22	51	232	0	0	0	0	0	172	192	754
4:30 PM	74	0	18	51	293	0	0	0	0	0	195	214	845
4:45 PM	71	0	26	54	255	0	0	0	0	0	195	215	816
5:00 PM	69	0	21	73	263	0	0	0	0	0	201	223	850
5:15 PM	78	0	38	52	222	0	0	0	0	0	192	225	807
5:30 PM	86	1	37	40	266	0	0	0	0	0	181	192	803
5:45 PM	53	0	35	36	258	0	0	0	0	0	176	174	732
Total	594	2	218	408	1,995	0	0	0	0	0	1,520	1,660	6,397

PM Intersection Peak Hour : **4:30 PM - 5:30 PM**

Intersection PHF : **0.98**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	292	0	103	230	1033	0	0	0	0	0	783	877	3318
PHF	0.94	#####	0.678	0.788	0.881	#####	#####	#####	#####	#####	0.974	0.974	0.98
Movement PHF		0.85			0.92		#DIV/0!				0.98		0.98

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ I-15 NB Ramps

Date of Count: Thursday, April 18, 2013

Analysts: LV/CD

Weather: Sunny

AVC Proj No: 13-0049



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: Auto Park Way @ I-15 NB Ramps

Midday Period (2:00 PM - 4:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:00 PM	0	0	0	0	118	82	94	0	33	26	144	0	497
2:15 PM	0	0	0	0	142	70	106	2	33	32	170	0	555
2:30 PM	0	0	0	0	145	58	102	0	61	38	191	0	595
2:45 PM	0	0	0	0	144	79	138	1	54	41	219	0	676
3:00 PM	0	0	0	0	140	83	140	0	51	48	212	0	674
3:15 PM	0	0	0	0	145	89	123	1	43	41	211	0	653
3:30 PM	0	0	0	0	149	62	119	0	40	42	206	0	618
3:45 PM	0	0	0	0	136	64	127	1	54	41	237	0	660
Total	0	0	0	0	1,119	587	949	5	369	309	1,590	0	4,928

Midday Intersection Peak Hour : 2:45 PM - 3:45 PM

Intersection PHF : 0.97

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	0	0	0	578	313	520	2	188	172	848	0	2,621
PHF	#####	#####	#####	#####	0.97	0.88	0.93	0.50	0.87	0.90	0.97	#####	0.97
Movement PHF	#DIV/0!			0.95			0.92			0.98			0.97

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	146	63	111	1	38	36	250	0	645
4:15 PM	0	0	0	0	167	83	116	3	37	29	228	0	663
4:30 PM	0	0	0	0	199	92	145	1	49	29	240	0	755
4:45 PM	0	0	0	0	159	83	150	1	48	44	222	0	707
5:00 PM	0	0	0	0	196	102	140	0	44	30	240	0	752
5:15 PM	0	0	0	0	143	82	131	0	40	35	235	0	666
5:30 PM	0	0	0	0	163	68	143	0	44	29	238	0	685
5:45 PM	0	0	0	0	174	74	120	0	38	33	196	0	635
Total	0	0	0	0	1,347	647	1,056	6	338	265	1,849	0	5,508

PM Intersection Peak Hour : 4:30 PM - 5:30 PM

Intersection PHF : 0.95

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	0	0	0	697	359	566	2	181	138	937	0	2880
PHF	#####	#####	#####	#####	0.876	0.88	0.943	0.5	0.923	0.784	0.976	#####	0.95
Movement PHF	#DIV/0!			0.89			0.94			1.00			0.95

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: 9th Ave @ La Terraza Blvd
Date of Count: Thursday, May 09, 2013
Analysts: LV/CD
Weather: Sunny
AVC Proj No: 13-0059



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: 9th Ave @ La Terraza Blvd

PM Period 2:00PM -4:00PM													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:00 PM	10	5	25	6	156	10	14	1	3	24	143	7	404
2:15 PM	15	4	20	6	138	13	14	4	4	25	145	14	402
2:30 PM	9	4	23	9	163	13	11	1	1	22	190	17	463
2:45 PM	12	3	15	3	150	19	20	7	4	26	215	10	484
3:00 PM	14	4	22	3	200	8	12	3	4	17	226	13	526
3:15 PM	6	8	21	4	180	10	13	4	3	21	186	15	471
3:30 PM	18	8	19	4	193	15	23	3	10	22	209	12	536
3:45 PM	14	1	18	3	183	17	17	1	9	27	246	16	552
Total	98	37	163	38	1,363	105	124	24	38	184	1,560	104	3,838

AM Intersection Peak Hour : 3:00 PM - 4:00 PM

Intersection PHF : 0.94

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	52	21	80	14	756	50	65	11	26	87	867	56	2,085
PHF	0.72	0.66	0.91	0.88	0.95	0.74	0.71	0.69	0.65	0.81	0.88	0.88	0.94
Movement PHF		0.85			0.97			0.71			0.87		0.94

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	15	2	37	4	136	17	20	2	8	24	253	13	531
4:15 PM	12	4	25	2	177	14	17	2	4	27	268	13	565
4:30 PM	18	3	37	1	204	8	28	9	14	18	259	16	615
4:45 PM	15	5	33	5	205	15	28	11	4	19	257	12	609
5:00 PM	19	2	59	4	169	8	43	4	13	33	278	7	639
5:15 PM	11	2	32	2	182	15	27	3	8	20	272	2	576
5:30 PM	11	0	36	3	169	15	19	3	6	15	265	4	546
5:45 PM	19	0	29	1	183	15	12	0	6	17	217	6	505
Total	120	18	288	22	1,425	107	194	34	63	173	2,069	73	4,586

PM Intersection Peak Hour : 4:30 PM - 5:30 PM

Intersection PHF : 0.95

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	63	12	161	12	760	46	126	27	39	90	1066	37	2439
PHF	0.83	0.6	0.682	0.6	0.927	0.767	0.733	0.614	0.696	0.682	0.959	0.578	0.95
Movement PHF		0.74			0.91			0.80			0.94		0.95

24 Hour Segment Count

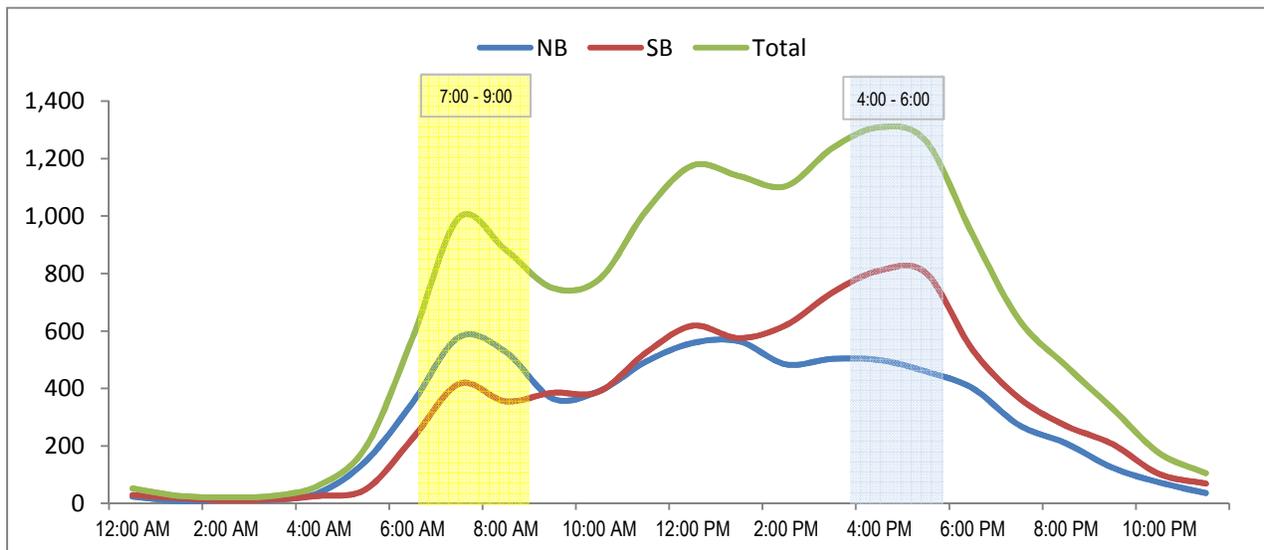
Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: 1. Auto Park Way btw 9th Ave to W. Valley Pkwy
Orientation: North-South
Date of Count: Thursday, April 18, 2013
Analysts: DASH
Weather: Sunny
AVC Proj. No: 13-0049

24 Hour Segment Volume					15,272		
Time	Hourly Volume			Time	Hourly Volume		
	NB	SB	Total		NB	SB	Total
12:00 AM - 1:00 AM	23	29	52	12:00 PM - 1:00 PM	558	618	1,176
1:00 AM - 2:00 AM	8	18	26	1:00 PM - 2:00 PM	564	575	1,139
2:00 AM - 3:00 AM	11	10	21	2:00 PM - 3:00 PM	484	620	1,104
3:00 AM - 4:00 AM	12	14	26	3:00 PM - 4:00 PM	503	734	1,237
4:00 AM - 5:00 AM	37	26	63	4:00 PM - 5:00 PM	499	810	1,309
5:00 AM - 6:00 AM	147	49	196	5:00 PM - 6:00 PM	459	802	1,261
6:00 AM - 7:00 AM	350	225	575	6:00 PM - 7:00 PM	401	535	936
7:00 AM - 8:00 AM	579	416	995	7:00 PM - 8:00 PM	272	366	638
8:00 AM - 9:00 AM	527	355	882	8:00 PM - 9:00 PM	209	270	479
9:00 AM - 10:00 AM	365	385	750	9:00 PM - 10:00 PM	124	206	330
10:00 AM - 11:00 AM	391	389	780	10:00 PM - 11:00 PM	73	102	175
11:00 AM - 12:00 PM	493	524	1017	11:00 PM - 12:00 AM	36	69	105
Total	2,943	2,440	5,383	Total	4,182	5,707	9,889

24-Hour NB Volume 7,125 **24-Hour SB Volume 8,147**



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: 2. 9th Ave btw Del Dios Rd and Auto Park Way

Orientation: East-West

Date of Count: Thursday, April 18, 2013

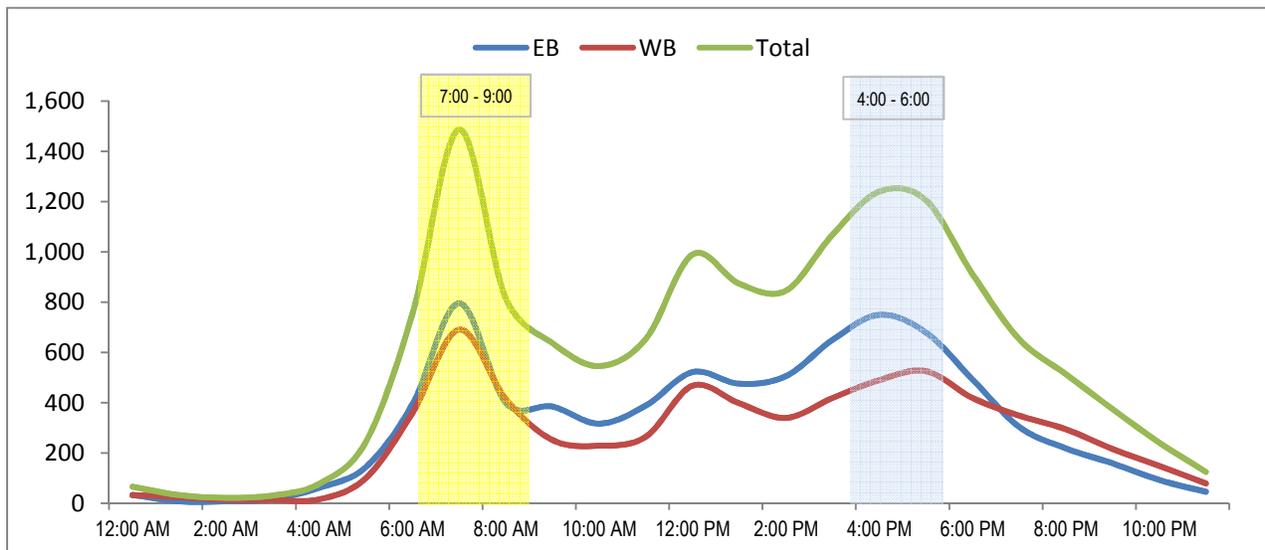
Analysts: DASH

Weather: Sunny

AVC Proj. No: 13-0049

24 Hour Segment Volume					14,413		
Time	Hourly Volume			Time	Hourly Volume		
	EB	WB	Total		EB	WB	Total
12:00 AM - 1:00 AM	33	33	66	12:00 PM - 1:00 PM	522	468	990
1:00 AM - 2:00 AM	8	25	33	1:00 PM - 2:00 PM	476	398	874
2:00 AM - 3:00 AM	8	14	22	2:00 PM - 3:00 PM	506	340	846
3:00 AM - 4:00 AM	17	14	31	3:00 PM - 4:00 PM	650	419	1,069
4:00 AM - 5:00 AM	62	16	78	4:00 PM - 5:00 PM	750	490	1,240
5:00 AM - 6:00 AM	144	100	244	5:00 PM - 6:00 PM	680	526	1,206
6:00 AM - 7:00 AM	394	360	754	6:00 PM - 7:00 PM	493	419	912
7:00 AM - 8:00 AM	796	691	1,487	7:00 PM - 8:00 PM	304	349	653
8:00 AM - 9:00 AM	400	415	815	8:00 PM - 9:00 PM	219	295	514
9:00 AM - 10:00 AM	385	252	637	9:00 PM - 10:00 PM	159	216	375
10:00 AM - 11:00 AM	317	229	546	10:00 PM - 11:00 PM	93	149	242
11:00 AM - 12:00 PM	389	265	654	11:00 PM - 12:00 AM	46	79	125
Total	2,953	2,414	5,367	Total	4,898	4,148	9,046

24-Hour EB Volume 7,851 **24-Hour WB Volume 6,562**



24 Hour Segment Count

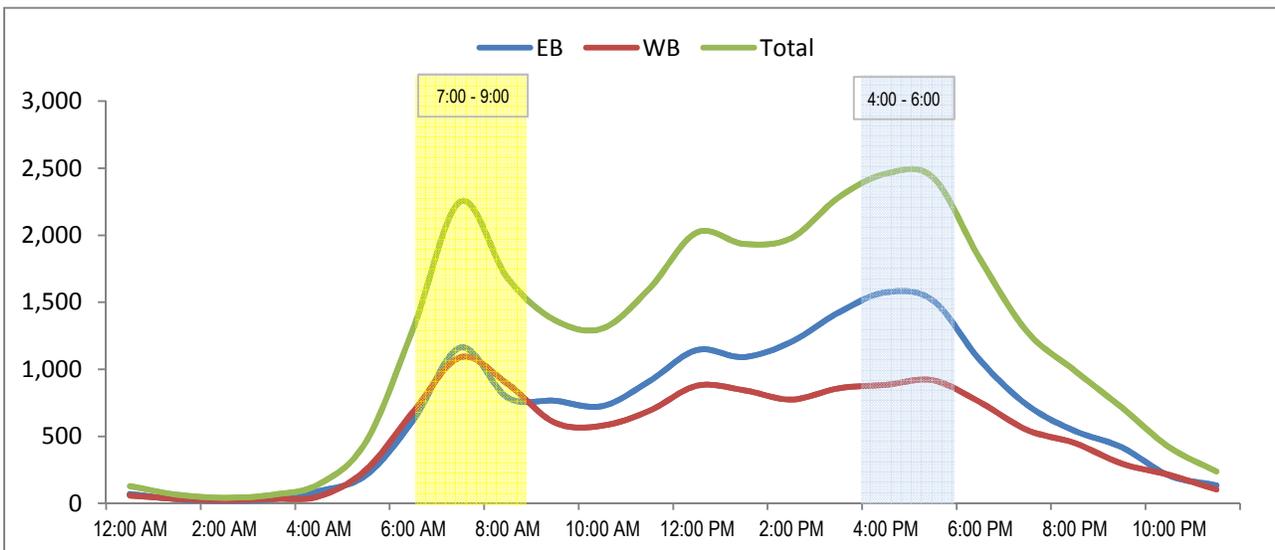
Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: 3. Auto Park Way btw 9th Ave and Lexus Escondido Drwy
Orientation: East-West
Date of Count: Thursday, April 18, 2013
Analysts: DASH
Weather: Sunny
AVC Proj. No: 13-0049

24 Hour Segment Volume					28,973				
Time	Hourly Volume			Time	Hourly Volume				
	EB	WB	Total		EB	WB	Total		
12:00 AM - 1:00 AM	70	58	128	12:00 PM - 1:00 PM	1,143	877	2,020		
1:00 AM - 2:00 AM	31	34	65	1:00 PM - 2:00 PM	1,091	844	1,935		
2:00 AM - 3:00 AM	19	23	42	2:00 PM - 3:00 PM	1,204	774	1,978		
3:00 AM - 4:00 AM	30	33	63	3:00 PM - 4:00 PM	1,423	858	2,281		
4:00 AM - 5:00 AM	91	52	143	4:00 PM - 5:00 PM	1,574	884	2,458		
5:00 AM - 6:00 AM	210	250	460	5:00 PM - 6:00 PM	1,513	918	2,431		
6:00 AM - 7:00 AM	621	685	1,306	6:00 PM - 7:00 PM	1,066	754	1,820		
7:00 AM - 8:00 AM	1,162	1,090	2,252	7:00 PM - 8:00 PM	732	546	1,278		
8:00 AM - 9:00 AM	788	890	1,678	8:00 PM - 9:00 PM	541	450	991		
9:00 AM - 10:00 AM	765	601	1,366	9:00 PM - 10:00 PM	418	296	714		
10:00 AM - 11:00 AM	725	579	1,304	10:00 PM - 11:00 PM	207	212	419		
11:00 AM - 12:00 PM	912	691	1,603	11:00 PM - 12:00 AM	135	103	238		
Total	5,424	4,986	10,410	Total	11,047	7,516	18,563		

24-Hour EB Volume 16,471 **24-Hour WB Volume 12,502**



APPENDIX B

SYNCHRO INTERSECTION LOS AND QUEUING ANALYSIS SHEETS

HCM Signalized Intersection Capacity Analysis

1: Auto Park Wy & Shopping Dwy

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	
Volume (vph)	8	580	22	327	443	16	19	13	460	115	15	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00	1.00	0.88	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3520		3433	3521		1770	1863	2787	1770	1690	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3520		3433	3521		1359	1863	2787	1394	1690	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	630	24	355	482	17	21	14	500	125	16	26
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	344	0	18	0
Lane Group Flow (vph)	9	652	0	355	497	0	21	14	156	125	24	0
Turn Type	Prot			Prot			Perm		Perm		Perm	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8		8		4	
Actuated Green, G (s)	0.8	38.2		15.0	52.4		31.0	31.0	31.0	31.0	31.0	
Effective Green, g (s)	0.8	38.2		15.0	52.4		31.0	31.0	31.0	31.0	31.0	
Actuated g/C Ratio	0.01	0.39		0.15	0.53		0.31	0.31	0.31	0.31	0.31	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	14	1355		519	1860		425	582	871	436	528	
v/s Ratio Prot	0.01	0.19		0.10	0.14			0.01			0.01	
v/s Ratio Perm							0.02		0.06		0.09	
v/c Ratio	0.64	0.48		0.68	0.27		0.05	0.02	0.18	0.29	0.05	
Uniform Delay, d1	49.1	23.0		39.9	12.9		23.8	23.6	24.8	25.8	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	71.2	1.2		3.7	0.4		0.2	0.1	0.5	1.7	0.2	
Delay (s)	120.3	24.2		43.6	13.2		24.0	23.7	25.3	27.4	23.9	
Level of Service	F	C		D	B		C	C	C	C	C	
Approach Delay (s)		25.5			25.8			25.2			26.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	25.6		HCM Level of Service				C					
HCM Volume to Capacity ratio	0.45											
Actuated Cycle Length (s)	99.2		Sum of lost time (s)				15.0					
Intersection Capacity Utilization	51.7%		ICU Level of Service				A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Auto Park Wy & Lexus Dwy

5/21/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↔	↔	↔	↔	↔	↔		
Volume (veh/h)	1189	20	30	767	0	73		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	1292	22	33	834	0	79		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None			None				
Median storage (veh)								
Upstream signal (ft)	420			380				
pX, platoon unblocked			0.93		0.93	0.93		
vC, conflicting volume			1314		1646	442		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol			1056		1416	113		
IC, single (s)			4.1		6.8	6.9		
IC, 2 stage (s)								
IF (s)			2.2		3.5	3.3		
p0 queue free %			95		100	91		
cM capacity (veh/h)			606		112	849		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	517	517	280	33	278	278	278	79
Volume Left	0	0	0	33	0	0	0	0
Volume Right	0	0	22	0	0	0	0	79
cSH	1700	1700	1700	606	1700	1700	1700	849
Volume to Capacity	0.30	0.30	0.16	0.05	0.16	0.16	0.16	0.09
Queue Length 95th (ft)	0	0	0	4	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	11.3	0.0	0.0	0.0	9.7
Lane LOS				B				A
Approach Delay (s)	0.0			0.4				9.7
Approach LOS				A				A
Intersection Summary								
Average Delay	0.5							
Intersection Capacity Utilization	34.6%		ICU Level of Service				A	
Analysis Period (min)	15							

HCM Signalized Intersection Capacity Analysis
3: Auto Park Wy & I-15 SB Off Ramp

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↓	↓	↓
Volume (vph)	0	597	661	167	822	0	0	0	0	264	0	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.2	5.0					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1681	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	649	718	182	893	0	0	0	0	287	0	91
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	65
Lane Group Flow (vph)	0	649	718	182	893	0	0	0	0	143	144	26
Turn Type		Perm	Prot	Prot						Split	custom	
Protected Phases	2			1	6					4	4	
Permitted Phases		2										4 5
Actuated Green, G (s)	72.0	72.0	15.8	71.5						18.4	18.4	38.9
Effective Green, g (s)	72.0	72.0	15.8	71.5						18.4	18.4	34.7
Actuated g/C Ratio	0.60	0.60	0.13	0.60						0.15	0.15	0.29
Clearance Time (s)	5.0	5.0	4.2	5.0						4.6	4.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0						3.0	3.0	
Lane Grp Cap (vph)	2123	950	452	2109						258	258	458
v/s Ratio Prot		0.18		c0.05	0.25					0.09	c0.09	
v/s Ratio Perm			c0.45									0.02
v/c Ratio	0.31	0.76	0.40	0.42						0.55	0.56	0.06
Uniform Delay, d1	11.8	17.6	47.8	13.1						47.0	47.0	30.8
Progression Factor	1.00	1.00	1.09	1.86						1.00	1.00	1.00
Incremental Delay, d2	0.4	5.6	0.6	0.6						8.3	8.5	0.2
Delay (s)	12.1	23.1	52.5	25.0						55.3	55.5	31.1
Level of Service	B	C	D	C						E	E	C
Approach Delay (s)	17.9			29.7			0.0				49.6	
Approach LOS	B			C			A				D	
Intersection Summary												
HCM Average Control Delay		26.6		HCM Level of Service			C					
HCM Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)		13.8						
Intersection Capacity Utilization		64.5%		ICU Level of Service		C						
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
4: Auto Park Wy & I-15 NB On Ramp

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑			↑↑	↑	↑	↑	↑	↓	↓	↓
Volume (vph)	137	724	0	0	549	289	440	0	181	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.0			5.0	5.0	4.6	4.6	4.6			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1681	1681	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1681	1681	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	787	0	0	597	314	478	0	197	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	143	0	0	137	0	0	0
Lane Group Flow (vph)	149	787	0	0	597	171	239	239	60	0	0	0
Turn Type	Prot				Perm	Split	Perm					
Protected Phases	5	2			6	8	8					
Permitted Phases					6	8	8					
Actuated Green, G (s)	16.8	86.2			65.2	65.2	24.2	24.2	24.2			
Effective Green, g (s)	16.8	86.2			65.2	65.2	24.2	24.2	24.2			
Actuated g/C Ratio	0.14	0.72			0.54	0.54	0.20	0.20	0.20			
Clearance Time (s)	4.2	5.0			5.0	5.0	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	481	2542			1923	860	339	339	319			
v/s Ratio Prot	0.04	c0.22			0.17		c0.14	0.14				
v/s Ratio Perm						0.11			0.04			
v/c Ratio	0.31	0.31			0.31	0.20	0.71	0.71	0.19			
Uniform Delay, d1	46.4	6.1			15.1	14.0	44.6	44.6	39.8			
Progression Factor	0.92	0.40			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.3	0.3			0.4	0.5	6.5	6.5	0.3			
Delay (s)	42.9	2.7			15.5	14.5	51.1	51.1	40.1			
Level of Service	D	A			B	B	D	D	D			
Approach Delay (s)		9.1			15.2		47.9				0.0	
Approach LOS		A			B		D				A	
Intersection Summary												
HCM Average Control Delay		21.7			HCM Level of Service		C					
HCM Volume to Capacity ratio		0.40										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)		9.6					
Intersection Capacity Utilization		64.5%			ICU Level of Service		C					
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: 9th Ave & La Terraza Bl

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	↔
Volume (vph)	106	748	51	24	679	55	66	13	12	46	16	93
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	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3506		1770	3499		1770	1863	1583	1770	1624	
Flt Permitted	0.95	1.00		0.95	1.00		0.68	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3506		1770	3499		1269	1863	1583	1394	1624	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	813	55	26	738	60	72	14	13	50	17	101
RTOR Reduction (vph)	0	5	0	0	6	0	0	0	11	0	87	0
Lane Group Flow (vph)	115	863	0	26	792	0	72	14	2	50	31	0
Turn Type	Prot		Prot		Perm		Perm		Perm		Perm	
Protected Phases	7	4		3	8		2	2		2	6	6
Permitted Phases												
Actuated Green, G (s)	6.9	27.4		2.1	22.6		6.8	6.8		6.8	6.8	6.8
Effective Green, g (s)	6.9	27.4		2.1	22.6		6.8	6.8		6.8	6.8	6.8
Actuated g/C Ratio	0.14	0.57		0.04	0.47		0.14	0.14		0.14	0.14	0.14
Clearance Time (s)	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
Lane Grp Cap (vph)	253	1989		77	1637		179	262		223	196	229
v/s Ratio Prot	c0.06	0.25		0.01	c0.23		0.01	0.01		0.00	0.04	0.02
v/s Ratio Perm							c0.06	0.00		0.00	0.04	
v/c Ratio	0.45	0.43		0.34	0.48		0.40	0.05		0.01	0.26	0.14
Uniform Delay, d1	19.0	6.0		22.4	8.8		18.9	18.0		17.8	18.5	18.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.2		2.6	0.2		1.5	0.1		0.0	0.7	0.3
Delay (s)	20.3	6.2		25.0	9.1		20.4	18.0		17.9	19.2	18.5
Level of Service	C	A		C	A		C	B		B	B	B
Approach Delay (s)		7.8			9.6			19.7				18.7
Approach LOS		A			A			B				B

Intersection Summary				
HCM Average Control Delay		10.0	HCM Level of Service	A
HCM Volume to Capacity ratio		0.46		
Actuated Cycle Length (s)		48.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization		46.7%	ICU Level of Service	A
Analysis Period (min)		15		
c Critical Lane Group				

Existing 5-6PM

1: Auto Park Wy & Shopping Dwy

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	5	757	29	509	440	15	25	16	568	104	22	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00	1.00	0.88	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3519		3433	3522		1770	1863	2787	1770	1729	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3519		3433	3522		1354	1863	2787	1390	1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	823	32	553	478	16	27	17	617	113	24	22
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	452	0	16	0
Lane Group Flow (vph)	5	853	0	553	492	0	27	17	165	113	30	0
Turn Type	Prot			Prot			Perm		Perm		Perm	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8		8		4	
Actuated Green, G (s)	0.8	39.1		19.9	58.2		27.0	27.0	27.0	27.0	27.0	
Effective Green, g (s)	0.8	39.1		19.9	58.2		27.0	27.0	27.0	27.0	27.0	
Actuated g/C Ratio	0.01	0.39		0.20	0.58		0.27	0.27	0.27	0.27	0.27	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	14	1362		676	2030		362	498	745	372	462	
v/s Ratio Prot	0.00	0.024		0.16	0.14			0.01			0.02	
v/s Ratio Perm							0.02		0.06	0.08		
v/c Ratio	0.36	0.63		0.82	0.24		0.07	0.03	0.22	0.30	0.06	
Uniform Delay, d1	49.8	25.0		38.8	10.5		27.7	27.4	28.8	29.5	27.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.9	2.2		7.6	0.3		0.4	0.1	0.7	2.1	0.3	
Delay (s)	64.8	27.2		46.4	10.8		28.1	27.5	29.5	31.6	27.9	
Level of Service	E	C		D	B		C	C	C	C	C	
Approach Delay (s)		27.4			29.6			29.4			30.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing 5-6PM

2: Auto Park Wy & Lexus Dwy

5/21/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Volume (veh/h)	1563	26	63	958	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1699	28	68	1041	0	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	420			380		
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			1727		2197	580
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1302		1844	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			85		100	92
cM capacity (veh/h)			458		49	940

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	680	680	368	68	347	347	347	71
Volume Left	0	0	0	68	0	0	0	0
Volume Right	0	0	28	0	0	0	0	71
cSH	1700	1700	1700	458	1700	1700	1700	940
Volume to Capacity	0.40	0.40	0.22	0.15	0.20	0.20	0.20	0.08
Queue Length 95th (ft)	0	0	0	13	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	14.2	0.0	0.0	0.0	9.1
Lane LOS				B				A
Approach Delay (s)	0.0			0.9				9.1
Approach LOS				A				A

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Existing 5-6PM

3: Auto Park Wy & I-15 SB Off Ramp

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↓	↓	↓
Volume (vph)	0	750	814	201	1009	0	0	0	0	286	0	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.2	5.0					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1681	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	815	885	218	1097	0	0	0	0	311	0	142
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	69
Lane Group Flow (vph)	0	815	885	218	1097	0	0	0	0	155	156	73
Turn Type		Perm	Prot							Split	custom	
Protected Phases	2		1	6						4	4	
Permitted Phases		2										4 5
Actuated Green, G (s)	72.4	72.4	15.8	71.9						18.0	18.0	38.5
Effective Green, g (s)	72.4	72.4	15.8	71.9						18.0	18.0	34.3
Actuated g/C Ratio	0.60	0.60	0.13	0.60						0.15	0.15	0.29
Clearance Time (s)	5.0	5.0	4.2	5.0						4.6	4.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0						3.0	3.0	
Lane Grp Cap (vph)	2135	955	452	2120						252	252	452
v/s Ratio Prot		0.23		c0.06	0.31					0.09	c0.09	
v/s Ratio Perm			c0.56									0.05
v/c Ratio	0.38	0.93	0.48	0.52						0.62	0.62	0.16
Uniform Delay, d1	12.3	21.4	48.3	14.0						47.8	47.8	32.1
Progression Factor	1.00	1.00	1.09	1.78						1.00	1.00	1.00
Incremental Delay, d2	0.5	16.0	0.8	0.8						10.7	10.9	0.8
Delay (s)	12.8	37.4	53.2	25.6						58.5	58.7	32.9
Level of Service	B	D	D	C						E	E	C
Approach Delay (s)	25.6			30.2			0.0				50.5	
Approach LOS	C			C			A				D	
Intersection Summary												
HCM Average Control Delay	30.6			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)			13.8					
Intersection Capacity Utilization	75.6%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

Existing 5-6PM

4: Auto Park Wy & I-15 NB On Ramp

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑			↑↑	↑	↑	↑	↑	↓	↓	↓
Volume (vph)	127	909	0	0	676	326	534	0	166	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.0			5.0	5.0	4.6	4.6	4.6			
Lane Util. Factor	0.97	0.95			0.95	1.00	0.95	0.95	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1681	1681	1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1681	1681	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	988	0	0	735	354	580	0	180	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	165	0	0	77	0	0	0
Lane Group Flow (vph)	138	988	0	0	735	189	290	290	103	0	0	0
Turn Type	Prot					Perm	Split	Perm				
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	13.8	82.1			64.1	64.1	28.3	28.3	28.3			
Effective Green, g (s)	13.8	82.1			64.1	64.1	28.3	28.3	28.3			
Actuated g/C Ratio	0.12	0.68			0.53	0.53	0.24	0.24	0.24			
Clearance Time (s)	4.2	5.0			5.0	5.0	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	395	2421			1890	846	396	396	373			
v/s Ratio Prot	0.04	c0.28			0.21		c0.17	0.17				
v/s Ratio Perm						0.12			0.06			
v/c Ratio	0.35	0.41			0.39	0.22	0.73	0.73	0.28			
Uniform Delay, d1	49.0	8.3			16.4	14.8	42.4	42.4	37.5			
Progression Factor	0.89	0.42			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.5	0.5			0.6	0.6	6.8	6.8	0.4			
Delay (s)	43.9	4.0			17.0	15.4	49.2	49.2	37.9			
Level of Service	D	A			B	B	D	D	D			
Approach Delay (s)		8.9			16.5		46.5		0.0			
Approach LOS		A			B		D		A			
Intersection Summary												
HCM Average Control Delay	21.3			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)			9.6					
Intersection Capacity Utilization	75.6%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

Existing 5-6PM
5: 9th Ave & La Terraza Bl

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	80	977	18	10	734	53	106	10	33	60	4	162
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
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1770	3529		1770	3503		1770	1863	1583	1770		1590
Flt Permitted	0.95	1.00		0.95	1.00		0.60	1.00	1.00	0.75		1.00
Satd. Flow (perm)	1770	3529		1770	3503		1126	1863	1583	1398		1590
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1062	20	11	798	58	115	11	36	65	4	176
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	28	0	137	0
Lane Group Flow (vph)	87	1081	0	11	851	0	115	11	8	65	43	0
Turn Type	Prot		Prot		Perm		Perm		Perm			
Protected Phases	7	4		3	8			2		2		6
Permitted Phases							2		2		6	
Actuated Green, G (s)	6.7	30.0		0.8	24.1		12.3	12.3	12.3	12.3		12.3
Effective Green, g (s)	6.7	30.0		0.8	24.1		12.3	12.3	12.3	12.3		12.3
Actuated g/C Ratio	0.12	0.54		0.01	0.44		0.22	0.22	0.22	0.22		0.22
Clearance Time (s)	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
Lane Grp Cap (vph)	215	1921		26	1532		251	416	353	312		355
v/s Ratio Prot	c0.05	c0.31		0.01	0.24			0.01				0.03
v/s Ratio Perm							c0.10		0.01	0.05		
v/c Ratio	0.40	0.56		0.42	0.56		0.46	0.03	0.02	0.21		0.12
Uniform Delay, d1	22.4	8.2		26.9	11.5		18.5	16.7	16.7	17.4		17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	1.2	0.4		10.7	0.4		1.3	0.0	0.0	0.3		0.2
Delay (s)	23.6	8.6		37.6	12.0		19.8	16.7	16.7	17.8		17.2
Level of Service	C A			D B			B B		B	B		B
Approach Delay (s)	9.7			12.3			18.9					17.4
Approach LOS	A			B			B					B

Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Auto Park Wy & Shopping Dwy

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	
Volume (vph)	8	599	22	327	443	16	19	13	482	115	15	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00	1.00	0.88	1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3520		3433	3521		1770	1863	2787	1770	1690	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3520		3433	3521		1359	1863	2787	1394	1690	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	651	24	355	482	17	21	14	524	125	16	26
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	360	0	18	0
Lane Group Flow (vph)	9	673	0	355	497	0	21	14	164	125	24	0
Turn Type	Prot			Prot			Perm		Perm		Perm	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8		8		4	
Actuated Green, G (s)	0.8	38.2		15.0	52.4		31.0	31.0	31.0	31.0	31.0	
Effective Green, g (s)	0.8	38.2		15.0	52.4		31.0	31.0	31.0	31.0	31.0	
Actuated g/C Ratio	0.01	0.39		0.15	0.53		0.31	0.31	0.31	0.31	0.31	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	14	1355		519	1860		425	582	871	436	528	
v/s Ratio Prot	0.01	c0.19		c0.10	0.14			0.01			0.01	
v/s Ratio Perm							0.02		0.06		c0.09	
v/c Ratio	0.64	0.50		0.68	0.27		0.05	0.02	0.19	0.29	0.05	
Uniform Delay, d1	49.1	23.2		39.9	12.9		23.8	23.6	24.9	25.8	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	71.2	1.3		3.7	0.4		0.2	0.1	0.5	1.7	0.2	
Delay (s)	120.3	24.5		43.6	13.2		24.0	23.7	25.4	27.4	23.9	
Level of Service	F	C		D	B		C	C	C	C	C	
Approach Delay (s)		25.7			25.8			25.3			26.5	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		25.7			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.45										
Actuated Cycle Length (s)		99.2			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		53.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: Auto Park Wy & Lexus Dwy

5/21/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↔	↔	↔	↔	↔	↔		
Volume (veh/h)	1189	61	259	767	0	73		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	1292	66	282	834	0	79		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None			None				
Median storage (veh)								
Upstream signal (ft)	420			380				
pX, platoon unblocked			0.92		0.92	0.92		
vC, conflicting volume			1359		2166	464		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol			1082		1961	108		
IC, single (s)			4.1		6.8	6.9		
IC, 2 stage (s)								
IF (s)			2.2		3.5	3.3		
p0 queue free %			52		100	91		
cM capacity (veh/h)			589		27	850		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	517	517	325	282	278	278	278	79
Volume Left	0	0	0	282	0	0	0	0
Volume Right	0	0	66	0	0	0	0	79
cSH	1700	1700	1700	589	1700	1700	1700	850
Volume to Capacity	0.30	0.30	0.19	0.48	0.16	0.16	0.16	0.09
Queue Length 95th (ft)	0	0	0	64	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	16.6	0.0	0.0	0.0	9.7
Lane LOS				C				A
Approach Delay (s)	0.0			4.2				9.7
Approach LOS				A				A
Intersection Summary								
Average Delay				2.1				
Intersection Capacity Utilization				45.3%				ICU Level of Service
Analysis Period (min)				15				A

HCM Signalized Intersection Capacity Analysis
3: Auto Park Wy & I-15 SB Off Ramp

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↓	↓	↓
Volume (vph)	0	597	661	167	997	0	0	0	0	264	0	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.2	5.0					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1681	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	649	718	182	1084	0	0	0	0	287	0	150
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	70
Lane Group Flow (vph)	0	649	718	182	1084	0	0	0	0	143	144	80
Turn Type		Perm	Prot	Prot						Split	custom	
Protected Phases	2			1	6					4	4	
Permitted Phases			2									4 5
Actuated Green, G (s)		72.0	72.0	15.8	71.5					18.4	18.4	38.9
Effective Green, g (s)		72.0	72.0	15.8	71.5					18.4	18.4	34.7
Actuated g/C Ratio		0.60	0.60	0.13	0.60					0.15	0.15	0.29
Clearance Time (s)		5.0	5.0	4.2	5.0					4.6	4.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2123	950	452	2109					258	258	458
v/s Ratio Prot		0.18		c0.05	0.31					0.09	c0.09	
v/s Ratio Perm			c0.45									0.05
v/c Ratio		0.31	0.76	0.40	0.51					0.55	0.56	0.18
Uniform Delay, d1		11.8	17.6	47.8	14.1					47.0	47.0	31.9
Progression Factor		1.00	1.00	1.15	1.81					1.00	1.00	1.00
Incremental Delay, d2		0.4	5.6	0.5	0.8					8.3	8.5	0.8
Delay (s)		12.1	23.1	55.2	26.5					55.3	55.5	32.8
Level of Service		B	C	E	C					E	E	C
Approach Delay (s)		17.9			30.6			0.0				47.6
Approach LOS		B			C			A				D

Intersection Summary			
HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Auto Park Wy & I-15 NB On Ramp

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑			↑↑	↑	↑	↑	↑	↓	↓	↓
Volume (vph)	137	724	0	0	576	289	588	0	181	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.0		5.0	5.0	4.6	4.6	4.6			
Lane Util. Factor		0.97	0.95		0.95	1.00	0.95	0.95	1.00			
Frt		1.00	1.00		1.00	0.85	1.00	1.00	0.85			
Flt Protected		0.95	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3433	3539		3539	1583	1681	1681	1583			
Flt Permitted		0.95	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3433	3539		3539	1583	1681	1681	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	787	0	0	626	314	639	0	197	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	161	0	0	127	0	0	0
Lane Group Flow (vph)	149	787	0	0	626	153	319	320	70	0	0	0
Turn Type	Prot					Perm	Split	Perm				
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	16.8	79.5			58.5	58.5	30.9	30.9	30.9			
Effective Green, g (s)	16.8	79.5			58.5	58.5	30.9	30.9	30.9			
Actuated g/C Ratio	0.14	0.66			0.49	0.49	0.26	0.26	0.26			
Clearance Time (s)	4.2	5.0			5.0	5.0	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	481	2345			1725	772	433	433	408			
v/s Ratio Prot	0.04	c0.22			c0.18		0.19	c0.19				
v/s Ratio Perm						0.10			0.04			
v/c Ratio	0.31	0.34			0.36	0.20	0.74	0.74	0.17			
Uniform Delay, d1	46.4	8.8			19.1	17.4	40.8	40.9	34.6			
Progression Factor	0.92	0.46			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.3	0.4			0.6	0.6	6.4	6.5	0.2			
Delay (s)	42.9	4.4			19.7	18.0	47.2	47.3	34.8			
Level of Service	D	A			B	B	D	D	C			
Approach Delay (s)		10.5			19.2		44.4		0.0			
Approach LOS		B			B		D		A			

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: 9th Ave & La Terraza Bl

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	↔
Volume (vph)	106	748	51	24	706	55	66	13	12	46	16	93
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
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00		0.87
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)	1770	3506		1770	3501		1770	1863	1583	1770		1624
Flt Permitted	0.95	1.00		0.95	1.00		0.68	1.00	1.00	0.75		1.00
Satd. Flow (perm)	1770	3506		1770	3501		1269	1863	1583	1394		1624
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	813	55	26	767	60	72	14	13	50	17	101
RTOR Reduction (vph)	0	5	0	0	5	0	0	0	11	0	87	0
Lane Group Flow (vph)	115	863	0	26	822	0	72	14	2	50	31	0
Turn Type	Prot		Prot		Perm		Perm		Perm			
Protected Phases	7	4		3	8		2	2		2	6	
Permitted Phases												
Actuated Green, G (s)	7.0	28.1		2.1	23.2		6.8	6.8		6.8	6.8	
Effective Green, g (s)	7.0	28.1		2.1	23.2		6.8	6.8		6.8	6.8	
Actuated g/C Ratio	0.14	0.57		0.04	0.47		0.14	0.14		0.14	0.14	
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)	253	2011		76	1658		176	259		220	193	225
v/s Ratio Prot	c0.06	0.25		0.01	c0.23			0.01				0.02
v/s Ratio Perm							c0.06			0.00	0.04	
v/c Ratio	0.45	0.43		0.34	0.50		0.41	0.05		0.01	0.26	0.14
Uniform Delay, d1	19.2	5.9		22.8	8.9		19.3	18.3		18.2	18.8	18.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1		2.7	0.2		1.5	0.1		0.0	0.7	0.3
Delay (s)	20.5	6.1		25.5	9.1		20.8	18.4		18.2	19.6	18.8
Level of Service	C	A		C	A		C	B		B	B	B
Approach Delay (s)		7.8			9.6			20.1				19.0
Approach LOS		A			A			C				B

Intersection Summary				
HCM Average Control Delay		10.0	HCM Level of Service	A
HCM Volume to Capacity ratio		0.47		
Actuated Cycle Length (s)		49.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization		47.5%	ICU Level of Service	A
Analysis Period (min)		15		
c Critical Lane Group				

Existing+3PM Event 5-6PM
1: Auto Park Wy & Shopping Dwy

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	5	757	29	525	454	15	25	16	568	104	22	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00	1.00	0.88	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3519		3433	3523		1770	1863	2787	1770	1729	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3519		3433	3523		1354	1863	2787	1390	1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	823	32	571	493	16	27	17	617	113	24	22
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	453	0	16	0
Lane Group Flow (vph)	5	853	0	571	507	0	27	17	164	113	30	0
Turn Type	Prot			Prot			Perm		Perm		Perm	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8		8		4	
Actuated Green, G (s)	0.8	39.1		20.3	58.6		27.0	27.0	27.0	27.0	27.0	
Effective Green, g (s)	0.8	39.1		20.3	58.6		27.0	27.0	27.0	27.0	27.0	
Actuated g/C Ratio	0.01	0.39		0.20	0.58		0.27	0.27	0.27	0.27	0.27	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	14	1357		687	2036		361	496	742	370	460	
v/s Ratio Prot	0.00	0.024		0.17	0.14			0.01			0.02	
v/s Ratio Perm							0.02		0.06	0.08		
v/c Ratio	0.36	0.63		0.83	0.25		0.07	0.03	0.22	0.31	0.06	
Uniform Delay, d1	50.0	25.3		38.9	10.6		27.8	27.5	29.0	29.7	27.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.9	2.2		8.4	0.3		0.4	0.1	0.7	2.1	0.3	
Delay (s)	65.0	27.5		47.4	10.8		28.3	27.7	29.7	31.8	28.0	
Level of Service	E	C		D	B		C	C	C	C	C	
Approach Delay (s)		27.7			30.1			29.6			30.7	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		29.3			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		101.4			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		61.8%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Existing+3PM Event 5-6PM
2: Auto Park Wy & Lexus Dwy

5/21/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↔	↔	↔	↔	↔	↔		
Volume (veh/h)	1563	26	63	988	0	267		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	1699	28	68	1074	0	290		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None			None				
Median storage (veh)								
Upstream signal (ft)	420			380				
pX, platoon unblocked			0.87		0.87	0.87		
vC, conflicting volume			1727		2208	580		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol			1299		1854	0		
IC, single (s)			4.1		6.8	6.9		
IC, 2 stage (s)								
IF (s)			2.2		3.5	3.3		
p0 queue free %			85		100	69		
cM capacity (veh/h)			458		48	939		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	680	680	368	68	358	358	358	290
Volume Left	0	0	0	68	0	0	0	0
Volume Right	0	0	28	0	0	0	0	290
cSH	1700	1700	1700	458	1700	1700	1700	939
Volume to Capacity	0.40	0.40	0.22	0.15	0.21	0.21	0.21	0.31
Queue Length 95th (ft)	0	0	0	13	0	0	0	33
Control Delay (s)	0.0	0.0	0.0	14.2	0.0	0.0	0.0	10.5
Lane LOS				B				B
Approach Delay (s)	0.0			0.9				10.5
Approach LOS				B				B
Intersection Summary								
Average Delay				1.3				
Intersection Capacity Utilization			54.0%		ICU Level of Service			A
Analysis Period (min)			15					

Existing+3PM Event 5-6PM

3: Auto Park Wy & I-15 SB Off Ramp

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↓	↓	↓
Volume (vph)	0	841	925	201	1039	0	0	0	0	286	0	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.2	5.0					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1681	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	914	1005	218	1129	0	0	0	0	311	0	142
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	64
Lane Group Flow (vph)	0	914	1005	218	1129	0	0	0	0	155	156	78
Turn Type		Perm	Prot							Split		custom
Protected Phases	2			1		6				4	4	
Permitted Phases			2									4 5
Actuated Green, G (s)		72.4	72.4	15.8	71.9					18.0	18.0	38.5
Effective Green, g (s)		72.4	72.4	15.8	71.9					18.0	18.0	34.3
Actuated g/C Ratio		0.60	0.60	0.13	0.60					0.15	0.15	0.29
Clearance Time (s)		5.0	5.0	4.2	5.0					4.6	4.6	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2135	955	452	2120					252	252	452
v/s Ratio Prot		0.26		c0.06	0.32					0.09	c0.09	
v/s Ratio Perm			c0.63									0.05
v/c Ratio		0.43	1.05	0.48	0.53					0.62	0.62	0.17
Uniform Delay, d1		12.7	23.8	48.3	14.2					47.8	47.8	32.2
Progression Factor		1.00	1.00	1.09	1.74					1.00	1.00	1.00
Incremental Delay, d2		0.6	43.9	0.7	0.9					10.7	10.9	0.8
Delay (s)		13.4	67.7	53.4	25.6					58.5	58.7	33.0
Level of Service		B	E	D	C					E	E	C
Approach Delay (s)		41.8			30.1			0.0			50.6	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Existing+3PM Event 5-6PM

4: Auto Park Wy & I-15 NB On Ramp

5/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑	↓	↓	↓
Volume (vph)	168	959	0	0	706	326	534	0	166	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.0		5.0	5.0	4.6	4.6	4.6			
Lane Util. Factor		0.97	0.95		0.95	1.00	0.95	0.95	1.00			
Frt		1.00	1.00		1.00	0.85	1.00	1.00	0.85			
Flt Protected		0.95	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3433	3539		3539	1583	1681	1681	1583			
Flt Permitted		0.95	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3433	3539		3539	1583	1681	1681	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	1042	0	0	767	354	580	0	180	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	165	0	0	67	0	0	0
Lane Group Flow (vph)	183	1042	0	0	767	189	290	290	113	0	0	0
Turn Type		Prot				Perm	Split		Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	13.8	82.1			64.1	64.1	28.3	28.3	28.3			
Effective Green, g (s)	13.8	82.1			64.1	64.1	28.3	28.3	28.3			
Actuated g/C Ratio	0.12	0.68			0.53	0.53	0.24	0.24	0.24			
Clearance Time (s)	4.2	5.0			5.0	5.0	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	395	2421			1890	846	396	396	373			
v/s Ratio Prot	0.05	c0.29			0.22		c0.17	0.17				
v/s Ratio Perm						0.12			0.07			
v/c Ratio	0.46	0.43			0.41	0.22	0.73	0.73	0.30			
Uniform Delay, d1	49.6	8.5			16.6	14.8	42.4	42.4	37.7			
Progression Factor	0.87	0.42			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.8	0.5			0.6	0.6	6.8	6.8	0.5			
Delay (s)	44.0	4.1			17.3	15.4	49.2	49.2	38.2			
Level of Service	D	A			B	B	D	D	D			
Approach Delay (s)		10.0			16.7		46.6		0.0			
Approach LOS		B			B		D		A			

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Existing+3PM Event 5-6PM

5: 9th Ave & La Terraza Bl

5/21/2013



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↕		↕	↕		↕	↕	↕	↕	↕
Volume (vph)	30	80	997	18	10	734	53	106	10	33	60	4
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
Lane Util. Factor	1.00	0.95			1.00	0.95		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.99		1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3530			1770	3503		1770	1863	1583	1770	1590
Flt Permitted	0.28	1.00			0.95	1.00		0.55	1.00	1.00	0.75	1.00
Satd. Flow (perm)	517	3530			1770	3503		1029	1863	1583	1398	1590
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	87	1084	20	11	798	58	115	11	36	65	4
RTOR Reduction (vph)	0	0	1	0	0	5	0	0	0	29	0	142
Lane Group Flow (vph)	0	120	1103	0	11	851	0	115	11	7	65	38
Turn Type	custom	Prot			Prot		Perm		Perm		Perm	
Protected Phases		7	4		3	8			2		2	6
Permitted Phases	7							2		2		6
Actuated Green, G (s)		14.4	39.1		0.9	25.6		12.5	12.5	12.5	12.5	12.5
Effective Green, g (s)		14.4	39.1		0.9	25.6		12.5	12.5	12.5	12.5	12.5
Actuated g/C Ratio		0.22	0.61		0.01	0.40		0.19	0.19	0.19	0.19	0.19
Clearance Time (s)		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
Lane Grp Cap (vph)		115	2140		25	1390		199	361	307	271	308
v/s Ratio Prot			0.31		0.01	0.24			0.01			0.02
v/s Ratio Perm	c0.23							c0.11		0.00	0.05	
w/c Ratio	1.04	0.52			0.44	0.61		0.58	0.03	0.02	0.24	0.12
Uniform Delay, d1	25.1	7.3			31.5	15.5		23.6	21.1	21.1	22.0	21.5
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	96.1	0.2			11.9	0.8		4.0	0.0	0.0	0.5	0.2
Delay (s)	121.1	7.5			43.4	16.3		27.6	21.1	21.1	22.4	21.7
Level of Service	F	A			D	B		C	C	C	C	C
Approach Delay (s)			18.6			16.6			25.7			21.9
Approach LOS			B			B			C			C

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing+3PM Event 5-6PM

5: 9th Ave & La Terraza Bl

5/21/2013



Movement	SBR
Lane Configurations	↕
Volume (vph)	162
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	176
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
w/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary	

Existing+6PM Event 5-6PM
1: Auto Park Wy & Shopping Dwy

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	5	771	29	509	440	15	25	16	584	104	22	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.95		0.97	0.95		1.00	1.00	0.88	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3520		3433	3522		1770	1863	2787	1770	1729	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3520		3433	3522		1354	1863	2787	1390	1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	838	32	553	478	16	27	17	635	113	24	22
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	465	0	16	0
Lane Group Flow (vph)	5	868	0	553	492	0	27	17	170	113	30	0
Turn Type	Prot			Prot		Perm	Perm	Perm		Perm		
Protected Phases	1	6		5	2		8			4		
Permitted Phases							8		8	4		
Actuated Green, G (s)	0.8	39.1		19.9	58.2		27.0	27.0	27.0	27.0	27.0	
Effective Green, g (s)	0.8	39.1		19.9	58.2		27.0	27.0	27.0	27.0	27.0	
Actuated g/C Ratio	0.01	0.39		0.20	0.58		0.27	0.27	0.27	0.27	0.27	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	14	1363		676	2030		362	498	745	372	462	
v/s Ratio Prot	0.00	0.025		0.16	0.14		0.01			0.02		
v/s Ratio Perm							0.02		0.06	0.08		
v/c Ratio	0.36	0.64		0.82	0.24		0.07	0.03	0.23	0.30	0.06	
Uniform Delay, d1	49.8	25.2		38.8	10.5		27.7	27.4	28.9	29.5	27.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.9	2.3		7.6	0.3		0.4	0.1	0.7	2.1	0.3	
Delay (s)	64.8	27.5		46.4	10.8		28.1	27.5	29.6	31.6	27.9	
Level of Service	E	C		D	B		C	C	C	C	C	
Approach Delay (s)		27.7			29.6			29.5			30.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing+6PM Event 5-6PM
2: Auto Park Wy & Lexus Dwy

5/21/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕	↕	↔	↕	↔	↕
Volume (veh/h)	1563	56	235	958	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1699	61	255	1041	0	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	420			380		
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			1760		2587	597
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1322		2282	0
IC, single (s)			4.1		6.8	6.9
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			43		100	92
cM capacity (veh/h)			447		12	935

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	680	680	401	255	347	347	347	71
Volume Left	0	0	0	255	0	0	0	0
Volume Right	0	0	61	0	0	0	0	71
cSH	1700	1700	1700	447	1700	1700	1700	935
Volume to Capacity	0.40	0.40	0.24	0.57	0.20	0.20	0.20	0.08
Queue Length 95th (ft)	0	0	0	87	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	23.2	0.0	0.0	0.0	9.2
Lane LOS				C				A
Approach Delay (s)	0.0			4.6				9.2
Approach LOS				A				A

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

Existing+6PM Event 5-6PM

3: Auto Park Wy & I-15 SB Off Ramp

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↓	↓	↓
Volume (vph)	0	750	814	201	1140	0	0	0	0	286	0	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	4.2	5.0					4.6	4.6	4.6
Lane Util. Factor		0.95	1.00	0.97	0.95					0.95	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		3539	1583	3433	3539					1681	1681	1583
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		3539	1583	3433	3539					1681	1681	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	815	885	218	1239	0	0	0	0	311	0	187
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	49
Lane Group Flow (vph)	0	815	885	218	1239	0	0	0	0	155	156	138
Turn Type		Perm	Prot							Split	custom	
Protected Phases	2		1	6						4	4	
Permitted Phases		2										4 5
Actuated Green, G (s)	72.4	72.4	15.8	71.9						18.0	18.0	38.5
Effective Green, g (s)	72.4	72.4	15.8	71.9						18.0	18.0	34.3
Actuated g/C Ratio	0.60	0.60	0.13	0.60						0.15	0.15	0.29
Clearance Time (s)	5.0	5.0	4.2	5.0						4.6	4.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0						3.0	3.0	
Lane Grp Cap (vph)	2135	955	452	2120						252	252	452
v/s Ratio Prot		0.23		c0.06	0.35					0.09	c0.09	
v/s Ratio Perm			c0.56									0.09
w/c Ratio	0.38	0.93	0.48	0.58						0.62	0.62	0.30
Uniform Delay, d1	12.3	21.4	48.3	14.8						47.8	47.8	33.5
Progression Factor	1.00	1.00	1.12	1.73						1.00	1.00	1.00
Incremental Delay, d2	0.5	16.0	0.7	1.0						10.7	10.9	1.7
Delay (s)	12.8	37.4	54.7	26.7						58.5	58.7	35.3
Level of Service	B	D	D	C						E	E	D
Approach Delay (s)	25.6			30.9			0.0				49.8	
Approach LOS	C			C			A				D	

Intersection Summary			
HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Existing+6PM Event 5-6PM

4: Auto Park Wy & I-15 NB On Ramp

5/21/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑	↑	↑	↑	↓	↓	↓
Volume (vph)	127	909	0	0	696	326	645	0	166	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.2	5.0		5.0	5.0	4.6	4.6	4.6			
Lane Util. Factor		0.97	0.95		0.95	1.00	0.95	0.95	1.00			
Frt		1.00	1.00		1.00	0.85	1.00	1.00	0.85			
Flt Protected		0.95	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)		3433	3539		3539	1583	1681	1681	1583			
Flt Permitted		0.95	1.00		1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)		3433	3539		3539	1583	1681	1681	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	138	988	0	0	757	354	701	0	180	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	179	0	0	73	0	0	0
Lane Group Flow (vph)	138	988	0	0	757	175	350	351	107	0	0	0
Turn Type		Prot				Perm	Split	Perm				
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	13.8	77.2			59.2	59.2	33.2	33.2	33.2			
Effective Green, g (s)	13.8	77.2			59.2	59.2	33.2	33.2	33.2			
Actuated g/C Ratio	0.12	0.64			0.49	0.49	0.28	0.28	0.28			
Clearance Time (s)	4.2	5.0			5.0	5.0	4.6	4.6	4.6			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	395	2277			1746	781	465	465	438			
v/s Ratio Prot	0.04	c0.28			0.21		0.21	c0.21				
v/s Ratio Perm						0.11			0.07			
w/c Ratio	0.35	0.43			0.43	0.22	0.75	0.75	0.24			
Uniform Delay, d1	49.0	10.6			19.6	17.3	39.6	39.7	33.7			
Progression Factor	0.89	0.48			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.5	0.6			0.8	0.7	6.8	6.8	0.3			
Delay (s)	43.9	5.7			20.4	18.0	46.4	46.5	34.0			
Level of Service	D	A			C	B	D	D	C			
Approach Delay (s)		10.4			19.6		43.9		0.0			
Approach LOS		B			B		D		A			

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Existing+6PM Event 5-6PM

5: 9th Ave & La Terraza Bl

5/21/2013



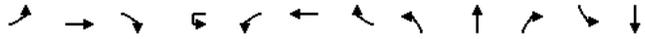
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔
Volume (vph)	80	977	18	10	754	53	106	10	33	60	4	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3529		1770	3504		1770	1863	1583	1770	1590	
Flt Permitted	0.95	1.00		0.95	1.00		0.60	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	1770	3529		1770	3504		1120	1863	1583	1398	1590	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1062	20	11	820	58	115	11	36	65	4	176
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	28	0	137	0
Lane Group Flow (vph)	87	1081	0	11	873	0	115	11	8	65	43	0
Turn Type	Prot		Prot		Perm		Perm		Perm			
Protected Phases	7	4		3	8			2		2		6
Permitted Phases							2		2		6	
Actuated Green, G (s)	6.8	30.6		0.8	24.6		12.5	12.5	12.5	12.5	12.5	
Effective Green, g (s)	6.8	30.6		0.8	24.6		12.5	12.5	12.5	12.5	12.5	
Actuated g/C Ratio	0.12	0.55		0.01	0.44		0.22	0.22	0.22	0.22	0.22	
Clearance Time (s)	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	
Lane Grp Cap (vph)	215	1932		25	1542		250	417	354	313	356	
v/s Ratio Prot	c0.05	c0.31		0.01	0.25			0.01			0.03	
v/s Ratio Perm							c0.10		0.01	0.05		
v/c Ratio	0.40	0.56		0.44	0.57		0.46	0.03	0.02	0.21	0.12	
Uniform Delay, d1	22.7	8.3		27.3	11.7		18.8	16.9	16.9	17.7	17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.4		11.9	0.5		1.3	0.0	0.0	0.3	0.2	
Delay (s)	23.9	8.6		39.2	12.2		20.1	17.0	17.0	18.0	17.5	
Level of Service	C A			D B			C B		B	B	B	
Approach Delay (s)	9.7			12.5			19.2			17.6		
Approach LOS	A			B			B			B		

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Auto Park Wy & Shopping Dwy

5/21/2013



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↕	↔		↔	↕	↔	↔	↕	↔	↔	↕
Volume (vph)	8	599	22	31	327	443	16	19	13	482	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95			0.97	0.95		1.00	1.00	0.88	1.00	1.00
Frt	1.00	0.99			1.00	0.99		1.00	1.00	0.85	1.00	0.91
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3520			3433	3521		1770	1863	2787	1770	1690
Flt Permitted	0.95	1.00			0.95	1.00		0.73	1.00	1.00	0.75	1.00
Satd. Flow (perm)	1770	3520			3433	3521		1359	1863	2787	1394	1690
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	651	24	34	355	482	17	21	14	524	125	16
RTOR Reduction (vph)	0	2	0	0	0	2	0	0	0	362	0	18
Lane Group Flow (vph)	9	673	0	0	389	497	0	21	14	162	125	24
Turn Type	Prot			Prot	Prot		Perm		Perm		Perm	
Protected Phases	1	6		5	5	2		8		8		4
Permitted Phases							8		8		4	
Actuated Green, G (s)	0.8	38.2			15.8	53.2		31.0	31.0	31.0	31.0	31.0
Effective Green, g (s)	0.8	38.2			15.8	53.2		31.0	31.0	31.0	31.0	31.0
Actuated g/C Ratio	0.01	0.38			0.16	0.53		0.31	0.31	0.31	0.31	0.31
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	14	1345			542	1873		421	578	864	432	524
v/s Ratio Prot	0.01	c0.19			c0.11	0.14		0.02	0.01	0.06	c0.09	0.01
v/s Ratio Perm							0.02	0.05	0.02	0.19	0.29	0.05
w/c Ratio	0.64	0.50			0.72	0.27		0.05	0.02	0.19	0.29	0.05
Uniform Delay, d1	49.5	23.6			40.0	12.7		24.2	24.0	25.3	26.2	24.1
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	71.2	1.3			4.5	0.3		0.2	0.1	0.5	1.7	0.2
Delay (s)	120.7	24.9			44.5	13.1		24.4	24.1	25.8	27.8	24.3
Level of Service	F	C			D	B		C	C	C	C	C
Approach Delay (s)		26.2				26.9			25.7			27.0
Approach LOS		C				C			C			C

Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Auto Park Wy & Shopping Dwy

5/21/2013



Movement	SBR
Lane Configurations	↔
Volume (vph)	24
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	26
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
w/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

2: Auto Park Wy & Lexus Dwy

5/21/2013



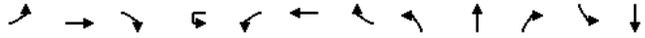
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑	↑↑↑		↑
Volume (veh/h)	1189	101	219	807	0	73
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1292	110	238	877	0	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	420			380		
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			1402		2116	486
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1125		1902	126
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		100	90
cM capacity (veh/h)			566		32	827

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	517	517	368	238	292	292	292	79
Volume Left	0	0	0	238	0	0	0	0
Volume Right	0	0	110	0	0	0	0	79
cSH	1700	1700	1700	566	1700	1700	1700	827
Volume to Capacity	0.30	0.30	0.22	0.42	0.17	0.17	0.17	0.10
Queue Length 95th (ft)	0	0	0	52	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	15.9	0.0	0.0	0.0	9.8
Lane LOS				C				A
Approach Delay (s)	0.0			3.4				9.8
Approach LOS								A

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Existing+6PM Event 5-6PM w/ Bypass
1: Auto Park Wy & Shopping Dwy

5/21/2013



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔	↕			↕	↕		↔	↕	↕	↔	↕
Volume (vph)	5	771	29	31	509	440	15	25	16	584	104	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95			0.97	0.95		1.00	1.00	0.88	1.00	1.00
Frt	1.00	0.99			1.00	1.00		1.00	1.00	0.85	1.00	0.93
Flt Protected	0.95	1.00			0.95	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3520			3433	3522		1770	1863	2787	1770	1729
Flt Permitted	0.95	1.00			0.95	1.00		0.73	1.00	1.00	0.75	1.00
Satd. Flow (perm)	1770	3520			3433	3522		1354	1863	2787	1390	1729
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	838	32	34	553	478	16	27	17	635	113	24
RTOR Reduction (vph)	0	2	0	0	0	2	0	0	0	466	0	16
Lane Group Flow (vph)	5	868	0	0	587	492	0	27	17	169	113	30
Turn Type	Prot			Prot	Prot		Perm		Perm	Perm		Perm
Protected Phases	1	6		5	5	2		8				4
Permitted Phases							8		8		4	
Actuated Green, G (s)	0.8	39.1			20.6	58.9		27.0	27.0	27.0	27.0	27.0
Effective Green, g (s)	0.8	39.1			20.6	58.9		27.0	27.0	27.0	27.0	27.0
Actuated g/C Ratio	0.01	0.38			0.20	0.58		0.27	0.27	0.27	0.27	0.27
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	14	1353			695	2040		359	495	740	369	459
v/s Ratio Prot	0.00	c0.25			c0.17	0.14			0.01			0.02
v/s Ratio Perm							0.02		0.06	c0.08		
w/c Ratio	0.36	0.64			0.84	0.24		0.08	0.03	0.23	0.31	0.07
Uniform Delay, d1	50.2	25.6			39.0	10.5		28.0	27.7	29.2	29.9	27.9
Progression Factor	1.00	1.00			1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.9	2.3			9.2	0.3		0.4	0.1	0.7	2.1	0.3
Delay (s)	65.1	27.9			48.3	10.7		28.4	27.8	29.9	32.0	28.2
Level of Service	E	C			D	B		C	C	C	C	C
Approach Delay (s)		28.1				31.1			29.8			30.9
Approach LOS		C				C			C			C

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	101.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Existing+6PM Event 5-6PM w/ Bypass
1: Auto Park Wy & Shopping Dwy

5/21/2013



Movement	SBR
Lane Configurations	↕
Volume (vph)	20
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	22
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
w/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary	

Existing+6PM Event 5-6PM w/ Bypass

2: Auto Park Wy & Lexus Dwy

5/21/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↓	↑↑↑		↑
Volume (veh/h)	1563	87	204	989	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1699	95	222	1075	0	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	420			380		
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			1793		2548	614
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1356		2233	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			49		100	92
cM capacity (veh/h)			433		15	934

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	680	680	434	222	358	358	358	71
Volume Left	0	0	0	222	0	0	0	0
Volume Right	0	0	95	0	0	0	0	71
cSH	1700	1700	1700	433	1700	1700	1700	934
Volume to Capacity	0.40	0.40	0.26	0.51	0.21	0.21	0.21	0.08
Queue Length 95th (ft)	0	0	0	71	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	21.7	0.0	0.0	0.0	9.2
Lane LOS				C				A
Approach Delay (s)	0.0			3.7				9.2
Approach LOS								A

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization	50.1%		ICU Level of Service A
Analysis Period (min)	15		