Appendix D: Transportation Impact Analysis

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engineers

TRANSPORTATION IMPACT ANALYSIS

SUNROAD RESTAURANTS

Vista, California
June 10, 2019

LLG Ref. 3-17-2819

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TRANSPORTATION IMPACT ANALYSIS

SUNROAD RESTAURANTS

Vista, California
June 10, 2019

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has prepared this transportation impact study to determine and evaluate the potential traffic impacts to the local roadway system due to the proposed Sunroad Restaurants project ("Project"). The Project site is located in the City of Vista, on the northeast corner of Hacienda Drive and Vista Village Drive.

The following items are included in this traffic study:

- Project Description
- Existing Conditions Discussion
- Analysis Approach and Methodology
- Significance Criteria
- Trip Generation/Distribution/Assignment
- Cumulative Projects Discussion
- Near-Term Analysis
- Horizon Year Analysis
- Access and On-Site Circulation Assessment
- Significance of Impacts and Mitigation Measures

2.0 PROJECT DESCRIPTION

The proposed Project plans to develop 13,740 square feet (SF) of fast-food restaurants in four (4) separate buildings, 5,580 SF of retail, and a 4,200 SF car wash on a vacant lot. The proposed Project is located at the northeast corner of the intersection of Vista Village Drive and Hacienda Drive. Access to the Project will be provided via two proposed driveways along Hacienda Drive. **A dedicated westbound right-turn lane is proposed on Hacienda Drive at Vista Village Road as part of the Project.**

Figure 2–1 depicts the vicinity map, and ***Figure 2–2*** is the Project area map. ***Figure 2–3*** depicts the conceptual site plan.

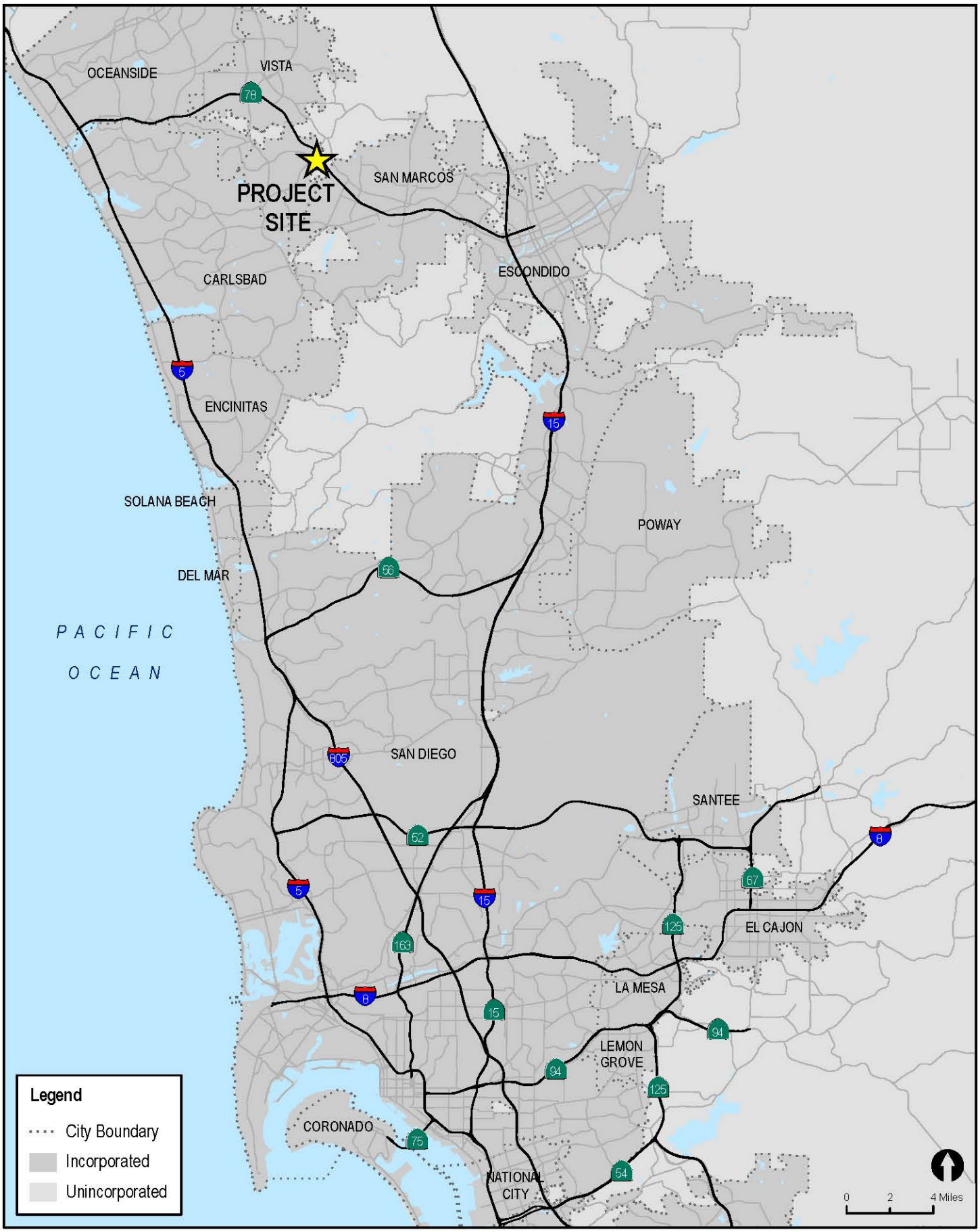

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Figure 2-1

Vicinity Map

Sunroad Restaurants

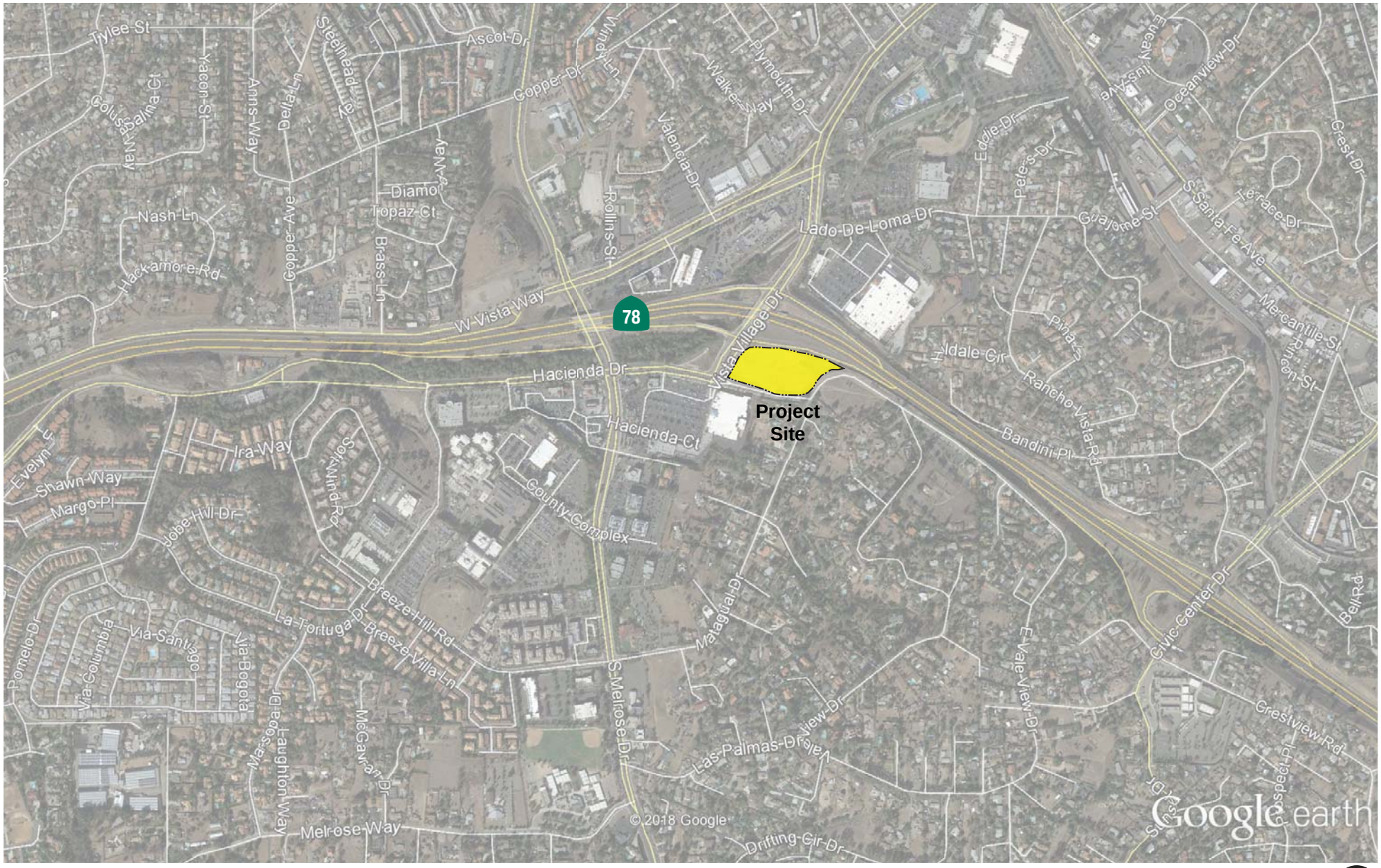

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Figure 2-2

Project Area Map

Sunroad Restaurants

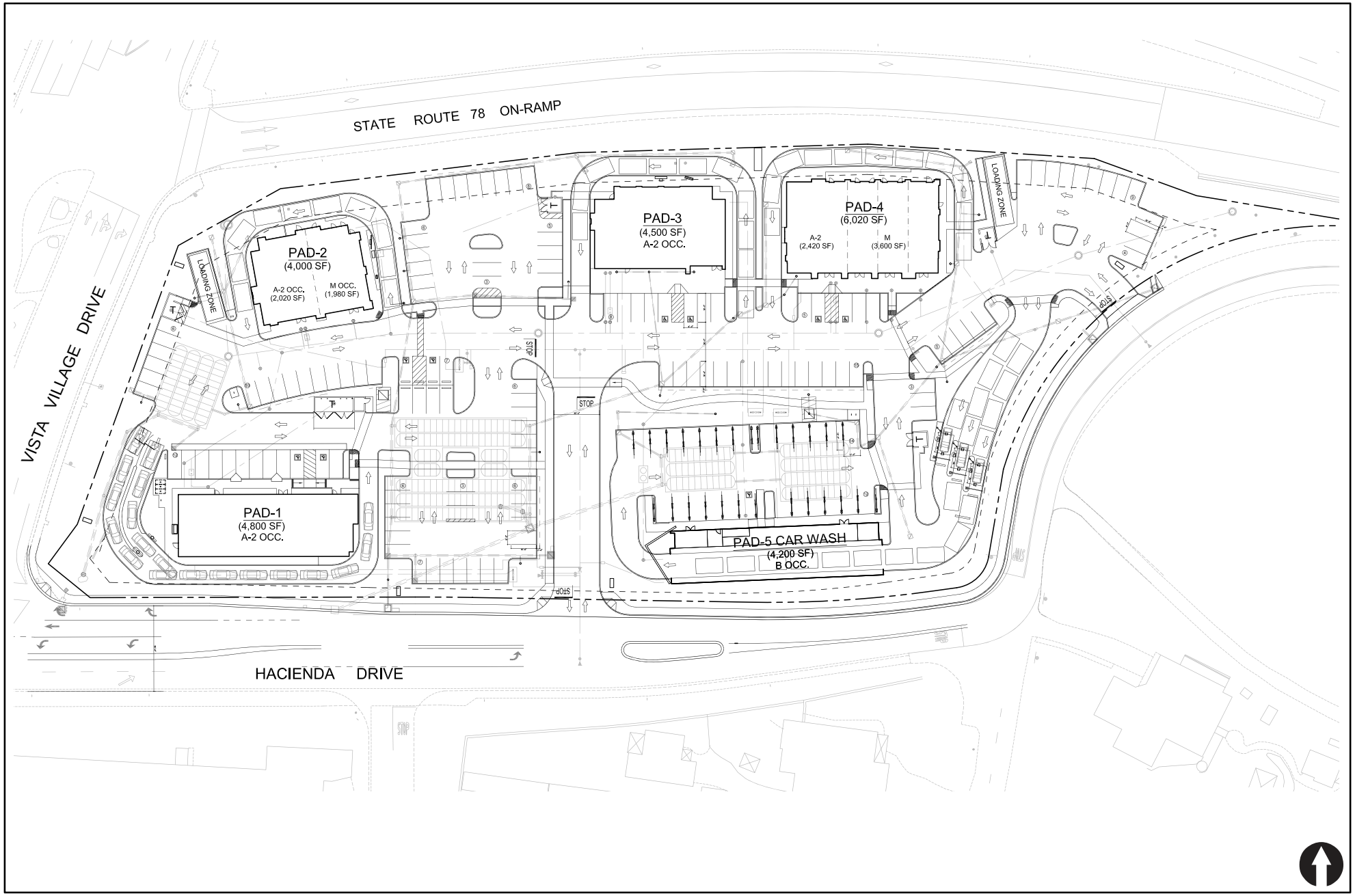

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Figure 2-3

Site Plan

SUNROAD VISTA

3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed project requires an understanding of the existing transportation system within the project area. ***Figure 3–1*** shows the Existing conditions diagram, including intersection control and lane configurations.

3.1 Study Area

The Project study area was determined using the SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region. Intersections and segments where the proposed Project was estimated to add 50 or more peak-hour trips in either direction to the existing roadway traffic were included in the Project study area. The locations analyzed are listed below:

Intersections

1. N. Melrose Drive/ W. Vista Way
2. S. Melrose Drive/ SR 78 Eastbound Off-Ramp
3. S. Melrose Drive/ Hacienda Drive
4. Vista Village Drive/ Hacienda Drive
5. Vista Village Drive/ SR 78 Eastbound Ramps
6. Vista Village Drive/ SR 78 Westbound Ramps
7. Vista Village Drive/ Lado De Loma Drive
8. Vista Village Drive/ W. Vista Way
9. Hacienda Drive/ Proposed Main Project Access (Does not exist)
10. Hacienda Drive/ Proposed Secondary Project Access (Does not exist)

3.2 Existing Street Network

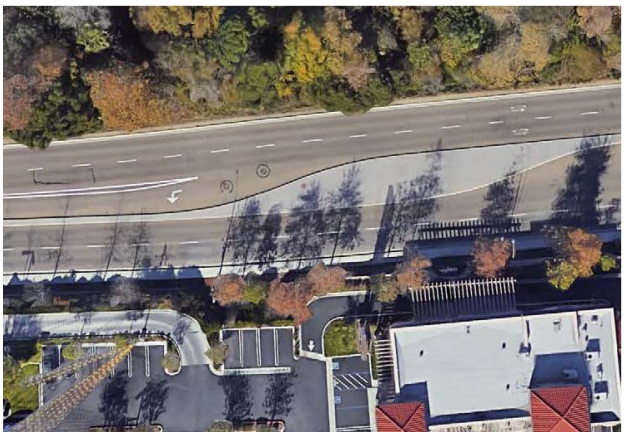
The principal roadways in the Project study area are described briefly below. Roadway classification was determined from a review of the *City of Vista Circulation Element* and information gathered from field observations.

Melrose Drive is classified as a 6-Lane Urban Major on the City of Vista Circulation Element from the northern city limits to Sunset Drive and as a 6-Lane Prime Arterial from Sunset Drive to the southern city limits. North of W. Vista Way, N. Melrose Drive is a six-lane road with a center two-way-left-turn-lane (TWLTL). South of Hacienda Drive, up to south of Hacienda Court, S. Melrose Drive is currently built as a six-lane divided roadway. Further south up to Breeze Hill Road, S. Melrose Drive is built as a five-lane divided roadway (three lanes southbound and two lanes northbound). A Class II bicycle lane is provided in the northbound direction. In the southbound direction there is a mix of bicycle lanes and sharrows with associated bike route signage provided. The posted speed limit is 40 mph. On-street parking is prohibited.

Hacienda Drive is classified as a 4-Lane Collector on the City of Vista Circulation Element from the western city limits to Vista Village Drive and as a Semi-Rural Street east of Vista Village Drive along

the Project frontage. In the Project vicinity, it is currently built as a four-lane divided roadway from La Tortuga Drive to Vista Village Drive (partially divided by a TWLWL and mostly by a raised median), and as a two-lane undivided roadway east of Vista Village Drive. The posted speed limit is 40 mph west of S. Melrose Drive and 30 mph east of S. Melrose Drive. No on-street parking or on-street bicycle facilities are provided on Hacienda Drive in the Project vicinity (east of La Tortuga Drive).

The photo to the below left depicts Hacienda Drive, west of S. Melrose Drive. As seen in the photo, this section of Hacienda Drive is a four-lane road with a raised median. The photo below right depicts Hacienda Drive along the project frontage. As seen in the photo, this section of Hacienda Drive is a two-lane undivided road.



Vista Village Drive is classified as a 6-lane Urban Major on the City of Vista Circulation Element. It is currently constructed as a six-lane divided roadway with a posted speed limit of 40 mph. Bike lanes and bus stops are provided and parking is not permitted.

The photo below left depicts Vista Village Drive between SR 78 eastbound ramps and Hacienda Drive. As seen in the photo, there are three lanes northbound and four lanes southbound with a raised median. The curb lane in each direction is a right-turn lane but is provided for the entire length of the segment. The photo below right depicts Vista Village Drive between Lado de Loma Drive and the SR 78 westbound ramps.

SR 78 is a 6-lane freeway with three lanes in each direction. West of Vista Village Drive, an auxiliary lane is provided in both directions.

3.3 Existing Traffic Volumes

Peak hour turning movement counts at the study area intersections, including bicycle and pedestrian counts, were also conducted in October 2017 between the hours of 7:00-9:00 AM and 4:00-6:00 PM. Midday peak hour counts were conducted during the last week of September 2018. Counts were conducted while schools were in session.

In addition, the City provided AM and PM peak hour intersection turning movement counts at the N. Melrose Drive/ W. Vista Way and S. Melrose Drive/ Hacienda Drive intersections from April 7, 2018 which are used in the analysis.

Figure 3–2 depicts the Existing traffic volumes. ***Figure 3–3*** depicts the Existing Midday traffic volumes. ***Appendix A*** contains the manual count sheets.

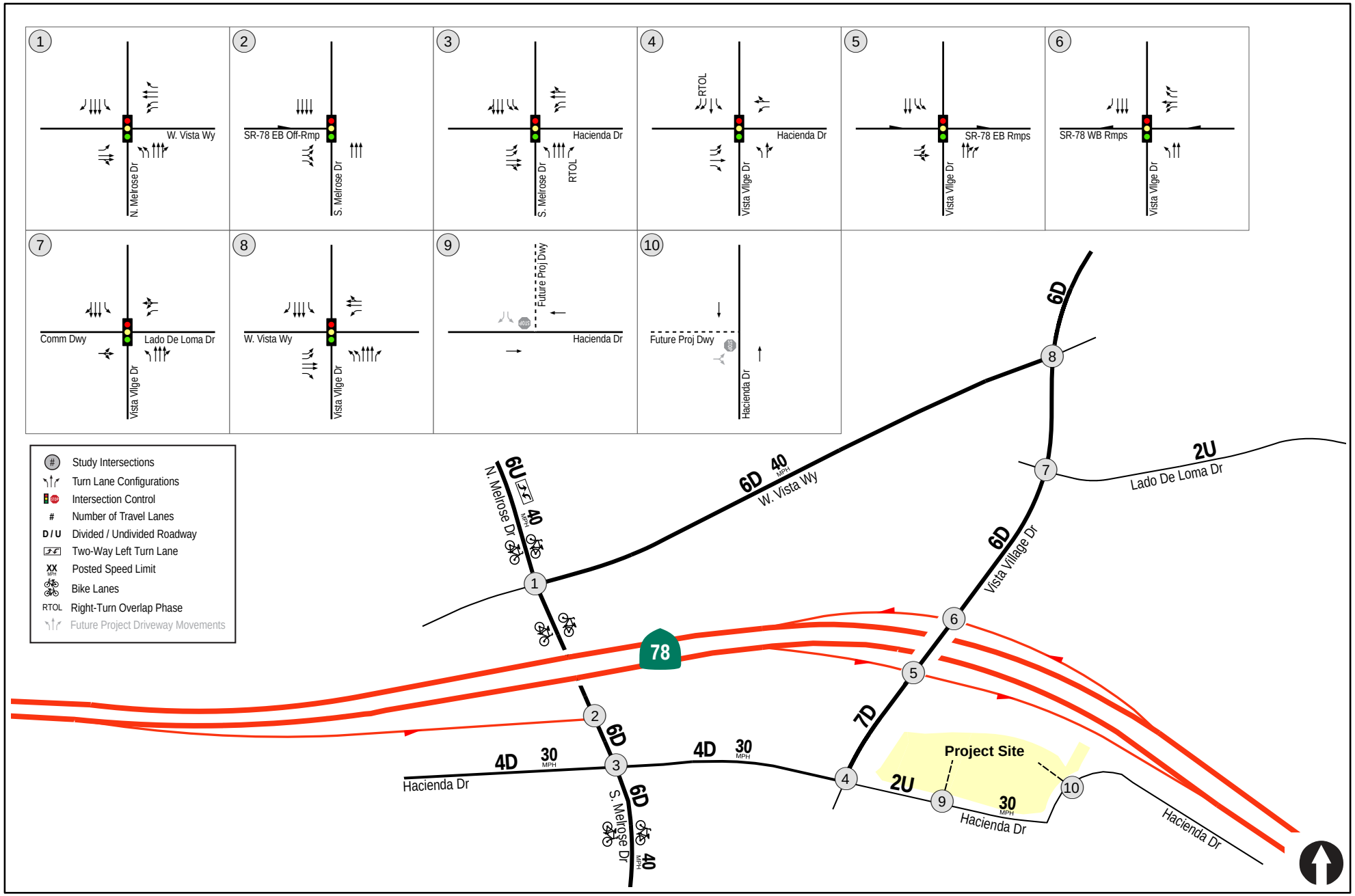


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Figure 3-1

Existing Conditions Diagram

SUNROAD VISTA

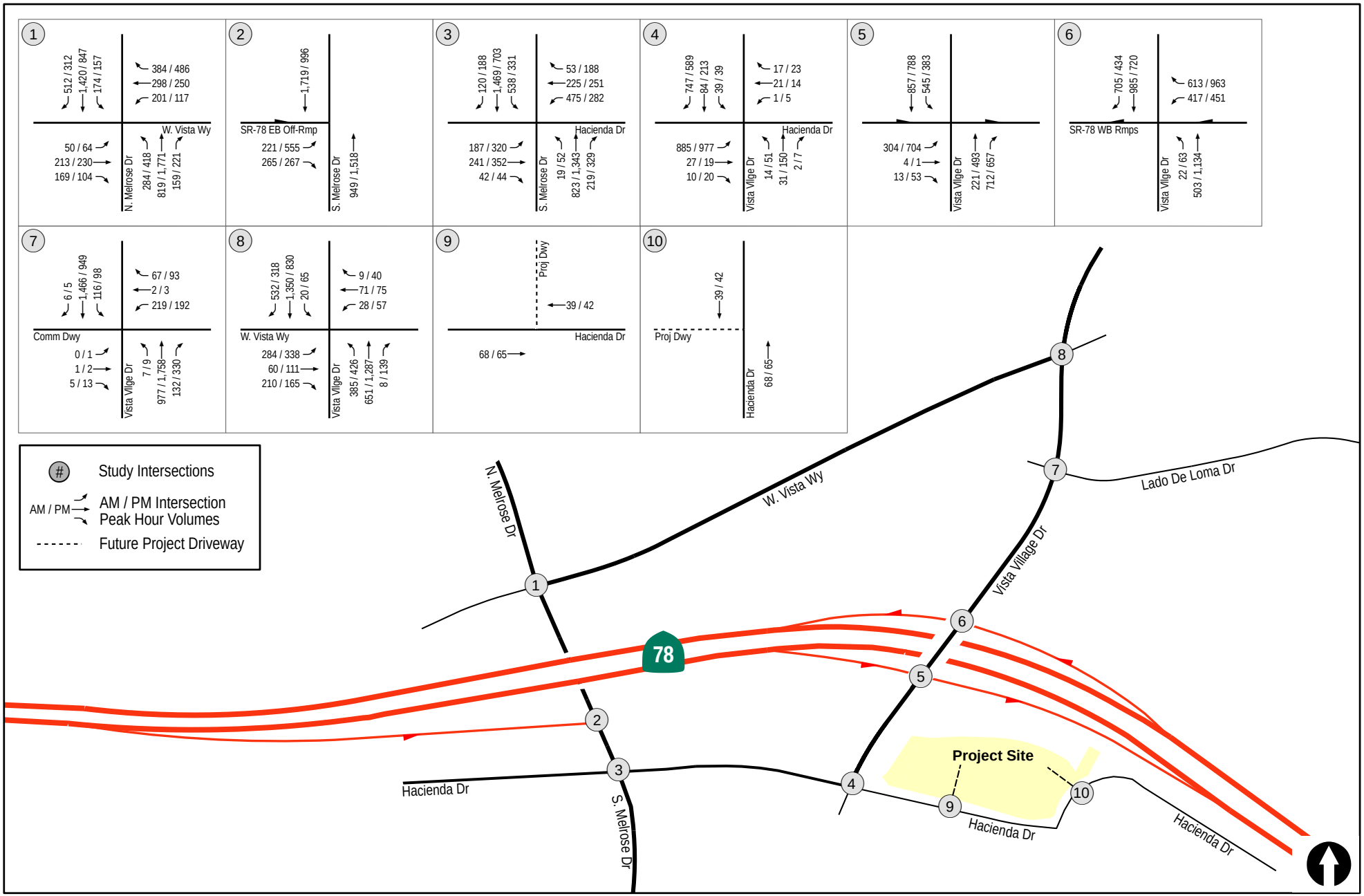

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Figure 3-2

Existing Traffic Volumes

SUNROAD VISTA

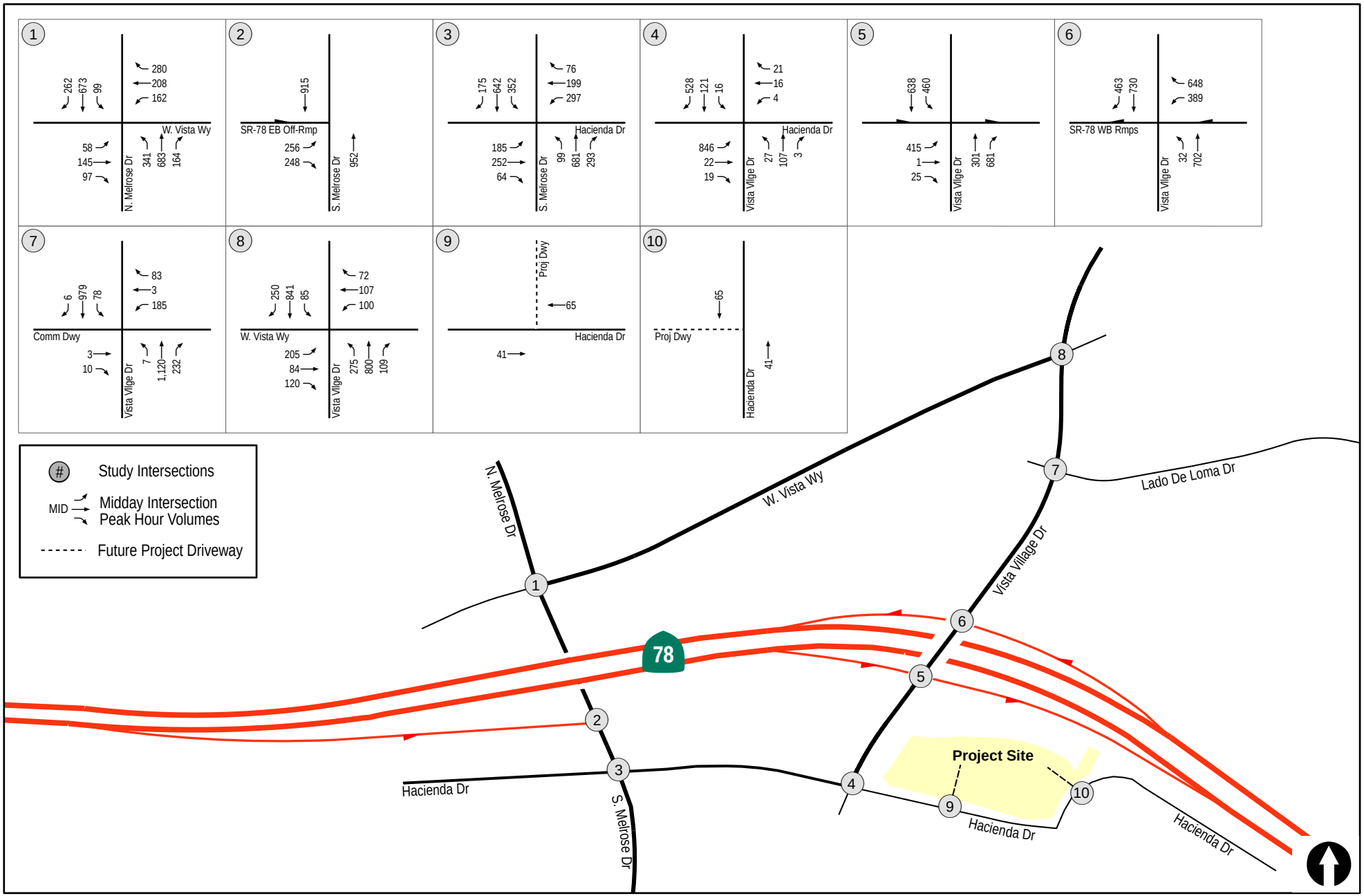

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Figure 3-3

Existing Midday Traffic Volumes

SUNROAD VISTA

4.0 ANALYSIS APPROACH AND METHODOLOGY

4.1 Analysis Approach

The following scenarios were analyzed in the traffic report:

- Existing
- Existing + Project
- Existing + Cumulative Projects
- Existing + Cumulative Projects + Project
- Year 2030 without Project
- Year 2030 with Project

Since this project consists mainly of restaurants, a considerable amount of traffic is generated during the midday, during the lunch hour. Therefore, in addition to AM and PM commuter peak hours, a Midday peak analysis is included. A daily segment analysis was also conducted.

4.2 Analysis Methodology

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

There are various methodologies used to analyze signalized intersections, unsignalized intersections, and street segments. The measure of effectiveness for intersection and segment operations is level of service (LOS), which denotes the operating conditions which occur at a given intersection or on a given roadway segment under various traffic volume loads.

LOS 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 a roadway segment or an intersection. Levels of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments. In the Highway Capacity Manual (HCM), 6th Edition, Level of Service for signalized intersections is defined in terms of delay. The level of service analysis results in seconds of delay expressed in terms of letters A through F. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

Table 4–1 depicts the intersection LOS and corresponding delay ranges, which are based on overall intersection delay (signalized intersections) and the average control delay for any particular minor movement (unsignalized intersections), respectively.

4.2.1 *Signalized Intersections*

For signalized intersections, level of service criteria is stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Following is a brief description of the Levels of Service A through F.

Level of service A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of service B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of Average delay.

Level of service C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level of service D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher volume (demand) / capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are frequent.

TABLE 4–1
INTERSECTION LOS & DELAY RANGES

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	**Unsignalized Intersections**
A	≤ 10.0	≤ 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	≥ 80.1	≥ 50.1

Source: Highway Capacity Manual 6th Edition.

Level of service E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level of service F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Traffic signal timing plans obtained from the City and Caltrans were used in the intersection analysis. Copies of the signal timing plans obtained from the City are included in *Appendix A*.

4.2.2 *Unsignalized Intersections*

For unsignalized intersections, level of service is determined by the computed or measured control delay and is defined for each minor movement: level of service is not defined for the intersection as a whole. Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits. LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

4.2.3 *Freeway Mainline Operations*

Freeway segments were analyzed for all analysis scenarios. Freeway segment LOS is based on the volume to capacity ratio on the freeway. The analysis of freeway segment LOS is based on the procedure developed by CALTRANS District 11 based on methods described in the *Highway Capacity Manual*. The procedure involves comparing the peak hour volume of the mainline segment to its theoretical capacity (V/C).

Table 4–2 summarizes the Freeway Segment level of service definitions.

The resulting V/C is then compared to accepted ranges of V/C values corresponding to the various Levels of Service for each facility classification, as shown in *Table 4–4*. The corresponding Level of Service represents an approximation of existing or anticipated future freeway operating conditions in the peak direction of travel during the peak hour.

The Year 2017 Freeway Volumes obtained from the Caltrans Traffic Census website and the most current (2016) K& D and Truck Factors are included in *Appendix A*.

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

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

The procedure for calculating freeway LOS involves the estimation of volume to capacity (V/C) ratio using the following equation:

$$V/C = \frac{\text{(Daily Volume * Peak Hour Percent * Directional Factor * Truck Factor)}}{\text{Capacity}}$$

Notes:

a. Daily Volume = Annual Average Daily Traffic (AADT)
b. Peak Hour Percent = Percentage of ADT occurring during the peak hour.
c. Directional Factor = Percentage of peak hour traffic occurring in peak direction.
d. Truck Factor = Truck/terrain factor to represent influence of heavy vehicles & grades.
e. Capacity = 2,000 vehicles/lane/hour/lane for mainline, and 1,200 for auxiliary lanes.

4.2.4 *Metered Freeway Ramps*

A ramp meter analysis was conducted at the following metered On-Ramps to SR 78 since the Project is estimated to add more than 20 peak hour trips.

- Vista Village Drive to EB SR 78
- Vista Village Drive to WB SR 78

ANALYSIS METHODOLOGY

The ramp meters were analyzed using the Fixed Rate Method. With the Fixed Rate Method, using the average flow rate during the peak hour, the total discharge and delay (in minutes) are calculated and the corresponding queue lengths are calculated.

The metering information was obtained from Caltrans for the ramp listed above and is included in *Appendix A*.

5.0 SIGNIFICANCE CRITERIA

5.1 City of Vista

The Circulation Element of the Vista General Plan 2030 Update (December 2011, page 3-14) states, "the City has established LOS D as the threshold for acceptable operating conditions in designated areas. Intersections and roadway segments operating at LOS D or better (LOS A, B, or C) are considered to operate at acceptable levels of service." Roadway segment capacity and LOS standards are generally used as long range planning guidelines to determine the functional classification of roadways. The actual capacity of a roadway facility varies according to its physical attributes. Typically, however, the performance and LOS of a roadway segment is heavily influenced by the ability of an intersection to accommodate peak hour volumes. Within Vista and the San Diego region as a whole, intersection performance rather than roadway segment performance is considered a better indicator of poor traffic operations. Therefore, it should be used as the basis for traffic impact analyses and recommendations for corrective mitigation measures.

A project is considered to have a significant impact on the operation of an intersection when one of the following occurs:

- THE ADDITION OF PROJECT TRAFFIC RESULTS IN A SERVICE DROP FROM LOS D OR BETTER TO LOS E OR F.
  Under this condition, the project applicant would be responsible for direct project impact mitigation necessary to restore the intersection to LOS D conditions or better.

- WHEN AN INTERSECTION IS OPERATING AT LOS E OR F UNDER THE NO-PROJECT SCENARIO AND THE PROJECT ADDS MORE THAN AN ADDITIONAL TWO SECONDS OF AVERAGE VEHICLE DELAY.
  Under this condition, the project applicant would be responsible for direct project impact mitigation necessary to restore the intersection LOS to pre-development conditions or better.

- IN THE LONGER-RANGE CUMULATIVE CONDITION, IF THE ADDITION OF PROJECT TRAFFIC RESULTS IN A SERVICE DROP FROM LOS D OR BETTER TO LOS E OR F, OR IF AN INTERSECTION IS OPERATING AT LOS E OR F AND THE PROJECT CONTRIBUTES TO THE AVERAGE VEHICLE DELAY (REGARDLESS OF TIME), THE PROJECT IS DETERMINED TO HAVE A CUMULATIVELY SIGNIFICANT IMPACT.
  Under this condition, the project applicant would be responsible for mitigating the intersection LOS to pre-development conditions or better. Identified cumulative transportation related impacts can be mitigated by participation in the City of Vista's Impact fees for Arterial Streets and Traffic Signals program.

5.2 Caltrans

A project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a defined threshold. The defined thresholds shown in ***Table 5–1*** below for freeway segments, roadway segments, intersections, and ramp meter facilities are based on published San Diego Traffic Engineers' Council (SANTEC) guidelines. If the project exceeds the thresholds in *Table 5–1*, then the project may be considered to have a significant project impact. A feasible mitigation measure will need to be identified to return the impact within the thresholds (pre-project + allowable increase) or the impact will be considered significant and unmitigated.

TABLE 5–1
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

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

Footnotes:

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

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

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

General Notes:

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

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Levels of Service

Signal timing plans obtained from the City of Vista and Caltrans were used to analyze the intersections in the City of Vista and Caltrans, respectively. ***Table 6–1*** shows the peak hour intersection analyses for the Existing scenario. As seen in *Table 6–1*, all study area intersections are calculated to currently operate at LOS D or better except for the following:

- Intersection #1. N. Melrose Drive / Vista Way – LOS E (PM peak hour)
- Intersection #3. S. Melrose Drive / Hacienda Drive – LOS F (AM peak hour) and LOS E midday and PM peak hours)
- Intersection #4. Vista Village Drive / Hacienda Drive – LOS E (AM, Midday and PM peak hours)

The Existing peak hour intersection analysis worksheets are included in ***Appendix B***.

6.2 Freeway Mainline Analysis

Table 6-2 summarizes the Existing freeway mainline operations. As shown in *Table 6-2*, the SR 78 freeway segment between Vista Village Drive and Melrose Drive is calculated to operate at LOS E during the AM and PM peak hours.

6.3 Ramp Meter Analysis

Table 6-3 summarizes the Existing ramp meter operations. It may be noted that the calculations shown in the table are per lane. It is assumed that 10% of the total ramp volumes uses the High Occupancy Vehicle (HOV) lane (if there is one on the ramp). The remaining (90%) of the traffic is divided by the number of Single Occupancy Vehicle (SOV) lanes on the On-Ramp.

As shown in *Table 6–3*, using the average discharge rates obtained from the California Department of Transportation (Caltrans), during the AM and PM peak hours, the delays are minimal since the volume demand is less than the meter rate.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay [a]	LOS [b]
1. N. Melrose Dr / Vista Way	Signal	AM	45.6	D
		Midday	33.1	C
		PM	52.4	D
2. S. Melrose Dr / SR-78 EB Off-Ramp	Signal	AM	8.3	A
		Midday	11.1	B
		PM	13.2	B
3. S. Melrose Dr / Hacienda Dr	Signal	AM	136.2	F
		Midday	61.0	E
		PM	62.8	E
4. Vista Village Dr / Hacienda Dr	Signal	AM	70.0	E
		Midday	62.0	E
		PM	72.0	E
5. Vista Village Dr / SR-78 EB Ramps	Signal	AM	24.1	C
		Midday	34.3	C
		PM	43.8	D
6. Vista Village Dr / SR-78 WB Ramps	Signal	AM	17.2	B
		Midday	15.4	B
		PM	36.7	D
7. Vista Village Dr / Lado De Loma Dr	Signal	AM	35.4	D
		Midday	18.9	B
		PM	25.8	C
8. Vista Village Dr / Vista Way	Signal	AM	30.5	C
		Midday	27.0	C
		PM	26.0	C

CONTINUED ON THE NEXT PAGE

TABLE 6–1 (CONTINUED)
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay [a]	LOS [b]
9. Hacienda Dr / Main Access	MSSC [c]	AM	DNE	DNE
		Midday	DNE	DNE
		PM	DNE	DNE
10. Hacienda Dr / Secondary Access	MSSC	AM	DNE	DNE
		Midday	DNE	DNE
		PM	DNE	DNE

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Minor Street STOP Controlled. Minor Street left-turn delay and LOS reported.

General Note:
DNE – Does Not Exist

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

TABLE 6-2
EXISTING FREEWAY MAINLINE OPERATIONS

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	AADT [b]	K Factor		D Factor		Truck Factor [d]	Peak Hour Volume [c]		V/C [f]		LOS	
					AM	PM	AM	PM		AM	PM	AM	PM	AM	PM
SR 78															
Melrose Dr to Vista Village Dr	EB	3ML	5,400	130,000	0.0693	0.0719	0.4550	0.4648	0.9523	4,304	4,562	0.78	0.85	C	D
	WB	3ML	5,400		0.0693	0.0719	0.5450	0.5352		5,156	5,253	0.96	0.97	E	E
Vista Village Dr to Civic Center Dr	EB	3ML + 1Aux	6,400	130,000	0.0693	0.0719	0.4550	0.4648	0.9523	4,304	4,562	0.67	0.71	C	C
	WB	3ML + 1Aux	6,400		0.0693	0.0719	0.5450	0.5352		5,156	5,253	0.81	0.82	D	D

Footnotes:

a. Capacity calculated at 1800 vph per lane and 1000 vph per Auxiliary lane
b. Existing Average Annual Daily Traffic Volumes from Caltrans Traffic Census.
c. Truck Factor from "2017 Annual Average Daily Truck Traffic on the California State Highway System".
d. Peak Hour Volumes factored using Passenger Car Equivalent for trucks.
e. V/C = (Peak Hour volume/Capacity)

LOS	v/c
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 6-3
EXISTING RAMP METER ANALYSIS

Location/Condition		Peak Hour	Peak Hour Flow (D) (veh/hr/ln)	Calculated (Most Restrictive)			
				Discharge Rate (R) (veh/hr/ln)	Excess Demand (E) (veh/hr/ln)	Delay (min/ln)	Queue (ft)
Vista Village Drive to WB SR 78							1 HOV + 1 SOV
	HOV	AM	69	761	0	0	0
	SOV	AM	617	761			
	HOV	PM	58	778	0	0	0
	SOV	PM	520	778			
Vista Village Drive to EB SR 78							1 HOV + 2 SOV
	HOV	AM	128	753	0	0	0
	SOV	AM	576	753			
	HOV	PM	126	743	0	0	0
	SOV	PM	566	743			

Footnotes:

a. Peak Hour Flow "D" is the traffic that desires to enter the freeway at this on-ramp during the peak hour.
b. Discharge Rate "R" is the *most restrictive* rate at which the ramp meter (signal) discharges traffic on to the freeway (See *Appendix A* for the ramp meter data obtained from Caltrans).
c. Excess Demand "E" is the difference between the Peak Hour Flow and the Discharge Rate.
d. Delay in minutes per lane experienced by each vehicle, calculated as the ratio of the Excess Demand and the Peak Hour Flow in one minute.
e. Queue per lane is reported in feet and is calculated as 25 feet per vehicle.

General Note:

HOV – High Occupancy Lane

SOV – Single Occupancy Vehicle Lane

Since the demand volume is less than the metered rate, the delay and hence the queue calculates to "0". There will be an insignificant delay and queue.

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation Rates

Trip generation rates were taken from the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002, to determine the traffic generated by the proposed Project. All uses within the site fall within a commercial land use category. The retail rates used in the gross trip generation were taken from the "specialty retail" use applying 40 daily trips per 1,000 SF. The car wash rates per SANDAG amount to 900 daily trips per site. The fast-food with drive/thru land use applies the SANDAG rate of 650 daily trips per 1,000 SF. Midday trip generation rates are not available for these land uses. Since fast food restaurants generate much their traffic during the lunch hour, a percent of ADT rate of 9% was used, about 30% higher than the PM peak hour. This is higher than the AM or PM peak hour traffic. For the Car Wash and retail land uses, a higher rate than the AM, but a lower rate than the PM peak hour was used.

Table 7-1 summarizes the estimated daily trip generation and ***Table 7-2*** summarizes the AM, Midday and PM peak hour trip generation.

7.2 Primary/ Diverted / Pass-By Trips

Development of new land uses will create trips that are new to the street system, or "primary" trips. However, several types of retail/fast food restaurant developments experience trips at the driveways that are already on the street system whether that development exists or not. These trips are known as "diverted" or "pass-by" trips. For example, consider a resident who lives along Vista Village Drive to the north of the proposed Project site. Each day, this hypothetical resident may use Vista Village Drive to access SR 78, ultimately destined to a work destination in San Diego. This home-to-work trip already occurs, whether the proposed Project is developed or not. Upon development of the proposed Project, however, this same resident may now change their pre-Project route to include a stop at the Project to patronize a restaurant use. This trip was captured from an existing trip which "diverted" to the site then back to their original route.

7.3 Project Trip Generation

7.3.1 *Project Driveway Trips*

Driveway Trips are those trips that occur at the Project driveways and include the Primary, Diverted Link and Pass-by trips. As seen in *Tables 7-1 & 7-2*, the Project is estimated to generate a total of 10,054 trips, with 668 AM peak hour trips (335 inbound and 333 outbound), 847 Midday peak trips (425 inbound and 422 outbound) and 726 PM peak hour trips (364 inbound and 362 outbound).

7.3.2 *Primary Trips*

Primary trips are new trips on the street system that occur because a development is built; the development itself becomes one end of a primary trip, either the origin or destination. In the case of a retail development, a primary trip would occur when a driver leaves the origin location with the sole intent of arriving at the retail development, then returning to their origin. SANDAG provides a different breakdown for primary trips for retail uses and fast-food uses. For the retail space and car wash, primary trips account for 90% of commercial trip generation based on published SANDAG

rates. For the fast Food with Drive-Thru, primary trips account for 63% of the total Fast Food trip generation based on published SANDAG rates.

As seen in *Tables 7-1 & 7-2*, the Project is estimated to generate a total of 6,638 Primary trips, with 539 AM peak hour trips (270 inbound and 269 outbound), 602 Midday peak hour trips (302 inbound and 300 outbound) and 466 PM peak hour trips (234 inbound and 232 outbound).

7.3.3 *Diverted Trips*

A *diverted* trip is a trip that would divert from a different roadway (other than that fronting the project). An example of a *diverted* trip would be a pre-existing trip along SR 78 that diverts south on Vista Village Drive instead of continuing on SR 78, or north Vista Village Drive) to patronize a commercial use at the site. This same trip would then depart the site, back on its original route to SR 78. With respect to commercial trip generation, diverted trips account for 10% based on published SANDAG rates.

As seen in *Tables 7-1 & 7-2*, the Project is estimated to generate a total of 3,416 Diverted trips, with 129 AM peak hour trips (65 inbound and 64 outbound), 245 Midday peak hour trips (123 inbound and 122 outbound) and 260 PM peak hour trips (130 inbound and 130 outbound).

7.3.4 *Pass-By Trips*

A pass-by trip is similar to the diverted trip, except it is a trip along the project frontage that enters at the project driveway and then continues on in the same direction to its original destination. While most retail development attract pass-by trips, due to the location of the Project site on lightly traveled Hacienda Drive, pass-by trips are unlikely. Hence, pass-by trip reduction was not applied.

7.4 Trip Distribution

Figure 7-1 shows the proposed trip distribution for the project during the AM & PM peak commute hours and ***Figure 7–2*** depicts the estimated Project diverted link trip distribution. This distribution was based on several factors including a review of Existing AM & PM peak hour volumes (shown on *Figure 3–2*). Peak volumes are highest on Vista Village Drive north of the SR 78 and N. Melrose Drive north of SR-78. Since breakfast and dinner time patrons would be more likely to come from their home to the site (as opposed to during the lunch hour, where people would come from work) the location of nearby residential areas was also accounted for. The proximity of SR-78 to the site was accounted for since many patrons would stop at the site as they come to/from work on the freeway during peak commute hours. In addition, existing areas of congestion on nearby streets was accounted for when determining which roadways will be utilized to reach the site.

No pass-by trips are deducted in the trip generation tables. The "Diverted" trips were separated from the "Primary" trips and were assigned separately, since these trips would have a distribution that is different from the "Primary" trips. It may be noted that the Diverted Trips were not removed from the total trips.

A separate trip distribution was prepared for the Midday lunch hour. Many of the factors discussed above were accounted for in determining the Midday distribution but the location of nearby employment, especially the courthouse and associated legal offices along Melrose Drive, resulted in a different distribution. A higher percentage was distributed to Melrose Drive south of Hacienda Drive. *Figure 7–7* shows the proposed lunchtime trip distribution.

7.5 Trip Assignment

The Primary and Diverted trips were assigned to the study area intersections separately and added to obtain the total Project trips assignment. These trips were then added to the existing trips to obtain the Existing + Project trips.

Figure 7-3 depicts the assigned Project AM and PM peak hour primary trips using the distribution percentages shown on *Figure 7-1*. ***Figure 7-4*** depicts the Project AM and PM peak hour diverted trips using the distribution percentages shown on *Figure 7-2*. ***Figure 7–5*** depicts the total Project (Primary trips + diverted trips) AM/PM peak hour traffic volumes. ***Figure 7–6*** depicts the Existing + Project AM/PM peak hour traffic volumes.

Figure 7–7 depicts the assigned Project Midday primary trips while ***Figure 7–8*** depicts the Project Midday primary trip assignment. ***Figure 7–9*** depicts the Project Midday diverted link trip assignment. ***Figure 7–10*** depicts the total Project Midday traffic volumes and ***Figure 7–11*** depicts the Existing + Project Midday traffic volumes.

TABLE 7–1
DAILY TRIP GENERATION SUMMARY

Land Use	Size		Daily Trip Ends (ADT)		
			Rate [a]		Volume
Car Wash	1	site	900	/site	900
Retail	5.58	KSF	40	/KSF	223
Subtotal Car Wash and Retail					*1,123*
Primary External Trips			90%		1,011
Pass-by/Diverted External Trips [b]			10%		112
Fast Food w/ Drive-Thru	13.74	KSF	650	/KSF	8,931
Primary External Trips			63%		5,627
Pass-by/Diverted External Trips [c]			37%		3,304
Total Primary Trips					**6,638**
Total Pass-By/Diverted Trips					**3,416**
Total Driveway Trips					**10,054**

Footnotes:

a. *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002, by SANDAG.

b. A nominal 10% pass-by / Diverted External trips was used for Car Wash and retail, though diverted trips rates account for more than 35% of the trips per SANDAG.

c. 37% pass-by / Diverted External trips was used for restaurants, as suggested by SANDAG

TABLE 7–2
TRIP GENERATION SUMMARY

Land Use	ADT	AM Peak Hour					Midday Peak					PM Peak Hour				
		% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
				In	Out	Total			In	Out	Total			In	Out	Total
Car Wash	900	4%	50:50	18	18	36	5%	50:50	23	22	45	9%	50:50	41	40	81
Retail	223	3%	60:40	4	3	7	5%	60:40	7	4	11	9%	50:50	10	10	20
Subtotal Car Wash and Retail	*1,123*	—	—	22	21	43	—	—	*30*	*26*	*56*	—	—	51	50	101
Primary External Trips	1,011	90%	50:50	20	19	39	90%	50:50	20	19	39	90%	50:50	46	45	91
Pass-by/Diverted External Trips [b]	112	10%	50:50	2	2	4	10%	50:50	2	2	4	10%	50:50	5	5	10
Fast Food w/ Drive-Thru	8,931	7%	50:50	313	312	625	9%	50:50	402	402	804	7%	50:50	313	312	625
Primary External Trips	5,627	80%	50:50	250	250	500	70%	50:50	282	281	563	60%	50:50	188	187	375
Pass-by/Diverted External Trips [c]	3,304	20%	50:50	63	62	125	30%	50:50	121	120	241	40%	50:50	125	125	250
Total Primary Trips	**6,638**			**270**	**269**	**539**			**302**	**300**	**602**			**234**	**232**	**466**
Total Pass-By/Diverted Trips	**3,416**			**65**	**64**	**129**			**123**	**122**	**245**			**130**	**130**	**260**
Total Driveway Trips	**10,054**			**335**	**333**	**668**			**425**	**422**	**847**			**364**	**362**	**726**

Footnotes:

a. *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002, by SANDAG.

b. A nominal 10% pass-by / Diverted External trips was used for Car Wash and retail, though diverted trips rates account for more than 35% of the trips per SANDAG.

c. 37% pass-by / Diverted External trips was used for restaurants, as suggested by SANDAG

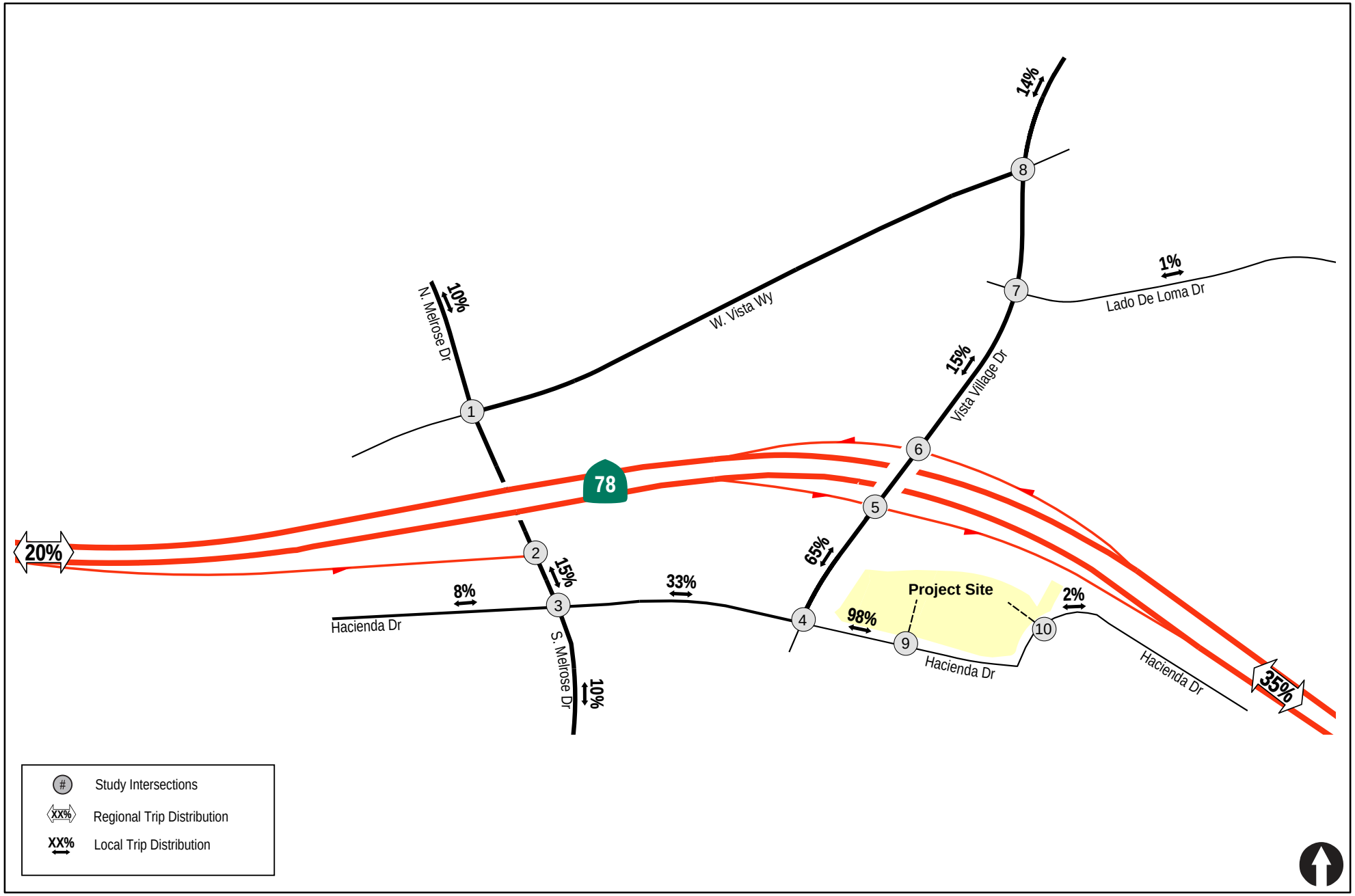

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Figure 7-1

Project Traffic Distribution - Primary Trips

SUNROAD VISTA

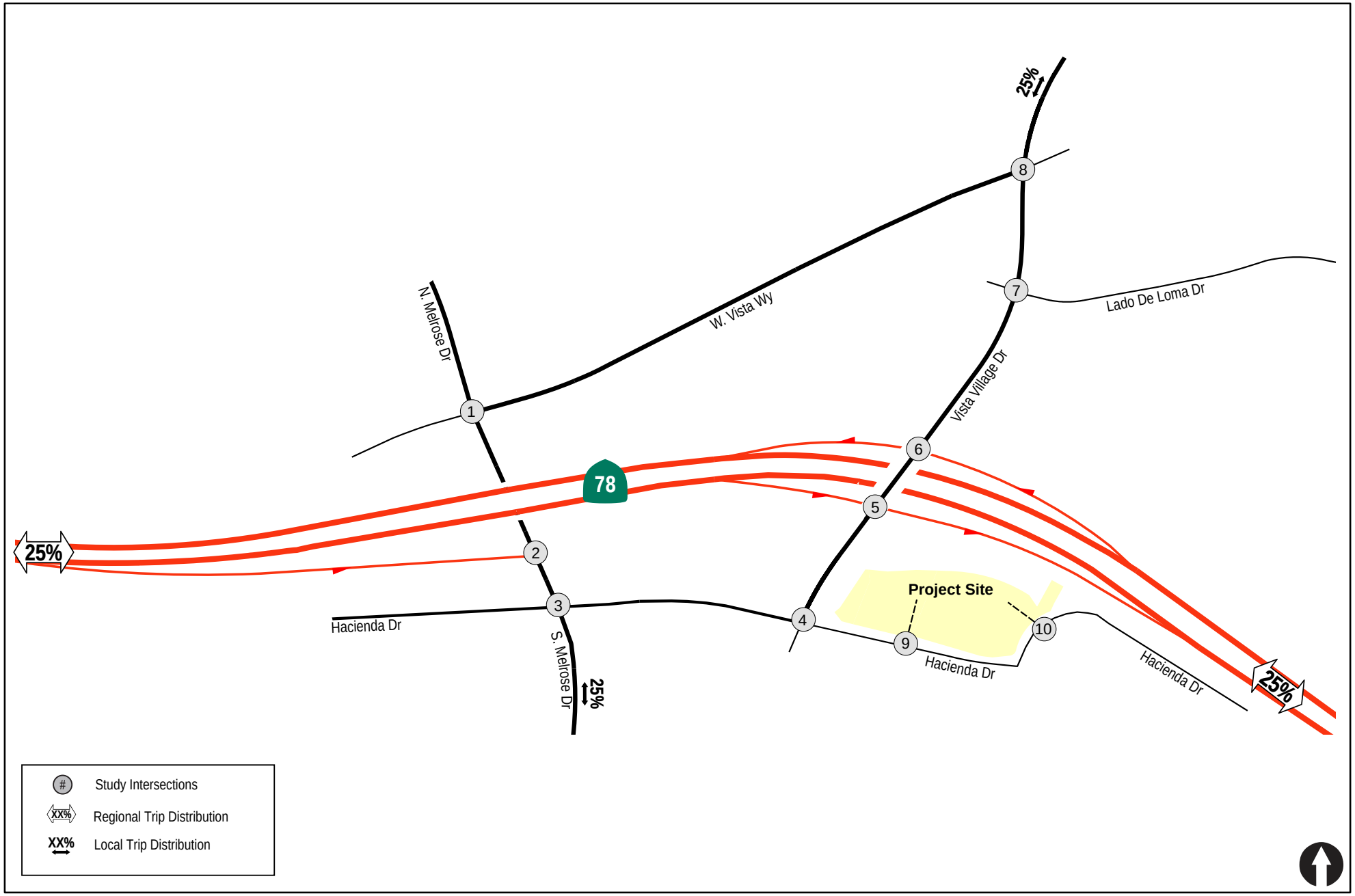

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Figure 7-2

Project Traffic Distribution - Diverted Trips

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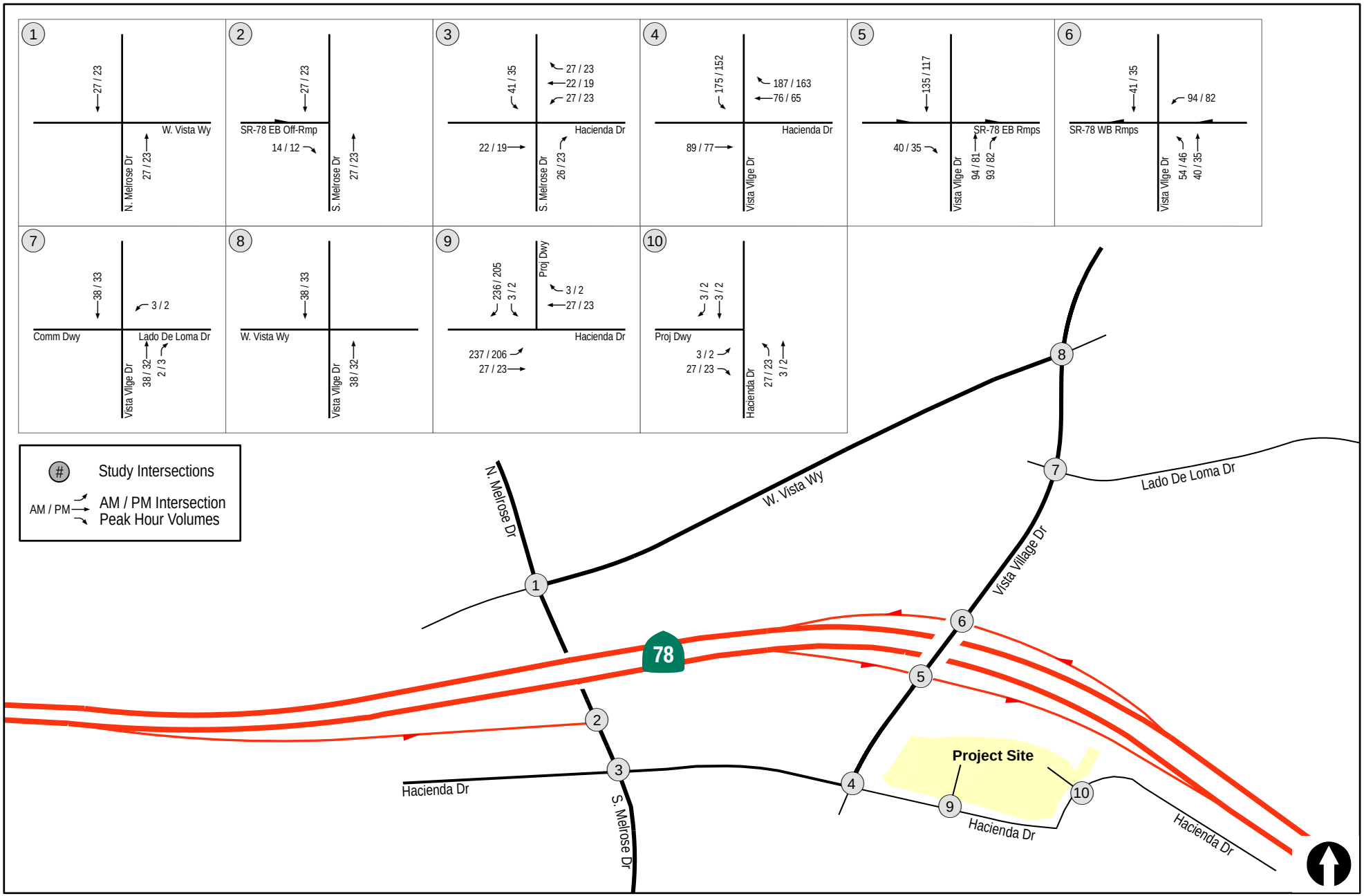

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Figure 7-3

Project Traffic Volumes

Primary Trips

SUNROAD VISTA

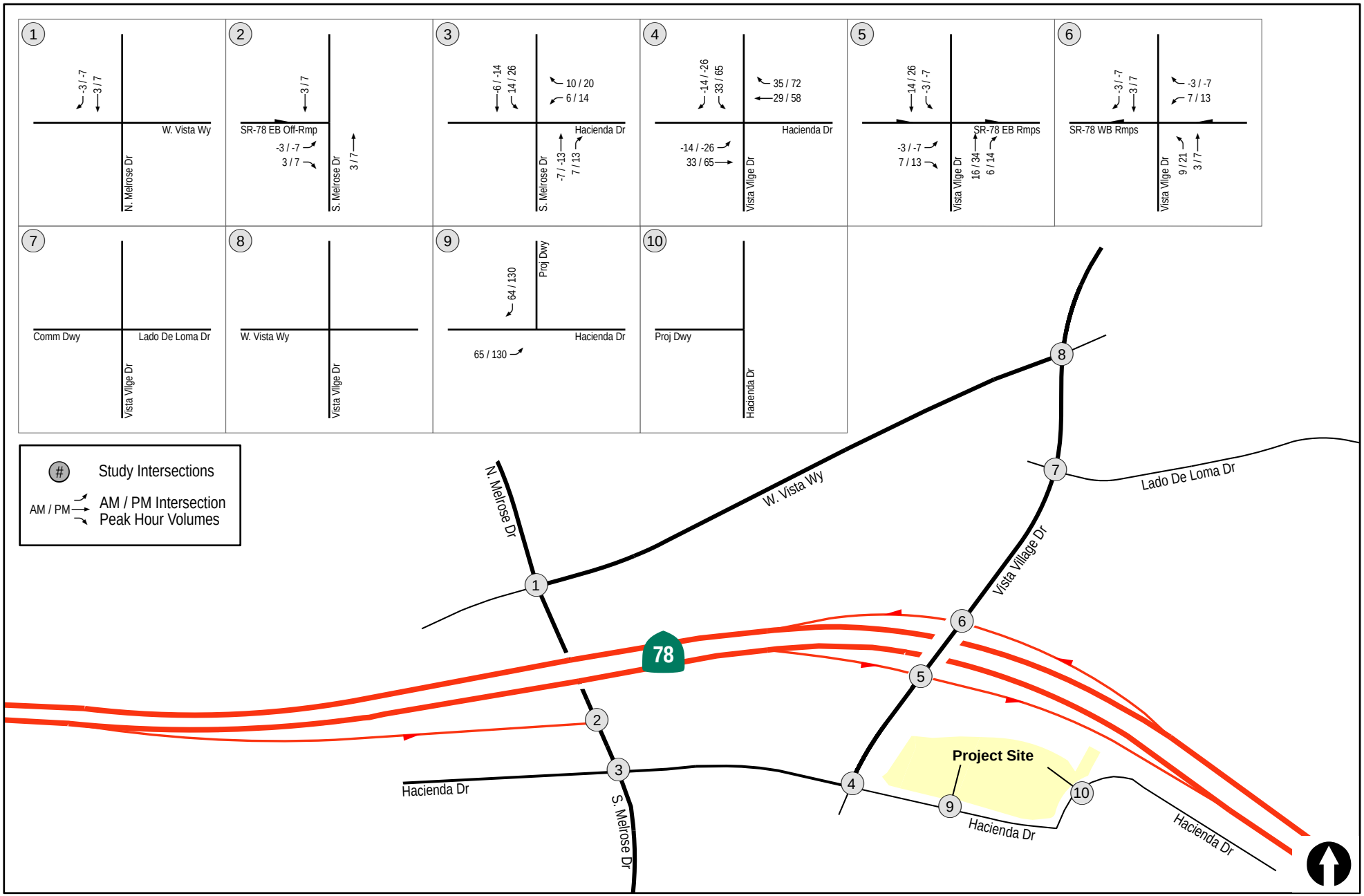

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Figure 7-4

Project Traffic Volumes

Diverted Link Trips

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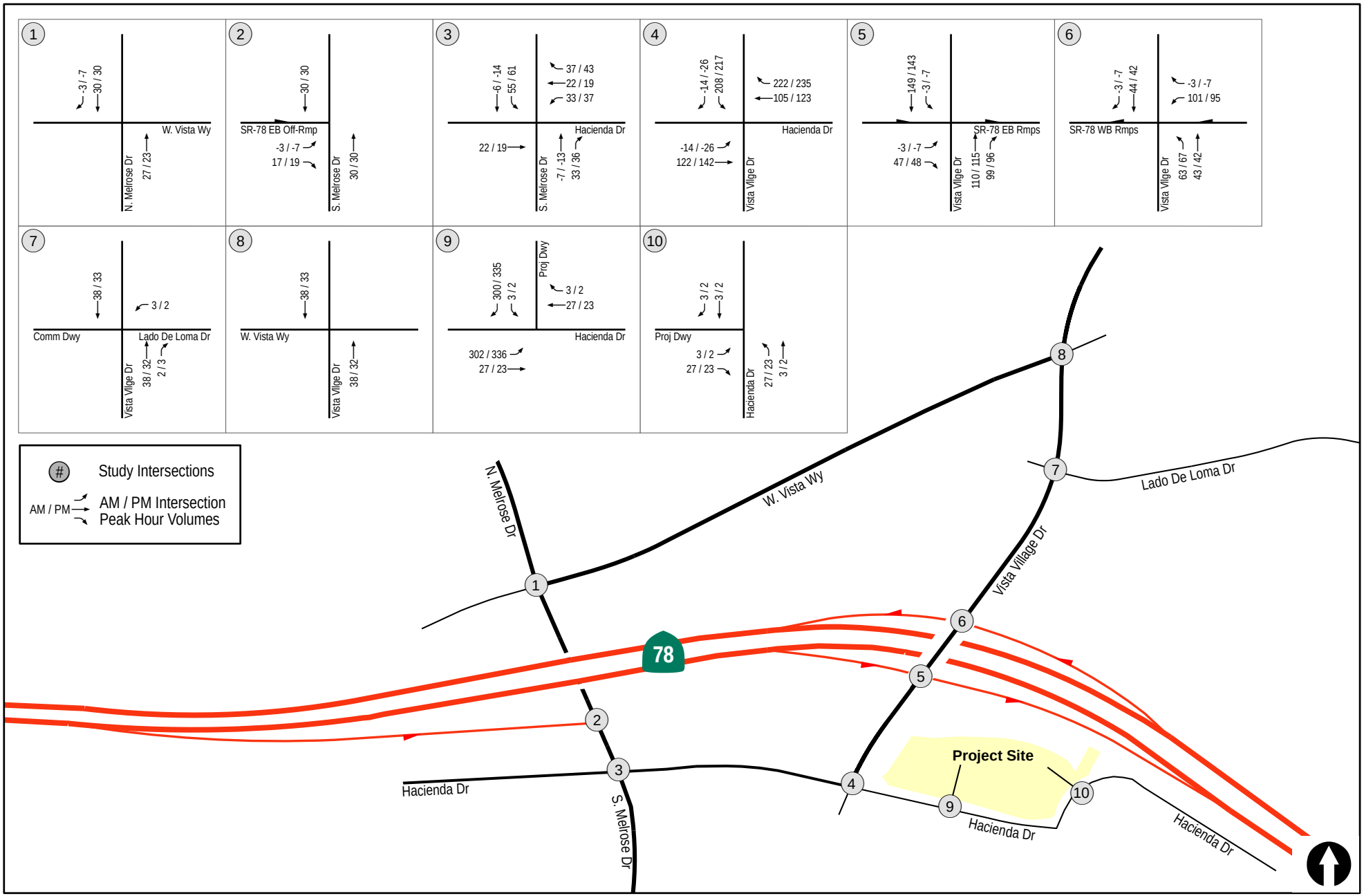

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Figure 7-5

Project Traffic Volumes

Total

SUNROAD VISTA

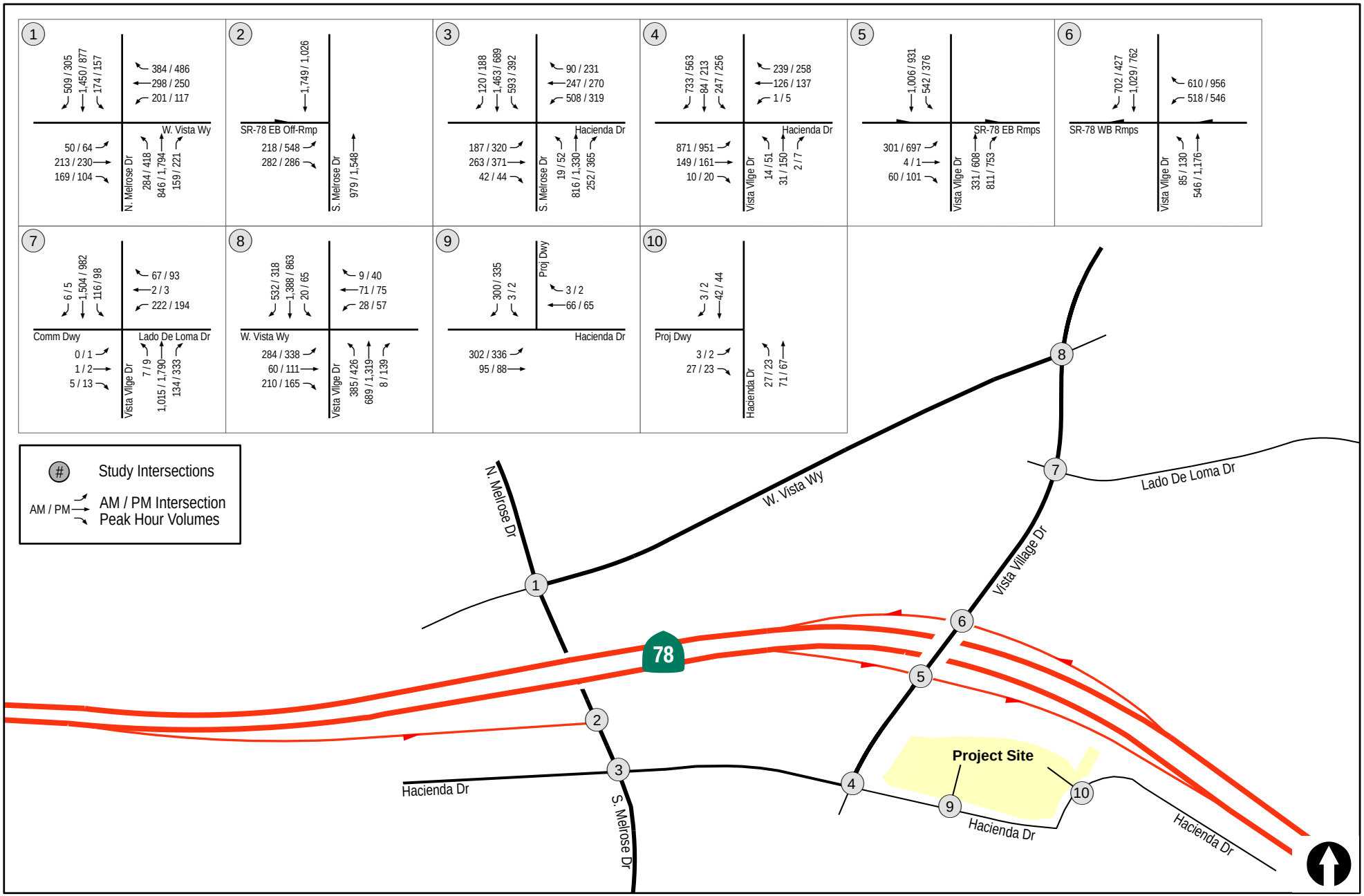

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Figure 7-6

Existing + Project Traffic Volumes

SUNROAD VISTA

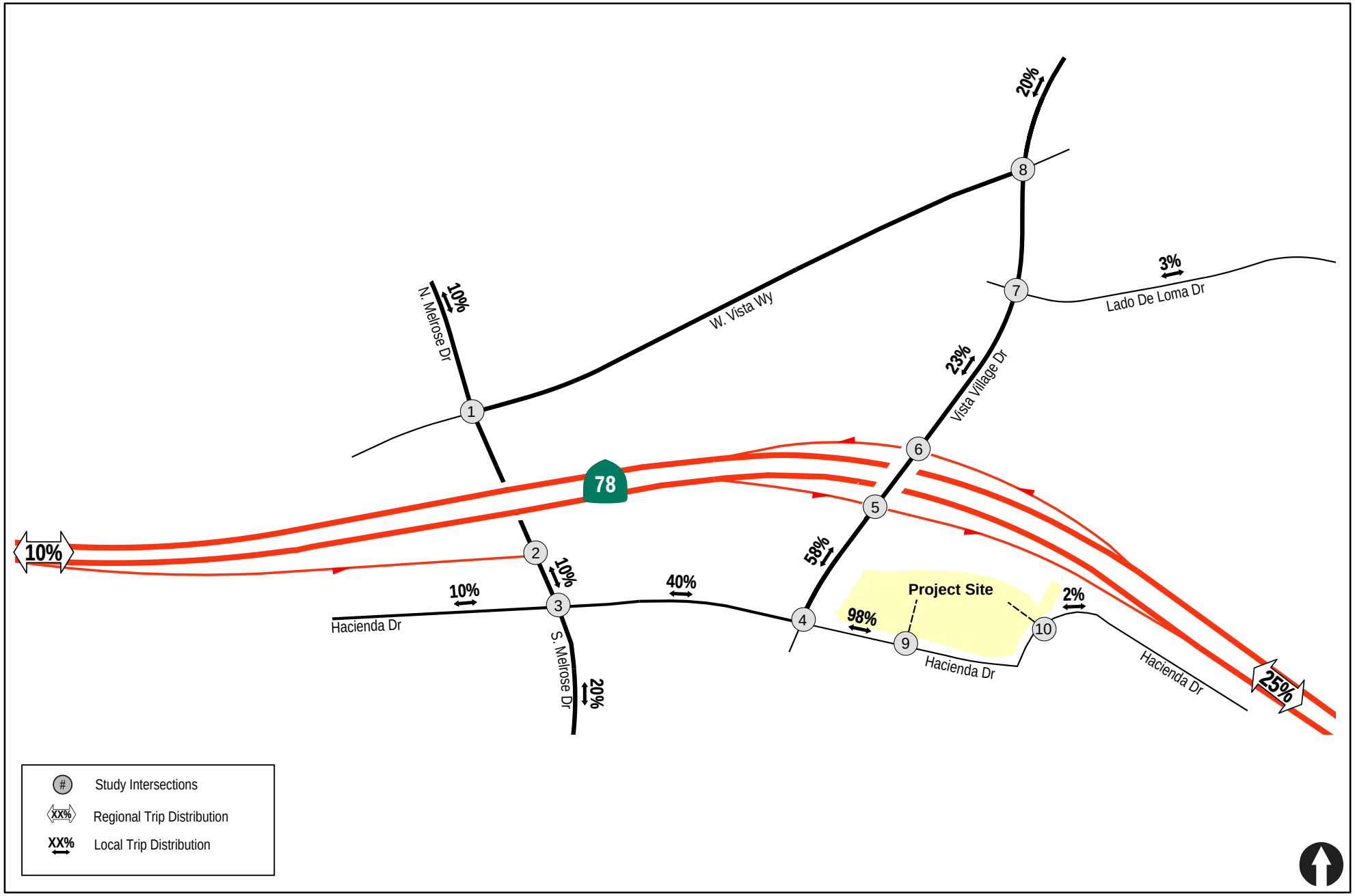

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Figure 7-7

Project Midday Traffic Distribution

SUNROAD VISTA

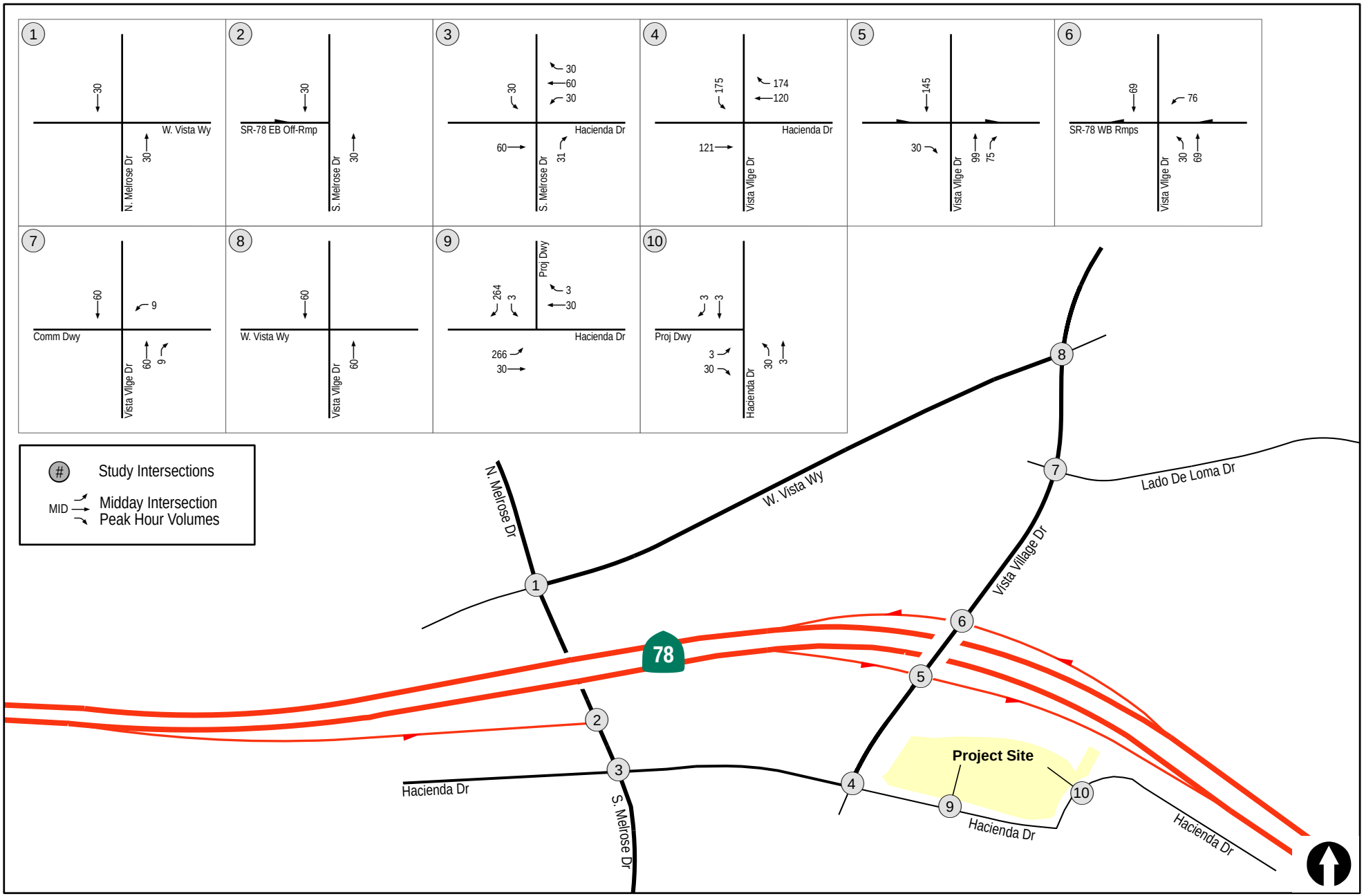

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Figure 7-8

Project Midday Traffic Volumes

Primary Trips

SUNROAD VISTA

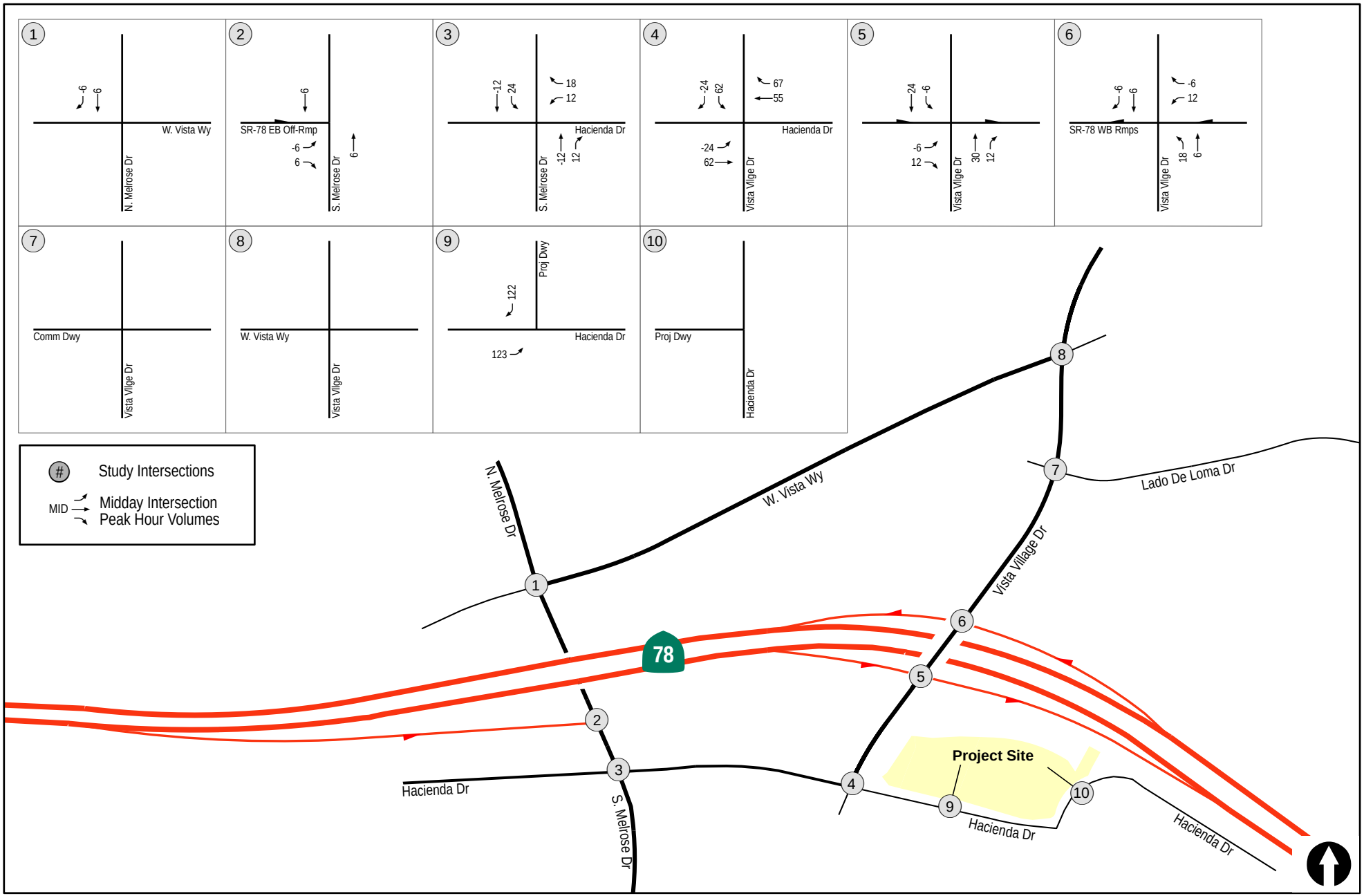

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Figure 7-9

Project Midday Traffic Volumes

Diverted Link Trips

SUNROAD VISTA

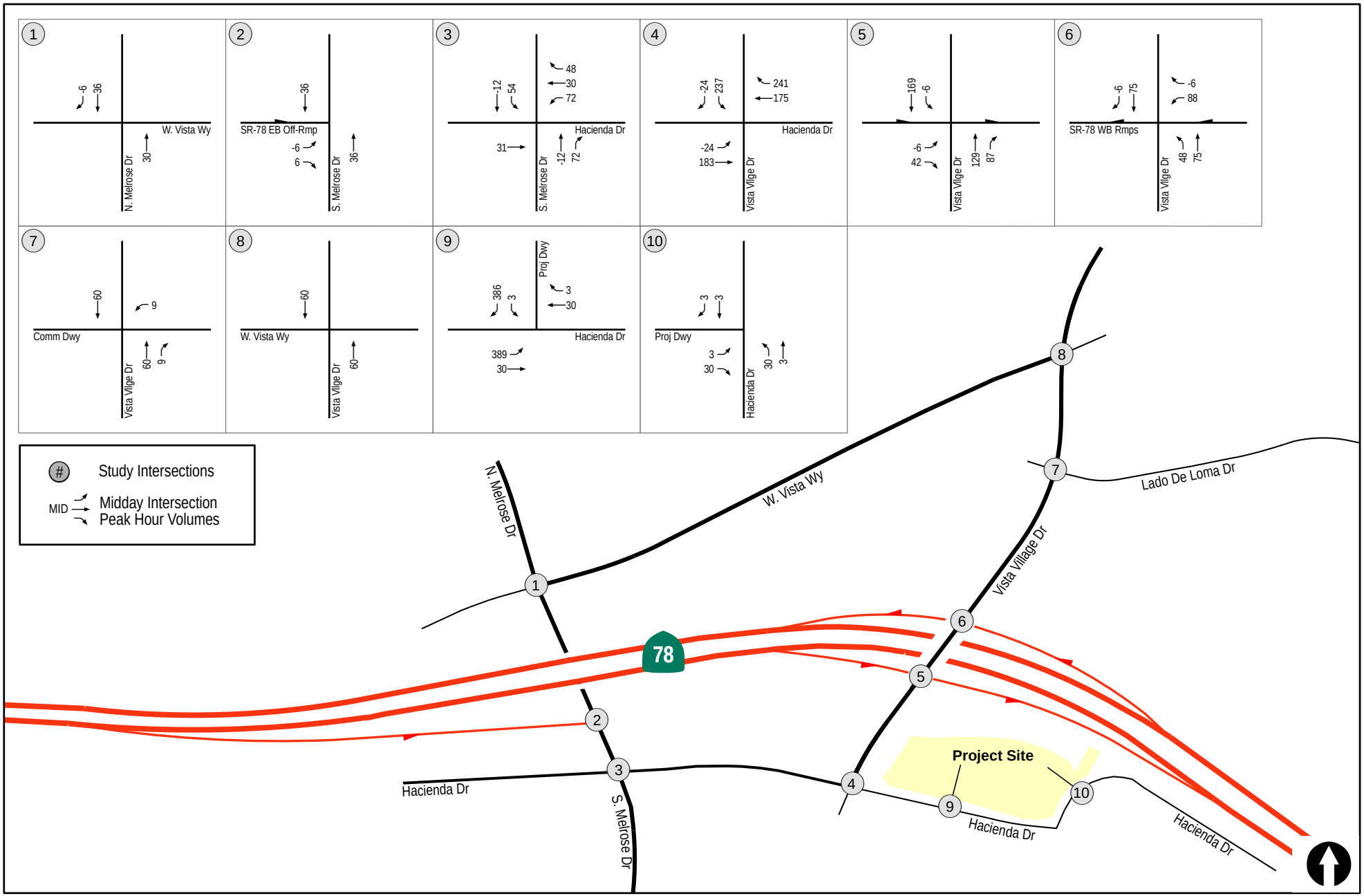

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Figure 7-10

Project Midday Traffic Volumes

Total Trips

SUNROAD VISTA

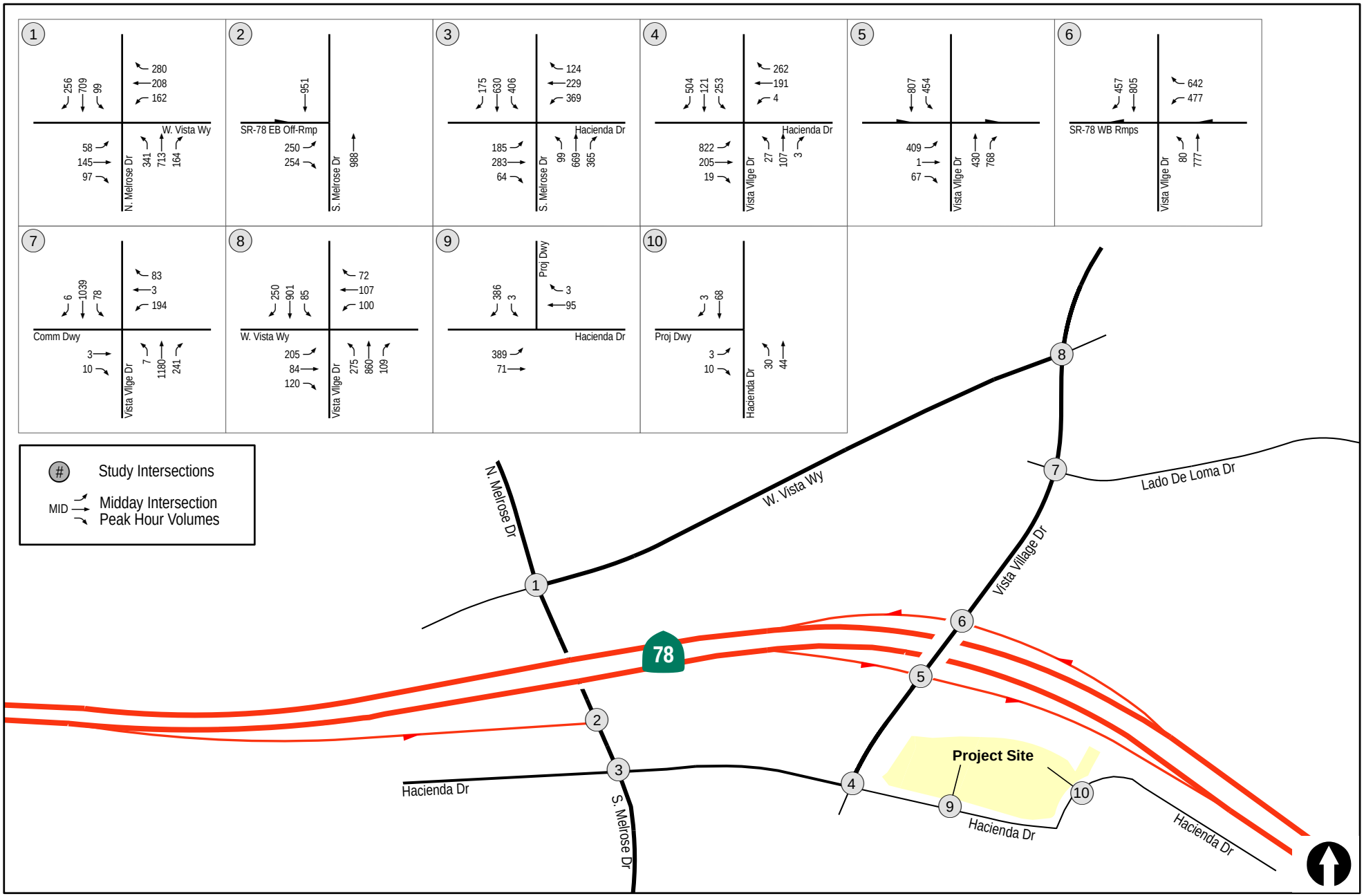

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Figure 7-11

Existing + Project Midday Traffic Volumes

SUNROAD VISTA

8.0 CUMULATIVE PROJECTS

There are other planned projects within the vicinity, which could potentially add traffic to the roadways and intersections in the study area. Based on a review of other potential projects within the area, it was determined that the following cumulative development projects should be included in the traffic analysis.

8.1 Descriptions of Cumulative Projects

Detailed below are brief descriptions of these cumulative projects.

1. Breeze Hills Apartments

The Breeze Hills Apartments project is an 88-unit apartment project located on S. Melrose Drive. The project is calculated to generate 528 ADT with 43 AM peak hour trips (9 inbound and 34 outbound) and 48 PM peak hour trips (34 inbound and 14 outbound trips).

2. Downtown Mixed Use

The Downtown Mixed-Use project is a proposed five-story mixed use project to be built on a 3.16-acre lot on Vista Village Drive and Santa Fe Avenue. It consists of 14,880 square feet of commercial space on the ground floor and 126 apartment units on Floors 2-5. The project is calculated to generate 2,542 ADT, with 133 AM peak hour trips (55 inbound and 78 outbound), and 248 PM peak hour trips (138 inbound and 110 outbound trips).

3. Grove Senior Affordable Housing

The Grove Senior Affordable Housing project is an 82-unit senior housing project located at 815 Civic Center Drive. The project is calculated to generate 328 ADT with 17 AM peak hour trips (7 inbound and 10 outbound) and 23 PM peak hour trips (14 inbound and 9 outbound).

4. Pheasant Hill

The Pheasant Hill project is a proposed residential project consisting of 25 single family dwelling units. The project is calculated to generate 250 ADT with 20 AM peak hour trips (6 inbound and 14 outbound) during the AM peak hour and 25 PM peak hour trips (18 inbound and 7 outbound).

5. Presidio Vista

The Presidio Vista Project is a residential project consisting of 31 single family dwelling units. The project is calculated to generate 310 ADT with 25 AM peak hour trips, (8 inbound and 17 outbound) and 31 PM peak hour trips (22 inbound and 9 outbound).

6. Raising Cane's

The Raising Cane's project is a proposed 3.9 KSF fast food restaurant with drive thru lane. The restaurant would not be open during the AM peak hour but is calculated to generate a total of 2,558 ADT with 180 PM peak hour trips (90 inbound and 90 outbound).

7. S. Santa Fe Medical Office

The S. Santa Fe Medical Office project is an 11.8 KSF medical office building that is calculated to generate 590 ADT with 36 AM peak hour trips (29 inbound and 7 outbound) and 65 PM peak hour trips (20 inbound and 45 outbound).

8. Santa Anita Townhomes

The Santa Anita Townhomes project proposes the construction of 24 residential townhomes. The project would generate 192 ADT with 16 AM peak hour trips (3 inbound and 13 outbound) and 20 PM peak hour trips (14 inbound and 6 outbound).

9. Vista Creekside Apartments

The Vista Creekside Apartments project is a proposed 41-unit apartment complex project on a 1.28-acre lot located on Wave Drive. The project is calculated to generate 246 ADT, with 20 AM peak hour trips (4 inbound and 16 outbound) and 23 PM peak hour trips (16 inbound and 7 outbound).

10. Vista Energy Storage

The Vista Energy Storage project is a proposed energy storage facility on a 0.88-acre lot located on Olive Avenue. The project is calculated to generate 26 ADT, with 2 AM peak hour trips (1 inbound trip and 1 outbound) and 3 PM peak hour trips (2 inbound and 1 outbound).

8.2 Cumulative Projects Trip Generation

The above cumulative projects are estimated to generate a total of 7,570 trips, with 312 AM peak hour trips (122 inbound and 190 outbound) and 666 PM peak hour trips (368 inbound and 298 outbound).

Most of the cumulative projects are residential projects. Therefore, for a conservative analysis, 50% of the PM peak hour cumulative projects traffic was assumed for the Midday cumulative project traffic.

Figure 8–1 depicts the Cumulative Projects AM/PM peak hour traffic volumes. ***Figure 8–2*** depicts the Existing + Cumulative Projects AM/PM peak hour traffic volumes. ***Figure 8–3*** depicts the Existing + Project + Cumulative Projects AM/PM peak hour traffic volumes. ***Figure 8–4*** depicts the Cumulative Projects Midday traffic volumes. ***Figure 8–5*** depicts the Existing + Project Midday traffic volumes. ***Figure 8–6*** depicts the Existing + Cumulative Projects + Project Midday traffic volumes.

TABLE 8–1
CUMULATIVE PROJECTS TRIP GENERATION

Cumulative Project	Quantity	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
1. Breeze Hills Apartments	88 DU	528	9	34	43	34	14	48
2. Downtown Mixed-Use	Various	2,542	55	78	133	138	110	248
3. Grove Senior Affordable Housing	82 DU	328	7	10	17	14	9	23
4. Pheasant Hill (Single Family)	25 DU	250	6	14	20	18	7	25
5. Presidio Vista (single Family)	31 DU	310	8	17	25	22	9	31
6. Raising Cane's (Fast Food)	3.9 KSF	2,558	0	0	0	90	90	180
7. S. Santa Fe Medical Office	11.8 KSF	590	29	7	36	20	45	65
8. Santa Anita Townhomes	24 DU	192	3	13	16	14	6	20
9. Vista Creekside Apartments	41 DU	246	4	16	20	16	7	23
10. Vista Energy Storage	1 Facility	26	1	1	2	2	1	3
Total Driveway Trips		**7,570**	**122**	**190**	**312**	**368**	**298**	**666**

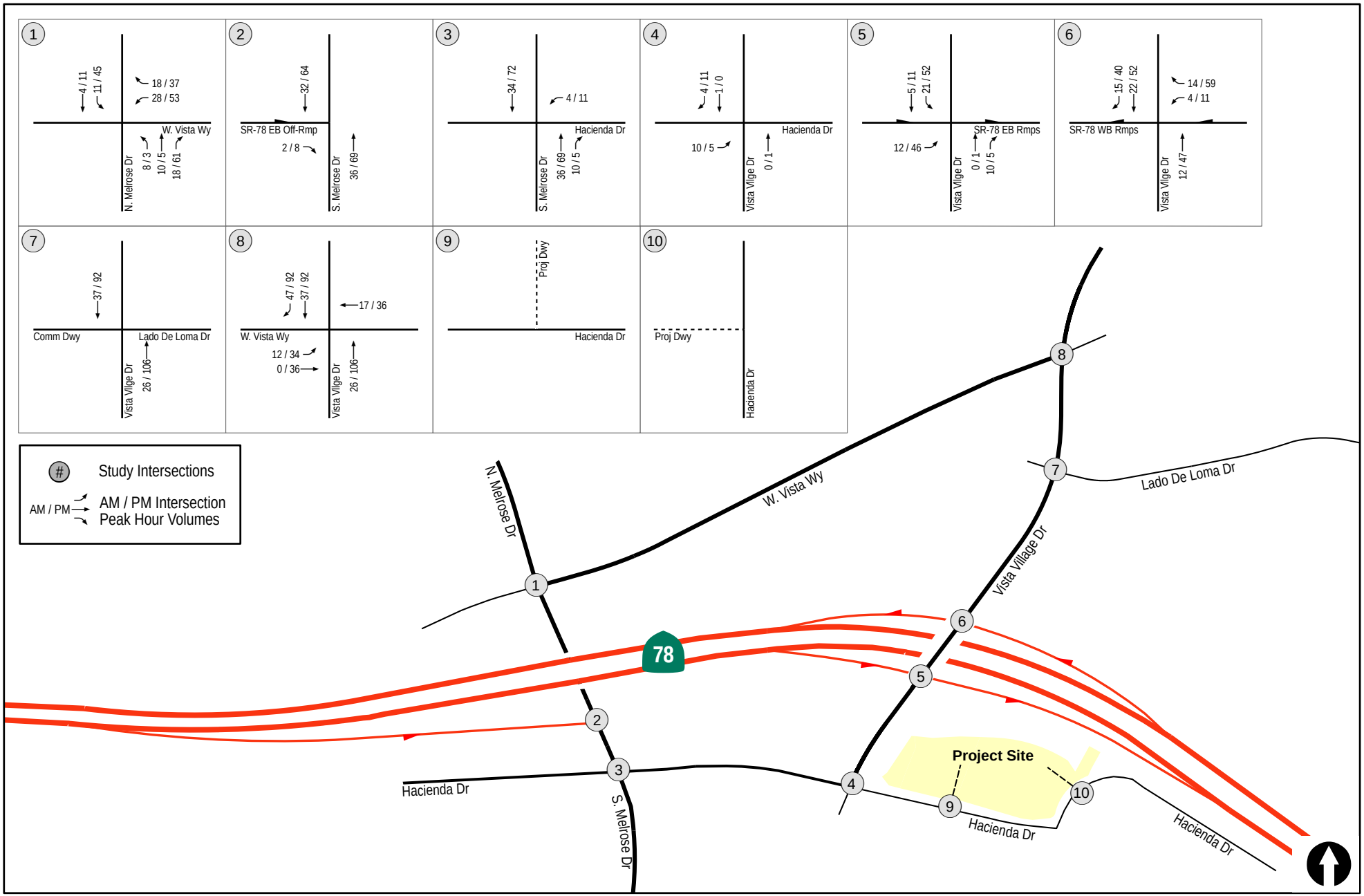

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Figure 8-1

Cumulative Projects Traffic Volumes

SUNROAD VISTA

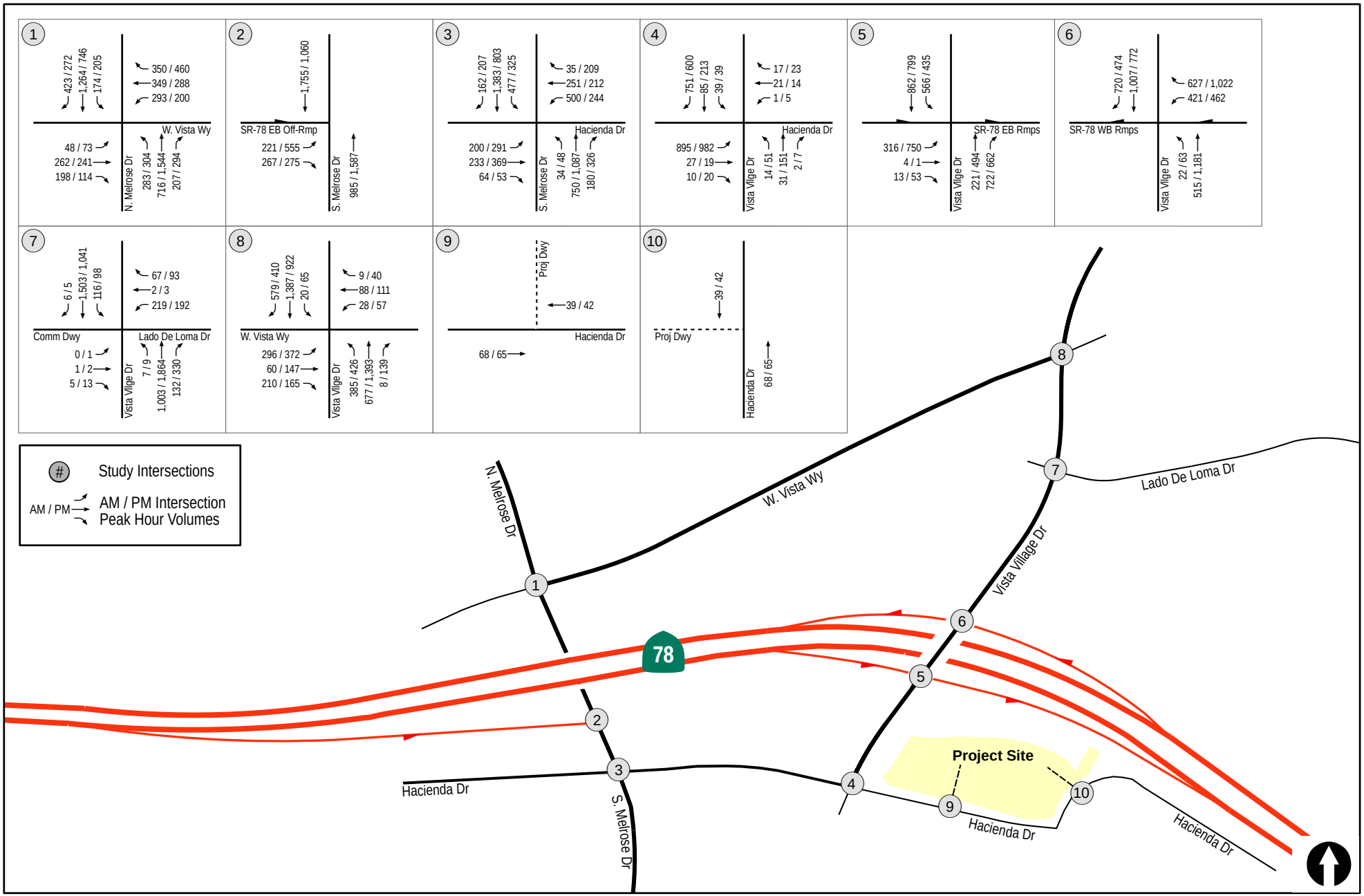

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Figure 8-2

Existing + Cumulative Projects Traffic Volumes

SUNROAD VISTA

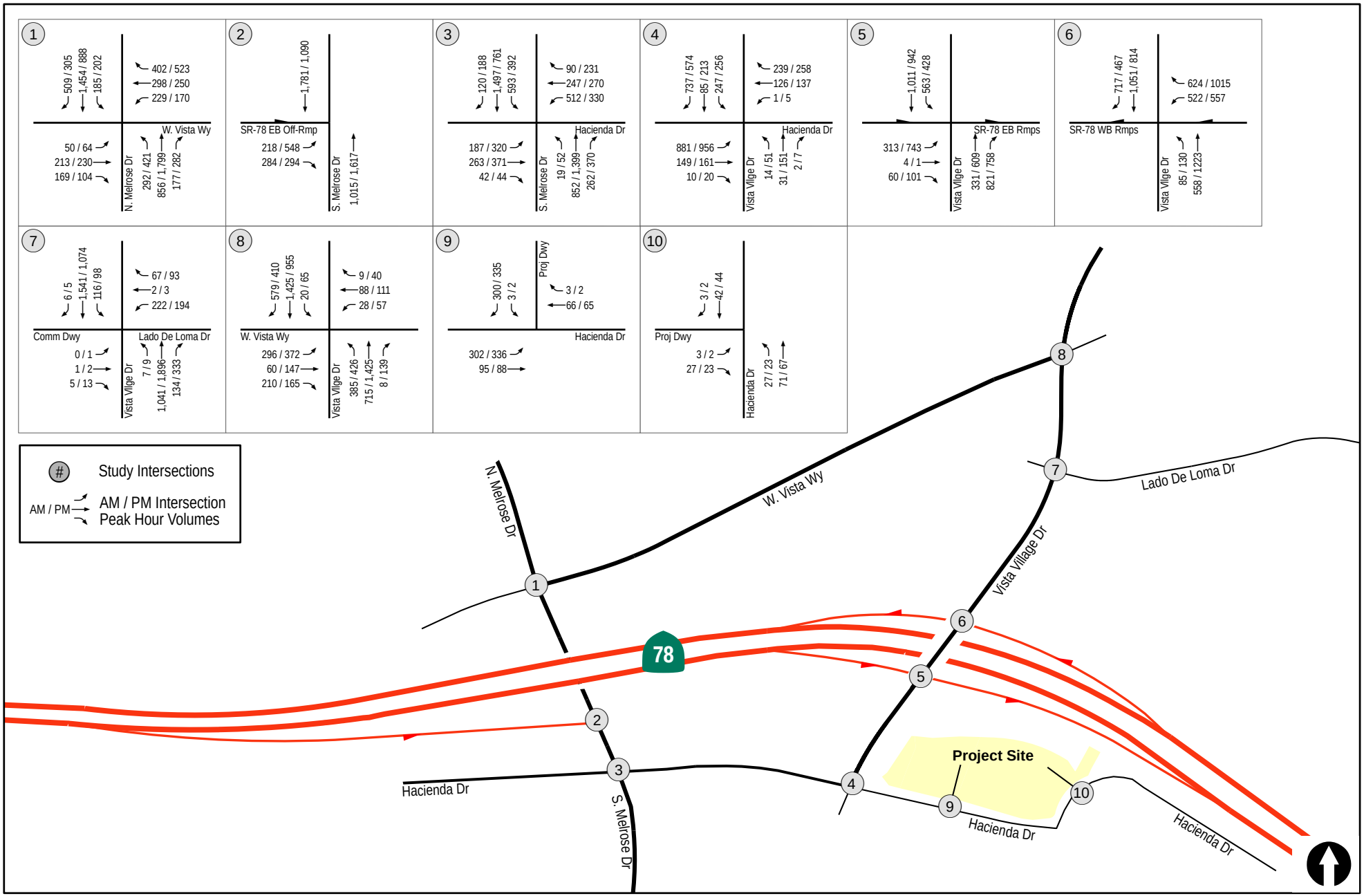

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Figure 8-3

Existing + Cumulative Projects + Project Traffic Volumes

SUNROAD VISTA

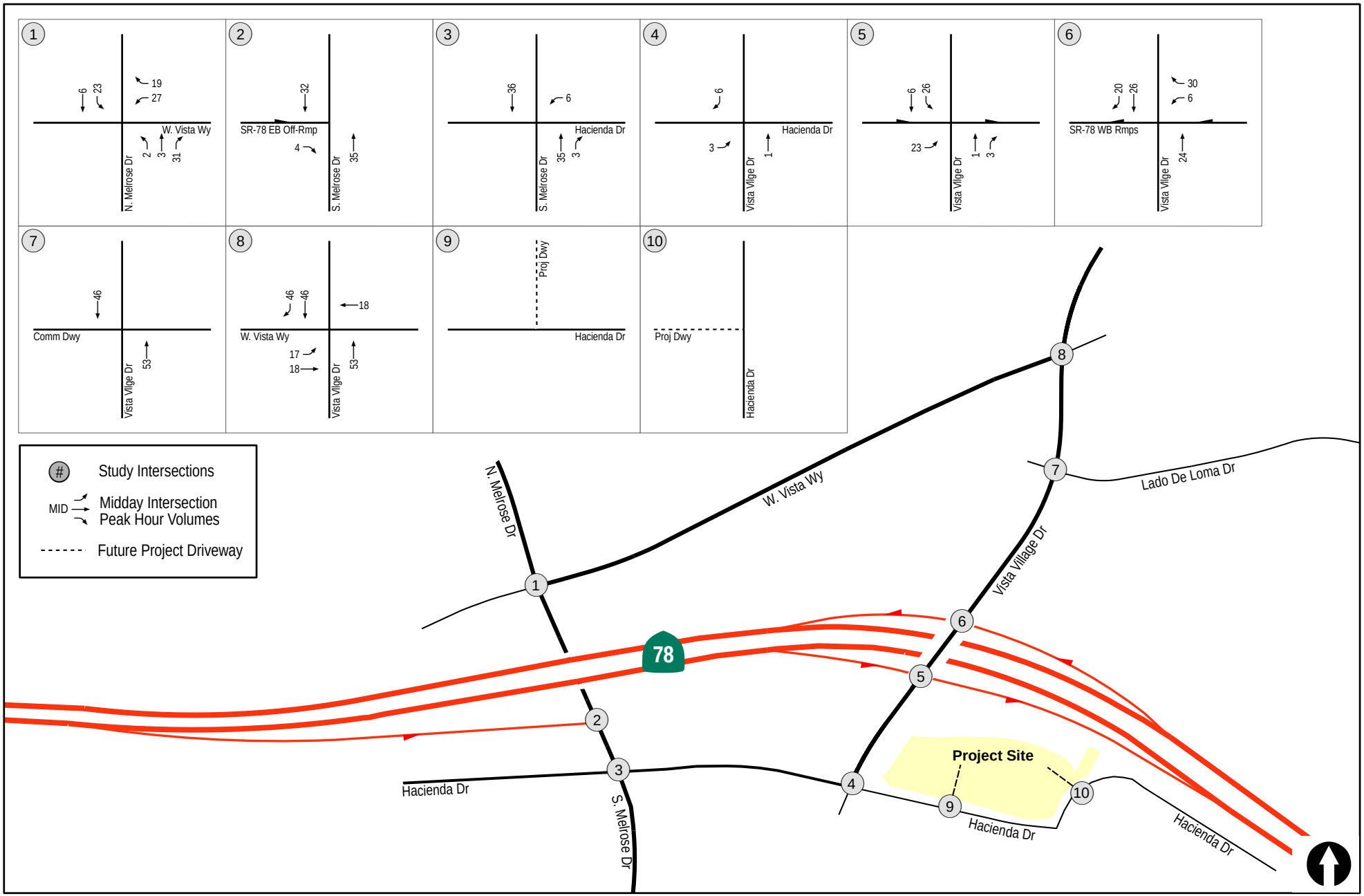

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Figure 8-4

Cumulative Projects Midday Traffic Volumes

SUNROAD VISTA

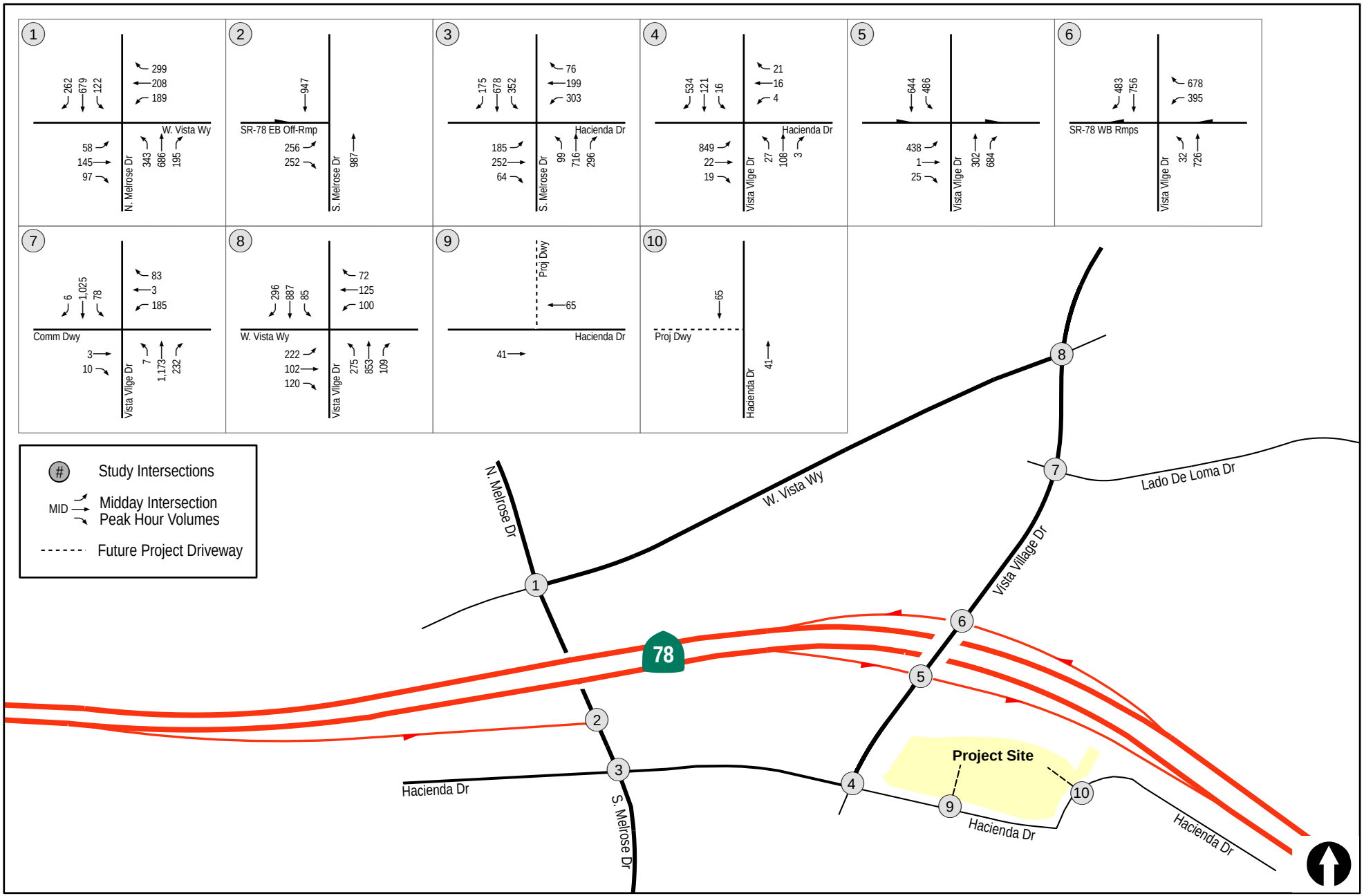

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Figure 8-5

Existing + Cumulative Projects Midday Traffic Volumes

SUNROAD VISTA

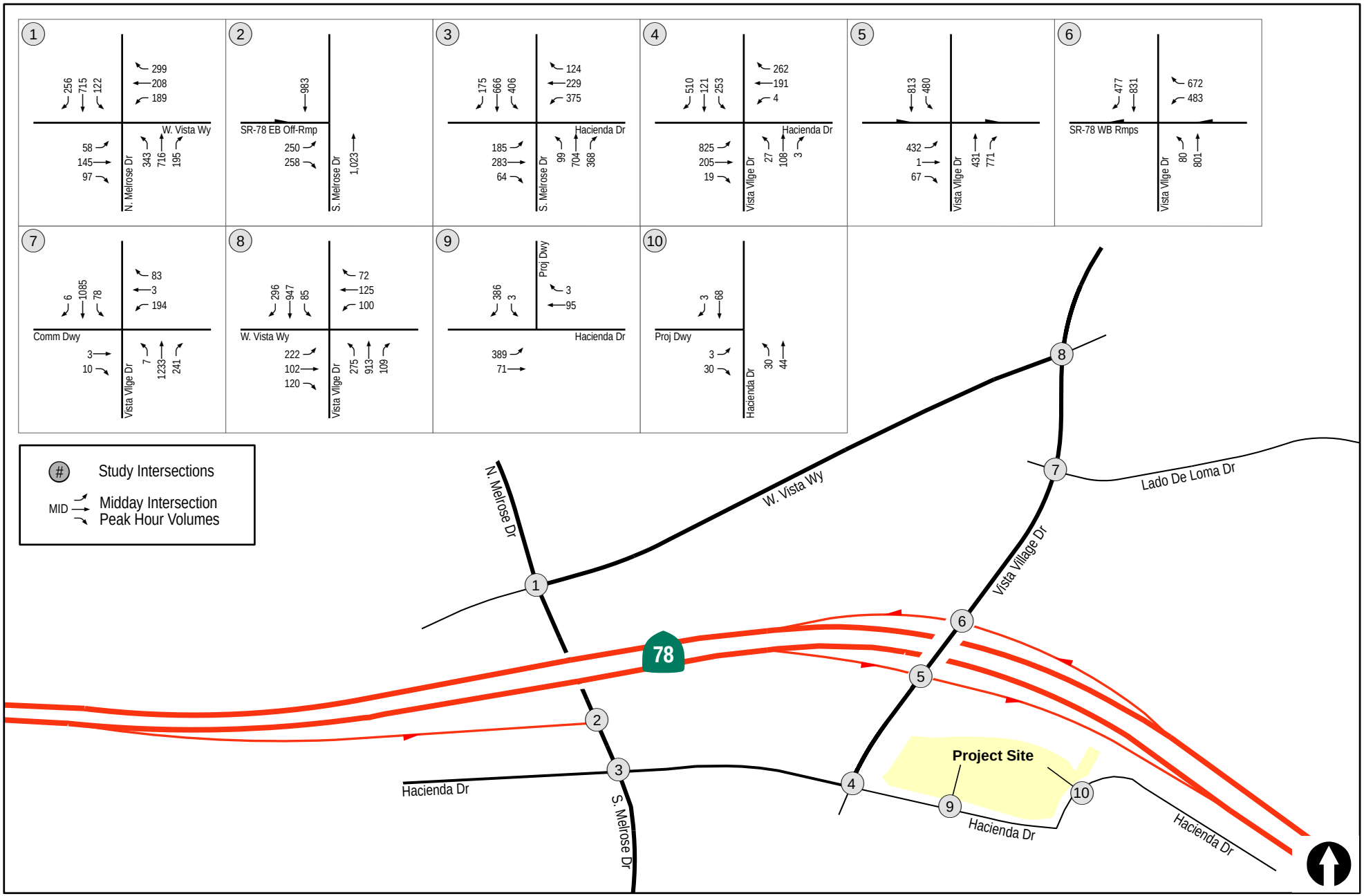

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Figure 8-6

Existing + Cumulative Projects + Project Midday Traffic Volumes

Primary Trips

SUNROAD VISTA

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

9.1 Existing + Project Analysis

9.1.1 *Intersection Analysis*

Table 9–1 summarizes the Existing + Project peak hour intersection operations. As seen in *Table 9–1*, with the addition of the project traffic, all intersections are calculated to continue to operate at LOS D or better except:

- Intersection #3. S. Melrose Drive / Hacienda Drive – LOS F (AM peak hour) and LOS E (Midday and PM peak hours)
- Intersection #4. Vista Village Drive / Hacienda Drive – LOS E (AM, Midday and PM peak hours)

The Project adds more than the allowable increase of 2 seconds of delay at the S. Melrose Drive / Hacienda Drive intersection. Hence, the Project has a significant impact at this intersection. The Project adds less than the allowable increase of 2 seconds and hence, does not have significant impacts at the remaining two intersections.

The Existing + Project peak hour intersection analysis worksheets are included in ***Appendix C***.

9.1.2 *Freeway Mainline Analysis*

Table 9-2 summarizes the Existing + Project freeway mainline operations. As shown in *Table 9-2*, with the addition of Project traffic, the SR 78 freeway segment between Vista Village Drive and Melrose Drive is calculated to operate at LOS E during the AM and PM peak hours. However, the increase in V/C ratio due to Project traffic is 0.01, the acceptable threshold. Therefore, the Project does not have a significant impact.

9.1.3 *Ramp Meter Analysis*

Table 9-3 summarizes the Existing + Project ramp meter operations. It may be noted that the calculations shown in the table are per lane.

As shown in *Table 9–3*, using the average discharge rates obtained from the California Department of Transportation (Caltrans), during the AM and PM peak hours, the delays are minimal since the volume demand is less than the meter rate.

TABLE 9–1
EXISTING + PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ[c]	Impact Type
			Delay[a]	LOS[b]	Delay	LOS		
1. N. Melrose Dr / Vista Way	Signal	AM	45.6	D	45.2	D	[d]	No
		Midday	33.1	C	32.6	C	[d]	No
		PM	52.4	D	52.0	D	[d]	No
2. S. Melrose Dr / SR-78 EB Off-Ramp	Signal	AM	8.3	A	8.3	A	0.0	No
		Midday	11.1	B	13.7	B	2.6	No
		PM	13.2	B	13.0	B	[d]	No
3. S. Melrose Dr / Hacienda Dr	Signal	AM	**136.2**	**F**	**157.2**	**F**	**21.0**	**Yes**
		Midday	**61.0**	**E**	**73.9**	**E**	**12.9**	**Yes**
		PM	**62.8**	**E**	**75.8**	**E**	**13.0**	**Yes**
4. Vista Village Dr / Hacienda Dr	Signal	AM	70.0	E	63.5	E	[d]	No
		Midday	62.0	E	60.2	E	[d]	No
		PM	72.0	E	62.6	E	[d]	No
5. Vista Village Dr / SR-78 EB Ramps	Signal	AM	24.1	C	23.2	C	[d]	No
		Midday	34.3	C	34.1	C	[d]	No
		PM	43.8	D	43.9	D	0.1	No
6. Vista Village Dr / SR-78 WB Ramps	Signal	AM	17.2	B	18.8	B	1.6	No
		Midday	15.4	B	15.8	B	0.4	No
		PM	36.7	D	38.6	D	1.9	No
7. Vista Village Dr / Lado De Loma Dr	Signal	AM	35.4	D	34.9	C	[d]	No
		Midday	18.9	B	18.3	B	[d]	No
		PM	25.8	C	25.4	C	[d]	No
8. Vista Village Dr / Vista Way	Signal	AM	30.5	C	30.7	C	0.2	No
		Midday	27.0	C	26.7	C	[d]	No
		PM	26.0	C	26.0	C	0.0	No

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TABLE 9–1 (CONTINUED)
EXISTING + PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ[c]	Impact Type
			Delay[a]	LOS[b]	Delay	LOS		
9. Project Main Access / Hacienda Dr	MSSC [e]	AM	DNE	DNE	10.7	B	NA	No
		Midday	DNE	DNE	12.2	B	NA	No
		PM	DNE	DNE	10.9	B	NA	No
10. Project Secondary Access / Hacienda Dr	MSSC	AM	DNE	DNE	8.8	A	NA	No
		Midday	DNE	DNE	8.9	A	NA	No
		PM	DNE	DNE	8.7	A	NA	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to project.
d. Synchro calculated a lower delay than without the Project traffic. Hence, the Δ is not shown.
e. Minor Street STOP Controlled. Minor Street left-turn delay and LOS reported.

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

General Notes:

Bold and shading indicates a potentially significant impact.
DNE – Does not Exist
NA – Not Applicable

TABLE 9–2
EXISTING + PROJECT FREEWAY MAINLINE OPERATIONS

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	Peak Hour Traffic						V/C [h]				LOS		Δ V/C	
				Existing [e]		Project [f]		Existing + Project [g]		Existing		Existing + Project					
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SR 78																	
Melrose Dr to Vista Village Dr	EB	3ML	5,400	4,304	4,562	44	41	4,348	4,603	0.80	0.85	0.81	0.85	C	D	0.01	0.01
	WB	3ML	5,400	5,156	5,253	60	60	5,216	5,313	0.96	0.97	0.97	0.98	E	E	0.01	0.01
Vista Village Dr to Civic Center Dr	EB	3ML + 1Aux	6,400	4,304	4,562	96	91	4,400	4,653	0.67	0.71	0.69	0.73	C	C	0.02	0.02
	WB	3ML + 1Aux	6,400	5,156	5,253	98	88	5,254	5,341	0.81	0.82	0.82	0.84	D	D	0.01	0.02

Footnotes:

a. Capacity calculated at 1800 vph per lane and 1000 vph per Auxiliary lane
b. Existing Average Annual Daily Traffic Volumes from Caltrans Traffic Census.
c. Truck Factor from "2017 Annual Average Daily Truck Traffic on the California State Highway System".
d. Peak Hour Volumes factored using Passenger Car Equivalent for trucks.
e. V/C = (Peak Hour volume/Capacity)
f. Project traffic at the ramps.

LOS	v/c
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 9-3
NEAR-TERM RAMP METER ANALYSIS

Location/Condition	Peak Hour	Peak Hour Flow (D) (veh/hr/ln)	Calculated (Most Restrictive)			
			Discharge Rate (R) (veh/hr/ln)	Excess Demand (E) (veh/hr/ln)	Delay (min/ln)	Queue (ft)
Existing						
Vista Village Drive to WB SR 78						1 HOV + 1 SOV
HOV	AM	69	761	0	0	0
SOV	AM	617	761	0	0	0
HOV	PM	58	778	0	0	0
SOV	PM	520	778	0	0	0
Vista Village Drive to EB SR 78						1 HOV + 2 SOV
HOV	AM	128	753	0	0	0
SOV	AM	576	753	0	0	0
HOV	PM	126	743	0	0	0
SOV	PM	566	743	0	0	0
Existing + Project						
Vista Village Drive to WB SR 78						1 HOV + 1 SOV
HOV	AM	75	761	0	0	0
SOV	AM	671	761	0	0	0
HOV	PM	64	778	0	0	0
SOV	PM	574	778	0	0	0
Vista Village Drive to EB SR 78						1 HOV + 2 SOV
HOV	AM	138	753	0	0	0
SOV	AM	619	753	0	0	0
HOV	PM	135	743	0	0	0
SOV	PM	606	743	0	0	0

Footnotes:

a. Peak Hour Flow "D" is the traffic that desires to enter the freeway at this on-ramp during the peak hour.

b. Discharge Rate "R" is the *most restrictive* rate at which the ramp meter (signal) discharges traffic on to the freeway (See *Appendix A* for the ramp meter data obtained from Caltrans).

c. Excess Demand "E" is the difference between the Peak Hour Flow and the Discharge Rate.

d. Delay in minutes per lane experienced by each vehicle, calculated as the ratio of the Excess Demand and the Peak Hour Flow in one minute.

e. Queue per lane is reported in feet and is calculated as 25 feet per vehicle.

General Note:

HOV – High Occupancy Lane

SOV – Single Occupancy Vehicle Lane

Since the demand volume is less than the metered rate, the delay and hence the queue calculates to "0". There will however be an insignificant delay and queue.

9.2 Existing + Cumulative Projects Analysis

9.2.1 *Intersection Analysis*

Table 9–4 summarizes the Existing + Cumulative projects peak hour intersection operations. As seen in *Table 9–4*, with the addition of the project traffic, all intersections are calculated to continue to operate at LOS D or better except:

- Intersection #1. N. Melrose Drive / Vista Way – LOS E (PM peak hour)
- Intersection #3. S. Melrose Drive / Hacienda Drive – LOS F (AM peak hour) and LOS E (Midday and PM peak hours)
- Intersection #4. Vista Village Drive / Hacienda Drive – LOS E (AM, Midday and PM peak hours)

The Existing + Cumulative Projects peak hour intersection analysis worksheets are included in ***Appendix D***.

9.2.2 *Freeway Mainline Analysis*

Table 9-5 summarizes the Existing + Cumulative freeway mainline operations. As shown in *Table 9-5*, with the addition of Cumulative projects traffic, the SR 78 freeway segment between Vista Village Drive and Melrose Drive is calculated to operate at LOS E during the AM and PM peak hours.

9.2.3 *Ramp Meter Analysis*

Table 9-6 summarizes the Existing + Cumulative ramp meter operations. The calculations shown in the table are per lane. As shown in *Table 9–6*, with the addition of Cumulative projects traffic, using the average discharge rates obtained from Caltrans, during the AM and PM peak hours, the delays are minimal since the volume demand is less than the meter rate.

9.3 Existing + Project + Cumulative Projects Analysis

9.3.1 *Intersection Analysis*

Table 9–4 summarizes the Existing + Project + Cumulative projects peak hour intersection operations. As seen in *Table 9–4*, with the addition of the project traffic and cumulative projects traffic, all intersections are calculated to continue to operate at LOS D or better with the exception of the following location:

- Intersection #1. N. Melrose Drive / Vista Way (LOS E during the PM peak hour)
- Intersection #3. S. Melrose Drive / Hacienda Drive – LOS E (AM and PM peak hours)
- Intersection #4. Vista Village Drive / Hacienda Drive – LOS E (AM peak hour)

The Project adds more than the allowable increase of 2 seconds of delay at the S. Melrose Drive / Hacienda Drive intersection. Hence, the Project has a significant impact at this intersection. The Project adds less than the allowable increase of 2 seconds and hence, does not have significant impacts at the remaining two intersections.

TABLE 9–4
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing + Cumulative Projects		Existing + Cumulative Projects + Project		Δ[c]	Impact Type
			Delay[a]	LOS[b]	Delay	LOS		
1. N. Melrose Dr / Vista Way	Signal	AM	47.9	D	46.0	D	[d]	No
		Midday	37.6	D	37.1	D	[d]	No
		PM	62.6	E	62.2	E	[d]	No
2. S. Melrose Dr / SR-78 EB Off-Ramp	Signal	AM	8.1	A	8.1	A	0.0	No
		Midday	11.2	B	13.5	B	2.3	No
		PM	12.7	B	12.6	B	[d]	No
3. S. Melrose Dr / Hacienda Dr	Signal	AM	**137.9**	**F**	**158.7**	**F**	**20.8**	**Yes**
		Midday	**60.3**	**E**	**73.0**	**E**	**12.7**	**Yes**
		PM	**61.3**	**E**	**74.0**	**E**	**12.7**	**Yes**
4. Vista Village Dr / Hacienda Dr	Signal	AM	72.6	E	65.4	E	[d]	No
		Midday	62.6	E	60.5	E	[d]	No
		PM	72.7	E	63.0	E	[d]	No
5. Vista Village Dr / SR-78 EB Ramps	Signal	AM	24.7	C	23.8	C	[d]	No
		Midday	35.1	D	34.9	C	[d]	No
		PM	45.9	D	45.8	D	[d]	No
6. Vista Village Dr / SR-78 WB Ramps	Signal	AM	17.5	B	19.2	B	1.7	No
		Midday	15.4	B	17.0	B	1.6	No
		PM	38.3	D	40.0	D	1.7	No
7. Vista Village Dr / Lado De Loma Dr	Signal	AM	34.6	C	31.2	C	[d]	No
		Midday	20.2	C	22.0	C	1.8	No
		PM	24.4	C	24.1	C	[d]	No
8. Vista Village Dr / Vista Way	Signal	AM	31.0	C	31.4	C	0.4	No
		Midday	27.2	C	26.9	C	[d]	No
		PM	26.6	C	26.6	C	0.0	No

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TABLE 9–4 (CONTINUED)
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing + Cumulative Projects		Existing + Cumulative Projects + Project		Δ[c]	Impact Type
			Delay[a]	LOS[b]	Delay	LOS		
9. Project Main Access / Hacienda Dr	MSSC [e]	AM	DNE	DNE	10.7	B	NA	No
		Midday	DNE	DNE	12.2	B	NA	No
		PM	DNE	DNE	10.9	B	NA	No
10. Project Secondary Access / Hacienda Dr	MSSC	AM	DNE	DNE	8.8	A	NA	No
		Midday	DNE	DNE	8.9	A	NA	No
		PM	DNE	DNE	8.7	A	NA	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to project.
d. Synchro calculated a lower delay than without the Project traffic. Hence, the Δ is not shown.
e. Minor Street STOP Controlled. Minor Street left-turn delay and LOS reported.

General Notes:
Bold and shading indicates a potentially significant impact.
DNE – Does not Exist
NA – Not Applicable

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

9.3.2 *Freeway Mainline Analysis*

Table 9-7 summarizes the Existing + Cumulative projects + Project freeway mainline operations. As shown in *Table 9-5*, with the addition of Project traffic, the SR 78 freeway segment between Vista Village Drive and Melrose Drive is calculated to operate at LOS E during the AM and PM peak hours. However, the increase in V/C ratio due to Project traffic is 0.01, the acceptable threshold. Therefore, the Project does not have a significant impact.

9.3.3 *Ramp Meter Analysis*

Table 9-6 summarizes the Existing + Cumulative projects + Project ramp meter operations. The calculations shown in the table are per lane. As shown in *Table 9-6*, using the average discharge rates obtained from Caltrans, with the addition of Project traffic, during the AM and PM peak hours, the delays are minimal since the volume demand is less than the meter rate.

TABLE 9-5
FREEWAY MAINLINE OPERATIONS - EXISTING + CUMULATIVE PROJECTS

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	Cumulative Projects [b] Peak Hour Volume		Existing + Cumulative Projects					
						Peak Hour Volume [c]		V/C		LOS	
				AM	PM	AM	PM	AM	PM	AM	PM
SR 78											
Melrose Dr to Vista Village Dr	EB	3ML	5,400	12	46	4,316	4,608	0.80	0.85	C	D
	WB	3ML	5,400	15	40	5,171	5,293	0.96	0.98	E	E
Vista Village Dr to Civic Center Dr	EB	3ML + 1Aux	6,400	31	57	4,335	4,619	0.68	0.72	C	C
	WB	3ML + 1Aux	6,400	18	70	5,174	5,323	0.81	0.83	D	D

Footnotes:

a. Capacity calculated at 1800 vph per lane and 1000 vph per Auxiliary lane
b. Cumulative Projects traffic volumes at the ramps.
c. Existing + Cumulative Project traffic volumes.

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 9-6
NEAR-TERM RAMP METER ANALYSIS

Location/Condition	Peak Hour	Peak Hour Flow (F) (veh/hr/ln)	Calculated (Most Restrictive)			
			Discharge Rate (veh/hr/ln)	Excess Demand E (veh/hr/ln)	Delay (min/ln)	Queue (ft)
Existing + Cumulative Projects						
Vista Village Drive to WB SR 78						1 HOV + 1 SOV
HOV	AM	70	761	0	0	0
SOV	AM	630	761	0	0	0
HOV	PM	62	778	0	0	0
SOV	PM	556	778	0	0	0
Vista Village Drive to EB SR 78						1 HOV + 2 SOV
HOV	AM	131	753	0	0	0
SOV	AM	590	753	0	0	0
HOV	PM	132	743	0	0	0
SOV	PM	592	743	0	0	0
Existing + Project + Cumulative Projects						
Vista Village Drive to WB SR 78						1 HOV + 1 SOV
HOV	AM	76	761	0	0	0
SOV	AM	684	761	0	0	0
HOV	PM	68	778	0	0	0
SOV	PM	610	778	0	0	0
Vista Village Drive to EB SR 78						
HOV	AM	141	753	0	0	0
SOV	AM	633	753	0	0	0
HOV	PM	140	743	0	0	0
SOV	PM	632	743	0	0	0

Footnotes:

a. Peak Hour Flow "D" is the traffic that desires to enter the freeway at this on-ramp during the peak hour.

b. Discharge Rate "R" is the *most restrictive* rate at which the ramp meter (signal) discharges traffic on to the freeway (See *Appendix A* for the ramp meter data obtained from Caltrans).

c. Excess Demand "E" is the difference between the Peak Hour Flow and the Discharge Rate.

d. Delay in minutes per lane experienced by each vehicle, calculated as the ratio of the Excess Demand and the Peak Hour Flow in one minute.

e. Queue per lane is reported in feet and is calculated as 25 feet per vehicle.

General Note:

HOV – High Occupancy Lane

SOV – Single Occupancy Vehicle Lane

Since the demand volume is less than the metered rate, the delay and hence the queue calculates to "0". There will however be an insignificant delay and queue.

TABLE 9-7
FREEWAY MAINLINE OPERATIONS - EXISTING + CUMULATIVE PROJECTS + PROJECT

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	Existing + Cumulative Projects V/C [b]		Project Peak Hour Traffic [c]		Existing + Cumulative Projects + Project							
								Peak Hour Volume		V/C		LOS		Δ V/C	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SR 78															
Melrose Dr to Vista Village Dr	EB	3ML	5,400	0.80	0.85	44	41	4,360	4,649	0.81	0.86	D	D	0.01	0.01
	WB	3ML	5,400	0.96	0.98	60	60	5,231	5,353	0.97	0.99	E	E	0.01	0.01
Vista Village Dr to Civic Center Dr	EB	3ML + 1Aux	6,400	0.68	0.72	96	91	4,431	4,710	0.69	0.74	C	C	0.01	0.02
	WB	3ML + 1Aux	6,400	0.81	0.83	98	88	5,272	5,411	0.82	0.85	D	D	0.01	0.02

Footnotes:

a. Capacity calculated at 1800 vph per lane and 1000 vph per Auxiliary lane
b. Existing + Cumulative Projects V/C from *Table 9-5*.
c. Project traffic at the ramps.

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

10.0 LONG-TERM (YEAR 2030) ANALYSIS

10.1 Year 2030 Volumes

Year 2030 peak hour intersection volumes were obtained from the City of Vista *General Plan 2030, May 2011, Draft Program, Environmental Impact Report*. A copy of the volume figure from the General Plan is included in ***Appendix F***.

Figure 10–1 depicts the Year 2030 without project traffic volumes and ***Figure 10–2*** depicts the Year 2030 with Project traffic volumes.

10.2 Year 2030 Without Project Analysis

10.2.1 *Intersection Analysis*

Table 10–1 summarizes the Year 2030 without Project peak hour intersection operations. As seen in *Table 10–1*, all intersections are calculated to continue to operate at LOS D or better except:

- Intersection #1. N. Melrose Drive / Vista Way – LOS F (AM and PM peak hours)
- Intersection #3. S. Melrose Drive / Hacienda Drive – LOS F (AM and PM peak hours)
- Intersection #4. Vista Village Drive / Hacienda Drive – LOS F (AM and PM peak hours)

The Year 2030 without Project peak hour intersection analysis worksheets are included in *Appendix F*.

10.2.2 *Freeway Mainline Analysis*

Table 10-2 summarizes the Year 2030 without Project freeway mainline operations. As shown in *Table 10-2*, the SR 78 freeway segment between Vista Village Drive and Melrose Drive is calculated to operate at LOS E during the AM and PM peak hours.

10.2.3 *Ramp Meter Analysis*

Table 10-3 summarizes the Year 2030 without Project ramp meter operations. The calculations shown in the table are per lane. As shown in *Table 10–3*, using the average discharge rates obtained from Caltrans, during the AM and PM peak hours, the delays are minimal since the volume demand is less than the meter rate.

TABLE 10–1
LONG-TERM (YEAR 2030) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2030 Without Project		Year 2030 With Project		Δ[c]	Impact Type
			Delay[a]	LOS[b]	Delay	LOS		
1. N. Melrose Dr / Vista Way	Signal	AM	80.5	F	80.0	E	[d]	No
		PM	99.0	F	98.4	F	[d]	No
2. S. Melrose Dr / SR-78 EB Off-Ramp	Signal	AM	10.3	B	10.0	A	[d]	No
		PM	11.6	B	11.6	B	0.0	No
3. S. Melrose Dr / Hacienda Dr	Signal	AM	**220.7**	**F**	**242.2**	**F**	**21.5**	**Yes**
		PM	**94.5**	**F**	**110.6**	**F**	**16.1**	**Yes**
4. Vista Village Dr / Hacienda Dr	Signal	AM	205.5	F	171.9	F	[d]	No
		PM	160.6	F	131.1	F	[d]	No
5. Vista Village Dr / SR-78 EB Ramps	Signal	AM	35.5	D	31.2	C	[d]	No
		PM	50.4	D	49.5	D	[d]	No
6. Vista Village Dr / SR-78 WB Ramps	Signal	AM	33.9	C	42.6	D	8.7	No
		PM	50.3	D	51.3	D	1.0	No
7. Vista Village Dr / Lado De Loma Dr	Signal	AM	28.3	C	36.7	D	8.4	No
		PM	23.3	C	23.7	C	0.4	No
8. Vista Village Dr / Vista Way	Signal	AM	34.5	C	35.7	D	1.2	No
		PM	51.8	D	53.6	D	1.8	No

CONTINUED ON THE NEXT PAGE

TABLE 10–1 (CONTINUED)
LONG-TERM (YEAR 2030) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2030 Without Project		Year 2030 With Project		Δ[c]	Impact Type
			Delay[a]	LOS[b]	Delay	LOS		
9. Project Main Access / Hacienda Dr	MSSC [e]	AM	DNE	DNE	10.8	B	NA	No
		PM	DNE	DNE	11.0	B	NA	No
10. Project Secondary Access / Hacienda Dr	MSSC	AM	DNE	DNE	8.7	A	NA	No
		PM	DNE	DNE	8.8	A	NA	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to project.
d. Synchro calculated a lower delay than without the Project traffic. Hence, the Δ is not shown.
e. Minor Street STOP Controlled. Minor Street left-turn delay and LOS reported.

General Notes:

Bold and shading indicates a potentially significant impact.
DNE – Does not Exist
NA – Not Applicable

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

TABLE 10-2
FREEWAY MAINLINE OPERATIONS - YEAR 2030 NO PROJECT

Freeway Segment	Dir.	# of Lanes	Hourly Cap [a]	AADT [b]	K Factor		D Factor		Truck Factor [d]	Peak Hour Volume [c]		V/C [f]		LOS	
					AM	PM	AM	PM		AM	PM	AM	PM	AM	PM
SR 78															
Melrose Dr to Vista Village Dr	EB	3ML + 1 HOV	6,400	160,700	0.0693	0.0719	0.4550	0.4648	0.9523	5,321	5,639	0.83	0.88	D	D
	WB	3ML + 1 HOV	6,400		0.0693	0.0719	0.5450	0.5352		6,373	6,494	1.00	1.01	E	F(0)
Vista Village Dr to Civic Center Dr	EB	3ML + 1Aux+ 1 HOV	7,400	166,900	0.0693	0.0719	0.4550	0.4648	0.9523	5,526	5,857	0.75	0.79	C	C
	WB	3ML + 1Aux+ 1 HOV	7,400		0.0693	0.0719	0.5450	0.5352		6,619	6,744	0.89	0.91	D	D

Footnotes:

a. Capacity calculated at 1800 vph per lane and 1000 vph per Auxiliary lane and HOV Lane.
b. Year 2030 Daily Traffic Volumes from SANDAG Series 12 year 2030 volume plot.
c. Truck Factor from "2016 Annual Average Daily Truck Traffic on the California State Highway System".
d. Peak Hour Volumes factored using Passenger Car Equivalent for trucks.
e. V/C = (Peak Hour volume/Truck Factor/Capacity)

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

TABLE 10-3
RAMP METER ANALYSIS – YEAR 2030

Location/Condition		Peak Hour	Peak Hour Flow (D) (veh/hr/ln)	Calculated (Most Restrictive)			
				Discharge Rate (R) (veh/hr/ln)	Excess Demand (E) (veh/hr/ln)	Delay (min/ln)	Queue (ft)
Year 2030							
Vista Village Drive to EB SR 78							1 HOV + 1 SOV
	HOV	AM	87	761	0	0	0
	SOV	AM	787	761	26	2	640
	HOV	PM	74	778	0	0	0
	SOV	PM	668	778	0	0	0
Vista Village Drive to EB SR 78							1 HOV + 2 SOV
	HOV	AM	180	753	0	0	0
	SOV	AM	808	753	55	4	1,369
	HOV	PM	161	743	0	0	0
	SOV	PM	726	743	0	0	0
Year 2030 + Project							
Vista Village Drive to EB SR 78							1 HOV + 1 SOV
	HOV	AM	93	761	0	0	0
	SOV	AM	841	761	80	6	1,990
	HOV	PM	80	778	0	0	0
	SOV	PM	722	778	0	0	0
Vista Village Drive to EB SR 78							1 HOV + 2 SOV
	HOV	AM	189	753	0	0	0
	SOV	AM	851	753	98	8	0
	HOV	PM	170	743	0	0	0
	SOV	PM	766	743	23	2	0

Footnotes:

a. Peak Hour Flow "D" is the traffic that desires to enter the freeway at this on-ramp during the peak hour.
b. Discharge Rate "R" is the *most restrictive* rate at which the ramp meter (signal) discharges traffic on to the freeway (See *Appendix A* for the ramp meter data obtained from Caltrans).
c. Excess Demand "E" is the difference between the Peak Hour Flow and the Discharge Rate.
d. Delay in minutes per lane experienced by each vehicle, calculated as the ratio of the Excess Demand and the Peak Hour Flow in one minute.
e. Queue per lane is reported in feet and is calculated as 25 feet per vehicle.

General Note:

HOV – High Occupancy Lane

SOV – Single Occupancy Vehicle Lane

Since the demand volume is less than the metered rate, the delay and hence the queue calculates to "0". There will however be an insignificant delay and queue.

10.3 Year 2030 With Project Analysis

10.3.1 *Intersection Analysis*

Table 10–1 summarizes the Year 2030 with Project peak hour intersection operations. As seen in *Table 10–1*, with the addition of the project traffic, all intersections are calculated to continue to operate at LOS D or better except:

- Intersection #1. N. Melrose Drive / Vista Way – LOS E (AM peak hour) and LOS F (PM peak hour)
- Intersection #3. S. Melrose Drive / Hacienda Drive – LOS F (AM peak hour) and LOS E (PM peak hour)
- Intersection #4. Vista Village Drive / Hacienda Drive – LOS F (AM and PM peak hours)

Based on the City of Vista Significance Criteria for the Long-Term, the Project has a significant cumulative impact at the S. Melrose Drive / Hacienda Drive intersection. The project does not have significant impacts at the N. Melrose Drive / Vista Way and Vista Village Drive / Hacienda Drive intersections.

The Year 2030 with Project peak hour intersection analysis worksheets are included in ***Appendix G***.

10.3.2 *Freeway Mainline Analysis*

Table 10-2 summarizes the Year 2030 with Project freeway mainline operations. As shown in *Table 10-2*, with the addition of Project traffic, the SR 78 freeway segment between Vista Village Drive and Melrose Drive is calculated to operate at LOS E during the AM and PM peak hours. However, the increase in V/C ratio due to Project traffic is 0.01, the acceptable threshold. Therefore, the Project does not have a significant impact.

10.3.3 *Ramp Meter Analysis*

Table 10-3 summarizes the Year 2030 with Project ramp meter operations. The calculations shown in the table are per lane. As shown in *Table 10–3*, using the average discharge rates obtained from Caltrans, with the addition of Project traffic, during the AM and PM peak hours, the increase in delay with the project is less than 15 minutes. Hence, the project does not have an impact.

TABLE 10-4
FREEWAY MAINLINE OPERATIONS – YEAR 2030 + PROJECT

Freeway Segment	Dir.	# of Lanes	Hourly Capacity [a]	Year 2030 No Project V/C [b]		Project Peak Hour Traffic [c]		Year 2030 + Project							
								Peak Hour Volume		V/C		LOS		Δ V/C	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SR 78															
Melrose Dr to Vista Village Dr	EB	3ML + 1 HOV	6,400	0.83	0.88	44	41	5,365	5,680	0.84	0.89	D	D	0.01	0.01
	WB	3ML + 1 HOV	6,400	1.00	1.01	60	60	6,433	6,554	1.01	1.02	E	F(0)	0.01	0.01
Vista Village Dr to Civic Center Dr	EB	3ML + 1Aux+ 1 HOV	7,400	0.75	0.79	96	91	5,622	5,948	0.76	0.80	C	C	0.01	0.02
	WB	3ML + 1Aux+ 1 HOV	7,400	0.89	0.91	98	88	6,717	6,832	0.91	0.92	D	D	0.02	0.01

Footnotes:

a. Capacity calculated at 1800 vph per lane and 1000 vph per Auxiliary lane
b. Existing + Cumulative Projects V/C from *Table 9-5*.
c. Project traffic at the ramps.

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

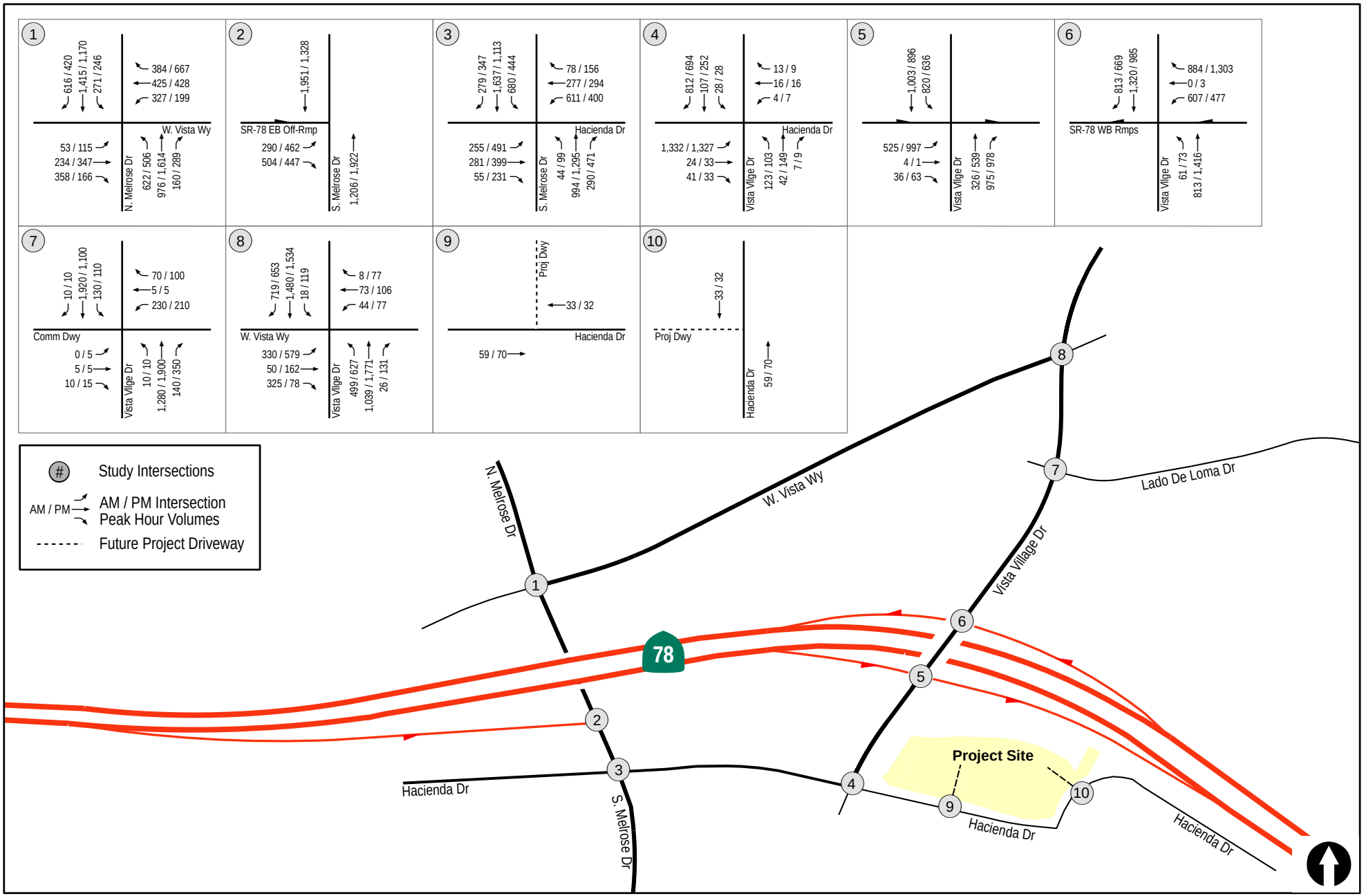

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Figure 10-1

Year 2030 Traffic Volumes

SUNROAD VISTA

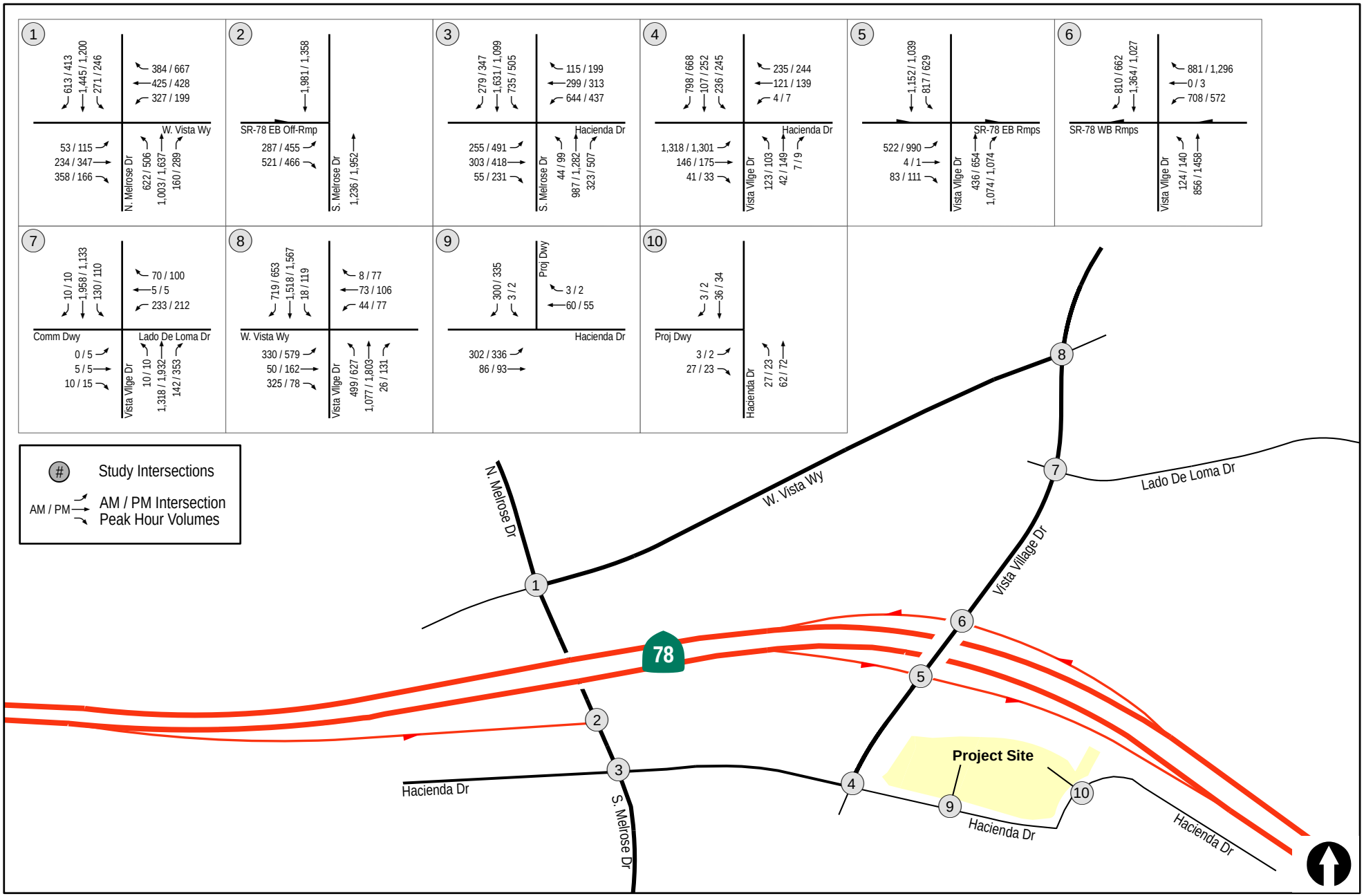

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Figure 10-2

Year 2030 + Project Traffic Volumes

SUNROAD VISTA

11.0 ACCESS, CIRCULATION AND CONSTRUCTION TRAFFIC

11.1 Access and Onsite Circulation

Two access driveways are proposed on Hacienda Drive as shown in *Figure 2-3*, Conceptual Site Plan. Both access driveways are controlled by a stop sign. One inbound lane and one outbound lane are proposed at both driveways. As seen in the analysis tables, both access driveway intersections are calculated to operate at LOS A or better.

It is recommended that a left-turn lane be provided on Hacienda Drive for traffic entering the western driveway, since most of the traffic accessing the Project site will use this movement.

11.2 Fire Truck Access

Figure 11–1 depicts the Fire truck path from both Project access driveways within the site. The path in green depicts the entry and the path in red depicts the exit from the site at both driveways. As shown in *Figure 11–1*, fire trucks are able to access the project site from both Project access driveways.

11.3 Loading and Unloading

Figure 11–2 depicts the onsite loading and unloading and the truck paths to and from the site at both access driveways. It is recommended that no loading and unloading activities should occur during the peak hours.

11.4 Drive-Through Window Queuing

Typically, drive-through queues are long at restaurants such as Chick-fil-A, Starbucks and Panera Bread. In order to determine whether adequate queuing distance is available at the proposed Chick-Fil-A, Starbucks, and Panera restaurants, research was conducted and other studies were reviewed. The following subsections describe the forecasted drive-through queues and the available storages at these three restaurants such that the queues would not hinder onsite circulation or extend to the street (Hacienda Drive).

11.4.1 *Pad 1 - Chick-Fil-A Drive-Through Window Queue Assessment*

As seen on *Figure 2-3*, a queue length of 21 vehicles is provided for Pad 1 within the drive-through / pick-up window lane. Additional queuing space of approximately 12 vehicles is available between the end of the drive-through window queue and Pad 2, for a total queue of 30 spaces.

Queue lengths observations were conducted at three existing Chick-Fil-A restaurants on Thursday, 26 July, Friday 27 July and Saturday 28 July, 2018 during the lunch hour (11:30 AM through 1:30 PM) and during the evening (4:30 PM through 6:30 PM). They are, (1) 2089 Olympic Parkway, Chula Vista; (2) 17115 Camino Del Sur, San Diego; and (3) 3570 Sports Arena Boulevard, San Diego.

1. <u>Olympic Parkway</u>

   At the Olympic Parkway location, the longest queue during the lunch hour was found to be 25 vehicles on Friday. During the PM peak hour, the longest drive-through window queue was found to be 22 vehicles, also on Friday.

2. Camino Del Sur

   At the Camino Del Sur location, the longest queue during the lunch hour was found to be 13 vehicles on Saturday. During the PM peak hour, the longest drive-through window queue was found to be 7 vehicles on Friday.

3. Sports Arena Boulevard

   At the Sports Arena Boulevard location, the longest queue during the lunch hour was found to be 21 vehicles on Friday. During the PM peak hour, the longest drive-through window queue was found to be 7 vehicles on Saturday.

Of the three locations, the longest lunch hour queue of 25 vehicles at the drive-through window was observed on a Friday at the Olympic Parkway location at 11:50 AM. The longest PM queue of 22 vehicles was also observed on a Friday at the Olympic Parkway location at 6:10 PM.

As can be seen from the above, the queues at the three locations vary between 10 cars at the Del Sur restaurant to 25 at the Olympic Parkway restaurant during the lunch hour on a Friday and between 4 cars at the Del Sur restaurant to 22 cars at the Olympic Parkway restaurant during the PM peak hour. The queues are therefore a function of the location. Hence, while at the "worst case" the queue could be 25 cars long, the 95th percentile queue is 18 vehicles.

Figure 11-3 graphically depicts the queuing of 18 cars (20 feet each) at the Pad 1 drive-through window. As seen on *Figure 11-3*, the available queue storage accommodates this 95th percentile queue. Hence, adequate queuing space is available on-site and the queue from the Chick-Fil-A drive-through window is not expected to spill on to Hacienda Drive, or block circulation within the site. Also, patrons have the choice of parking and walking into the restaurant, at times when the queue is long. Appendix H includes the Chick-Fil-A Drive-Through Window Counts.

11.4.2 *Pad 2 - Starbucks Drive-Through Window Queue Assessment*

A Starbucks store is proposed on Pad 2, which provides queuing for 10 vehicles at the drive-through window. Queuing space for two additional vehicles is available, without blocking access to and from the adjacent parking lot.

It is important to assess the potential queues that could result at the Starbucks drive-through. *Appendix H* contains an excerpt from the *Lake Murray Village Traffic Study* prepared by Mizuta Traffic Consulting (November 2017). This study recorded vehicle queues at three existing Starbucks in the City of El Cajon. The study found that the 95th percentile queue was 10 vehicles. The queues at this Starbucks are expected to be a little bit less since the amount of parking provided in the near vicinity of Pad 2 is in excess of 56 spaces, shared with an adjacent pad. In addition, Starbucks has been implementing an online order system for drive-through customers that are quite popular and well utilized. Drive-through wait times are being reduced with best practices.

As seen on *Figure 11-3*, the 10th and last car in the 95th percentile queue would back up to the drive aisle. However, this vehicle will be out of the path of the traffic in the drive aisle. Hence, adequate

queuing space is available on-site and the queue from the Starbucks drive-through window is not expected to spill on to Hacienda Drive, or block circulation within the site. Also, patrons have the choice of parking and walking into the restaurant, at times when the queue is long. As mentioned above, there are 56 full size parking spaces in the immediate vicinity of Pad 2 and more beyond. Therefore, patrons also have adequate opportunity to park and walk into the store when drive-through queues are long.

11.4.3 *Pad 3 - Panera Queue Assessment*

A Panera Bread store is proposed on Pad 3, which provides queuing for 11 vehicles at the drive-through window. A queue study was conducted at the Panera restaurant at 733 Fletcher Parkway in El Cajon. The maximum queue was found to be 9 cars.

The Drive-Through queue observations are included in *Appendix H*.

As seen on *Figure 11-3*, the 95th percentile queue is accommodated within the available storage. Hence, adequate queuing space is available on-site and the queue from the Panera drive-through window is not expected to spill onto Hacienda Drive, or block circulation within the site. Also, patrons have the choice of parking and walking into the restaurant, at times when the queue is long.

11.4.4 *Pad 4 Fast-Food Restaurant Queue Assessment*

The occupant of the fast food restaurant on Pad 4 is not known at this time. Therefore, the queuing demand for Panera Bread was used for the queuing analysis. Queuing for 11 vehicles are provided at the drive-through window for Pad 4. As seen on *Figure 11-3*, the 95th percentile queue is accommodated within the available storage. Hence, adequate queuing space is available on-site and the queue from the fast-food drive-through window is not expected to spill on to Hacienda Drive, or block circulation within the site. Also, patrons have the choice of parking and walking into the restaurant, at times when the queue is long.

11.4.5 *Pad 5 – Car Wash*

Twelve cars (20 feet each) can be at the proposed car wash before backing up into the drive aisle. It may be noted that Driveway #2 is less frequently utilized with less than 30 inbound and 30 outbound trips during the peak hours.

With regards to the operations of the proposed car wash and the potential for queues exceeding the available storage of 12 cars, a letter dated August 28, 2018 from Reza Amirrezvani, President, Super Star Car Wash to the City Planning Department stated the following:

> "We project this location to wash 130 cars per hour at its maximum peak hour. However, we have designed and will equip this location with an equipment package that has the capability to wash 180 cars per hour.
>
> This site will have 3 XPT (Xpress Pay Terminals), each terminal capable of processing 80 cars per hour. (Please see attachment) The car wash tunnel will be equipped with Sonny's Car Wash equipment that is capable of processing up to 180 cars per hour. (Please see attachment). Due

to these facts, we do not anticipate having an issue with our driveway being blocked back to the street entrance at any time. However, in the rare occasion that the car wash volume reaches maximum capacity and stacking presents a problem, the Car Wash Manager will post a movable sign in front of the carwash that says, "Wash Full", and only remove said sign when the stack dissipates."

A copy of this letter and the attachments are included in *Appendix H*.

11.5 Construction Traffic

The cut and fill at this site are balanced. Hence, construction traffic is limited to actual construction of the buildings, site paving, etc. Therefore, the traffic during construction is estimated to be minimal and substantially less than the traffic generated by the project. Thus, construction traffic impacts are not expected to be significant.

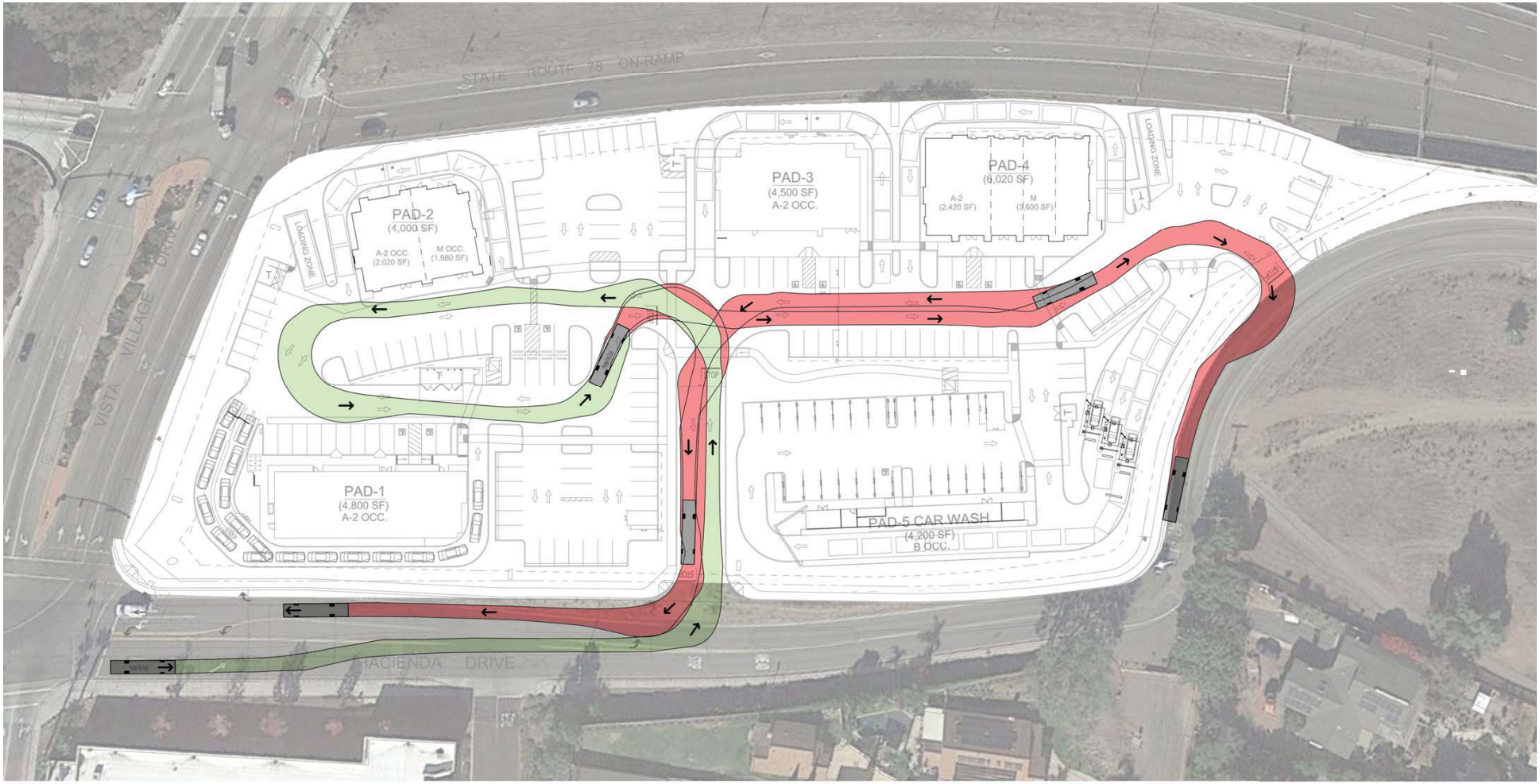

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Figure 11-1

Fire Truck Turning Path

SUNROAD VISTA

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Figure 11-2

Loading Zone Truck Turning Path

SUNROAD VISTA

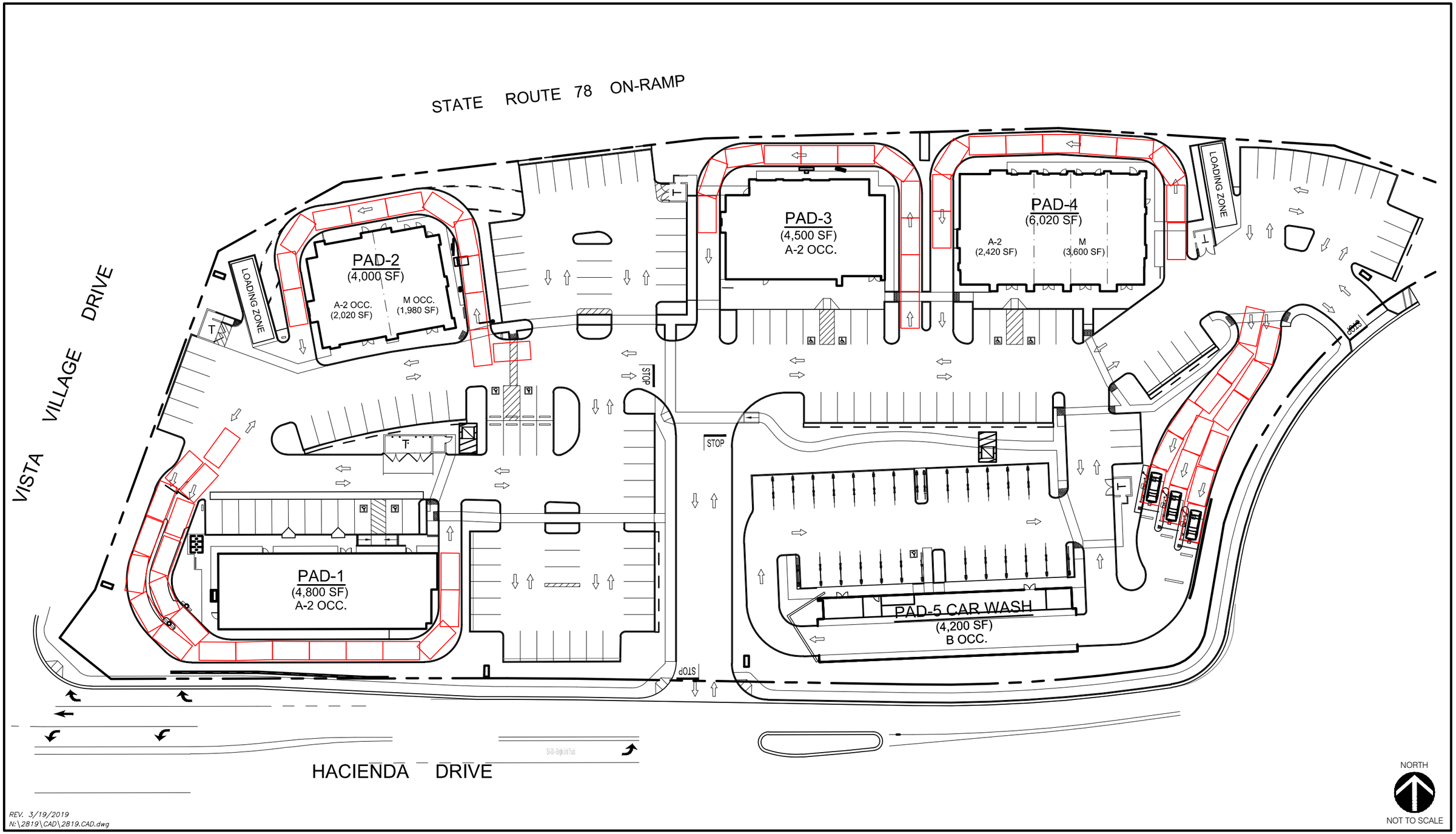

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Figure 11-3

Drive-Thru Queuing

SUNROAD VISTA

12.0 PARKING

A parking demand analysis was conducted to determine an accurate parking rate for fast food restaurants. The City of Vista Code includes a rate of 12.5 spaces per 1000 square feet for "restaurants" but does not differentiate sit-down restaurants from fast food restaurants with drive-through (other than take-out, max seating area 15% of gross floor area). LLG identified 6 stand-alone fast food restaurants with drive-thru. LLG conducted a 3-day peak period parking count at each facility (one Saturday and two weekdays). The parking occupancy counts were conducted every 30 minutes, between 11 AM and 1 PM, and between 4 PM and 6 PM in November 2017 and September 2018. Cars within the drive-through queues were not counted.

Table 12–1 summarizes the parking demand at each of these restaurants. The average and peak parking rate is indicated for each restaurant. The overall average rate is 6.7 spaces per 1000 square feet and the highest rate counted at any of the restaurants that peak at lunchtime is 8.28 spaces per 1000 square feet. Based on the collected data specifically for fast food restaurants, a ratio of 8.3 spaces per 1000 square feet is recommended. This rate is about 25% higher than the average rate 6.7 spaces per 1000 square feet.

TABLE 12–1
FAST-FOOD RESTAURANT PARKING DEMAND

Time of Day	Chick-Fil-A (3475 Marron Rd, Oceanside) *Supply = 36 spaces* Building: 4,466 SF			Del Taco (1037 East Bobier Dr, Vista) *Supply = 24 spaces* Building: 2,742 SF			Jack in the Box (815 E Vista Wy, Vista) *Supply = 21 spaces* Building: 2,987 SF			KFC (840 E Vista Wy, Vista) *Supply = 26 spaces* Building: 2,548 SF			McDonalds (827 S Santa Fe Ave, Vista) *Supply = 36 spaces* Building: 4,770 SF			Starbucks (2365 Cam del Rio N, San Diego) *Supply = 14 Spaces* Building = 1,450 SF		
	Day 1 (W)	Day 2 (W)	Day 3 (S)	Day 1 (S)	Day 2 (W)	Day 3 (W)	Day 1 (S)	Day 2 (W)	Day 3 (W)	Day 1 (S)	Day 2 (W)	Day 3 (W)	Day 1 (S)	Day 2 (W)	Day 3 (W)	Day 1 (S)	Day 2 (W)	Day 3 (W)
11:00am	18	10	22	3	5	9	13	6	10	6	NULL	12	20	12	16	11	13	13
11:30am	25	19	23	5	9	8	15	7	9	9	NULL	11	15	16	14	14	11	14
12.00 pm	24	32	21	9	17	9	14	12	7	12	NULL	9	25	16	16	12	10	13
12:30pm	26	28	27	13	13	13	10	7	7	11	NULL	11	21	11	15	14	9	12
1:00pm	24	35	37	9	11	7	5	10	6	10	NULL	6	21	9	8	12	10	14
4:00pm	14	12	13	3	5	7	3	9	4	10	9	11	13	10	17	11	13	11
4:30pm	17	11	22	5	5	8	3	7	5	8	11	14	7	13	11	11	11	8
5:00pm	14	29	22	6	7	12	3	8	6	9	10	15	15	13	5	14	13	11
5:30pm	23	17	24	7	6	10	6	9	7	13	12	8	18	12	10	14	14	13
6:00pm	20	19	34	8	5	11	3	8	10	15	7	12	11	14	18	13	14	11
Average Parking Demand per KSF			**4.94**			**2.98**			**2.56**			**4.10**			**2.95**			**8.38**
Peak Parking Demand per KSF			**8.28**			**6.20**			**5.02**			**5.89**			**5.24**			**9.66**
Overall Average Parking Demand			***6.7***															

Footnotes:

a. Parking counts conducted on November 2017 and September 2018.

General Notes:

1. KSF = Thousand square feet.
2. N/A = Not available.
3. S= Saturday Count W= Weekday Count
4. Value in cell is the number of parking cars at that time. Cars in drive-throughs were not counted.

13.0 SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES

13.1 Significance of Impacts

Based on the analysis and the established significance criteria, the following significant impact was determined:

1. S. Melrose Drive / Hacienda Drive – Long-Term cumulative impact

13.2 Mitigation Measures

The following mitigation measure is recommended:

1. **S. Melrose Drive / Hacienda Drive** – Provide the following mitigation mitigation:
   - Provide signal interconnect on Hacienda Drive between the S. Melrose Drive / Hacienda Drive intersection and the Vista Village Drive / Hacienda Drive intersection
   - Provide a third westbound left-turn lane and striping as shown in ***Figure 13-1***.

In addition to the above, as part of the development, the Project will construct an exclusive westbound right-turn lane on Hacienda Drive (along the Project frontage), at Vista Village Drive.

13.3 Post-Mitigation Analysis

Table 13-1 summarizes the post mitigation analysis in the Near-Term and Long-Term. As seen in *Table 13-1*, with the implementation of the above described mitigation measures, the S. Melrose Drive / Hacienda Drive intersection is calculated to operate with lower delays in the "with Project" condition than in the "without Project" condition in all scenarios. Hence, the impact is adequately mitigated.

Appendix I includes the peak hour analysis worksheets for the post mitigation analysis.

TABLE 13-2
NEAR-TERM INTERSECTION POST MITIGATION ANALYSIS

EXISTING + PROJECT

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Mitigated Existing + Project	
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS
3. S. Melrose Dr / Hacienda Dr	Signal	AM	136.2	F	157.2	F	112.4	F
		Midday	61.0	E	73.9	E	54.9	D
		PM	62.8	E	75.8	E	61.5	E

NEAR-TERM

Intersection	Control Type	Peak Hour	Existing + Cumulative Projects		Existing + Cumulative Projects + Project		Mitigated Existing + Cumulative Projects + Project	
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS
3. S. Melrose Dr / Hacienda Dr	Signal	AM	137.9	F	158.7	F	112.7	F
		Midday	60.3	E	73.0	E	54.4	D
		PM	61.3	E	74.0	E	59.2	E

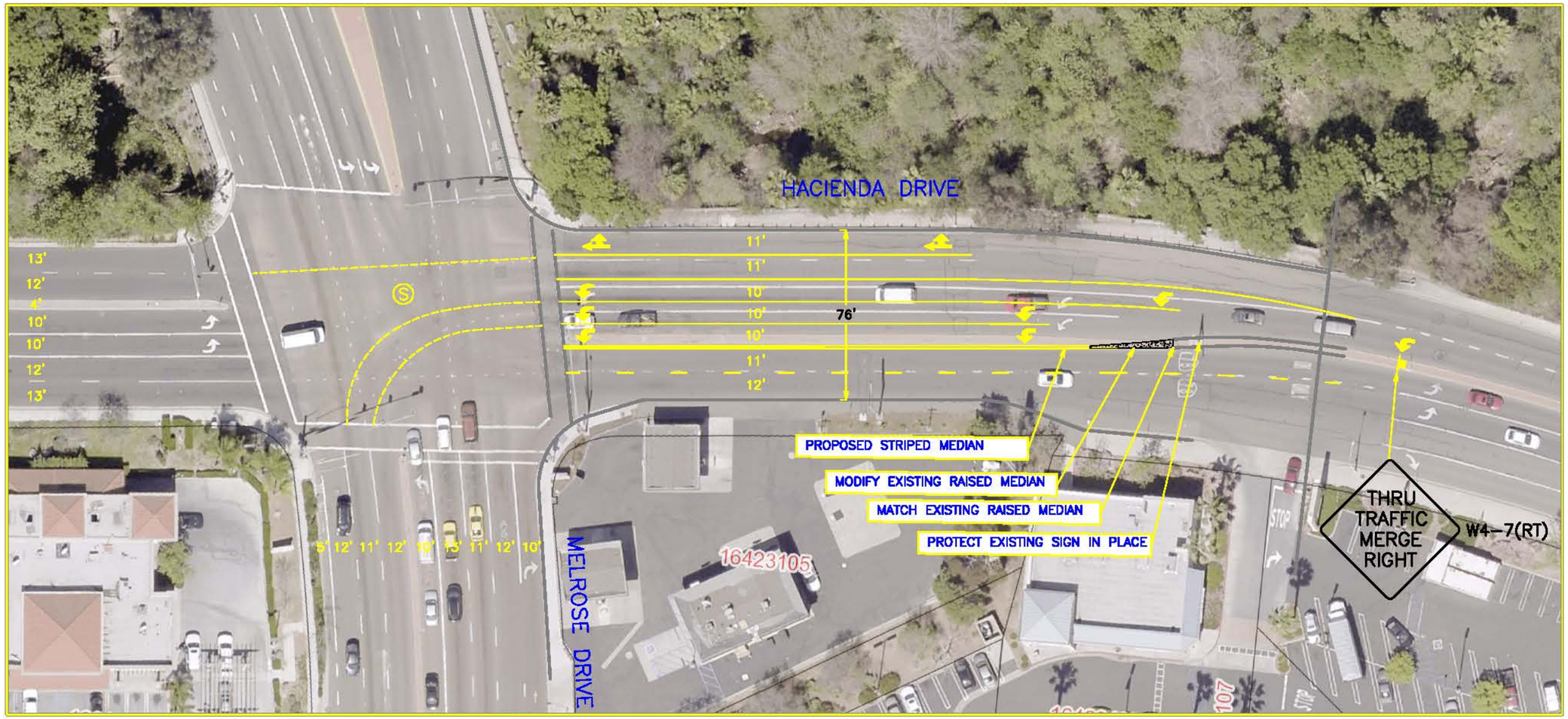
LONG-TERM

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project		Mitigated Year 2035 + Project	
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS
3. S. Melrose Dr / Hacienda Dr	Signal	AM	220.7	F	242.2	F	180.7	F
		PM	94.5	F	110.6	F	87.6	F

Footnotes:

a. Delay per vehicle in seconds.

b. Level of Service



LEGEND

- PROPOSED STRIPING
- TRAFFIC SIGNAL

SCALE: 1"=40'

REV. 3/28/2019
N:\2819\Report\1. Jun 2019\Concept Plan\Melrose-Hacienda - (Option 3L).dwg

LINSCOTT LAW & GREENSPAN engineers

Figure 13-1

Conceptual Plan
Mitigation Measures at the
S. Melrose Drive/Hacienda Drive Intersection

SUNROAD VISTA

LINSCOTT
LAW &
GREENSPAN
engineers

TECHNICAL APPENDICES

SUNROAD RESTAURANTS

San Diego, California
June 10, 2019

LLG Ref. 3-16-2819

Linscott, Law &
Greenspan, Engineers
4542 Ruffner Street
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San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

APPENDIX A

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS AND CITY OF VISTA SIGNAL TIMING PLANS

National Data & Surveying Services

Intersection Turning Movement Count

Location: N Melrose Dr & W Vista Way
City: Vista
Control: Signalized

Project ID: 18-04129-007
Date: 4/17/2018

Total

N/S/EW Streets:	N Melrose Dr				N Melrose Dr				W Vista Way				W Vista Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	1.5	0.5	0	1	2	0	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	66	175	26	0	31	436	147	0	3	23	47	0	50	39	64	0	1107
7:15 AM	82	216	29	0	26	311	138	0	10	34	40	0	38	43	88	3	1058
7:30 AM	63	223	33	0	41	389	113	0	15	37	39	0	38	82	121	13	1207
7:45 AM	74	180	53	1	45	352	138	0	13	68	50	0	67	98	84	9	1232
8:00 AM	64	200	44	0	62	368	123	0	12	74	40	0	28	75	91	5	1186
8:15 AM	82	118	28	0	49	283	122	0	15	70	70	0	48	56	65	0	1006
8:30 AM	60	140	36	0	35	366	128	0	13	29	29	0	36	55	70	1	998
8:45 AM	81	112	34	0	27	242	89	0	9	36	28	0	35	46	54	4	797
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	572	1364	283	1	316	2747	998	0	90	371	343	0	340	494	637	35	8591
APPROACH %'s :	25.77%	61.44%	12.75%	0.05%	7.78%	67.64%	24.58%	0.00%	11.19%	46.14%	42.66%	0.00%	22.58%	32.80%	42.30%	2.32%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	283	819	159	1	174	1420	512	0	50	213	169	0	171	298	384	30	4683
PEAK HR FACTOR :	0.863	0.918	0.750	0.250	0.702	0.913	0.928	0.000	0.833	0.720	0.845	0.000	0.638	0.760	0.793	0.577	0.950
	0.965				0.952				0.824				0.856				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	1.5	0.5	0	1	2	0	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	101	385	65	0	41	188	69	0	29	60	26	0	17	78	104	1	1166
4:15 PM	100	450	46	0	41	200	77	0	26	47	25	0	27	59	109	0	1207
4:30 PM	103	423	68	0	44	199	58	0	17	59	22	0	25	74	117	3	1212
4:45 PM	101	451	63	0	40	184	82	0	10	60	20	0	27	51	116	1	1206
5:00 PM	110	447	49	0	34	216	72	0	16	58	22	0	29	65	118	1	1237
5:15 PM	104	443	66	1	47	214	79	0	19	54	32	0	26	69	127	1	1287
5:30 PM	100	430	43	2	36	233	79	0	19	58	30	0	32	65	125	0	1252
5:45 PM	85	373	42	0	43	235	72	0	9	48	30	0	27	62	138	2	1166
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	804	3402	442	3	326	1669	588	0	145	444	207	0	210	523	954	11	9728
APPROACH %'s :	17.29%	73.15%	9.50%	0.06%	12.62%	64.61%	22.76%	0.00%	18.22%	55.78%	26.01%	0.00%	12.37%	30.80%	56.18%	0.65%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	415	1771	221	3	157	847	312	0	64	230	104	0	114	250	486	3	4977
PEAK HR FACTOR :	0.943	0.982	0.837	0.375	0.835	0.909	0.951	0.000	0.842	0.958	0.813	0.000	0.891	0.906	0.957	0.750	0.971
	0.980				0.945				0.930				0.956				

National Data & Surveying Services

Intersection Turning Movement Count

Location: N Melrose Dr & W Vista Way
City: Vista
Control: Signalized

Project ID: 18-04129-007
Date: 4/17/2018

Bikes

NS/EW Streets:	N Melrose Dr				N Melrose Dr				W Vista Way				W Vista Way				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	1.5	0.5	0	1	2	0	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	1	0	0	2	0	0	0	1	0	0	0	0	1	1	11
APPROACH %'s :	16.67%	66.67%	16.67%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	50.00%	50.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
		0.500				0.500											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	1.5	0.5	0	1	2	0	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	4	0	0	4	0	0	0	0	0	0	0	2	1	0	12
APPROACH %'s :	0.00%	20.00%	80.00%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	66.67%	33.33%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	1	4	0	0	3	0	0	0	0	0	0	0	1	0	0	9
PEAK HR FACTOR :	0.00	0.250	0.333	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.563
		0.417				0.375								0.250			

National Data & Surveying Services

Intersection Turning Movement Count

Location: N Melrose Dr & W Vista Way
City: Vista

Project ID: 18-04129-001
Date: 4/17/2018

Pedestrians (Crosswalks)

NS/EW Streets:	N Melrose Dr		N Melrose Dr		W Vista Way		W Vista Way		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	1	0	0	0	1	1	0	0	3
7:15 AM	1	2	0	0	2	2	1	1	9
7:30 AM	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	4	2	0	0	6
8:00 AM	0	1	0	0	1	1	1	0	4
8:15 AM	2	0	0	0	1	0	0	0	3
8:30 AM	0	0	0	0	1	0	0	0	1
8:45 AM	0	0	0	0	2	0	2	0	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	4	3	0	0	13	6	4	1	31
APPROACH %'s :	57.14%	42.86%			68.42%	31.58%	80.00%	20.00%	
PEAK HR :	**07:15 AM - 08:15 AM**								TOTAL
PEAK HR VOL :	1	3	0	0	8	5	2	1	20
PEAK HR FACTOR :	0.250	0.375			0.500	0.625	0.500	0.250	0.556
	0.333				0.542		0.375		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	2	0	0	1	0	0	2	5
4:15 PM	0	1	0	0	3	0	0	0	4
4:30 PM	0	0	0	0	2	1	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	1	0	1	0	3
5:15 PM	1	0	0	0	0	0	0	0	1
5:30 PM	1	1	0	0	1	0	0	1	4
5:45 PM	0	1	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	5	0	0	8	1	1	3	21
APPROACH %'s :	37.50%	62.50%			88.89%	11.11%	25.00%	75.00%	
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	3	1	0	0	2	0	1	1	8
PEAK HR FACTOR :	0.750	0.250			0.500		0.250	0.250	0.500
	0.500				0.500		0.500		

Prepared by National Data & Surveying Services

N Melrose Dr & W Vista Way

Peak Hour Turning Movement Count

ID: 18-04129-007
City: Vista

Day: Tuesday
Date: 04/17/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

N Melrose Dr — SOUTHBOUND

AM	512	1420	174	0	1253	AM
NOON	0	0	0	0	0	NOON
PM	312	847	157	0	2321	PM
	0.5	1.5	1	0		

W Vista Way — EASTBOUND

AM	NOON	PM	
1093	0	977	
0	0	0	0
50	0	64	1
213	0	230	2
169	0	104	0
AM	NOON	PM	

W Vista Way — WESTBOUND

PM	NOON	AM	
486	0	384	1
250	0	298	2
114	0	171	2
3	0	30	0
611	0	576	
PM	NOON	AM	

N Melrose Dr — NORTHBOUND

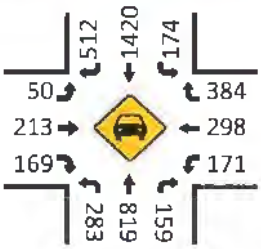
	0	2	2	1		
PM	1068	3	415	1771	221	PM
NOON	0	0	0	0	0	NOON
AM	1761	1	283	819	159	AM

CONTROL

Signalized

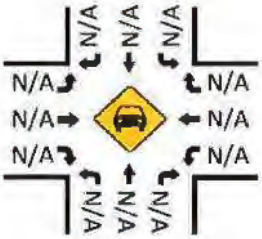
TEV	4683	0	4977
	AM	NOON	PM
PHF	0.95		0.97

Total Vehicles (AM)

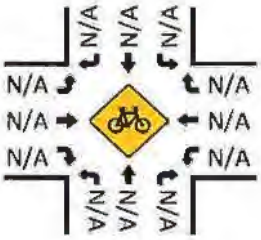


Bikes (AM)

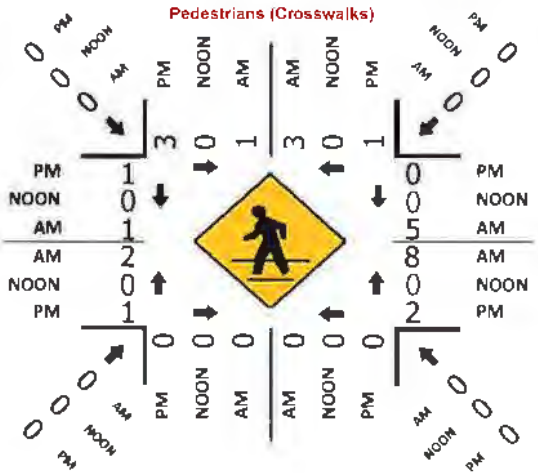
Total Vehicles (Noon)



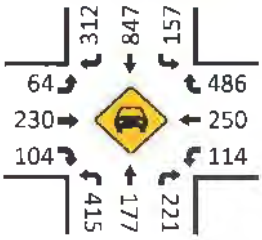
Bikes (NOON)



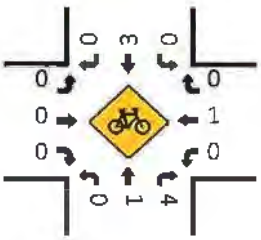
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

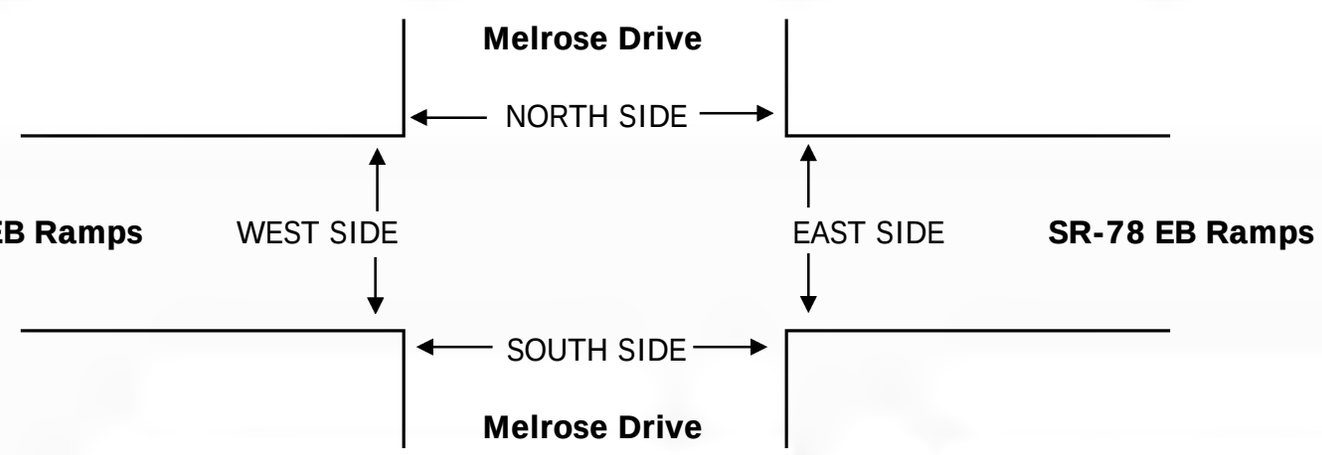
DATE:				
10/10/17	LOCATION:	VISTA	PROJECT #:	PTD17-1013-02
TUESDAY	NORTH & SOUTH:	Melrose Drive	LOCATION #:	7
	EAST & WEST:	SR-78 EB Ramps	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ◄ W E ► S

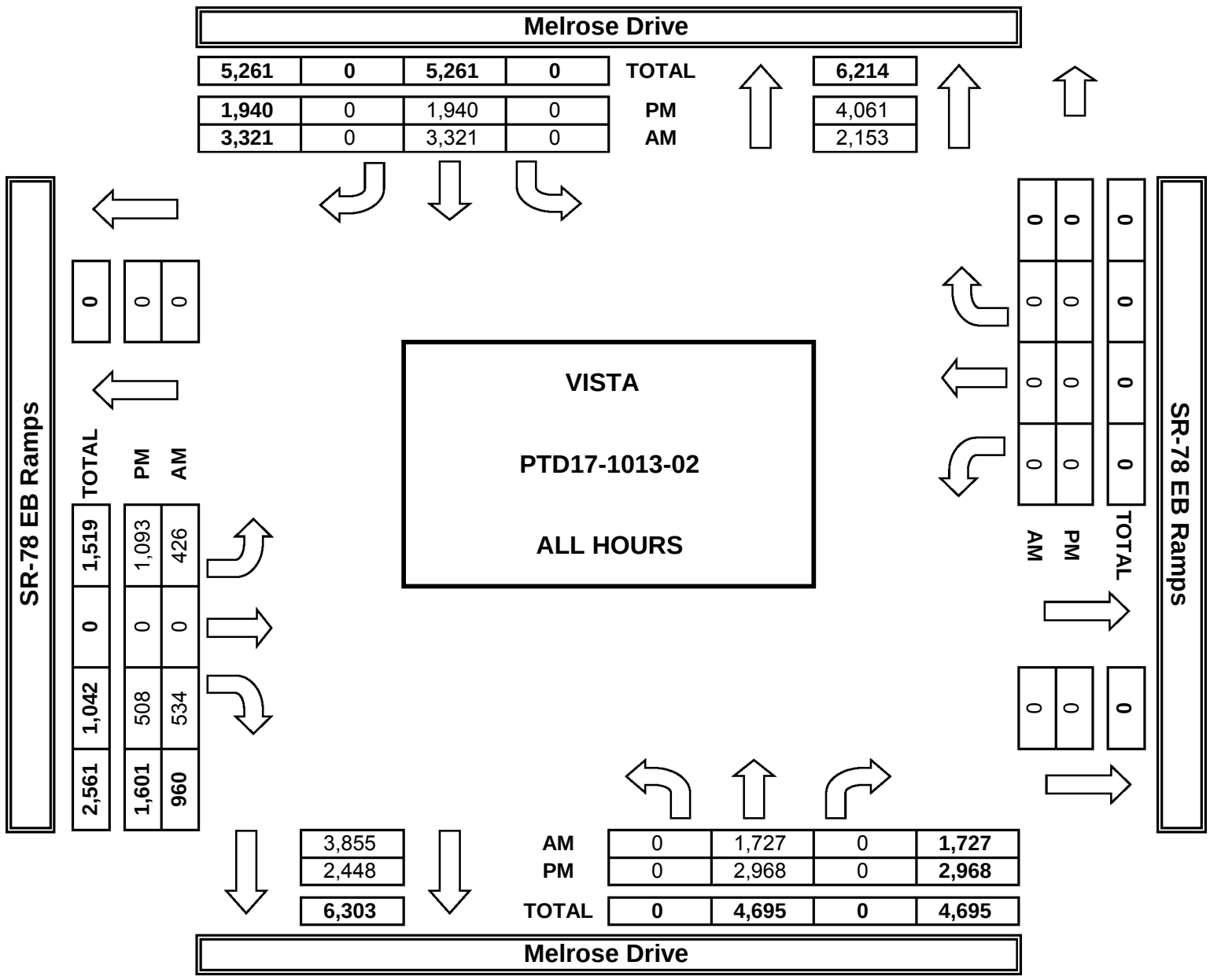
		NORTHBOUND Melrose Drive			SOUTHBOUND Melrose Drive			EASTBOUND SR-78 EB Ramps			WESTBOUND SR-78 EB Ramps				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	X	3	X	X	4	X	1.5	X	1.5	X	X	X		X	X	X	X	
AM	7:00 AM		219			441		46		34				740					0
	7:15 AM		251			423		59		48				781					0
	7:30 AM		254			435		52		67				808					0
	7:45 AM		230			419		61		80				790					0
	8:00 AM		214			442		49		70				775					0
	8:15 AM		209			414		54		72				749					0
	8:30 AM		180			401		67		104				752					0
	8:45 AM		170			346		38		59				613					0
	VOLUMES	0	1,727	0	0	3,321	0	426	0	534	0	0	0	6,008	0	0	0	0	0
	APPROACH %	0%	100%	0%	0%	100%	0%	44%	0%	56%	0%	0%	0%						
	APP/DEPART	1,727	/	2,153	3,321	/	3,855	960	/	0	0	/	0	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	949	0	0	1,719	0	221	0	265	0	0	0	3,154					
	APPROACH %	0%	100%	0%	0%	100%	0%	45%	0%	55%	0%	0%	0%						
	PEAK HR FACTOR		0.934			0.972			0.862			0.000		0.976					
	APP/DEPART	949	/	1,170	1,719	/	1,984	486	/	0	0	/	0	0					
PM	4:00 PM		355			230		117		72				774					0
	4:15 PM		401			244		124		70				839					0
	4:30 PM		360			260		149		68				837					0
	4:45 PM		406			248		156		71				881					0
	5:00 PM		351			244		126		58				779					0
	5:15 PM		350			256		140		60				806					0
	5:30 PM		364			231		141		57				793					0
	5:45 PM		381			227		140		52				800					0
	VOLUMES	0	2,968	0	0	1,940	0	1,093	0	508	0	0	0	6,509	0	0	0	0	0
	APPROACH %	0%	100%	0%	0%	100%	0%	68%	0%	32%	0%	0%	0%						
	APP/DEPART	2,968	/	4,061	1,940	/	2,448	1,601	/	0	0	/	0	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	0	1,518	0	0	996	0	555	0	267	0	0	0	3,336					
	APPROACH %	0%	100%	0%	0%	100%	0%	68%	0%	32%	0%	0%	0%						
	PEAK HR FACTOR		0.935			0.958			0.905			0.000		0.947					
	APP/DEPART	1,518	/	2,073	996	/	1,263	822	/	0	0	/	0	0					

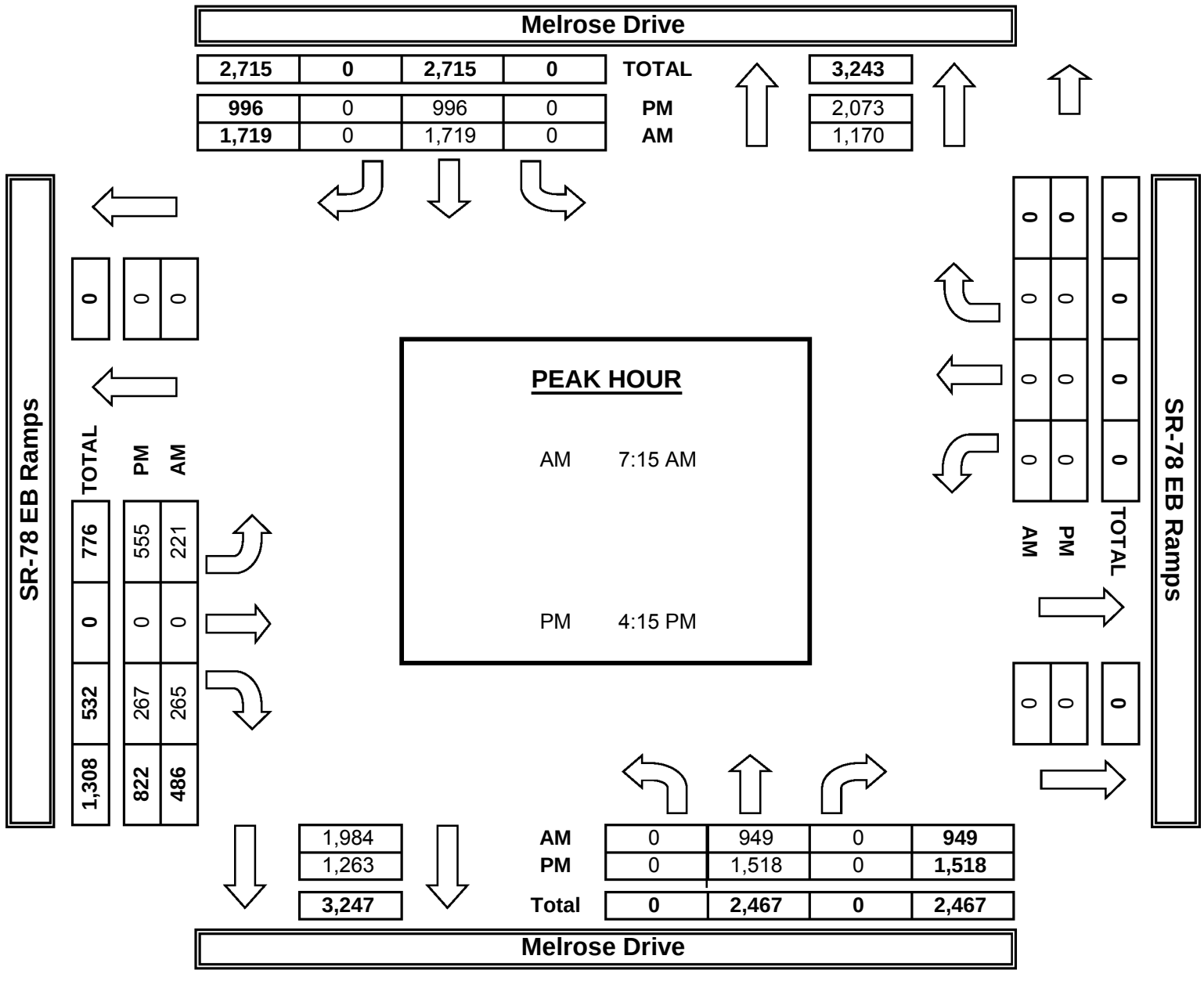


		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15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

PACIFIC TECHNICAL DATA

TURNING MOVEMENT COUNTS





National Data & Surveying Services

Intersection Turning Movement Count

Location: S Melrose Dr & Hacienda Dr
City: Vista
Control: Signalized

Project ID: 18-04129-008
Date: 4/17/2018

Total

NS/EW Streets:	S Melrose Dr				S Melrose Dr				Hacienda Dr				Hacienda Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	2	3	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	5	197	49	0	126	359	19	0	62	68	6	0	116	40	10	0	1057
7:15 AM	6	241	46	0	139	338	26	0	36	42	7	0	100	44	10	0	1035
7:30 AM	7	185	63	0	139	378	31	0	49	75	15	0	140	75	17	0	1174
7:45 AM	1	200	61	0	134	394	44	0	40	56	14	0	119	66	16	0	1145
8:00 AM	5	164	72	0	119	304	51	0	34	54	22	0	124	54	17	0	1020
8:15 AM	5	165	47	0	130	358	65	0	25	57	10	0	113	62	16	0	1053
8:30 AM	8	114	69	1	131	260	37	0	36	70	11	0	107	34	12	0	890
8:45 AM	18	151	55	1	92	279	35	0	77	50	7	0	86	44	15	0	855
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	55	1417	462	2	1010	2670	308	0	304	472	92	0	905	419	113	0	8229
APPROACH %'s :	2.84%	73.19%	23.86%	0.10%	25.33%	66.95%	7.72%	0.00%	35.02%	54.38%	10.60%	0.00%	62.98%	29.16%	7.86%	0.00%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	19	823	219	0	538	1469	120	0	187	241	42	0	475	225	53	0	4411
PEAK HR FACTOR :	0.679	0.854	0.869	0.000	0.968	0.932	0.682	0.000	0.754	0.803	0.700	0.000	0.848	0.750	0.779	0.000	0.939
		0.905				0.930				0.845				0.811			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	2	3	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	353	96	1	90	165	30	0	67	59	10	0	69	60	44	0	1055
4:15 PM	6	314	88	0	76	170	32	0	54	70	7	2	48	47	44	0	958
4:30 PM	7	327	81	0	80	171	44	0	76	83	8	0	67	73	52	0	1069
4:45 PM	12	302	75	0	78	184	51	0	71	91	12	0	66	62	52	0	1061
5:00 PM	15	350	105	0	83	184	37	1	92	102	8	0	79	60	38	0	1149
5:15 PM	16	359	68	2	89	164	61	0	81	76	16	0	70	56	46	0	1104
5:30 PM	17	271	59	0	93	194	34	0	80	70	5	0	61	55	38	0	977
5:45 PM	20	347	60	0	87	182	50	0	59	69	17	1	66	54	37	0	1049
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	104	2628	632	3	676	1414	334	1	580	620	83	3	526	467	351	0	8422
APPROACH %'s :	3.09%	78.05%	18.77%	0.09%	27.88%	58.31%	13.77%	0.04%	45.10%	48.21%	6.45%	0.23%	39.14%	34.75%	26.12%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	50	1343	329	2	330	703	188	1	320	352	44	0	282	251	188	0	4383
PEAK HR FACTOR :	0.781	0.935	0.783	0.250	0.927	0.955	0.770	0.250	0.870	0.863	0.688	0.000	0.892	0.860	0.904	0.000	0.954
		0.917				0.973				0.886				0.939			

National Data & Surveying Services

Intersection Turning Movement Count

Location: S Melrose Dr & Hacienda Dr
City: Vista
Control: Signalized

Project ID: 18-04129-008
Date: 4/17/2018

Bikes

N/S/EW Streets:	S Melrose Dr				S Melrose Dr				Hacienda Dr				Hacienda Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	2	3	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	1	0	0	2	0	0	0	1	0	0	0	0	0	0	8
APPROACH %'s :	0.00%	80.00%	20.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	0	2	0	0	0	2	0	0	0	1	0	0	0	0	0	0	5
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.417
	0.500				0.250				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	2	3	0	0	2	2	0	0	2	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	4
5:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	3	0	0	0	0	0	0	0	0	2	0	8
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	2	0	0	0	1	0	0	0	0	0	0	0	0	2	0	5
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.313
	0.500				0.250								0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: S Melrose Dr & Hacienda Dr
City: Vista

Project ID: 18-04129-008
Date: 4/17/2018

Pedestrians (Crosswalks)

NS/EW Streets:	S Melrose Dr		S Melrose Dr		Hacienda Dr		Hacienda Dr		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	2	1	0	0	0	3
7:15 AM	0	1	1	0	1	0	2	3	8
7:30 AM	0	0	0	3	2	3	2	1	11
7:45 AM	0	0	1	0	1	0	0	1	3
8:00 AM	0	0	0	0	1	0	0	1	2
8:15 AM	0	0	0	1	0	3	0	0	4
8:30 AM	0	0	0	1	1	2	1	0	5
8:45 AM	0	0	2	0	0	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	4	7	7	8	5	6	38
APPROACH %'s :	0.00%	100.00%	36.36%	63.64%	46.67%	53.33%	45.45%	54.55%	
PEAK HR :	**07:00 AM - 08:00 AM**								TOTAL
PEAK HR VOL :	0	1	2	5	5	3	4	5	25
PEAK HR FACTOR :	0.250		0.500	0.417	0.625	0.250	0.500	0.417	0.568
	0.250		0.583		0.400		0.450		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	3	4	1	2	2	1	13
4:15 PM	0	0	0	1	0	0	2	3	6
4:30 PM	0	0	1	2	0	0	1	2	6
4:45 PM	0	0	1	2	1	2	0	0	6
5:00 PM	0	0	2	0	3	0	0	3	8
5:15 PM	0	0	4	1	0	0	0	0	5
5:30 PM	0	0	1	2	1	0	0	0	4
5:45 PM	0	0	3	1	0	1	1	1	7
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	15	13	6	5	6	10	55
APPROACH %'s :			53.57%	46.43%	54.55%	45.45%	37.50%	62.50%	
PEAK HR :	**04:30 PM - 05:30 PM**								TOTAL
PEAK HR VOL :	0	0	8	5	4	2	1	5	25
PEAK HR FACTOR :			0.500	0.625	0.333	0.250	0.250	0.417	0.781
			0.650		0.500		0.500		

Prepared by National Data & Surveying Services

S Melrose Dr & Hacienda Dr

Peak Hour Turning Movement Count

ID: 18-04129-008
City: Vista

Day: Tuesday
Date: 04/17/2018

PEAK HOURS	COUNT PERIODS
07:00 AM - 08:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

S Melrose Dr — SOUTHBOUND

AM	120	1469	538	0	1063	AM
NOON	0	0	0	0	0	NOON
PM	188	703	330	1	1852	PM
	0	3	2	0		

Hacienda Dr — EASTBOUND

AM	NOON	PM	
364	0	489	
0	0	0	0
187	0	320	2
241	0	352	2
42	0	44	0
AM	NOON	PM	

Hacienda Dr — WESTBOUND

PM	NOON	AM	
188	0	53	0
251	0	225	2
282	0	475	2
0	0	0	0
1011	0	998	
PM	NOON	AM	

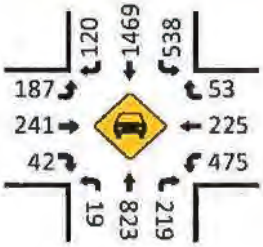
S Melrose Dr — NORTHBOUND

PM	1031	2	50	1343	329	PM
NOON	0	0	0	0	0	NOON
AM	1986	0	19	823	219	AM
		0	1	3	1	

CONTROL: Signalized

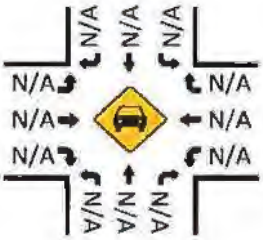
	AM	NOON	PM
TEV	4411	0	4383
PHF	0.94		0.95

Total Vehicles (AM)

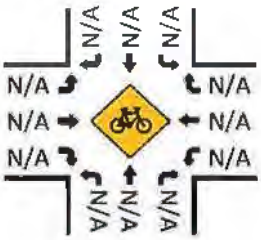


Bikes (AM)

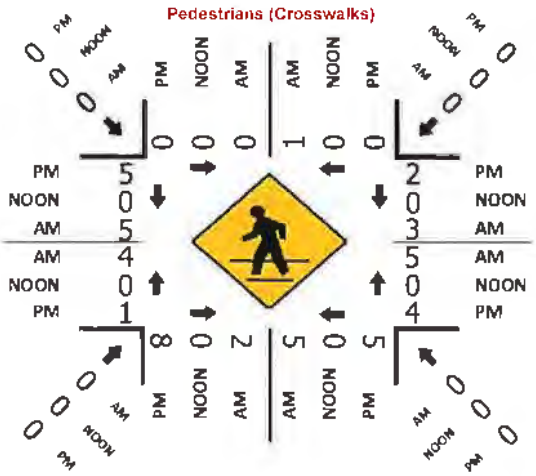
Total Vehicles (Noon)



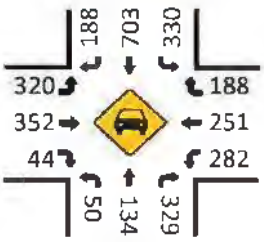
Bikes (NOON)



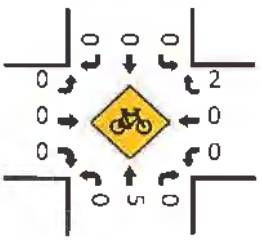
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

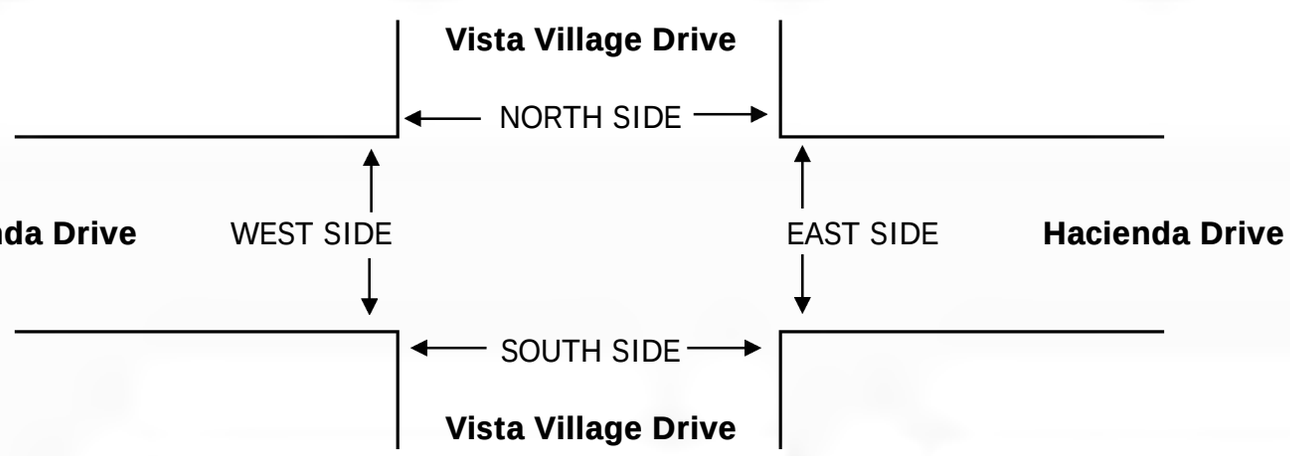
DATE:				
10/10/17	LOCATION:	VISTA	PROJECT #:	PTD17-1013-02
TUESDAY	NORTH & SOUTH:	Vista Village Drive	LOCATION #:	1
	EAST & WEST:	Hacienda Drive	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ▲ ◄ W E ► S ▼

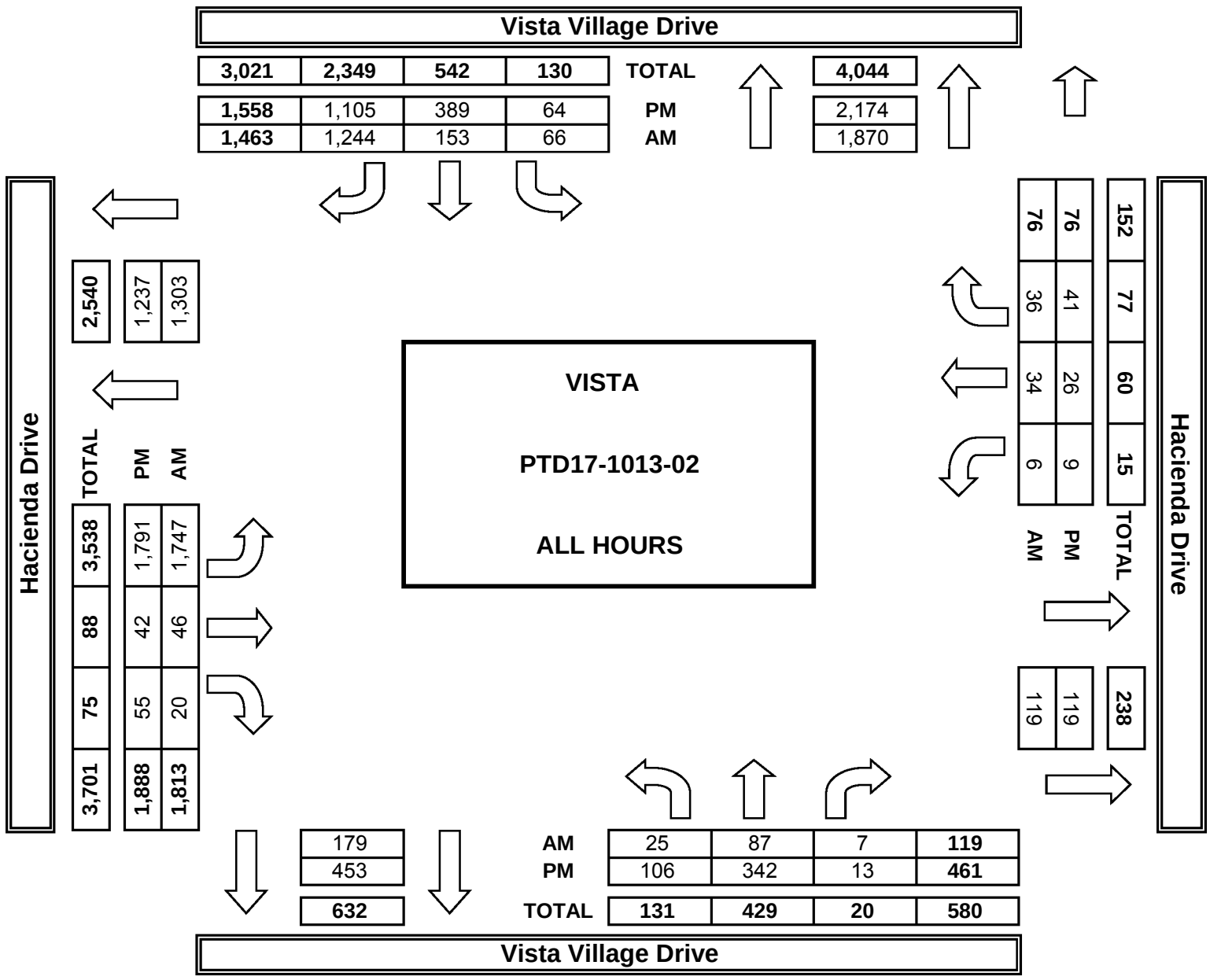
		NORTHBOUND Vista Village Drive			SOUTHBOUND Vista Village Drive			EASTBOUND Hacienda Drive			WESTBOUND Hacienda Drive				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	0.5	0.5	1	1	2	1	1	1	1	0.5	0.5		X	X	X	X	
AM	7:00 AM	2	13	0	2	7	113	232	2	4	2	3	4	384					0
	7:15 AM	4	11	1	5	15	156	203	5	2	0	7	3	412					0
	7:30 AM	3	11	2	16	14	211	219	11	0	0	5	4	496					0
	7:45 AM	3	9	0	3	25	169	232	10	3	0	3	7	464					0
	8:00 AM	5	8	0	11	23	159	239	3	1	0	7	3	459					0
	8:15 AM	3	3	0	9	17	178	195	3	6	1	6	3	424					0
	8:30 AM	4	16	1	11	23	137	221	7	3	1	3	3	430					0
	8:45 AM	1	16	3	9	29	121	206	5	1	2	0	9	402					0
	VOLUMES	25	87	7	66	153	1,244	1,747	46	20	6	34	36	3,471	0	0	0	0	0
	APPROACH %	21%	73%	6%	5%	10%	85%	96%	3%	1%	8%	45%	47%						
	APP/DEPART	119	/	1,870	1,463	/	179	1,813	/	119	76	/	1,303	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	14	31	2	39	79	717	885	27	10	1	21	17	1,843					
	APPROACH %	30%	66%	4%	5%	9%	86%	96%	3%	1%	3%	54%	44%						
	PEAK HR FACTOR		0.734			0.866			0.941			0.975		0.929					
	APP/DEPART	47	/	933	835	/	90	922	/	68	39	/	752	0					
PM	4:00 PM	13	37	5	5	39	144	207	2	5	2	3	6	468					0
	4:15 PM	17	36	0	8	55	143	189	5	14	0	3	3	473					0
	4:30 PM	15	49	1	12	64	142	226	6	6	0	6	5	532					0
	4:45 PM	14	32	0	5	43	129	225	4	2	3	3	5	465					0
	5:00 PM	8	40	0	12	49	150	308	2	4	1	3	5	582					0
	5:15 PM	14	41	6	7	44	133	236	7	8	1	2	8	507					0
	5:30 PM	16	53	0	6	42	128	203	6	8	1	5	3	471					0
	5:45 PM	9	54	1	9	53	136	197	10	8	1	1	6	485					0
	VOLUMES	106	342	13	64	389	1,105	1,791	42	55	9	26	41	3,983	0	0	0	0	0
	APPROACH %	23%	74%	3%	4%	25%	71%	95%	2%	3%	12%	34%	54%						
	APP/DEPART	461	/	2,174	1,558	/	453	1,888	/	119	76	/	1,237	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	51	162	7	36	200	554	995	19	20	5	14	23	2,086					
	APPROACH %	23%	74%	3%	5%	25%	70%	96%	2%	2%	12%	33%	55%						
	PEAK HR FACTOR		0.846			0.906			0.823			0.955		0.896					
	APP/DEPART	220	/	1,180	790	/	225	1,034	/	62	42	/	619	0					

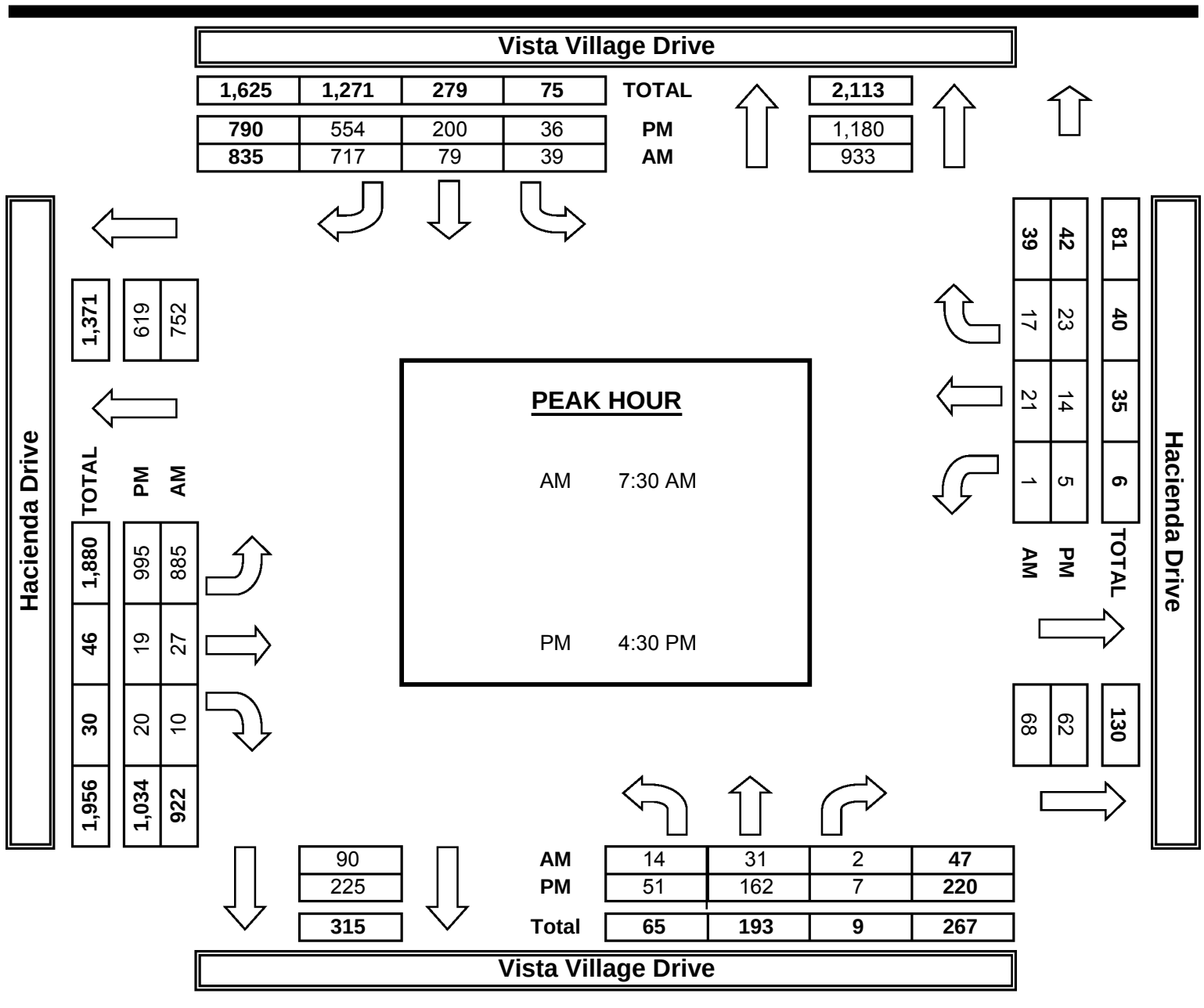


		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15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

PACIFIC TECHNICAL DATA

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

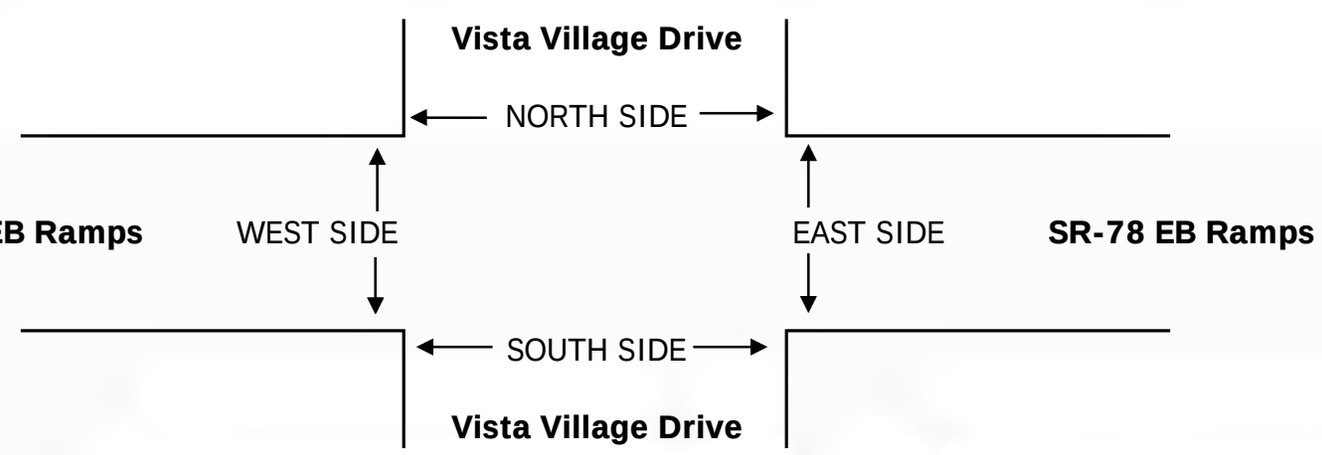
DATE:				
10/10/17	LOCATION:	VISTA	PROJECT #:	PTD17-1013-02
TUESDAY	NORTH & SOUTH:	Vista Village Drive	LOCATION #:	2
	EAST & WEST:	SR-78 EB Ramps	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ▲ ◄ W E ► S ▼

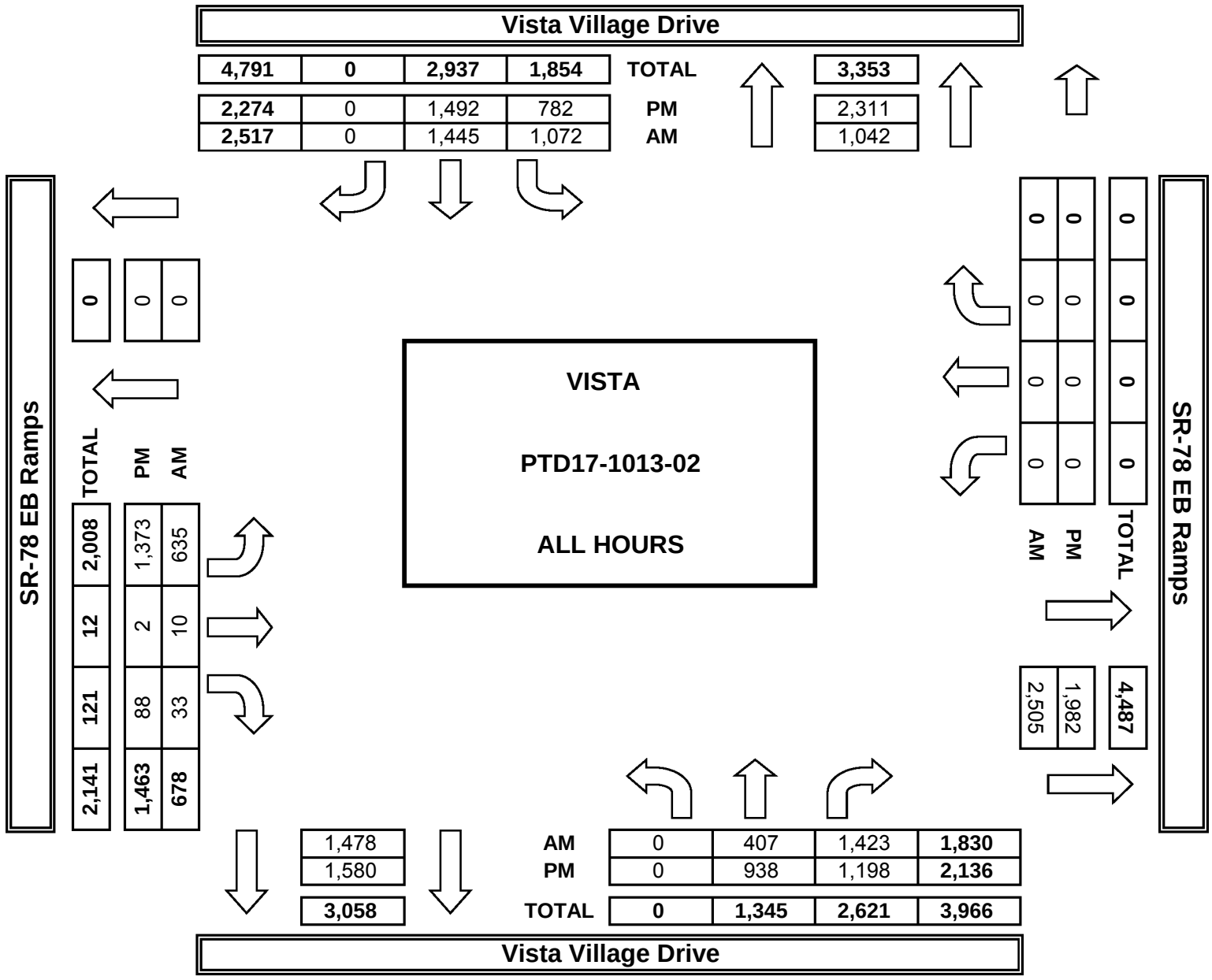
		NORTHBOUND Vista Village Drive			SOUTHBOUND Vista Village Drive			EASTBOUND SR-78 EB Ramps			WESTBOUND SR-78 EB Ramps				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	X	1.5	1.5	2	2	X	1.5	0.5	1	X	X	X		X	X	X	X	
AM	7:00 AM		36	184	153	119		57	0	3				552					0
	7:15 AM		39	181	150	179		72	0	2				623					0
	7:30 AM		27	184	127	214		83	0	4				639					0
	7:45 AM		78	181	161	200		62	0	1				683					0
	8:00 AM		60	174	129	201		77	0	5				646					0
	8:15 AM		56	167	113	219		82	4	3				644					0
	8:30 AM		49	170	130	166		103	5	4				627					0
	8:45 AM		62	182	109	147		99	1	11				611					0
	VOLUMES	0	407	1,423	1,072	1,445	0	635	10	33	0	0	0	5,025	0	0	0	0	0
	APPROACH %	0%	22%	78%	43%	57%	0%	94%	1%	5%	0%	0%	0%						
	APP/DEPART	1,830	/	1,042	2,517	/	1,478	678	/	2,505	0	/	0	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	0	221	706	530	834	0	304	4	13	0	0	0	2,612					
	APPROACH %	0%	24%	76%	39%	61%	0%	95%	1%	4%	0%	0%	0%						
	PEAK HR FACTOR		0.895			0.945			0.902			0.000		0.956					
	APP/DEPART	927	/	525	1,364	/	847	321	/	1,240	0	/	0	0					
PM	4:00 PM		116	146	104	168		169	0	12				715					0
	4:15 PM		96	133	99	202		192	0	7				729					0
	4:30 PM		110	168	84	197		155	0	23				737					0
	4:45 PM		96	155	110	178		170	1	7				717					0
	5:00 PM		143	185	81	191		172	0	15				787					0
	5:15 PM		135	149	88	181		195	0	8				756					0
	5:30 PM		125	134	110	174		165	1	9				718					0
	5:45 PM		117	128	106	201		155	0	7				714					0
	VOLUMES	0	938	1,198	782	1,492	0	1,373	2	88	0	0	0	5,873	0	0	0	0	0
	APPROACH %	0%	44%	56%	34%	66%	0%	94%	0%	6%	0%	0%	0%						
	APP/DEPART	2,136	/	2,311	2,274	/	1,580	1,463	/	1,982	0	/	0	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	484	657	363	747	0	692	1	53	0	0	0	2,997					
	APPROACH %	0%	42%	58%	33%	67%	0%	93%	0%	7%	0%	0%	0%						
	PEAK HR FACTOR		0.870			0.964			0.919			0.000		0.952					
	APP/DEPART	1,141	/	1,176	1,110	/	800	746	/	1,021	0	/	0	0					

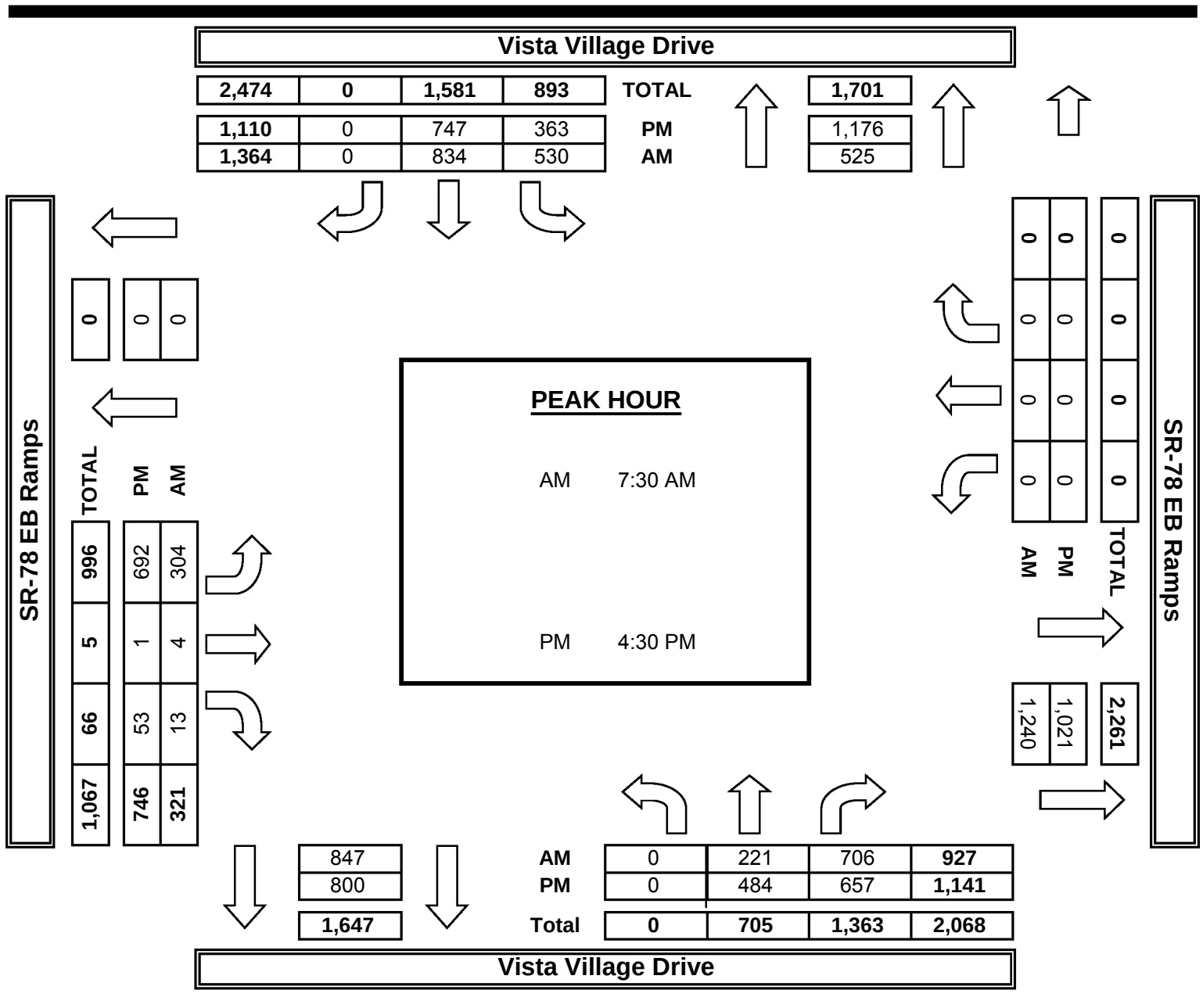


		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15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

PACIFIC TECHNICAL DATA

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

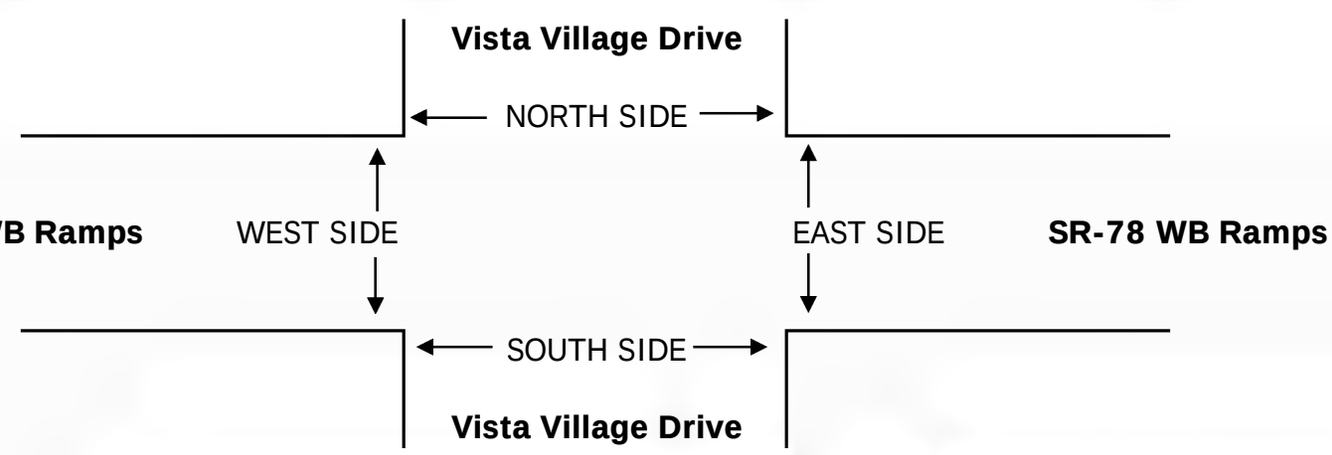
DATE:				
10/10/17	LOCATION:	VISTA	PROJECT #:	PTD17-1013-02
TUESDAY	NORTH & SOUTH:	Vista Village Drive	LOCATION #:	3
	EAST & WEST:	SR-78 WB Ramps	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ◄ W E ► S

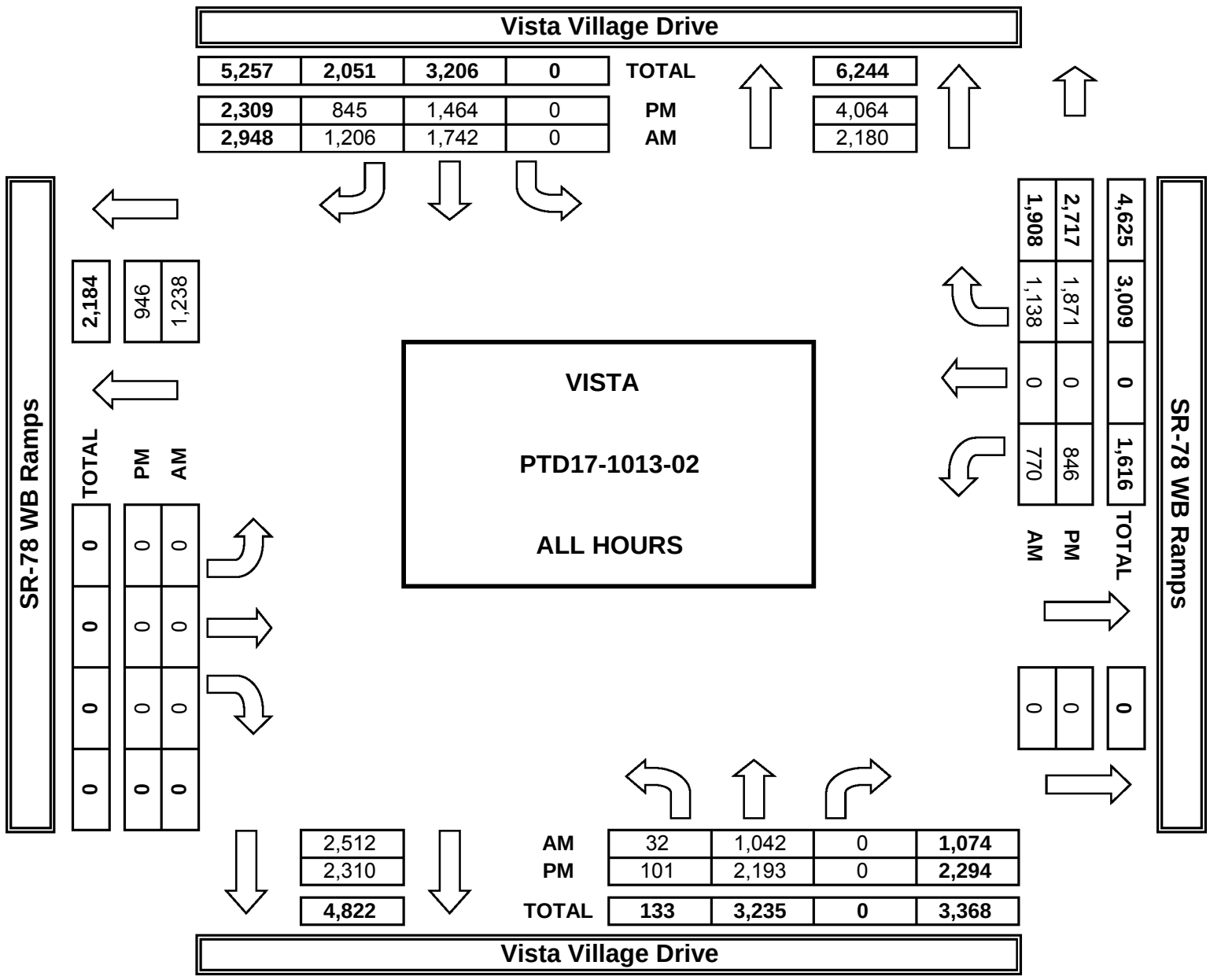
		NORTHBOUND Vista Village Drive			SOUTHBOUND Vista Village Drive			EASTBOUND SR-78 WB Ramps			WESTBOUND SR-78 WB Ramps				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	2	X	X	3	1	X	X	X	1.5	0.5	2		X	X	X	X	
AM	7:00 AM	3	100			216	149				57		119	644					0
	7:15 AM	5	102			256	182				90		160	795					0
	7:30 AM	5	134			230	158				116		132	775					0
	7:45 AM	5	127			241	168				120		159	820					0
	8:00 AM	4	140			221	170				91		162	788					0
	8:15 AM	3	135			206	146				125		129	744					0
	8:30 AM	6	148			201	124				94		133	706					0
	8:45 AM	1	156			171	109				77		144	658					0
	VOLUMES	32	1,042	0	0	1,742	1,206	0	0	0	770	0	1,138	5,930	0	0	0	0	0
	APPROACH %	3%	97%	0%	0%	59%	41%	0%	0%	0%	40%	0%	60%						
	APP/DEPART	1,074	/	2,180	2,948	/	2,512	0	/	0	1,908	/	1,238	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	19	503	0	0	948	678	0	0	0	417	0	613	3,178					
	APPROACH %	4%	96%	0%	0%	58%	42%	0%	0%	0%	40%	0%	60%						
	PEAK HR FACTOR		0.906			0.928			0.000			0.923		0.969					
	APP/DEPART	522	/	1,116	1,626	/	1,365	0	/	0	1,030	/	697	0					
PM	4:00 PM	12	284			173	109				92		246	916					0
	4:15 PM	10	274			201	105				97		239	926					0
	4:30 PM	6	250			176	102				105		228	867					0
	4:45 PM	14	252			176	104				109		253	908					0
	5:00 PM	22	289			184	136				120		224	975					0
	5:15 PM	15	301			157	87				118		232	910					0
	5:30 PM	12	281			196	102				104		245	940					0
	5:45 PM	10	262			201	100				101		204	878					0
	VOLUMES	101	2,193	0	0	1,464	845	0	0	0	846	0	1,871	7,320	0	0	0	0	0
	APPROACH %	4%	96%	0%	0%	63%	37%	0%	0%	0%	31%	0%	69%						
	APP/DEPART	2,294	/	4,064	2,309	/	2,310	0	/	0	2,717	/	946	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	63	1,123	0	0	713	429	0	0	0	451	0	954	3,733					
	APPROACH %	5%	95%	0%	0%	62%	38%	0%	0%	0%	32%	0%	68%						
	PEAK HR FACTOR		0.938			0.892			0.000			0.970		0.957					
	APP/DEPART	1,186	/	2,077	1,142	/	1,164	0	/	0	1,405	/	492	0					

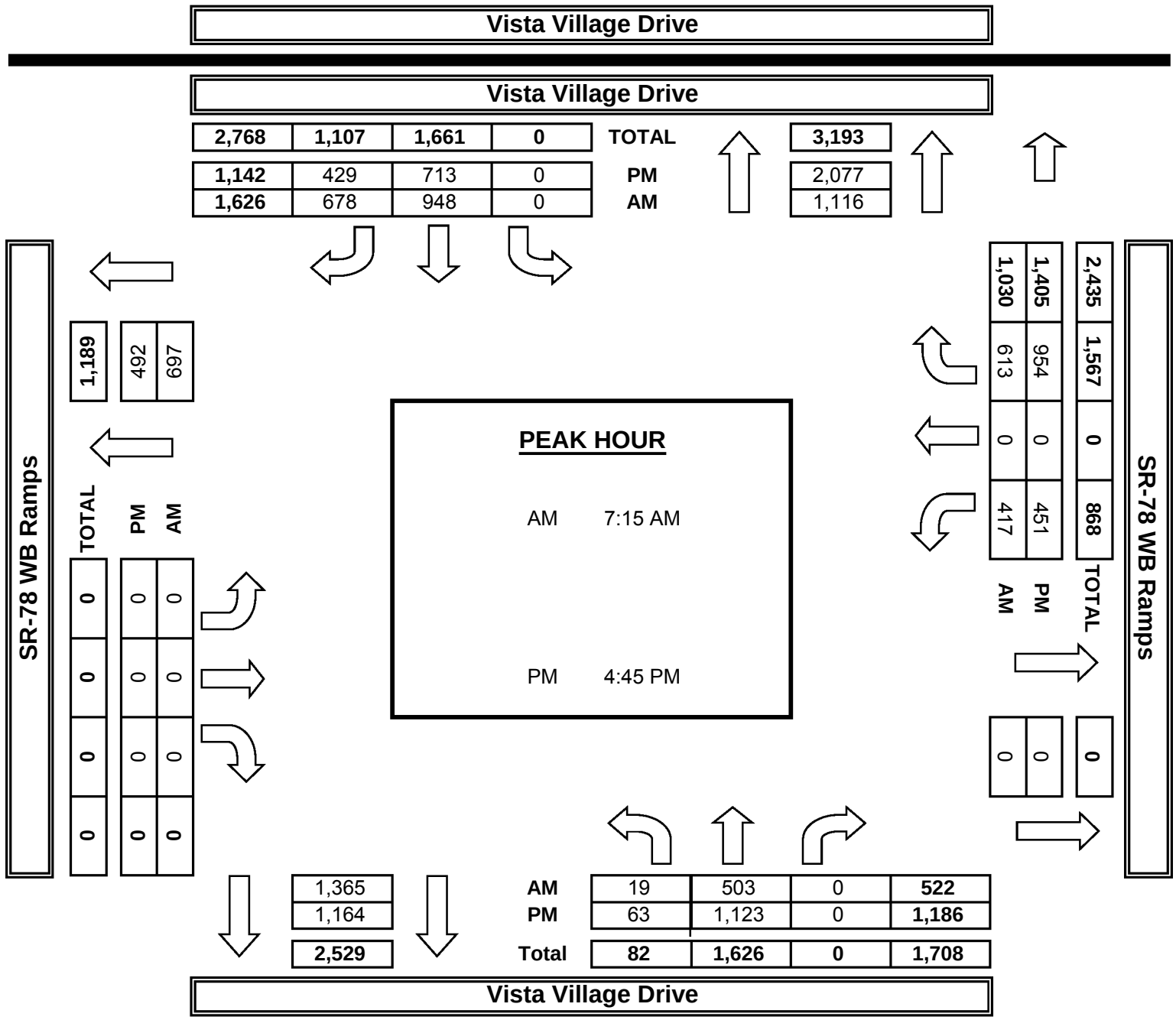


		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15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

PACIFIC TECHNICAL DATA

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

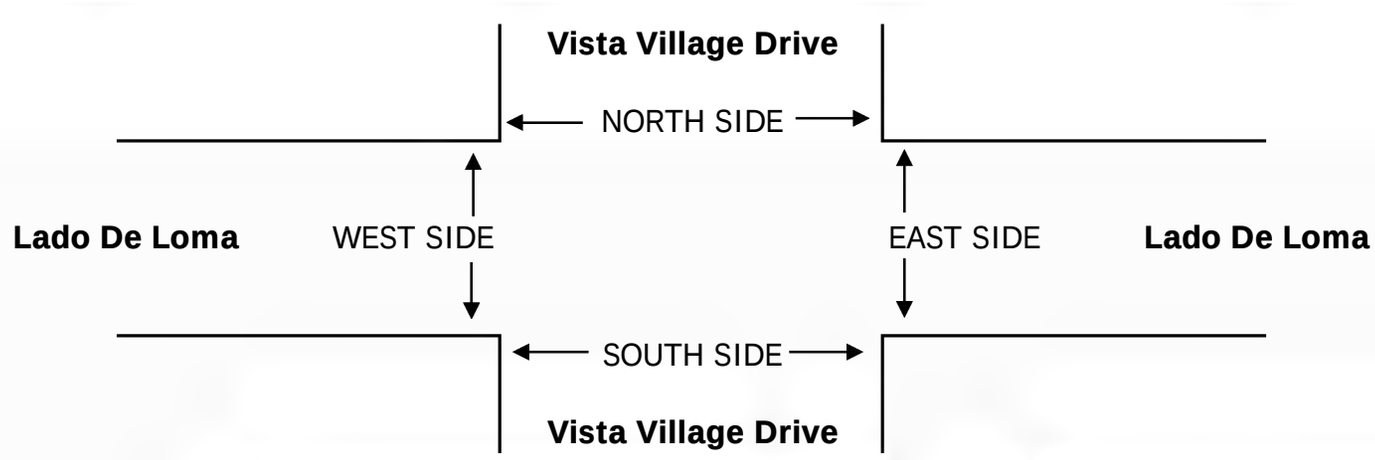
DATE:				
10/10/17	LOCATION:	VISTA	PROJECT #:	PTD17-1013-02
TUESDAY	NORTH & SOUTH:	Vista Village Drive	LOCATION #:	4
	EAST & WEST:	Lado De Loma	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ▲ ◄ W E ► S ▼

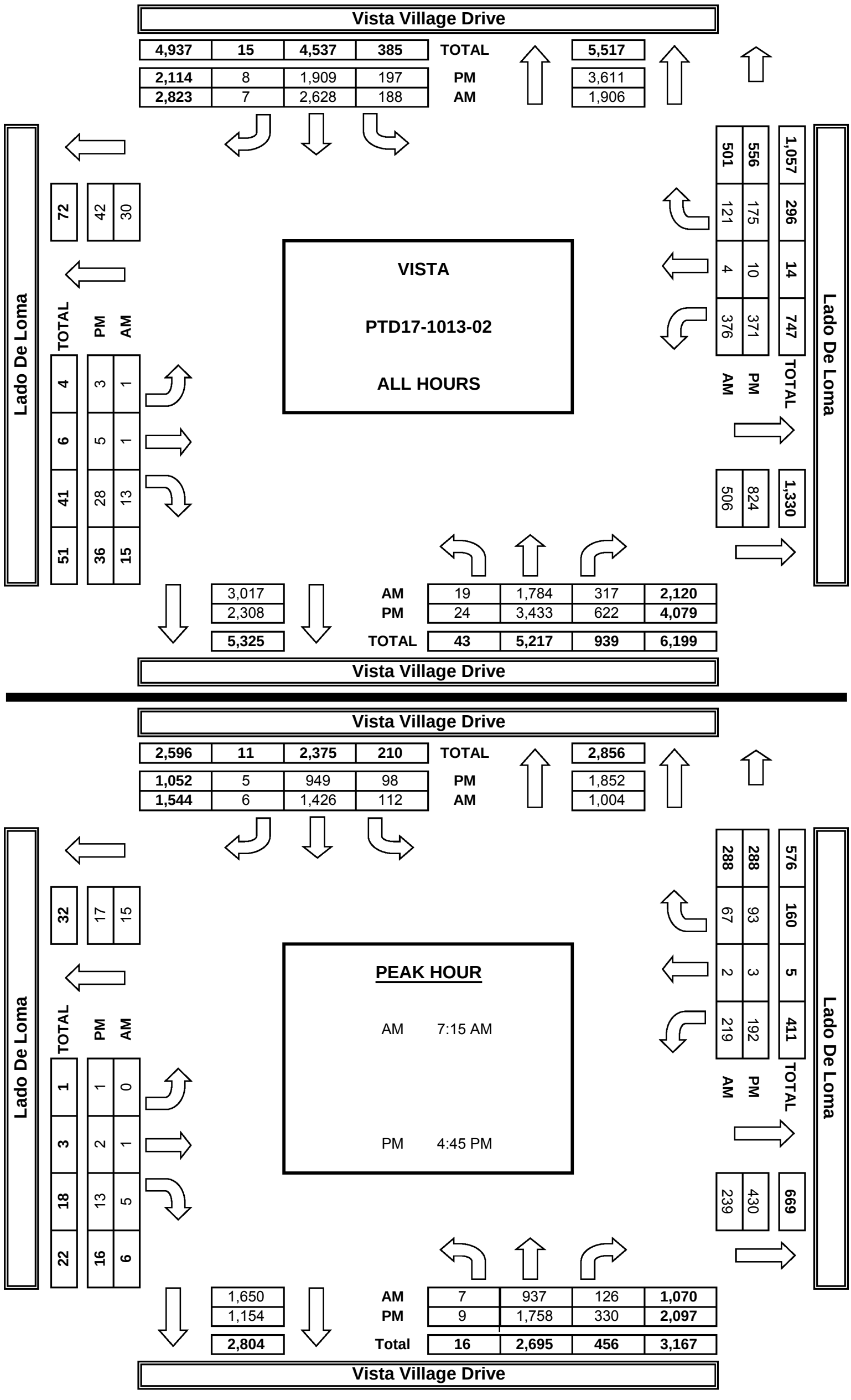
	NORTHBOUND Vista Village Drive			SOUTHBOUND Vista Village Drive			EASTBOUND Lado De Loma			WESTBOUND Lado De Loma				U-TURNS				
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
LANES:	1	3	0	1	3	0	0	1	0	1.5	0.5	0		X	X	X	X	
AM																		
7:00 AM	0	172	33	10	336	0	0	0	1	45	1	13	611					0
7:15 AM	0	220	14	18	377	2	0	0	0	58	1	13	703					0
7:30 AM	3	222	25	27	356	1	0	1	1	54	1	13	704					0
7:45 AM	2	246	41	26	349	2	0	0	3	54	0	22	745					0
8:00 AM	2	249	46	41	344	1	0	0	1	53	0	19	756					0
8:15 AM	2	199	51	28	311	0	0	0	0	32	0	15	638					0
8:30 AM	5	230	57	25	303	0	0	0	4	36	1	14	675					0
8:45 AM	5	246	50	13	252	1	1	0	3	44	0	12	627					0
VOLUMES	19	1,784	317	188	2,628	7	1	1	13	376	4	121	5,459	0	0	0	0	0
APPROACH %	1%	84%	15%	7%	93%	0%	7%	7%	87%	75%	1%	24%						
APP/DEPART	2,120	/	1,906	2,823	/	3,017	15	/	506	501	/	30	0					
BEGIN PEAK HR		7:15 AM																
VOLUMES	7	937	126	112	1,426	6	0	1	5	219	2	67	2,908					
APPROACH %	1%	88%	12%	7%	92%	0%	0%	17%	83%	76%	1%	23%						
PEAK HR FACTOR		0.901			0.972			0.500			0.947		0.962					
APP/DEPART	1,070	/	1,004	1,544	/	1,650	6	/	239	288	/	15	0					
PM																		
4:00 PM	4	401	79	25	235	0	0	1	5	42	1	29	822					0
4:15 PM	5	487	94	25	245	1	1	1	4	55	3	21	942	2				2
4:30 PM	2	381	53	26	214	1	1	1	3	43	3	18	746					0
4:45 PM	2	420	78	27	229	4	0	1	7	46	3	27	844	1				1
5:00 PM	2	433	79	23	269	1	0	0	1	59	0	25	892					0
5:15 PM	1	457	85	31	201	0	0	0	3	38	0	20	836					0
5:30 PM	4	448	88	17	250	0	1	1	2	49	0	21	881	1				1
5:45 PM	4	406	66	23	266	1	0	0	3	39	0	14	822					0
VOLUMES	24	3,433	622	197	1,909	8	3	5	28	371	10	175	6,785	4	0	0	0	4
APPROACH %	1%	84%	15%	9%	90%	0%	8%	14%	78%	67%	2%	31%						
APP/DEPART	4,079	/	3,611	2,114	/	2,308	36	/	824	556	/	42	0					
BEGIN PEAK HR		4:45 PM																
VOLUMES	9	1,758	330	98	949	5	1	2	13	192	3	93	3,453					
APPROACH %	0%	84%	16%	9%	90%	0%	6%	13%	81%	67%	1%	32%						
PEAK HR FACTOR		0.965			0.898			0.500			0.857		0.968					
APP/DEPART	2,097	/	1,852	1,052	/	1,154	16	/	430	288	/	17	0					



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

PACIFIC TECHNICAL DATA

TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

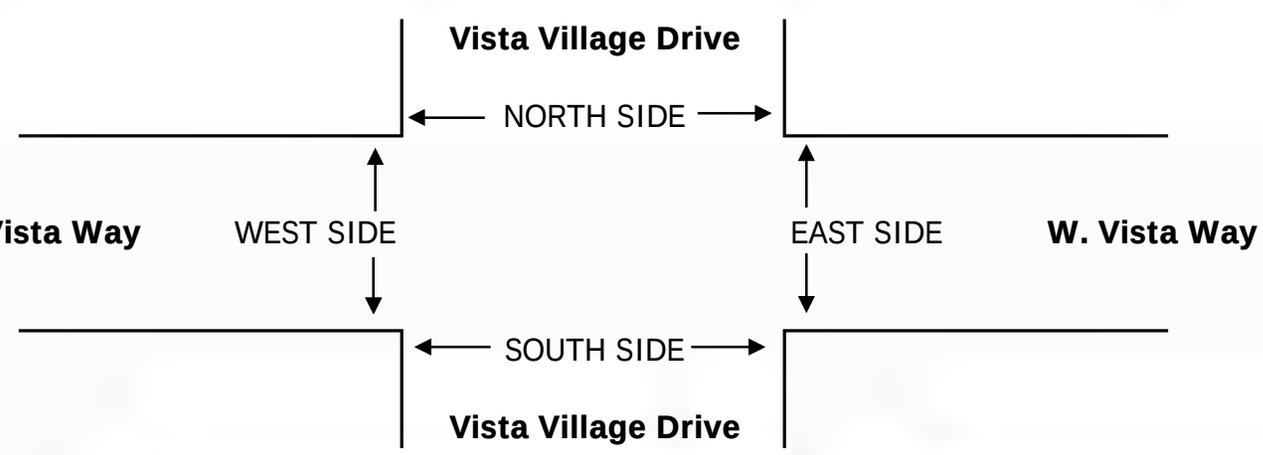
DATE:				
10/10/17	LOCATION:	VISTA	PROJECT #:	PTD17-1013-02
TUESDAY	NORTH & SOUTH:	Vista Village Drive	LOCATION #:	5
	EAST & WEST:	W. Vista Way	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ◄ W E ► S

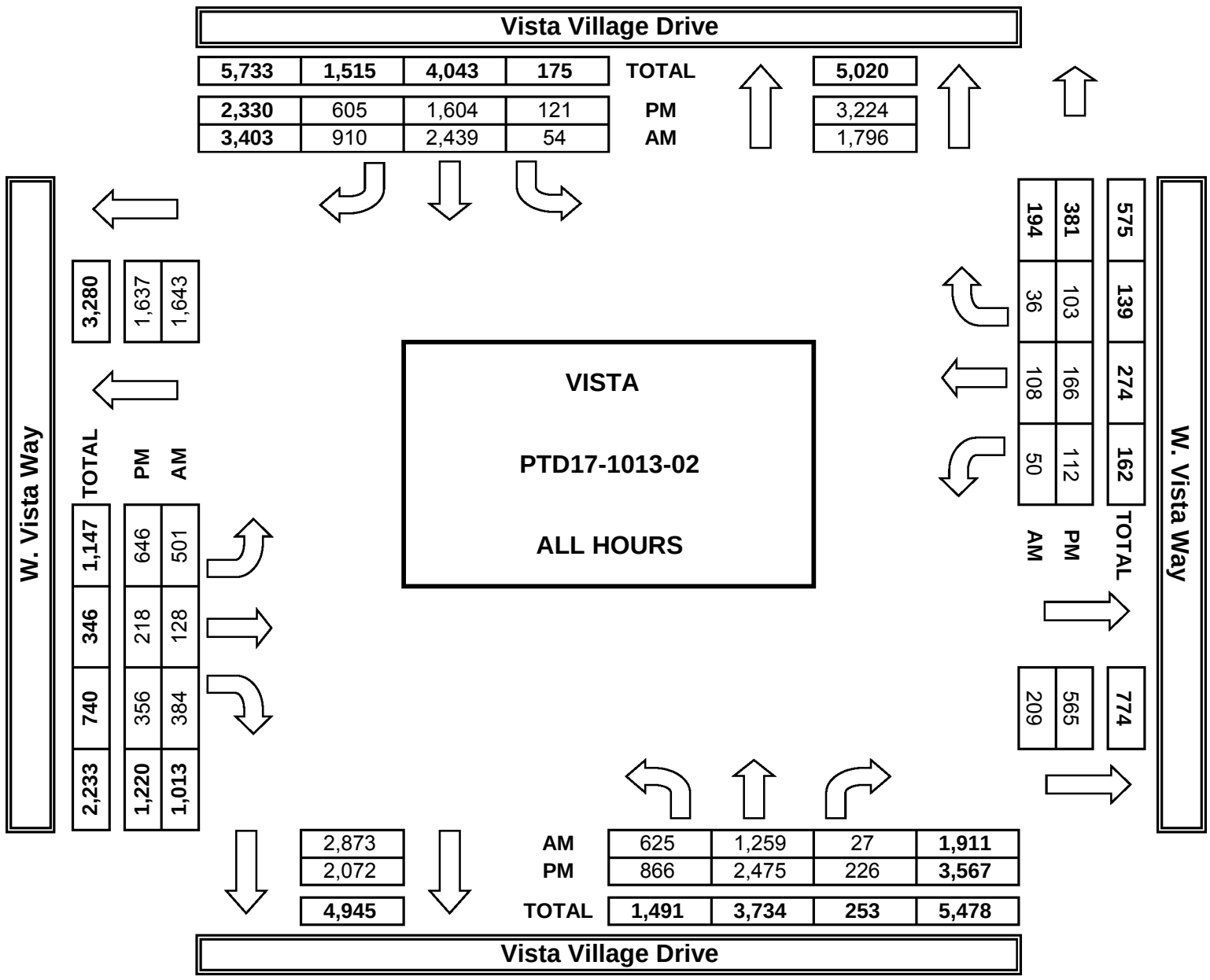
		NORTHBOUND Vista Village Drive			SOUTHBOUND Vista Village Drive			EASTBOUND W. Vista Way			WESTBOUND W. Vista Way				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	2	3	1	1	3	1	2	2	1	1	1	1		X	X	X	X	
AM	7:00 AM	75	119	3	6	315	89	38	3	33	4	7	4	696	1				1
	7:15 AM	74	165	2	6	384	111	46	3	49	6	13	1	860			1		1
	7:30 AM	97	144	2	2	338	140	57	17	43	9	15	5	869			2		2
	7:45 AM	104	176	2	8	333	146	95	22	56	8	26	2	978			3		3
	8:00 AM	96	143	2	4	295	135	86	18	62	5	17	1	864			3		3
	8:15 AM	67	170	2	10	314	107	64	29	42	1	12	6	824	1				1
	8:30 AM	55	165	11	11	255	105	60	22	59	7	4	7	761			1		1
	8:45 AM	57	177	3	7	205	77	55	14	40	10	14	10	669		3	1		4
	VOLUMES	625	1,259	27	54	2,439	910	501	128	384	50	108	36	6,521	2	3	11	0	16
	APPROACH %	33%	66%	1%	2%	72%	27%	49%	13%	38%	26%	56%	19%						
	APP/DEPART	1,911	/	1,796	3,403	/	2,873	1,013	/	209	194	/	1,643	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	371	628	8	20	1,350	532	284	60	210	28	71	9	3,571					
	APPROACH %	37%	62%	1%	1%	71%	28%	51%	11%	38%	26%	66%	8%						
	PEAK HR FACTOR		0.893			0.949			0.801			0.750		0.913					
	APP/DEPART	1,007	/	921	1,902	/	1,588	554	/	88	108	/	974	0					
PM	4:00 PM	103	294	15	15	183	89	79	23	44	20	21	15	901					0
	4:15 PM	113	345	32	20	217	57	78	20	52	11	13	16	974					0
	4:30 PM	113	293	26	13	192	75	73	29	46	11	28	16	915					0
	4:45 PM	124	295	19	8	185	66	78	35	49	13	29	16	917					0
	5:00 PM	90	312	32	11	220	92	76	26	49	11	16	14	949					0
	5:15 PM	115	333	27	21	174	54	86	25	44	14	19	9	921					0
	5:30 PM	98	307	24	14	213	72	91	34	42	17	13	9	934	1				1
	5:45 PM	110	296	51	19	220	100	85	26	30	15	27	8	987	1				1
	VOLUMES	866	2,475	226	121	1,604	605	646	218	356	112	166	103	7,498	2	0	0	0	2
	APPROACH %	24%	69%	6%	5%	69%	26%	53%	18%	29%	29%	44%	27%						
	APP/DEPART	3,567	/	3,224	2,330	/	2,072	1,220	/	565	381	/	1,637	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	413	1,248	134	65	827	318	338	111	165	57	75	40	3,791					
	APPROACH %	23%	70%	7%	5%	68%	26%	55%	18%	27%	33%	44%	23%						
	PEAK HR FACTOR		0.945			0.892			0.919			0.860		0.960					
	APP/DEPART	1,795	/	1,626	1,210	/	1,049	614	/	310	172	/	806	0					

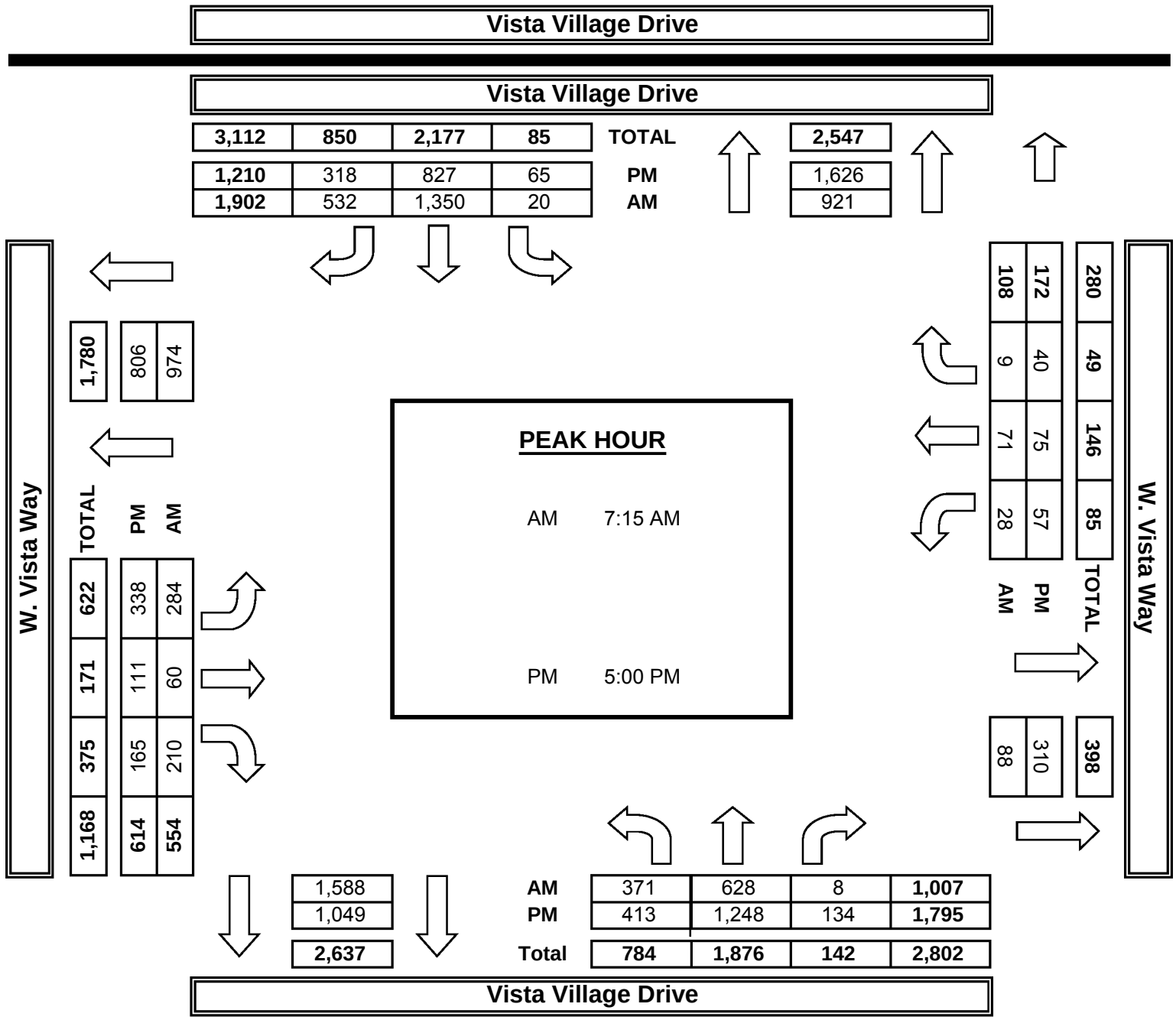


		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15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

PACIFIC TECHNICAL DATA

TURNING MOVEMENT COUNTS





INTERSECTION: W Vista Way@Melrose Dr

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **14**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **2/8/2018 11:01**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	1	<C+0+0>
Zone Number		<C+0+1>
Area Number	0	<C+0+2>
Area Address	34	<C+0+3>
QuicNet Channel	P:8002:10.243.0	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	5.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	5	0	0	0	5	0	5
1	Ped FDW	0	27	0	0	0	16	0	21
2	Min Green	5	5	5	5	5	5	5	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	3.5	2.0	3.5	3.0	3.5	2.0	3.5
6	Max Gap	2.0	3.5	2.0	3.5	3.0	3.5	2.0	3.5
7	Min Gap	2.0	3.5	2.0	3.5	3.0	3.5	2.0	3.5
8	Max Limit	20	30	25	20	40	30	25	25
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.5	4.4	3.5	4.8	3.5	4.4	3.5	4.8
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

	E
RR-1 Delay	0
RR-1 Clear	5
EV-A Delay	0
EV-A Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	5
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing

	F	Row
Permit	12345678	0
Red Lock	1_3_5_7_	1
Yellow Lock	_____	2
Min Recall	_2___6__	3
Ped Recall	_____	4
View Set Peds	- - - - -	5
Rest In Walk	_____	6
Red Rest	_____	7
Dual Entry	_____	8
Max Recall	_____	9
Soft Recall	_____	A
Max 2	_____	B
Cond. Service	_____	C
Man Cntrl Calls	_____	D
Yellow Start	___4___8	E
First Phases	_2___6__	F

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

INTERSECTION: W Vista Way@Melrose Dr

(* = Coordination Recall)

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->		MID					AM		PM	
0	Cycle Length	120	120	130	100	100	100	110	110	130	0
1	Phase 1 - ForceOff	88	98	108	65	65	65	88	96	102	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	48	75	85	25	25	25	48	76	85	3
4	Phase 4 - ForceOff	69	58	68	40	40	40	69	50	68	4
5	Phase 5 - ForceOff	25	30	40	65	65	65	25	30	40	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	38	45	55	25	25	25	38	45	55	7
8	Phase 8 - ForceOff	69	75	85	40	40	40	69	70	85	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	7	0	115	0	0	0	7	99	112	A
B	Offset 2	0	0	115	0	0	0	7	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	27	19	12	12	12	12	12	12	12	D
E	Hold Release	255	255	255	255	255	255	255	255	255	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

	E	Row
		0
Plan 1 - Sync	_2___6__	1
Plan 2 - Sync	_2___6__	2
Plan 3 - Sync	_2___6__	3
Plan 4 - Sync	_2___6__	4
Plan 5 - Sync	_2___6__	5
Plan 6 - Sync	_2___6__	6
Plan 7 - Sync	_2___6__	7
Plan 8 - Sync	_2___6__	8
Plan 9 - Sync	_2___6__	9
Coord Ped *	_____	A
NEMA Hold	_____	B
		C
		D
		E
		F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	___4__7_
C	EV-C Phases	1____6__
D	EV-D Phases	__3____8
E	Extra 1 Config. Bits	1_3_____
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	_____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

	F	Row
Free Lag	_2_4_6_8	0
Plan 1 - Lag	_2_45__8	1
Plan 2 - Lag	_23_5__8	2
Plan 3 - Lag	_23_5__8	3
Plan 4 - Lag	_23_5__8	4
Plan 5 - Lag	_23_5__8	5
Plan 6 - Lag	_23_5__8	6
Plan 7 - Lag	_2_45__8	7
Plan 8 - Lag	_23_5__8	8
Plan 9 - Lag	_23_5__8	9
Coord Max *	_____	A
Coord Lag *	_____	B
		C
		D
		E
		F

Lag Phases <C Page>

INTERSECTION: W Vista Way@Melrose Dr

Row	Time	Plan	Offset	Day of Week
0	06 : 00	7	A	_23456_
1	11 : 00	2	A	_23456_
2	14 : 30	9	A	_23456_
3	19 : 00	E	A	_23456_
4	10 : 00	7	A	1_____7
5	18 : 00	E	A	1_____7
6	07 : 00	1	A	_23456_
7	09 : 00	7	A	_23456_
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	E	1234567	_____78
14 : 30	9	_23456_	____5___
19 : 00	9	_23456_	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
06 : 00	7	A	_23456_
11 : 00	2	A	_23456_
14 : 30	9	A	_23456_
19 : 00	E	A	_23456_
10 : 00	7	A	1_____7
18 : 00	E	A	1_____7
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00 : 00	0	0	_____	0
00 : 00	0	0	_____	1
00 : 00	0	0	_____	2
00 : 00	0	0	_____	3
00 : 00	0	0	_____	4
00 : 00	0	0	_____	5
00 : 00	0	0	_____	6
00 : 00	0	0	_____	7
00 : 00	0	0	_____	8
00 : 00	0	0	_____	9
00 : 00	0	0	_____	A
00 : 00	0	0	_____	B
00 : 00	0	0	_____	C
00 : 00	0	0	_____	D
00 : 00	0	0	_____	E
00 : 00	0	0	_____	F

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	25
2	System Det. # 2	2
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
	Ped Walk	0	0	0	0	0	0	0	0	0
	Ped FDW	0	0	0	0	0	0	0	0	1
	Min Green	0	0	0	0	0	0	0	0	2
	Type 3 Limit	0	0	0	0	0	0	0	0	3
	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5
	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6
	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7
	Max Limit	0	0	0	0	0	0	0	0	8
	Max Limit 2	0	0	0	0	0	0	0	0	9
	- - - - - -	0	0	0	0	0	0	0	0	A
	Call To Phase	0	0	0	0	0	0	0	0	B
	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C
	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	D
	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	E
	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	F

Phase Timing - Bank 3 <F Page>

Row		7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0	Delay Only --->	0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	<--- Limited Service Interval (Set Dwell = 255)
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

LOCATION: **RTE 78 EB @ MELROSE DRIVE**

CALTRANS C8 Version 3 DATE: 12/18/14

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK		1		1		7			CLK RST
1	DONT WALK		1		1		11			
2	MIN GREEN		6		5		5			
3	TYPE 3 DET		0		0		0			
4	ADD/VEH		0.0		0.0		0.0			
5	PASSAGE		2.0		2.0		2.0			
6	MAX GAP		2.0		2.0		2.0			
7	MIN GAP		2.0		2.0		2.0			
8	MAX EXT		40		35		40			
9	MAX 2									YR
A	MAX 3									MO
B										DAY
C	REDUCE BY		0.0		0.0		0.0			DOW
D	EVERY		1.0		1.0		1.0			HR
E	**YELLOW**		4.4		4.1		4.4			MIN
F	RED		1.0		2.0		1.0			SEC
3.5	PED XING FT						55			
	BIKE XING FT		65				53			

PRE-EMPTION E	
EV SEL	0
RR1 CLR	15
EVA DLY	0
EVA CLR	5
EVB DLY	0
EVB CLR	5
EVC DLY	0
EVC CLR	5
EVD DLY	0
EVD CLR	5
MAX EV	255
RR2 CLR	15

F FLAGS	1	2	3	4	5	6	7	8	
PERMIT		2		4		6			0
RED LOCK				4					1
YEL LOCK									2
V RECALL		2				6			3
P RECALL									4
PED PHASES						6			5
RT OLA									6
RT OLB									7
DBL ENTRY									8
MAX 2 PHASES									9
LAG PHASES	READ ONLY								A
RED REST									B
REST-IN-WALK									C
MAX 3 PHASES									D
YEL START UP		2				6			E
FIRST PHASE				4					F
	1	2	3	4	5	6	7	8	

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

NOTES:

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

LOCATION: **RTE 78 EB @ MELROSE DRIVE**

CALTRANS C8 Version 3 DATE: 4/13/2017

C PAGE

		CONTROL PLANS									Y-COORD			LAG PHASE		FLAGS									
		1	2	3	4	5	6	7	8	9		C	D	E		F	1	2	3	4	5	6	7	8	
0	CYCLE LENGTH	**110**	**120**	**130**		**120**										LAG FZ FREE		**2**		**4**		**6**			0
1	FZ1 GRN FCTR	**0**	**0**	**0**		**0**								GAPOUT CP1	**0**	LAG FZ CP 1		**2**		**4**		**6**			1
2														GAPOUT CP2	**0**	LAG FZ CP 2		**2**		**4**		**6**			2
3	FZ3 GRN FCTR	**0**	**0**	**0**		**0**								GAPOUT CP3	**0**	LAG FZ CP 3		**2**		**4**		**6**			3
4	FZ4 GRN FCTR	**40**	**40**	**40**		**40**					PERM TIME			GAPOUT CP4		LAG FZ CP 4									4
5	FZ5 GRN FCTR	**0**	**0**	**0**		**0**					LAG OFFSET			GAPOUT CP5		LAG FZ CP 5		**2**		**4**		**6**			5
6											FORCE OFF			GAPOUT CP6		LAG FZ CP 6									6
7	FZ7 GRN FCTR	**0**	**0**	**0**		**0**					LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	**0**	**0**	**0**		**0**					NO GREEN			GAPOUT CP8		LAG FZ CP 8									8
9	MULTI CYCLE	**0**	**0**	**0**		**0**								GAPOUT CP9		LAG FZ CP 9									9
A	OFFSET A	**25**	**25**	**25**		**25**					OFFSET					LAG C COORD									A
B	OFFSET B	**25**	**25**	**25**		**25**										LAG D COORD									B
C	OFFSET C	**25**	**25**	**25**		**25**										COORD FAZES		**2**				**6**			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 78 ON RAMP @
WEST VISTA WAY

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		
2		2
3		
4		
5		
6		
7		
8		

COO = **2**

CCB/CDB OFFSET TIMER
CCC/CDC LAG GREEN TIMER
CCD/CDD FORCE OFF TIMER
CCE/CDE LONG GREEN TIMER
CCF/CDF NO GREEN TIMER

LOCATION: **RTE 78 EB @ MELROSE DRIVE**

CALTRANS C8 Version 3 DATE: 4/13/2017

D PAGE

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1									CP 1				4					CP 1								
2	CP 2									CP 2				4					CP 2								
3	CP 3									CP 3				4					CP 3								
4	CP 4									CP 4									CP 4								
5	CP 5									CP 5				4					CP 5								
6	CP 6									CP 6									CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8									CP 8								
9	CP 9									CP 9									CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8

E PAGE

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED		2							5
6										6 PED						6			6
7										4 PED				4					7
8										8 PED								8	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

LAST POWER FAILURE REGISTER

HOUR = D-A-E

MINUTE = D-B-E

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES

(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES

(CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

84 = BAD

85 = GOOD

LOCATION: **RTE 78 EB @ MELROSE DRIVE**

CALTRANS C8 Version 3 DATE: 4/13/2017

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
				ON/	S	M	T	W	T	F	S
	HR	MIN	ACT	OFF	1	2	3	4	5	6	7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C	06	00	E			2	3	4	5	6	
D	10	00	E		1						7
E	18	00	E	ON	1						7
F	19	00	E	ON		2	3	4	5	6	

ACTIVITY CODE

1 TYPE OF MAX TERMINATION
2 MAX 2
3 MAX 3
4 COND SERV (1ST SELECT)
5 COND SERV (2ND SELECT)
6 ENERGIZE AUX OUTPUT-RED

7 ENERGIZE AUX OUTPUT-GREEN

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
					S	M	T	W	T	F	S
	HR	MIN	CP	OS	1	2	3	4	5	6	7
0	06	00	1	A		2	3	4	5	6	
1	07	00	5	A		2	3	4	5	6	
2	09	00	1	A		2	3	4	5	6	
3	10	00	1	A	1						7
4	11	00	2	A		2	3	4	5	6	
5	14	30	3	A		2	3	4	5	6	
6	18	00	E		1						7
7	19	00	E			2	3	4	5	6	
8											
9											
A											
B											
C											
D											
E											
F											

8 ENERGIZE AUX OUTPUT-YELLOW

9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

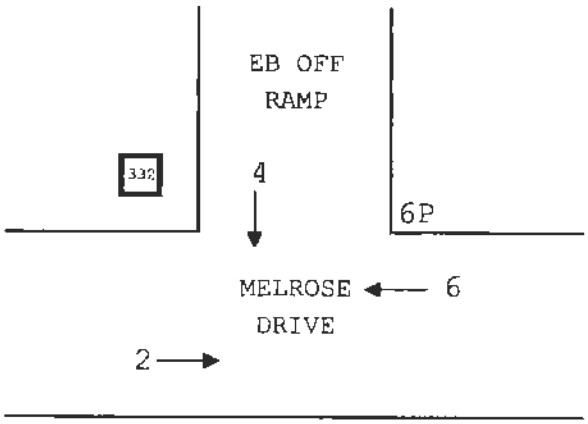
9 PAGE C09 = 2

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
					S	M	T	W	T	F	S
	HR	MIN	CP	OS	1	2	3	4	5	6	7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

DATE: 2/27/95

LOCATION: RTE 78 EB @ MELROSE DRIVE

CONFLICT MONITOR PROGRAM



INTERSECTION: S Melrose Dr @ Hacienda Dr

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **29**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/16/2018 13:11**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	1	<C+0+0>
Zone Number		<C+0+1>
Area Number	0	<C+0+2>
Area Address	37	<C+0+3>
QuicNet Channel	P:8002:10.243.0	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	5.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	1	4	0	0	1	4	1	4
1	Ped FDW	1	18	0	0	1	18	1	23
2	Min Green	5	10	5	5	5	10	5	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
6	Max Gap	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
7	Min Gap	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
8	Max Limit	25	35	25	30	25	35	25	30
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0
E	Yellow Change	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
F	Red Clear	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Phase Timing - Bank 1 <F Page>

	E
RR-1 Delay	0
RR-1 Clear	10
EV-A Delay	0
EV-A Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing

	F	Row
Permit	12345678	0
Red Lock	_____	1
Yellow Lock	_____	2
Min Recall	_2__567_	3
Ped Recall	_____	4
View Set Peds	- - - - -	5
Rest In Walk	_____	6
Red Rest	_____	7
Dual Entry	___4___8	8
Max Recall	_____	9
Soft Recall	_____	A
Max 2	_____	B
Cond. Service	_____	C
Man Cntrl Calls	_____	D
Yellow Start	___4___8	E
First Phases	_2___6__	F

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

INTERSECTION: S Melrose Dr @ Hacienda Dr

(* = Coordination Recall)

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->		Mid					AM		PM	
0	Cycle Length	120	120	130	100	100	100	110	100	130	0
1	Phase 1 - ForceOff	93	92	92	84	83	83	93	65	92	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	45	46	46	48	47	47	45	25	46	3
4	Phase 4 - ForceOff	77	76	76	69	68	68	77	40	76	4
5	Phase 5 - ForceOff	27	23	23	28	25	25	27	65	23	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	50	46	46	48	47	47	50	25	46	7
8	Phase 8 - ForceOff	77	76	76	69	68	68	77	40	76	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	107	12	8	0	0	0	107	0	13	A
B	Offset 2	0	12	8	0	0	0	107	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	29	25	12	12	12	12	29	12	25	D
E	Hold Release	255	255	255	255	255	255	255	255	255	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

	E	Row
		0
Plan 1 - Sync	_2___6__	1
Plan 2 - Sync	_2___6__	2
Plan 3 - Sync	_2___6__	3
Plan 4 - Sync	_2___6__	4
Plan 5 - Sync	_2___6__	5
Plan 6 - Sync	_2___6__	6
Plan 7 - Sync	_2___6__	7
Plan 8 - Sync	_2___6__	8
Plan 9 - Sync	_2___6__	9
Coord Ped *	_____	A
NEMA Hold	_____	B
		C
		D
		E
		F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____8
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	___4__7_
C	EV-C Phases	1____6__
D	EV-D Phases	__3____8
E	Extra 1 Config. Bits	1_3_____
F	IC Select (Interconnect)	_2_____8

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	_____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	1_____8

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

	F	Row
Free Lag	_2_45__8	0
Plan 1 - Lag	_2_45__8	1
Plan 2 - Lag	_2_45__8	2
Plan 3 - Lag	_2_45__8	3
Plan 4 - Lag	_2_45__8	4
Plan 5 - Lag	_2_45__8	5
Plan 6 - Lag	_2_45__8	6
Plan 7 - Lag	_2_45__8	7
Plan 8 - Lag	_2_45__8	8
Plan 9 - Lag	_2_45__8	9
Coord Max *	_____	A
Coord Lag *	____5___	B
		C
		D
		E
		F

Lag Phases <C Page>

INTERSECTION: S Melrose Dr @ Hacienda Dr

Row	Time	Plan	Offset	Day of Week
0	06 : 00	7	A	_23456_
1	11 : 00	2	A	_23456_
2	14 : 30	9	A	_23456_
3	19 : 00	E	A	_23456_
4	10 : 00	7	A	1_____7
5	18 : 00	E	A	1_____7
6	07 : 00	1	A	_23456_
7	09 : 00	7	A	_23456_
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
06 : 00	3	1234567	_2__567_
19 : 00	3	1234567	_2___67_
00 : 00	E	1234567	_____78
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	_____
1	00 : 00	0	0	_____
2	00 : 00	0	0	_____
3	00 : 00	0	0	_____
4	00 : 00	0	0	_____
5	00 : 00	0	0	_____
6	00 : 00	0	0	_____
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	1.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	1.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	1.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	2
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

INTERSECTION: S Melrose Dr @ Hacienda Dr

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	1	4	0	0	1	4	1	4
1	Ped FDW	1	18	0	0	1	18	1	23
2	Min Green	5	10	5	5	5	15	5	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
6	Max Gap	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
7	Min Gap	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
8	Max Limit	7	35	25	30	25	35	25	30
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.9	4.0	3.9	3.9	3.9	4.0	3.9	3.9
F	Red Clear	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	1	4	0	0	1	4	1	4
1	Ped FDW	1	18	0	0	1	18	1	23
2	Min Green	5	10	5	5	5	15	5	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
6	Max Gap	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
7	Min Gap	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
8	Max Limit	7	35	25	30	25	35	25	30
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.9	4.0	3.9	3.9	3.9	4.0	3.9	3.9
F	Red Clear	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Phase Timing - Bank 3 <F Page>

Row		7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0	Delay Only --->	0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	<--- Limited Service Interval
B		0	0								B	
C		0	0								C	
D		0	0								D	(Set Dwell = 255)
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Hacienda Dr @ Vista Village Dr

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **58**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/17/2018 12:22**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	1	<C+0+0>
Zone Number		<C+0+1>
Area Number	0	<C+0+2>
Area Address	31	<C+0+3>
QuicNet Channel	P:8002:10.243.0	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	5.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	5	0	5	0	0	0	5
1	Ped FDW	0	13	0	15	0	0	0	27
2	Min Green	5	5	5	5	5	5	10	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0
6	Max Gap	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0
7	Min Gap	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0
8	Max Limit	25	30	30	30	25	30	30	30
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

	E
RR-1 Delay	0
RR-1 Clear	5
EV-A Delay	0
EV-A Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	5
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing

	F	Row
Permit	12345678	0
Red Lock	_____	1
Yellow Lock	_____	2
Min Recall	___4__7_	3
Ped Recall	_____	4
View Set Peds	- - - - -	5
Rest In Walk	_____	6
Red Rest	_____	7
Dual Entry	_____	8
Max Recall	_____	9
Soft Recall	_____	A
Max 2	_____	B
Cond. Service	_____	C
Man Cntrl Calls	_____	D
Yellow Start	123__6_8	E
First Phases	___4__7_	F

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

INTERSECTION: Hacienda Dr @ Vista Village Dr

(* = Coordination Recall)

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->	AM	Mid						PM		
0	Cycle Length	110	110	120	100	100	100	100	130	100	0
1	Phase 1 - ForceOff	20	20	20	65	65	65	65	25	65	1
2	Phase 2 - ForceOff	43	43	43	0	0	0	0	50	0	2
3	Phase 3 - ForceOff	63	63	63	25	25	25	25	70	25	3
4	Phase 4 - ForceOff	0	0	0	40	40	40	40	0	40	4
5	Phase 5 - ForceOff	20	20	20	65	65	65	65	25	65	5
6	Phase 6 - ForceOff	43	43	43	0	0	0	0	50	0	6
7	Phase 7 - ForceOff	0	0	0	25	25	25	25	0	25	7
8	Phase 8 - ForceOff	78	78	78	40	40	40	40	88	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	44	60	44	0	0	0	0	64	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	12	12	12	12	12	12	12	12	0	D
E	Hold Release	255	255	255	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

	E	Row
		0
Plan 1 - Sync	___4__7_	1
Plan 2 - Sync	___4__7_	2
Plan 3 - Sync	___4__7_	3
Plan 4 - Sync	_2___6__	4
Plan 5 - Sync	_2___6__	5
Plan 6 - Sync	_2___6__	6
Plan 7 - Sync	_2___6__	7
Plan 8 - Sync	___4__7_	8
Plan 9 - Sync	_2___6__	9
Coord Ped *	_____	A
NEMA Hold	_____	B
		C
		D
		E
		F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____6__
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	___4__7_
C	EV-C Phases	1____6__
D	EV-D Phases	__3____8
E	Extra 1 Config. Bits	1_3_____
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____
Ped 4P	___4____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____67_
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	1_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

	F	Row
Free Lag	_2_4_6_8	0
Plan 1 - Lag	_2_4_67_	1
Plan 2 - Lag	_2_4_67_	2
Plan 3 - Lag	_2_4_67_	3
Plan 4 - Lag	_2_4_6_8	4
Plan 5 - Lag	_2_4_6_8	5
Plan 6 - Lag	_2_4_6_8	6
Plan 7 - Lag	_2_4_6_8	7
Plan 8 - Lag	_2_4_67_	8
Plan 9 - Lag	_2_4_6_8	9
Coord Max *	_____	A
Coord Lag *	_____	B
		C
		D
		E
		F

Lag Phases <C Page>

INTERSECTION: Hacienda Dr @ Vista Village Dr

Row	Time	Plan	Offset	Day of Week
0	06 : 00	1	A	_23456_
1	09 : 00	E	A	_23456_
2	11 : 00	2	A	_23456_
3	14 : 00	8	A	_23456_
4	19 : 00	E	A	_23456_
5	10 : 00	2	A	1_____7
6	18 : 00	E	A	1_____7
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
00 : 00	E	1234567	_____78
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	_____
1	00 : 00	0	0	_____
2	00 : 00	0	0	_____
3	00 : 00	0	0	_____
4	00 : 00	0	0	_____
5	00 : 00	0	0	_____
6	00 : 00	0	0	_____
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	8.0	0.0		I-1	14
1	8.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	8.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	8.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	8.0	0.0		I-9U	18
D	8.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	8.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	4.4	1.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	2
2	System Det. # 2	7
3	System Det. # 3	4
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

INTERSECTION: Hacienda Dr @ Vista Village Dr

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ----->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row		7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0	Delay Only --->	0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	<--- Limited Service Interval
B		0	0								B	
C		0	0								C	
D		0	0								D	(Set Dwell = 255)
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

LOCATION: **RTE 78 EB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 12/18/14

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	7		19		7			CLK RST
1	DONT WALK	1	10		1		16			
2	MIN GREEN	10	6		5		6			
3	TYPE 3 DET	0	0		0		0			
4	ADD/VEH	0.0	0.0		0.0		0.0			
5	PASSAGE	2.0	2.0		2.0		2.0			
6	MAX GAP	2.0	2.0		2.0		2.0			
7	MIN GAP	2.0	2.0		2.0		2.0			
8	MAX EXT	25	25		35		30			
9	MAX 2									YR
A	MAX 3									MO
B										DAY
C	REDUCE BY	0.0	0.0		0.0		0.0			DOW
D	EVERY	1.0	1.0		1.0		1.0			HR
E	**YELLOW**	3.7	4.4		4.1		4.4			MIN
F	RED	2.0	2.0		2.0		2.0			SEC
3.5	PED XING FT		49				73			
	BIKE XING FT		80				79			

PRE-EMPTION E	
EV SEL	0
RR1 CLR	15
EVA DLY	0
EVA CLR	5
EVB DLY	0
EVB CLR	5
EVC DLY	0
EVC CLR	5
EVD DLY	0
EVD CLR	5
MAX EV	255
RR2 CLR	15

F FLAGS	1	2	3	4	5	6	7	8	
PERMIT	1	2		4		6			0
RED LOCK	1			4					1
YEL LOCK									2
V RECALL		2				6			3
P RECALL									4
PED PHASES		2		4		6			5
RT OLA									6
RT OLB									7
DBL ENTRY									8
MAX 2 PHASES									9
LAG PHASES	READ ONLY								A
RED REST									B
REST-IN-WALK									C
MAX 3 PHASES									D
YEL START UP		2				6			E
FIRST PHASE				4					F
	1	2	3	4	5	6	7	8	

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

NOTES:

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

LOCATION: **RTE 78 EB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 2/15/13

C PAGE

		CONTROL PLANS									Y-COORD			LAG PHASE		FLAGS									
		1	2	3	4	5	6	7	8	9		C	D	E		F	1	2	3	4	5	6	7	8	
0	CYCLE LENGTH	110	110	90					130							LAG FZ FREE		2		4		6			0
1	FZ1 GRN FCTR	27	27	20					35					GAPOUT CP1	0	LAG FZ CP 1		2		4		6			1
2														GAPOUT CP2	0	LAG FZ CP 2		2		4		6			2
3	FZ3 GRN FCTR	0	0	0					0					GAPOUT CP3	0	LAG FZ CP 3		2		4		6			3
4	FZ4 GRN FCTR	25	25	20					30		PERM TIME			GAPOUT CP4		LAG FZ CP 4									4
5	FZ5 GRN FCTR	0	0	0					0		LAG OFFSET			GAPOUT CP5		LAG FZ CP 5									5
6											FORCE OFF			GAPOUT CP6		LAG FZ CP 6									6
7	FZ7 GRN FCTR	0	0	0					0		LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	0	0	0					0		NO GREEN			GAPOUT CP8	0	LAG FZ CP 8		2		4		6			8
9	MULTI CYCLE	0	0	0					0					GAPOUT CP9		LAG FZ CP 9									9
A	OFFSET A	75	55	45					65		OFFSET					LAG C COORD									A
B	OFFSET B	75	55	45					65							LAG D COORD									B
C	OFFSET C	75	55	45					65							COORD FAZES		2				6			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 78 EB @
VISTA VILLAGE

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		1
2		
3		
4		
5		
6		
7		
8		

COO = **1**

CCB/CDB OFFSET TIMER
CCC/CDC LAG GREEN TIMER
CCD/CDD FORCE OFF TIMER
CCE/CDE LONG GREEN TIMER
CCF/CDF NO GREEN TIMER

LOCATION: **RTE 78 EB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 11/29/11

D PAGE

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1									CP 1	1								CP 1				4				
2	CP 2									CP 2	1								CP 2				4				
3	CP 3									CP 3	1			4					CP 3								
4	CP 4									CP 4									CP 4								
5	CP 5									CP 5									CP 5								
6	CP 6									CP 6									CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8	1								CP 8				4				
9	CP 9									CP 9									CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8

E PAGE

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED		2							5
6										6 PED						6			6
7										4 PED				4					7
8										8 PED								8	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

LAST POWER FAILURE REGISTER

HOUR = D-A-E

MINUTE = D-B-E

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES
(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES
(CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

84 = BAD

85 = GOOD

LOCATION: **RTE 78 EB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 11/1/11

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
	HR	MIN	ACT	ON/ OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C	**06**	**00**	**E**			**2**	**3**	**4**	**5**	**6**	
D	**10**	**00**	**E**		**1**						**7**
E	**18**	**00**	**E**	**ON**	**1**						**7**
F	**19**	**00**	**E**	**ON**		**2**	**3**	**4**	**5**	**6**	

ACTIVITY CODE

1 TYPE OF MAX TERMINATION
2 MAX 2
3 MAX 3
4 COND SERV (1ST SELECT)
5 COND SERV (2ND SELECT)
6 ENERGIZE AUX OUTPUT-RED
7 ENERGIZE AUX OUTPUT-GREEN

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0	**06**	**00**	**1**	**A**		**2**	**3**	**4**	**5**	**6**	
1	**09**	**00**	**3**	**A**		**2**	**3**	**4**	**5**	**6**	
2	**10**	**00**	**2**	**A**	**1**						**7**
3	**11**	**00**	**2**	**A**		**2**	**3**	**4**	**5**	**6**	
4	**14**	**00**	**8**	**A**		**2**	**3**	**4**	**5**	**6**	
5	**18**	**00**	**E**		**1**						**7**
6	**19**	**00**	**E**			**2**	**3**	**4**	**5**	**6**	
7											
8											
9											
A											
B											
C											
D											
E											
F											

8 ENERGIZE AUX OUTPUT-YELLOW

9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

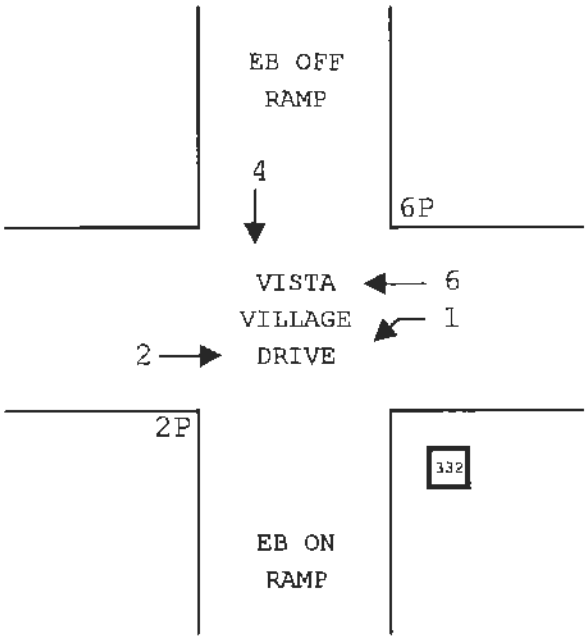
9 PAGE C09 = 2

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

DATE: 8/21/98

LOCATION: RTE 78 EB @ VISTA VILLAGE DRIVE

CONFLICT MONITOR PROGRAM



LOCATION: **RTE 78 WB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 12/18/14

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9	PRE-EMPTION E		F FLAGS	1	2	3	4	5	6	7	8	
0	WALK		7			1	7		19	CLK RST	EV SEL	0	PERMIT		2			5	6		8	0
1	DONT WALK		18			1	10		1		RR1 CLR	15	RED LOCK					5			8	1
2	MIN GREEN		8			10	6		5		EVA DLY	0	YEL LOCK									2
3	TYPE 3 DET		0			0	0		0		EVA CLR	5	V RECALL		2				6			3
4	ADD/VEH		0.0			0.0	0.0		0.0		EVB DLY	0	P RECALL									4
5	PASSAGE		2.0			2.0	2.0		2.0		EVB CLR	5	PED PHASES		2				6		8	5
6	MAX GAP		2.0			2.0	2.0		2.0		EVC DLY	0	RT OLA									6
7	MIN GAP		2.0			2.0	2.0		2.0		EVC CLR	5	RT OLB									7
8	MAX EXT		30			20	25		30		EVD DLY	0	DBL ENTRY									8
9	MAX 2									YR	EVD CLR	5	MAX 2 PHASES									9
A	MAX 3									MO	MAX EV	255	LAG PHASES	READ ONLY								A
B										DAY	RR2 CLR	15	RED REST									B
C	REDUCE BY		0.0			0.0	0.0		0.0	DOW			REST-IN-WALK									C
D	EVERY		1.0			1.0	1.0		1.0	HR			MAX 3 PHASES									D
E	**YELLOW**		4.4			3.7	4.4		4.1	MIN			YEL START UP		2				6			E
F	RED		2.0			2.0	2.0		2.0	SEC			FIRST PHASE								8	F
3.5	PED XING FT		83				39							1	2	3	4	5	6	7	8	
	BIKE XING FT		99				76															

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

NOTES:

OLA = FZ 8

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

LOCATION: **RTE 78 WB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 2/15/13

C PAGE

		CONTROL PLANS									Y-COORD			LAG PHASE		FLAGS									
		1	2	3	4	5	6	7	8	9		C	D	E		F	1	2	3	4	5	6	7	8	
0	CYCLE LENGTH	110	110	90					130							LAG FZ FREE		2				6		8	0
1	FZ1 GRN FCTR	0	0	0					0					GAPOUT CP1	0	LAG FZ CP 1		2				6		8	1
2														GAPOUT CP2	0	LAG FZ CP 2		2				6		8	2
3	FZ3 GRN FCTR	0	0	0					0					GAPOUT CP3	0	LAG FZ CP 3		2				6		8	3
4	FZ4 GRN FCTR	0	0	0					0		PERM TIME			GAPOUT CP4		LAG FZ CP 4									4
5	FZ5 GRN FCTR	25	25	20					30		LAG OFFSET			GAPOUT CP5		LAG FZ CP 5									5
6											FORCE OFF			GAPOUT CP6		LAG FZ CP 6									6
7	FZ7 GRN FCTR	0	0	0					0		LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	27	27	20					35		NO GREEN			GAPOUT CP8	0	LAG FZ CP 8		2				6		8	8
9	MULTI CYCLE	0	0	0					0					GAPOUT CP9		LAG FZ CP 9									9
A	OFFSET A	20	0	0					0		OFFSET					LAG C COORD									A
B	OFFSET B	20	0	0					0							LAG D COORD									B
C	OFFSET C	20	0	0					0							COORD FAZES		2				6			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 78 EB @
VISTA VILLAGE

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		
2		2
3		
4		
5		
6		
7		
8		

COO = **2**

CCB/CDB OFFSET TIMER
CCC/CDC LAG GREEN TIMER
CCD/CDD FORCE OFF TIMER
CCE/CDE LONG GREEN TIMER
CCF/CDF NO GREEN TIMER

LOCATION: **RTE 78 WB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 11/29/11

D PAGE

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1									CP 1					5				CP 1								8
2	CP 2									CP 2					5				CP 2								8
3	CP 3									CP 3					5			8	CP 3								
4	CP 4									CP 4									CP 4								
5	CP 5									CP 5									CP 5								
6	CP 6									CP 6									CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8					5				CP 8								8
9	CP 9									CP 9									CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8

E PAGE

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED		2							5
6										6 PED						6			6
7										4 PED				4					7
8										8 PED								8	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

LAST POWER FAILURE REGISTER

HOUR = D-A-E

MINUTE = D-B-E

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES
(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES
(CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

84 = BAD

85 = GOOD

LOCATION: **RTE 78 WB @ VISTA VILLAGE DRIVE**

CALTRANS C8 Version 3 DATE: 11/1/11

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
	HR	MIN	ACT	ON/ OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C	06	00	E			2	3	4	5	6	
D	10	00	E		1						7
E	18	00	E	ON	1						7
F	19	00	E	ON		2	3	4	5	6	

ACTIVITY CODE

1 TYPE OF MAX TERMINATION
2 MAX 2
3 MAX 3
4 COND SERV (1ST SELECT)
5 COND SERV (2ND SELECT)
6 ENERGIZE AUX OUTPUT-RED

7 ENERGIZE AUX OUTPUT-GREEN

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0	06	00	1	A		2	3	4	5	6	
1	09	00	3	A		2	3	4	5	6	
2	10	00	2	A	1						7
3	11	00	2	A		2	3	4	5	6	
4	14	00	8	A		2	3	4	5	6	
5	18	00	E		1						7
6	19	00	E			2	3	4	5	6	
7											
8											
9											
A											
B											
C											
D											
E											
F											

8 ENERGIZE AUX OUTPUT-YELLOW

9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

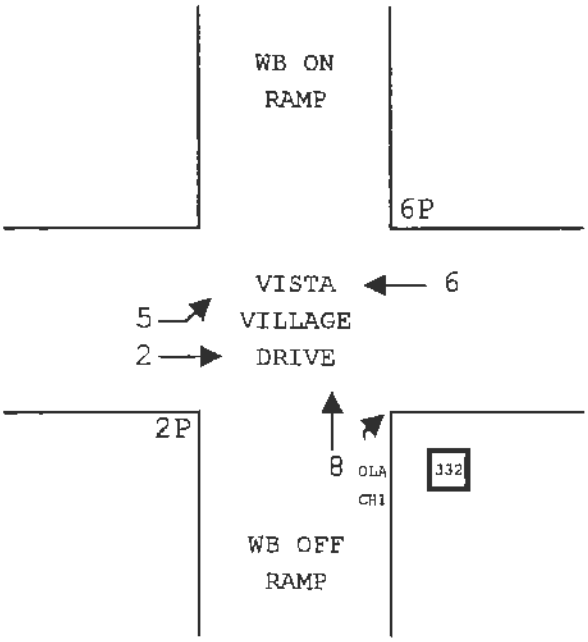
9 PAGE C09 = 2

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

DATE: 7/28/98

LOCATION: RTE 78 WB @ VISTA VILLAGE DRIVE

CONFLICT MONITOR PROGRAM



INTERSECTION: Vista Village @ Lado De Loma

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **63**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **5/31/2017 9:27**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	1	<C+0+0>
Zone Number		<C+0+1>
Area Number	0	<C+0+2>
Area Address	29	<C+0+3>
QuicNet Channel	P:8002:10.243.0	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	5.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	4	0	0	0	4	0	4
1	Ped FDW	0	12	0	0	0	12	0	20
2	Min Green	5	15	0	0	5	15	5	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	3.5	0.0	0.0	2.0	3.5	2.5	2.5
6	Max Gap	2.0	3.5	0.0	0.0	2.0	3.5	2.5	2.5
7	Min Gap	2.0	3.5	0.0	0.0	2.0	3.5	2.5	2.5
8	Max Limit	15	40	0	0	15	40	15	20
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
E	Yellow Change	4.4	4.4	0.0	0.0	4.4	4.4	3.6	3.6
F	Red Clear	1.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

	E
RR-1 Delay	0
RR-1 Clear	10
EV-A Delay	0
EV-A Clear	1
EV-B Delay	0
EV-B Clear	1
EV-C Delay	0
EV-C Clear	1
EV-D Delay	0
EV-D Clear	1
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing

	F	Row
Permit	12__5678	0
Red Lock	1_____	1
Yellow Lock	_____	2
Min Recall	_2___6__	3
Ped Recall	_____	4
View Set Peds	- - - - -	5
Rest In Walk	_2___6_8	6
Red Rest	_____	7
Dual Entry	_____	8
Max Recall	_____	9
Soft Recall	_____	A
Max 2	_____	B
Cond. Service	_____	C
Man Cntrl Calls	_____	D
Yellow Start	_____	E
First Phases	_2___6__	F

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

(* = Coordination Recall)

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9
	Plan Name ---->	AM	Mid						PM	
0	Cycle Length	110	110	120	100	100	100	110	130	100
1	Phase 1 - ForceOff	70	75	70	74	74	74	74	70	65
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	25
4	Phase 4 - ForceOff	0	0	0	0	0	0	0	0	40
5	Phase 5 - ForceOff	15	15	15	15	15	15	15	15	65
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	30	30	30	30	30	30	30	30	25
8	Phase 8 - ForceOff	60	60	60	55	55	55	55	60	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	15	0	15	0	0	0	0	110	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	17	17	17	17	17	7	17	17	17
E	Hold Release	255	255	255	255	255	255	255	255	255
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination <C Page>

Row		E
0		
1	Plan 1 - Sync	_2___6__
2	Plan 2 - Sync	_2___6__
3	Plan 3 - Sync	_2___6__
4	Plan 4 - Sync	_2___6__
5	Plan 5 - Sync	_2___6__
6	Plan 6 - Sync	_2___6__
7	Plan 7 - Sync	_2___6__
8	Plan 8 - Sync	_2___6__
9	Plan 9 - Sync	_2___6__
A	Coord Ped *	_____
B	NEMA Hold	_____
C		
D		
E		
F		

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	_____7_
C	EV-C Phases	1____6__
D	EV-D Phases	_____8
E	Extra 1 Config. Bits	1_3_____
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	_____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	3

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F
0	Free Lag	_2_4_6_8
1	Plan 1 - Lag	_2_45__8
2	Plan 2 - Lag	_2_45__8
3	Plan 3 - Lag	_2_45__8
4	Plan 4 - Lag	_2_45__8
5	Plan 5 - Lag	_2_45__8
6	Plan 6 - Lag	_2_45__8
7	Plan 7 - Lag	_2_45__8
8	Plan 8 - Lag	_2_45__8
9	Plan 9 - Lag	_2_45__8
A	Coord Max *	_____
B	Coord Lag *	____5___
C		
D		
E		
F		

Lag Phases <C Page>

INTERSECTION: Vista Village @ Lado De Loma

Row	Time	Plan	Offset	Day of Week
0	06 : 00	1	0	_23456_
1	09 : 00	E	0	_23456_
2	11 : 00	2	0	_23456_
3	14 : 00	8	0	_23456_
4	19 : 00	E	0	_23456_
5	10 : 00	2	0	1_____7
6	18 : 00	E	0	1_____7
7	00 : 00	0	0	_____
8	07 : 00	3	0	_23456_
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
00 : 00	E	1234567	_____78
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week	Row
00 : 00	0	0	_____	0
00 : 00	0	0	_____	1
00 : 00	0	0	_____	2
00 : 00	0	0	_____	3
00 : 00	0	0	_____	4
00 : 00	0	0	_____	5
00 : 00	0	0	_____	6
00 : 00	0	0	_____	7
00 : 00	0	0	_____	8
00 : 00	0	0	_____	9
00 : 00	0	0	_____	A
00 : 00	0	0	_____	B
00 : 00	0	0	_____	C
00 : 00	0	0	_____	D
00 : 00	0	0	_____	E
00 : 00	0	0	_____	F

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	1
2	System Det. # 2	5
3	System Det. # 3	2
4	System Det. # 4	6
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

INTERSECTION: Vista Village @ Lado De Loma

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	4
9	Max Limit 2	30	70	30	70	30	70	30	78
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	17.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	0.6
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	0.2

Phase Timing - Bank 3 <F Page>

Row		7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0	Delay Only --->	0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	<--- Limited Service Interval (Set Dwell = 255)
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: W Vista Way@Vista Village Dr

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **11**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **5/24/2018 10:38**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	1	<C+0+0>
Zone Number		<C+0+1>
Area Number	0	<C+0+2>
Area Address	28	<C+0+3>
QuicNet Channel	P:8002:10.243.0	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	5.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	4	0	0	0	4	0	0
1	Ped FDW	0	23	0	0	0	33	0	0
2	Min Green	5	10	5	12	5	10	5	12
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	2.5	2.0	2.5	2.0	2.5	2.5	2.5
6	Max Gap	2.0	2.5	2.0	2.5	2.0	2.5	2.5	2.5
7	Min Gap	2.0	2.5	2.0	2.5	2.0	2.5	2.5	2.5
8	Max Limit	15	35	10	10	35	35	35	10
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	4.0	4.4	3.5	4.4	4.0	4.0	4.4	4.4
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

	E
RR-1 Delay	0
RR-1 Clear	10
EV-A Delay	0
EV-A Clear	1
EV-B Delay	0
EV-B Clear	1
EV-C Delay	0
EV-C Clear	1
EV-D Delay	0
EV-D Clear	1
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing

	F	Row
Permit	12345678	0
Red Lock	_____	1
Yellow Lock	_____	2
Min Recall	_2___6__	3
Ped Recall	_____	4
View Set Peds	- - - - -	5
Rest In Walk	_____	6
Red Rest	_____	7
Dual Entry	_____	8
Max Recall	_____	9
Soft Recall	_____	A
Max 2	_____	B
Cond. Service	_____	C
Man Cntrl Calls	_____	D
Yellow Start	___4___8	E
First Phases	_2___6__	F

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

INTERSECTION: W Vista Way@Vista Village Dr

(* = Coordination Recall)

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9
	Plan Name ---->	AM	Mid						PM	
0	Cycle Length	110	110	120	100	100	100	110	130	100
1	Phase 1 - ForceOff	88	90	88	48	48	48	58	105	65
2	Phase 2 - ForceOff	0	0	0	75	75	75	85	0	0
3	Phase 3 - ForceOff	53	60	53	30	30	30	40	70	25
4	Phase 4 - ForceOff	73	75	73	0	0	0	0	85	40
5	Phase 5 - ForceOff	33	35	33	58	58	58	68	45	65
6	Phase 6 - ForceOff	0	0	0	75	75	75	85	0	0
7	Phase 7 - ForceOff	58	60	58	95	95	95	105	70	25
8	Phase 8 - ForceOff	73	75	73	0	0	0	0	85	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	10	85	10	95	95	95	95	70	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	12	12	12	12	12	12	12	12	12
E	Hold Release	255	255	255	255	255	255	255	255	255
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination <C Page>

Row		E
0		
1	Plan 1 - Sync	_2___6__
2	Plan 2 - Sync	_2___6__
3	Plan 3 - Sync	_2___6__
4	Plan 4 - Sync	_2___6__
5	Plan 5 - Sync	_2___6__
6	Plan 6 - Sync	_2___6__
7	Plan 7 - Sync	_2___6__
8	Plan 8 - Sync	_2___6__
9	Plan 9 - Sync	_2___6__
A	Coord Ped *	_____
B	NEMA Hold	_____
C		
D		
E		
F		

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____6__
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	___4__7_
C	EV-C Phases	1____6__
D	EV-D Phases	__3____8
E	Extra 1 Config. Bits	1_3_____
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	_____
Ped 8P	_____
Yellow Flash Phases	_____
Overlap A - Phases	_____67_
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	1_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	4

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F
0	Free Lag	_2_4_6_8
1	Plan 1 - Lag	_2_45__8
2	Plan 2 - Lag	_2_45__8
3	Plan 3 - Lag	_2_45__8
4	Plan 4 - Lag	_23__6_8
5	Plan 5 - Lag	_23__6_8
6	Plan 6 - Lag	_23__6_8
7	Plan 7 - Lag	_23__6_8
8	Plan 8 - Lag	_2_45__8
9	Plan 9 - Lag	_23__6_8
A	Coord Max *	_____
B	Coord Lag *	____5___
C		
D		
E		
F		

Lag Phases <C Page>

INTERSECTION: W Vista Way@Vista Village Dr

Row	Time	Plan	Offset	Day of Week
0	06 : 00	1	A	_23456_
1	09 : 00	E	A	_23456_
2	11 : 00	2	A	_234567
3	14 : 00	8	A	_23456_
4	19 : 00	E	A	_23456_
5	10 : 00	2	A	1_____7
6	18 : 00	E	A	1_____7
7	00 : 00	0	0	_____
8	07 : 00	3	A	_23456_
9	08 : 30	1	A	_23456_
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
00 : 00	E	1234567	_____78
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	_____
1	00 : 00	0	0	_____
2	00 : 00	0	0	_____
3	00 : 00	0	0	_____
4	00 : 00	0	0	_____
5	00 : 00	0	0	_____
6	00 : 00	0	0	_____
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	4.4	1.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	24
2	System Det. # 2	8
3	System Det. # 3	27
4	System Det. # 4	5
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ----->								
0	Ped Walk	0	0	0	4	0	0	0	4
1	Ped FDW	0	0	0	33	0	0	0	23
2	Min Green	5	12	5	10	5	12	5	10
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	2.5	2.0	2.5	2.5	2.5	2.0	2.5
6	Max Gap	2.0	2.5	2.0	2.5	2.5	2.5	2.0	2.5
7	Min Gap	2.0	2.5	2.0	2.5	2.5	2.5	2.0	2.5
8	Max Limit	10	10	35	35	15	10	15	35
9	Max Limit 2	0	0	0	0	0	0	0	0
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	3.5	4.4	4.0	4.4	4.4	4.4	4.0	4.4
F	Red Clear	1.0	1.0	1.0	1.0	1.5	1.0	1.0	1.0

Phase Timing - Bank 2 <F Page>

Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
Phase Names ----->									
Ped Walk	0	0	0	4	0	0	0	4	0
Ped FDW	0	0	0	33	0	0	0	23	1
Min Green	5	12	5	10	5	12	5	10	2
Type 3 Limit	0	0	0	0	0	0	0	0	3
Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4
Veh Extension	2.0	2.5	2.0	2.5	2.5	2.5	2.0	2.5	5
Max Gap	2.0	2.5	2.0	2.5	2.5	2.5	2.0	2.5	6
Min Gap	2.0	2.5	2.0	2.5	2.5	2.5	2.0	2.5	7
Max Limit	10	10	35	35	15	10	15	35	8
Max Limit 2	0	0	0	0	0	0	0	0	9
- - - - - -	0	0	0	0	0	0	0	0	A
Call To Phase	0	0	0	0	0	0	0	0	B
Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	D
Yellow Change	3.5	4.4	4.0	4.4	4.4	4.4	4.0	4.4	E
Red Clear	1.0	1.0	1.0	1.0	1.5	1.0	1.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	<--- Limited Service Interval (Set Dwell = 255)
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

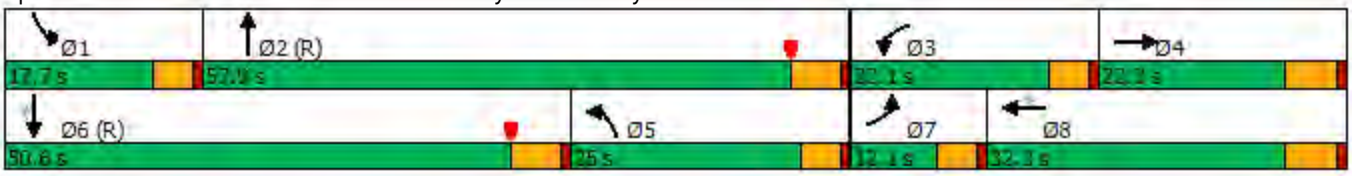
Special Event Schedule <C Page with F+9+F=22>

APPENDIX B
PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING AM, MIDDAY AND PM PEAK HOURS

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	213	201	298	384	284	819	174	1420	512
Future Volume (vph)	50	213	201	298	384	284	819	174	1420	512
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	12.1	22.3	22.1	32.3	32.3	25.0	57.9	17.7	50.6	50.6
Total Split (%)	10.1%	18.6%	18.4%	26.9%	26.9%	20.8%	48.3%	14.8%	42.2%	42.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	7.5	15.7	11.8	21.9	21.9	15.7	56.1	16.2	56.6	56.6
Actuated g/C Ratio	0.06	0.13	0.10	0.18	0.18	0.13	0.47	0.14	0.47	0.47
v/c Ratio	0.48	0.72	0.63	0.49	0.75	0.67	0.44	0.77	0.62	0.60
Control Delay	68.8	39.6	60.3	46.4	20.7	39.0	14.2	71.7	26.7	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	39.6	60.3	46.4	20.7	39.0	14.2	71.7	26.7	14.9
LOS	E	D	E	D	C	D	B	E	C	B
Approach Delay		43.0		38.4			19.8		27.6	
Approach LOS		D		D			B		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 69.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	213	169	201	298	384	284	819	159	174	1420	512
Future Volume (veh/h)	50	213	169	201	298	384	284	819	159	174	1420	512
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	224	178	212	314	369	299	862	147	183	1495	517
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	347	263	272	785	350	719	2033	345	196	1823	566
Arrive On Green	0.04	0.18	0.18	0.08	0.22	0.22	0.21	0.46	0.46	0.11	0.36	0.36
Sat Flow, veh/h	1781	1924	1460	3456	3554	1585	3456	4395	745	1781	5106	1585
Grp Volume(v), veh/h	53	206	196	212	314	369	299	667	342	183	1495	517
Grp Sat Flow(s),veh/h/ln	1781	1777	1607	1728	1777	1585	1728	1702	1736	1781	1702	1585
Q Serve(g_s), s	3.5	12.9	13.7	7.2	9.1	26.5	9.0	15.7	15.8	12.2	31.9	30.3
Cycle Q Clear(g_c), s	3.5	12.9	13.7	7.2	9.1	26.5	9.0	15.7	15.8	12.2	31.9	30.3
Prop In Lane	1.00		0.91	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	68	320	290	272	785	350	719	1574	803	196	1823	566
V/C Ratio(X)	0.78	0.64	0.68	0.78	0.40	1.05	0.42	0.42	0.43	0.93	0.82	0.91
Avail Cap(c_a), veh/h	113	320	290	507	785	350	719	1574	803	196	1923	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	45.6	45.9	54.2	40.0	46.8	41.2	21.6	21.6	53.0	35.1	24.3
Incr Delay (d2), s/veh	6.9	4.7	6.5	1.2	0.3	54.4	0.4	0.8	1.6	45.2	4.3	21.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.1	6.0	3.2	4.0	15.7	3.8	6.2	6.6	7.8	13.5	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	50.3	52.4	55.5	40.2	101.2	41.6	22.3	23.1	98.2	39.3	45.9
LnGrp LOS	E	D	D	E	D	F	D	C	C	F	D	D
Approach Vol, veh/h		455			895			1308			2195	
Approach Delay, s/veh		52.8			69.0			26.9			45.8	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	60.9	14.0	27.4	30.4	48.2	9.1	32.3
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	13.2	52.5	17.6	16.5	20.5	* 45	7.6	26.5
Max Q Clear Time (g_c+I1), s	14.2	17.8	9.2	15.7	11.0	33.9	5.5	28.5
Green Ext Time (p_c), s	0.0	9.2	0.2	0.2	0.7	8.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.6
HCM 6th LOS	D

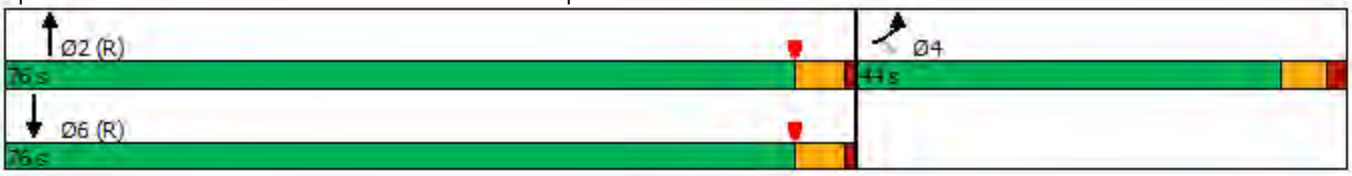
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	221	265	949	1719
Future Volume (vph)	221	265	949	1719
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	44.0	44.0	76.0	76.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	17.0	17.0	91.5	91.5
Actuated g/C Ratio	0.14	0.14	0.76	0.76
v/c Ratio	0.70	0.72	0.25	0.36
Control Delay	53.7	60.5	14.8	9.7
Queue Delay	0.1	0.3	5.8	0.3
Total Delay	53.8	60.8	20.6	10.0
LOS	D	E	C	A
Approach Delay	56.0		20.6	10.0
Approach LOS	E		C	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 45.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Melrose Dr. & SR-78 EB Off-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	221	265	0	949	1719	0
Future Volume (veh/h)	221	265	0	949	1719	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	165	335	0	968	1754	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	228	405	0	3964	4995	0
Arrive On Green	0.13	0.13	0.00	1.00	1.00	0.00
Sat Flow, veh/h	1781	3170	0	5443	6958	0
Grp Volume(v), veh/h	165	335	0	968	1754	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	10.7	12.4	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.7	12.4	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	228	405	0	3964	4995	0
V/C Ratio(X)	0.72	0.83	0.00	0.24	0.35	0.00
Avail Cap(c_a), veh/h	563	1001	0	3964	4995	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.74	0.74	0.00
Uniform Delay (d), s/veh	50.3	51.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.6	1.7	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.0	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.9	52.7	0.0	0.1	0.1	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	500			968	1754	
Approach Delay, s/veh	52.4			0.1	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.6		21.4		98.6
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		70.6		37.9		70.6
Max Q Clear Time (g_c+I1), s		2.0		14.4		2.0
Green Ext Time (p_c), s		4.8		1.0		12.0

Intersection Summary	
HCM 6th Ctrl Delay	8.3
HCM 6th LOS	A

Notes

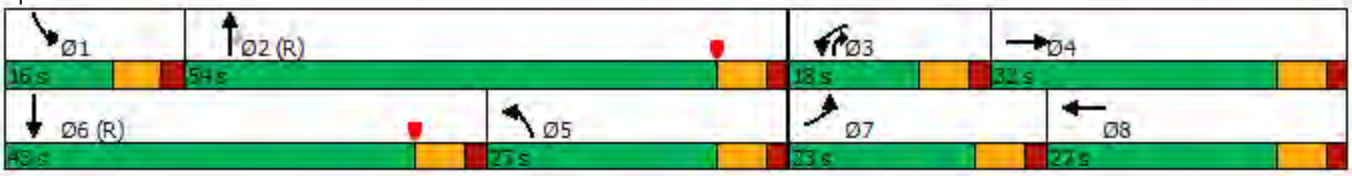
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	187	241	475	225	19	823	219	538	1469
Future Volume (vph)	187	241	475	225	19	823	219	538	1469
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	32.0	18.0	27.0	27.0	54.0	18.0	16.0	43.0
Total Split (%)	19.2%	26.7%	15.0%	22.5%	22.5%	45.0%	15.0%	13.3%	35.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	15.7	26.1	30.6	6.1	33.1	65.6	19.5	46.5
Actuated g/C Ratio	0.09	0.13	0.22	0.26	0.05	0.28	0.55	0.16	0.39
v/c Ratio	0.62	0.64	0.68	0.33	0.22	0.63	0.25	1.03	0.87
Control Delay	60.4	52.7	48.6	34.7	60.1	40.2	5.5	99.8	38.3
Queue Delay	7.1	0.0	0.0	0.0	0.0	0.6	0.0	27.5	47.0
Total Delay	67.5	52.7	48.6	34.7	60.1	40.8	5.5	127.2	85.3
LOS	E	D	D	C	E	D	A	F	F
Approach Delay		58.6		43.5		33.9			95.9
Approach LOS		E		D		C			F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 68.1 — Intersection LOS: E
Intersection Capacity Utilization 78.1% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	241	42	475	225	53	19	823	219	538	1469	120
Future Volume (veh/h)	187	241	42	475	225	53	19	823	219	538	1469	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	256	39	505	239	52	20	876	233	572	1563	102
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	328	49	334	372	79	497	2574	952	276	1494	97
Arrive On Green	0.07	0.11	0.11	0.10	0.13	0.13	0.28	0.50	0.50	0.16	0.61	0.61
Sat Flow, veh/h	3456	3097	466	3456	2913	622	1781	5106	1585	3456	4897	319
Grp Volume(v), veh/h	199	145	150	505	144	147	20	876	233	572	1086	579
Grp Sat Flow(s),veh/h/ln	1728	1777	1786	1728	1777	1758	1781	1702	1585	1728	1702	1813
Q Serve(g_s), s	6.8	9.6	9.8	11.6	9.2	9.5	1.0	12.3	8.3	9.6	36.6	36.6
Cycle Q Clear(g_c), s	6.8	9.6	9.8	11.6	9.2	9.5	1.0	12.3	8.3	9.6	36.6	36.6
Prop In Lane	1.00		0.26	1.00		0.35	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	259	188	189	334	227	224	497	2574	952	276	1038	553
V/C Ratio(X)	0.77	0.77	0.79	1.51	0.64	0.65	0.04	0.34	0.24	2.07	1.05	1.05
Avail Cap(c_a), veh/h	478	379	381	334	305	302	497	2574	952	276	1038	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	54.5	52.2	52.3	54.2	49.7	49.8	31.5	17.8	11.2	50.4	23.4	23.4
Incr Delay (d2), s/veh	1.8	2.6	2.8	244.5	1.0	1.2	0.0	0.4	0.6	492.5	39.8	49.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	4.4	4.5	16.4	4.2	4.3	0.4	4.7	3.0	22.6	14.2	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.8	55.1	298.7	50.7	51.0	31.5	18.2	11.8	542.9	63.2	73.1
LnGrp LOS	E	D	E	F	D	D	C	B	B	F	F	F
Approach Vol, veh/h		494			796			1129			2237	
Approach Delay, s/veh		55.5			208.1			17.1			188.5	
Approach LOS		E			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	66.9	18.0	19.1	39.9	43.0	15.4	21.7
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	47.6	11.6	25.6	20.6	36.6	16.6	20.6
Max Q Clear Time (g_c+I1), s	11.6	14.3	13.6	11.8	3.0	38.6	8.8	11.5
Green Ext Time (p_c), s	0.0	7.6	0.0	0.9	0.0	0.0	0.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	136.2
HCM 6th LOS	F

Notes

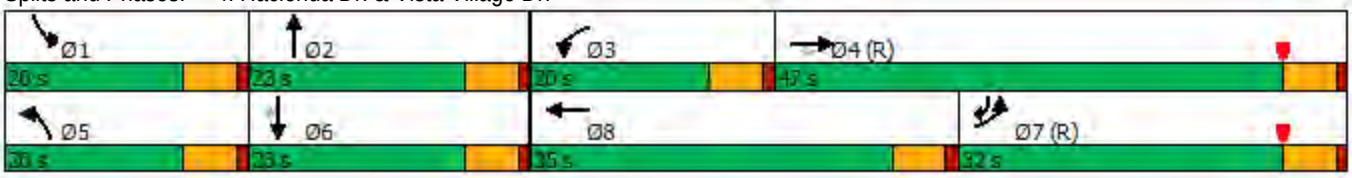
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	885	27	10	1	21	14	31	39	84	747
Future Volume (vph)	885	27	10	1	21	14	31	39	84	747
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	23.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	73.7	83.9	83.9	5.0	11.0	5.7	7.6	7.2	11.7	87.6
Actuated g/C Ratio	0.67	0.76	0.76	0.05	0.10	0.05	0.07	0.07	0.11	0.80
v/c Ratio	0.41	0.02	0.01	0.01	0.22	0.16	0.27	0.37	0.45	0.34
Control Delay	15.9	7.3	0.0	51.0	28.4	53.4	50.4	46.9	53.1	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	15.9	7.3	0.0	51.0	28.4	53.4	50.4	46.9	53.1	3.0
LOS	B	A	A	D	C	D	D	D	D	A
Approach Delay		15.5			28.9		51.3		9.8	
Approach LOS		B			C		D		A	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 24 (22%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 14.0 — Intersection LOS: B
Intersection Capacity Utilization 49.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	885	27	10	1	21	17	14	31	2	39	84	747
Future Volume (veh/h)	885	27	10	1	21	17	14	31	2	39	84	747
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	952	29	11	1	23	18	15	33	2	42	90	803
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1313	1113	2	449	351	30	117	7	59	156	907
Arrive On Green	0.24	0.70	0.70	0.00	0.46	0.46	0.02	0.07	0.07	0.01	0.03	0.03
Sat Flow, veh/h	3456	1870	1585	1781	972	761	1781	1746	106	1781	1870	2790
Grp Volume(v), veh/h	952	29	11	1	0	41	15	0	35	42	90	803
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1733	1781	0	1851	1781	1870	1395
Q Serve(g_s), s	26.6	0.5	0.2	0.1	0.0	1.4	0.9	0.0	2.0	2.6	5.2	2.4
Cycle Q Clear(g_c), s	26.6	0.5	0.2	0.1	0.0	1.4	0.9	0.0	2.0	2.6	5.2	2.4
Prop In Lane	1.00		1.00	1.00		0.44	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	836	1313	1113	2	0	800	30	0	124	59	156	907
V/C Ratio(X)	1.14	0.02	0.01	0.41	0.00	0.05	0.50	0.00	0.28	0.72	0.58	0.89
Avail Cap(c_a), veh/h	836	1313	1113	236	0	800	236	0	296	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.56	0.56	0.56	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	41.7	5.0	4.9	54.9	0.0	16.3	53.6	0.0	48.8	53.9	51.6	22.3
Incr Delay (d2), s/veh	71.3	0.0	0.0	36.3	0.0	0.0	4.8	0.0	0.5	5.7	1.2	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.4	0.2	0.1	0.1	0.0	0.6	0.5	0.0	0.9	1.3	2.6	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	113.0	5.0	4.9	91.2	0.0	16.3	58.5	0.0	49.2	59.6	52.8	28.5
LnGrp LOS	F	A	A	F	A	B	E	A	D	E	D	C
Approach Vol, veh/h		992			42			50			935	
Approach Delay, s/veh		108.7			18.1			52.0			32.2	
Approach LOS		F			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	12.8	5.6	82.6	7.2	14.6	32.0	56.2
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	4.6	4.0	2.1	2.5	2.9	7.2	28.6	3.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	1.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	70.0
HCM 6th LOS	E

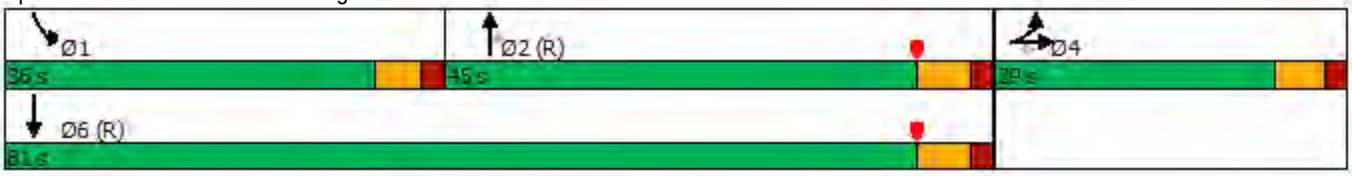
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	304	4	13	221	712	545	857
Future Volume (vph)	304	4	13	221	712	545	857
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	29.0	29.0	29.0	45.0	45.0	36.0	81.0
Total Split (%)	26.4%	26.4%	26.4%	40.9%	40.9%	32.7%	73.6%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	14.9	14.9	14.9	54.3	54.3	22.6	82.6
Actuated g/C Ratio	0.14	0.14	0.14	0.49	0.49	0.21	0.75
v/c Ratio	0.71	0.69	0.05	0.35	0.41	0.81	0.34
Control Delay	61.8	60.6	0.3	3.5	4.2	55.0	5.4
Queue Delay	0.0	0.0	0.0	0.2	0.5	0.0	0.3
Total Delay	61.8	60.6	0.3	3.7	4.8	55.0	5.7
LOS	E	E	A	A	A	D	A
Approach Delay		58.6		4.1			24.9
Approach LOS		E		A			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	4	13	0	0	0	0	221	712	545	857	0
Future Volume (veh/h)	304	4	13	0	0	0	0	221	712	545	857	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	320	0	14				0	230	742	568	893	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	394	0	175				0	999	1694	655	2757	0
Arrive On Green	0.11	0.00	0.11				0.00	0.89	0.89	0.06	0.26	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	320	0	14				0	230	742	568	893	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	9.7	0.0	0.9				0.0	1.8	4.5	17.9	22.4	0.0
Cycle Q Clear(g_c), s	9.7	0.0	0.9				0.0	1.8	4.5	17.9	22.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	394	0	175				0	999	1694	655	2757	0
V/C Ratio(X)	0.81	0.00	0.08				0.00	0.23	0.44	0.87	0.32	0.00
Avail Cap(c_a), veh/h	742	0	330				0	999	1694	952	2757	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.67	1.67	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.92	0.92	0.93	0.93	0.00
Uniform Delay (d), s/veh	47.8	0.0	43.9				0.0	2.9	3.0	50.2	17.5	0.0
Incr Delay (d2), s/veh	1.6	0.0	0.1				0.0	0.5	0.8	4.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	0.3				0.0	0.8	1.2	8.7	10.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	0.0	44.0				0.0	3.3	3.8	54.2	17.8	0.0
LnGrp LOS	D	A	D				A	A	A	D	B	A
Approach Vol, veh/h		334						972			1461	
Approach Delay, s/veh		49.1						3.7			32.0	
Approach LOS		D						A			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.6	65.2		18.3		91.7
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 30	38.6		22.9		74.6
Max Q Clear Time (g_c+I1), s	19.9	6.5		11.7		24.4
Green Ext Time (p_c), s	0.9	2.8		0.5		4.9

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

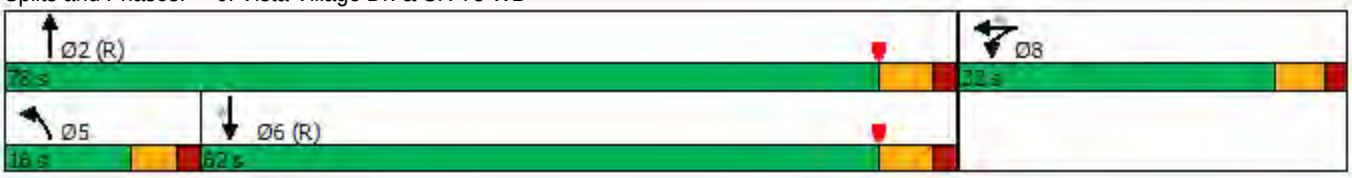
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	417	0	613	22	503	985	705
Future Volume (vph)	417	0	613	22	503	985	705
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	32.0	32.0	32.0	16.0	78.0	62.0	62.0
Total Split (%)	29.1%	29.1%	29.1%	14.5%	70.9%	56.4%	56.4%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	21.0	21.0	21.0	10.0	76.5	70.2	70.2
Actuated g/C Ratio	0.19	0.19	0.19	0.09	0.70	0.64	0.64
v/c Ratio	0.67	0.67	0.61	0.14	0.21	0.31	0.57
Control Delay	50.8	50.8	5.3	55.0	4.0	16.3	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	50.8	50.8	5.3	55.0	4.0	16.3	13.4
LOS	D	D	A	D	A	B	B
Approach Delay		23.7			6.2	15.0	
Approach LOS		C			A	B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	417	0	613	22	503	0	0	985	705
Future Volume (veh/h)	0	0	0	417	0	613	22	503	0	0	985	705
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				430	0	632	23	519	0	0	1015	727
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				784	0	698	82	2367	0	0	2903	901
Arrive On Green				0.22	0.00	0.22	0.09	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				430	0	632	23	519	0	0	1015	727
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				11.8	0.0	21.4	1.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				11.8	0.0	21.4	1.3	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				784	0	698	82	2367	0	0	2903	901
V/C Ratio(X)				0.55	0.00	0.91	0.28	0.22	0.00	0.00	0.35	0.81
Avail Cap(c_a), veh/h				839	0	746	167	2367	0	0	2903	901
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.91	0.91	0.00	0.00	0.81	0.81
Uniform Delay (d), s/veh				38.0	0.0	41.8	48.3	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.3	0.0	13.5	0.6	0.2	0.0	0.0	0.3	6.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.1	0.0	9.6	0.6	0.1	0.0	0.0	0.1	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				38.3	0.0	55.2	48.9	0.2	0.0	0.0	0.3	6.3
LnGrp LOS				D	A	E	D	A	A	A	A	A
Approach Vol, veh/h					1062			542			1742	
Approach Delay, s/veh					48.4			2.3			2.8	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	79.7	10.7	68.9	30.3
Change Period (Y+Rc), s	6.4	* 5.7	6.4	6.1
Max Green Setting (Gmax), s	71.6	* 10	55.6	25.9
Max Q Clear Time (g_c+I1), s	2.0	3.3	2.0	23.4
Green Ext Time (p_c), s	2.5	0.0	8.2	0.9

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

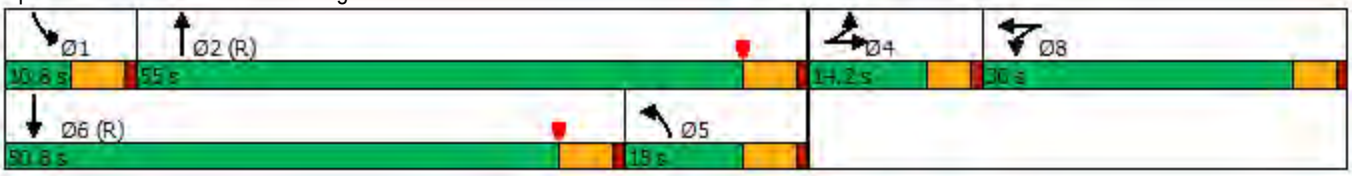
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	219	2	7	977	116	1466
Future Volume (vph)	1	219	2	7	977	116	1466
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	55.0	10.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	50.0%	9.8%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	C-Min	Max	C-Min
Act Effct Green (s)	5.3	15.6	15.6	15.8	49.6	27.2	61.0
Actuated g/C Ratio	0.05	0.14	0.14	0.14	0.45	0.25	0.55
v/c Ratio	0.07	0.65	0.56	0.03	0.51	0.28	0.54
Control Delay	34.0	56.5	38.6	52.1	26.0	61.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	34.0	56.5	38.6	52.1	26.0	61.2	6.4
LOS	C	E	D	D	C	E	A
Approach Delay	34.0		47.8		26.2		10.4
Approach LOS	C		D		C		B

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 15 (14%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 19.9 — Intersection LOS: B
Intersection Capacity Utilization 60.3% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	5	219	2	67	7	977	132	116	1466	6
Future Volume (veh/h)	0	1	5	219	2	67	7	977	132	116	1466	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1	5	150	111	70	7	1018	138	121	1527	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	10	227	137	86	602	2884	390	87	1812	7
Arrive On Green	0.00	0.01	0.01	0.13	0.13	0.13	0.11	0.21	0.21	0.10	0.69	0.69
Sat Flow, veh/h	0	271	1355	1781	1072	676	1781	4548	615	1781	5250	21
Grp Volume(v), veh/h	0	0	6	150	0	181	7	761	395	121	990	543
Grp Sat Flow(s),veh/h/ln	0	0	1626	1781	0	1749	1781	1702	1760	1781	1702	1867
Q Serve(g_s), s	0.0	0.0	0.4	8.8	0.0	11.1	0.4	21.0	21.1	5.4	23.7	23.7
Cycle Q Clear(g_c), s	0.0	0.0	0.4	8.8	0.0	11.1	0.4	21.0	21.1	5.4	23.7	23.7
Prop In Lane	0.00		0.83	1.00		0.39	1.00		0.35	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	12	227	0	223	602	2158	1116	87	1175	644
V/C Ratio(X)	0.00	0.00	0.48	0.66	0.00	0.81	0.01	0.35	0.35	1.38	0.84	0.84
Avail Cap(c_a), veh/h	0	0	142	411	0	404	602	2158	1116	87	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	0.73	0.73	0.73
Uniform Delay (d), s/veh	0.0	0.0	54.4	45.7	0.0	46.7	32.5	24.2	24.2	49.6	14.8	14.8
Incr Delay (d2), s/veh	0.0	0.0	20.2	2.4	0.0	5.3	0.0	0.4	0.8	216.0	5.6	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	4.0	0.0	5.1	0.2	9.7	10.1	7.5	5.6	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	74.5	48.2	0.0	52.0	32.6	24.6	25.0	265.6	20.4	24.4
LnGrp LOS	A	A	E	D	A	D	C	C	C	F	C	C
Approach Vol, veh/h		6			331			1163			1654	
Approach Delay, s/veh		74.5			50.3			24.8			39.6	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	75.1		5.4	42.6	43.4		18.6				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	49.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	23.1		2.4	2.4	25.7		13.1				
Green Ext Time (p_c), s	0.0	10.7		0.0	0.0	12.3		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			35.4
HCM 6th LOS			D

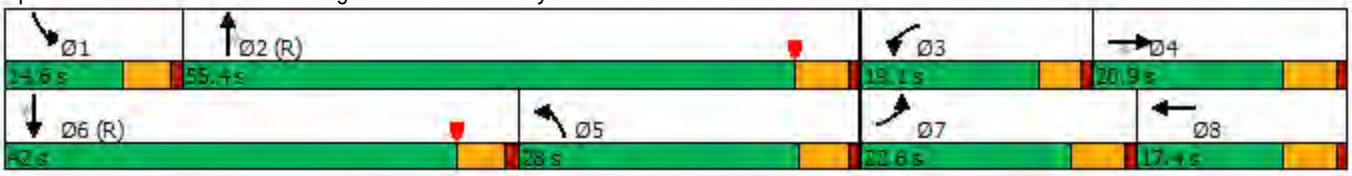
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	284	60	210	28	71	385	651	8	20	1350	532
Future Volume (vph)	284	60	210	28	71	385	651	8	20	1350	532
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.5	17.4	17.4	9.5	17.4	16.5	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	20.9	20.9	19.1	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	19.0%	19.0%	17.4%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	14.8	21.5	21.5	6.6	12.0	17.8	65.6	65.6	6.1	48.1	48.1
Actuated g/C Ratio	0.13	0.20	0.20	0.06	0.11	0.16	0.60	0.60	0.06	0.44	0.44
v/c Ratio	0.68	0.10	0.47	0.29	0.23	0.76	0.24	0.01	0.23	0.67	0.70
Control Delay	52.9	35.9	8.3	56.0	41.3	35.3	4.6	0.0	54.7	28.7	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	35.9	8.3	56.0	41.3	35.3	4.6	0.0	54.7	28.7	20.5
LOS	D	D	A	E	D	D	A	A	D	C	C
Approach Delay		34.2			45.1		15.9			26.7	
Approach LOS		C			D		B			C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 10 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 25.3	Intersection LOS: C
Intersection Capacity Utilization 66.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	60	210	28	71	9	385	651	8	20	1350	532
Future Volume (veh/h)	284	60	210	28	71	9	385	651	8	20	1350	532
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	312	66	231	31	78	10	423	715	9	22	1484	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	684	305	50	323	41	936	2926	908	40	1657	
Arrive On Green	0.11	0.19	0.19	0.03	0.10	0.10	0.54	1.00	1.00	0.02	0.32	0.00
Sat Flow, veh/h	3456	3554	1585	1781	3175	400	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	312	66	231	31	43	45	423	715	9	22	1484	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1798	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	9.7	1.7	8.2	1.9	2.5	2.5	8.2	0.0	0.0	1.3	30.4	0.0
Cycle Q Clear(g_c), s	9.7	1.7	8.2	1.9	2.5	2.5	8.2	0.0	0.0	1.3	30.4	0.0
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	381	684	305	50	181	183	936	2926	908	40	1657	
V/C Ratio(X)	0.82	0.10	0.76	0.63	0.24	0.25	0.45	0.24	0.01	0.56	0.90	
Avail Cap(c_a), veh/h	540	684	305	236	194	196	936	2926	908	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.9	36.6	12.4	52.9	45.5	45.5	20.2	0.0	0.0	53.2	35.4	0.0
Incr Delay (d2), s/veh	3.6	0.0	6.2	4.7	0.5	0.5	0.1	0.2	0.0	4.4	8.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.7	3.4	0.9	1.1	1.2	2.8	0.0	0.0	0.7	13.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	36.6	18.6	57.6	46.0	46.0	20.4	0.2	0.0	57.7	43.4	0.0
LnGrp LOS	D	D	B	E	D	D	C	A	A	E	D	
Approach Vol, veh/h		609			119			1147			1506	A
Approach Delay, s/veh		37.4			49.0			7.6			43.6	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	68.4	7.6	26.6	35.2	40.7	17.5	16.6
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	14.6	15.5	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	3.3	2.0	3.9	10.2	10.2	32.4	11.7	4.5
Green Ext Time (p_c), s	0.0	4.8	0.0	0.4	0.7	3.2	0.4	0.1

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

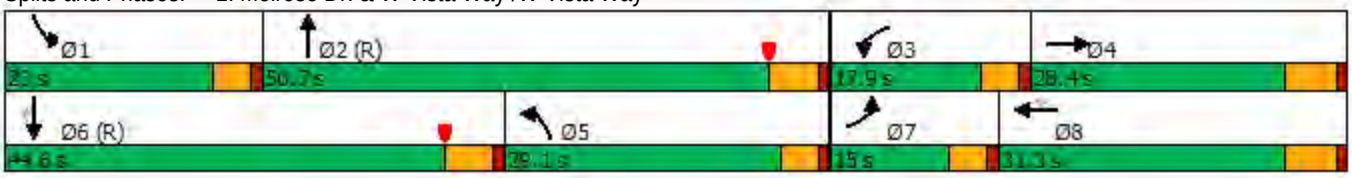
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	58	145	162	208	280	341	683	99	673	262
Future Volume (vph)	58	145	162	208	280	341	683	99	673	262
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	29.1	50.7	23.0	44.6	44.6
Total Split (%)	12.5%	23.7%	14.9%	26.1%	26.1%	24.3%	42.3%	19.2%	37.2%	37.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.5	13.7	10.2	17.4	17.4	19.2	64.6	11.3	56.7	56.7
Actuated g/C Ratio	0.07	0.11	0.08	0.14	0.14	0.16	0.54	0.09	0.47	0.47
v/c Ratio	0.48	0.53	0.57	0.42	0.61	0.64	0.33	0.61	0.29	0.30
Control Delay	65.6	32.6	60.4	48.8	10.6	74.0	34.1	67.5	21.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	32.6	60.4	48.8	10.6	74.0	34.1	67.5	21.4	4.0
LOS	E	C	E	D	B	E	C	E	C	A
Approach Delay		39.0		35.2			45.6		21.4	
Approach LOS		D		D			D		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 35.0 — Intersection LOS: C
Intersection Capacity Utilization 51.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	145	97	162	208	280	341	683	164	99	673	262
Future Volume (veh/h)	58	145	97	162	208	280	341	683	164	99	673	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	149	100	167	214	255	352	704	149	102	694	248
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	337	213	225	650	290	1371	2260	473	127	1026	319
Arrive On Green	0.04	0.16	0.16	0.07	0.18	0.18	0.79	1.00	1.00	0.07	0.20	0.20
Sat Flow, veh/h	1781	2091	1319	3456	3554	1585	3456	4230	885	1781	5106	1585
Grp Volume(v), veh/h	60	125	124	167	214	255	352	565	288	102	694	248
Grp Sat Flow(s),veh/h/ln	1781	1777	1633	1728	1777	1585	1728	1702	1711	1781	1702	1585
Q Serve(g_s), s	4.0	7.6	8.3	5.7	6.3	18.8	3.2	0.0	0.0	6.8	15.1	15.0
Cycle Q Clear(g_c), s	4.0	7.6	8.3	5.7	6.3	18.8	3.2	0.0	0.0	6.8	15.1	15.0
Prop In Lane	1.00		0.81	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	77	287	263	225	650	290	1371	1818	914	127	1026	319
V/C Ratio(X)	0.78	0.44	0.47	0.74	0.33	0.88	0.26	0.31	0.32	0.80	0.68	0.78
Avail Cap(c_a), veh/h	156	335	308	386	755	337	1371	1818	914	275	1668	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	45.4	45.7	55.1	42.6	47.7	7.8	0.0	0.0	54.9	44.3	32.2
Incr Delay (d2), s/veh	6.1	1.3	1.6	1.6	0.3	18.6	0.1	0.4	0.8	4.4	3.6	16.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.5	3.5	2.5	2.8	8.9	1.1	0.1	0.2	3.2	6.7	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	46.7	47.2	56.7	42.9	66.3	7.9	0.4	0.8	59.3	47.9	49.2
LnGrp LOS	E	D	D	E	D	E	A	A	A	E	D	D
Approach Vol, veh/h		309			636			1205			1044	
Approach Delay, s/veh		50.1			55.9			2.7			49.3	
Approach LOS		D			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	69.5	12.3	25.2	53.0	29.5	9.7	27.8
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	18.5	45.3	13.4	22.6	24.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	8.8	2.0	7.7	10.3	5.2	17.1	6.0	20.8
Green Ext Time (p_c), s	0.1	8.4	0.1	1.3	1.2	7.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	256	248	952	915
Future Volume (vph)	256	248	952	915
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	51.0	51.0	69.0	69.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	15.6	15.6	92.9	92.9
Actuated g/C Ratio	0.13	0.13	0.77	0.77
v/c Ratio	0.74	0.58	0.25	0.19
Control Delay	52.4	26.5	13.6	3.3
Queue Delay	0.0	0.0	1.7	0.0
Total Delay	52.4	26.5	15.3	3.3
LOS	D	C	B	A
Approach Delay	44.3		15.3	3.3
Approach LOS	D		B	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 16.8	Intersection LOS: B
Intersection Capacity Utilization 37.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	256	248	0	952	915	0
Future Volume (veh/h)	256	248	0	952	915	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	337	171	0	971	934	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	462	206	0	3954	4983	0
Arrive On Green	0.13	0.13	0.00	1.00	1.00	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	337	171	0	971	934	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	10.9	12.6	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.9	12.6	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	462	206	0	3954	4983	0
V/C Ratio(X)	0.73	0.83	0.00	0.25	0.19	0.00
Avail Cap(c_a), veh/h	1333	593	0	3954	4983	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.88	0.95	0.00
Uniform Delay (d), s/veh	50.2	50.9	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	3.3	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.2	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.0	54.3	0.0	0.1	0.1	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	508			971	934	
Approach Delay, s/veh	52.1			0.1	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.3		21.7		98.3
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		63.6		44.9		63.6
Max Q Clear Time (g_c+I1), s		2.0		14.6		2.0
Green Ext Time (p_c), s		5.5		0.9		5.2

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Notes

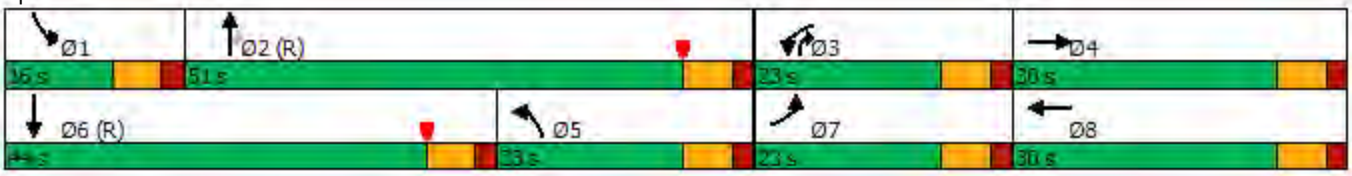
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	185	252	297	199	99	681	293	352	642
Future Volume (vph)	185	252	297	199	99	681	293	352	642
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	51.0	23.0	16.0	44.0
Total Split (%)	19.2%	25.0%	19.2%	25.0%	19.2%	42.5%	19.2%	13.3%	36.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	16.8	15.4	20.9	13.0	40.4	62.2	21.8	49.2
Actuated g/C Ratio	0.09	0.14	0.13	0.17	0.11	0.34	0.52	0.18	0.41
v/c Ratio	0.62	0.68	0.72	0.47	0.55	0.43	0.36	0.61	0.43
Control Delay	60.4	52.0	59.9	39.7	62.0	32.0	10.6	43.6	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.8	0.0	4.2	1.6
Total Delay	60.4	52.0	59.9	39.7	62.0	33.8	10.6	47.8	22.9
LOS	E	D	E	D	E	C	B	D	C
Approach Delay		55.1		50.1		30.1			30.4
Approach LOS		E		D		C			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 37.4 — Intersection LOS: D
Intersection Capacity Utilization 62.0% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	252	64	297	199	76	99	681	293	352	642	175
Future Volume (veh/h)	185	252	64	297	199	76	99	681	293	352	642	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	271	63	319	214	78	106	732	315	378	690	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	339	77	378	392	139	640	2448	933	276	829	192
Arrive On Green	0.07	0.12	0.12	0.11	0.15	0.15	0.36	0.48	0.48	0.16	0.40	0.40
Sat Flow, veh/h	3456	2873	657	3456	2573	910	1781	5106	1585	3456	4142	960
Grp Volume(v), veh/h	199	166	168	319	146	146	106	732	315	378	565	287
Grp Sat Flow(s),veh/h/ln	1728	1777	1752	1728	1777	1707	1781	1702	1585	1728	1702	1698
Q Serve(g_s), s	6.8	10.9	11.2	10.9	9.1	9.5	4.9	10.5	12.2	9.6	17.9	18.3
Cycle Q Clear(g_c), s	6.8	10.9	11.2	10.9	9.1	9.5	4.9	10.5	12.2	9.6	17.9	18.3
Prop In Lane	1.00		0.37	1.00		0.53	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	259	210	207	378	271	260	640	2448	933	276	682	340
V/C Ratio(X)	0.77	0.79	0.81	0.84	0.54	0.56	0.17	0.30	0.34	1.37	0.83	0.84
Avail Cap(c_a), veh/h	478	349	345	478	349	336	640	2448	933	276	1067	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	54.5	51.5	51.6	52.4	47.0	47.2	26.2	19.0	12.7	50.4	34.1	34.3
Incr Delay (d2), s/veh	1.8	2.5	2.9	8.7	0.6	0.7	0.0	0.3	1.0	186.4	11.0	21.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.0	5.1	5.2	4.1	4.1	2.1	4.2	4.5	10.9	7.1	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.0	54.6	61.2	47.6	47.9	26.2	19.3	13.7	236.8	45.2	55.7
LnGrp LOS	E	D	D	E	D	D	C	B	B	F	D	E
Approach Vol, veh/h		533			611			1153			1230	
Approach Delay, s/veh		55.0			54.7			18.4			106.5	
Approach LOS		E			D			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	63.9	19.5	20.6	49.5	30.4	15.4	24.7
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	44.6	16.6	23.6	16.6	37.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	14.2	12.9	13.2	6.9	20.3	8.8	11.5
Green Ext Time (p_c), s	0.0	7.1	0.2	0.9	0.1	3.7	0.2	0.9

Intersection Summary	
HCM 6th Ctrl Delay	61.0
HCM 6th LOS	E

Notes

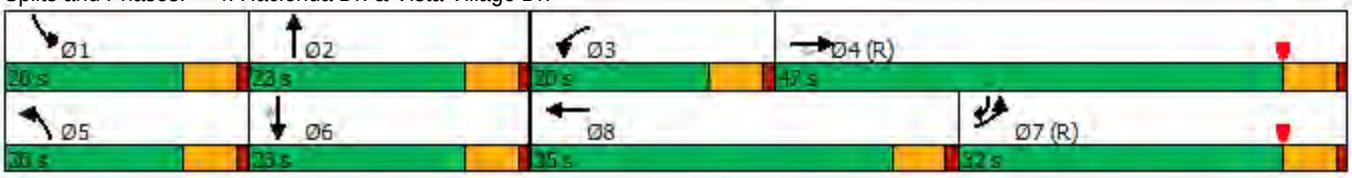
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	846	22	19	4	16	27	107	16	121	528
Future Volume (vph)	846	22	19	4	16	27	107	16	121	528
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	67.9	77.4	77.4	5.1	10.4	6.4	14.8	5.8	12.0	84.3
Actuated g/C Ratio	0.62	0.70	0.70	0.05	0.09	0.06	0.13	0.05	0.11	0.77
v/c Ratio	0.43	0.02	0.02	0.05	0.22	0.28	0.47	0.18	0.64	0.25
Control Delay	17.3	9.0	0.1	51.2	24.9	55.9	49.0	74.5	64.5	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	17.3	9.0	0.1	51.2	24.9	55.9	49.0	74.5	64.5	5.4
LOS	B	A	A	D	C	E	D	E	E	A
Approach Delay		16.8			27.3		50.4		17.8	
Approach LOS		B			C		D		B	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 60 (55%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 20.1 — Intersection LOS: C
Intersection Capacity Utilization 54.8% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	846	22	19	4	16	21	27	107	3	16	121	528
Future Volume (veh/h)	846	22	19	4	16	21	27	107	3	16	121	528
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	910	24	20	4	17	23	29	115	3	17	130	568
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1258	1066	9	314	425	48	195	5	33	185	951
Arrive On Green	0.24	0.67	0.67	0.01	0.44	0.44	0.03	0.11	0.11	0.01	0.03	0.03
Sat Flow, veh/h	3456	1870	1585	1781	720	975	1781	1815	47	1781	1870	2790
Grp Volume(v), veh/h	910	24	20	4	0	40	29	0	118	17	130	568
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1695	1781	0	1862	1781	1870	1395
Q Serve(g_s), s	26.6	0.5	0.5	0.2	0.0	1.5	1.8	0.0	6.6	1.0	7.6	2.0
Cycle Q Clear(g_c), s	26.6	0.5	0.5	0.2	0.0	1.5	1.8	0.0	6.6	1.0	7.6	2.0
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	836	1258	1066	9	0	739	48	0	200	33	185	951
V/C Ratio(X)	1.09	0.02	0.02	0.43	0.00	0.05	0.61	0.00	0.59	0.52	0.70	0.60
Avail Cap(c_a), veh/h	836	1258	1066	236	0	739	236	0	298	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	41.7	6.0	6.0	54.5	0.0	17.9	53.0	0.0	46.8	54.2	51.6	18.2
Incr Delay (d2), s/veh	55.5	0.0	0.0	11.2	0.0	0.0	4.6	0.0	1.0	4.5	1.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.6	0.2	0.2	0.1	0.0	0.6	0.9	0.0	3.1	0.5	3.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.2	6.0	6.0	65.7	0.0	17.9	57.6	0.0	47.8	58.7	53.4	18.5
LnGrp LOS	F	A	A	E	A	B	E	A	D	E	D	B
Approach Vol, veh/h		954			44			147			715	
Approach Delay, s/veh		92.9			22.3			49.7			25.8	
Approach LOS		F			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	17.2	6.0	79.4	8.3	16.3	32.0	53.4
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	3.0	8.6	2.2	2.5	3.8	9.6	28.6	3.5
Green Ext Time (p_c), s	0.0	0.2	0.0	0.1	0.0	1.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	62.0
HCM 6th LOS	E

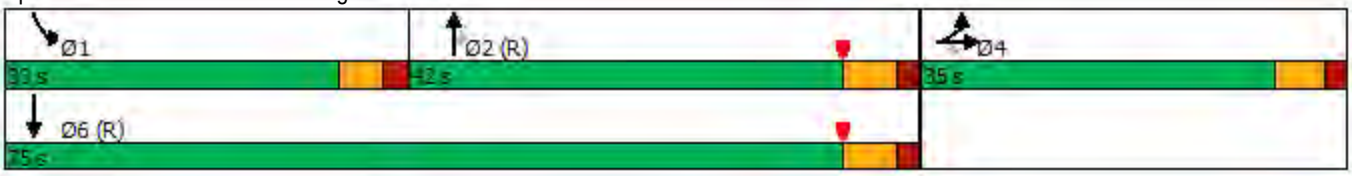
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	415	1	25	301	681	460	638
Future Volume (vph)	415	1	25	301	681	460	638
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	35.0	35.0	35.0	42.0	42.0	33.0	75.0
Total Split (%)	31.8%	31.8%	31.8%	38.2%	38.2%	30.0%	68.2%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	18.7	18.7	18.7	53.4	53.4	19.7	78.8
Actuated g/C Ratio	0.17	0.17	0.17	0.49	0.49	0.18	0.72
v/c Ratio	0.76	0.76	0.08	0.40	0.40	0.78	0.26
Control Delay	59.7	59.7	0.4	12.7	7.1	46.3	4.7
Queue Delay	0.0	0.0	0.0	0.2	0.2	0.0	0.3
Total Delay	59.7	59.7	0.4	12.8	7.3	46.3	5.0
LOS	E	E	A	B	A	D	A
Approach Delay		56.4		10.9			22.3
Approach LOS		E		B			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 67.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	415	1	25	0	0	0	0	301	681	460	638	0
Future Volume (veh/h)	415	1	25	0	0	0	0	301	681	460	638	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	433	0	26				0	314	709	479	665	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	512	0	228				0	988	1674	562	2639	0
Arrive On Green	0.14	0.00	0.14				0.00	0.17	0.17	0.05	0.25	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	433	0	26				0	314	709	479	665	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	13.0	0.0	1.6				0.0	16.1	21.9	15.1	16.6	0.0
Cycle Q Clear(g_c), s	13.0	0.0	1.6				0.0	16.1	21.9	15.1	16.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	512	0	228				0	988	1674	562	2639	0
V/C Ratio(X)	0.85	0.00	0.11				0.00	0.32	0.42	0.85	0.25	0.00
Avail Cap(c_a), veh/h	936	0	416				0	988	1674	858	2639	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.90	0.90	0.96	0.96	0.00
Uniform Delay (d), s/veh	45.9	0.0	41.0				0.0	28.1	30.5	50.7	16.9	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.1				0.0	0.8	0.7	3.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.6				0.0	8.3	9.5	7.3	7.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	41.1				0.0	28.9	31.2	53.9	17.2	0.0
LnGrp LOS	D	A	D				A	C	C	D	B	A
Approach Vol, veh/h		459						1023			1144	
Approach Delay, s/veh		47.0						30.5			32.6	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.6	64.5		21.9		88.1
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 27	35.6		28.9		68.6
Max Q Clear Time (g_c+I1), s	17.1	23.9		15.0		18.6
Green Ext Time (p_c), s	0.8	2.6		0.8		5.4

Intersection Summary	
HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

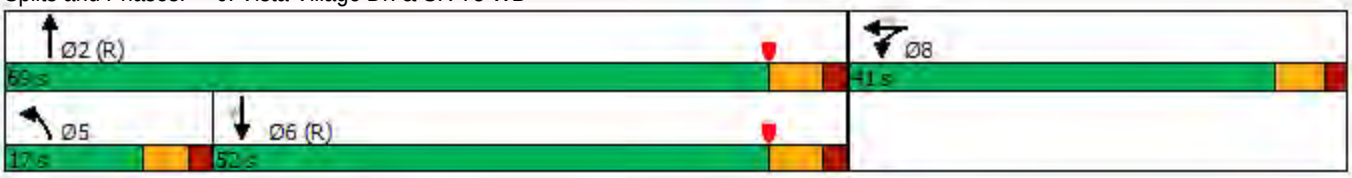
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	389	0	648	32	702	730	463
Future Volume (vph)	389	0	648	32	702	730	463
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	41.0	41.0	41.0	17.0	69.0	52.0	52.0
Total Split (%)	37.3%	37.3%	37.3%	15.5%	62.7%	47.3%	47.3%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	24.2	24.2	24.2	10.0	73.3	63.9	63.9
Actuated g/C Ratio	0.22	0.22	0.22	0.09	0.67	0.58	0.58
v/c Ratio	0.54	0.54	0.75	0.21	0.31	0.25	0.43
Control Delay	41.9	42.0	22.2	61.5	3.7	4.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Total Delay	41.9	42.0	22.2	61.5	3.9	4.2	3.9
LOS	D	D	C	E	A	A	A
Approach Delay		29.6			6.4	4.1	
Approach LOS		C			A	A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 67.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	389	0	648	32	702	0	0	730	463
Future Volume (veh/h)	0	0	0	389	0	648	32	702	0	0	730	463
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				401	0	668	33	724	0	0	753	477
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				891	0	793	103	2261	0	0	2689	835
Arrive On Green				0.25	0.00	0.25	0.12	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				401	0	668	33	724	0	0	753	477
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				10.5	0.0	22.0	1.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				10.5	0.0	22.0	1.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				891	0	793	103	2261	0	0	2689	835
V/C Ratio(X)				0.45	0.00	0.84	0.32	0.32	0.00	0.00	0.28	0.57
Avail Cap(c_a), veh/h				1130	0	1006	183	2261	0	0	2689	835
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.87	0.87	0.00	0.00	0.94	0.94
Uniform Delay (d), s/veh				34.8	0.0	39.2	46.7	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.4	0.0	5.3	1.5	0.3	0.0	0.0	0.2	2.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	9.1	0.9	0.1	0.0	0.0	0.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				35.2	0.0	44.5	48.2	0.3	0.0	0.0	0.2	2.7
LnGrp LOS				D	A	D	D	A	A	A	A	A
Approach Vol, veh/h					1069			757			1230	
Approach Delay, s/veh					41.0			2.4			1.2	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	76.4	12.1	64.3	33.6
Change Period (Y+Rc), s	6.4	* 5.7	6.4	6.1
Max Green Setting (Gmax), s	62.6	* 11	45.6	34.9
Max Q Clear Time (g_c+I1), s	2.0	3.9	2.0	24.0
Green Ext Time (p_c), s	6.1	0.0	8.9	3.5

Intersection Summary	
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

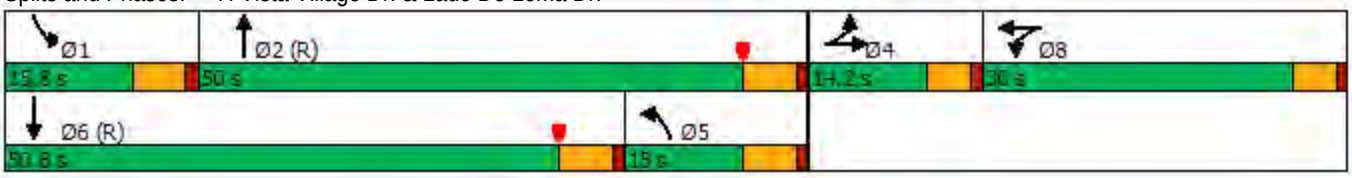
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	3	185	3	7	1120	78	979
Future Volume (vph)	3	185	3	7	1120	78	979
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	50.0	15.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	45.5%	14.4%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	Min	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	5.6	15.2	15.2	7.3	62.0	9.4	70.4
Actuated g/C Ratio	0.05	0.14	0.14	0.07	0.56	0.09	0.64
v/c Ratio	0.14	0.63	0.48	0.06	0.50	0.54	0.32
Control Delay	32.2	56.0	25.1	47.1	14.8	42.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.2
Total Delay	32.2	56.0	25.1	47.1	14.9	42.6	10.2
LOS	C	E	C	D	B	D	B
Approach Delay	32.3		41.2		15.1		12.5
Approach LOS	C		D		B		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 16.8	Intersection LOS: B
Intersection Capacity Utilization 58.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	3	10	185	3	83	7	1120	232	78	979	6
Future Volume (veh/h)	0	3	10	185	3	83	7	1120	232	78	979	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	3	10	141	76	86	7	1167	242	81	1020	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	17	57	211	95	107	708	2529	524	102	1344	8
Arrive On Green	0.00	0.05	0.05	0.12	0.12	0.12	0.80	1.00	1.00	0.11	0.51	0.51
Sat Flow, veh/h	0	379	1264	1781	801	906	1781	4238	879	1781	5238	31
Grp Volume(v), veh/h	0	0	13	141	0	162	7	937	472	81	663	363
Grp Sat Flow(s),veh/h/ln	0	0	1643	1781	0	1707	1781	1702	1712	1781	1702	1865
Q Serve(g_s), s	0.0	0.0	0.8	8.3	0.0	10.2	0.1	0.0	0.0	4.9	17.1	17.1
Cycle Q Clear(g_c), s	0.0	0.0	0.8	8.3	0.0	10.2	0.1	0.0	0.0	4.9	17.1	17.1
Prop In Lane	0.00		0.77	1.00		0.53	1.00		0.51	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	75	211	0	202	708	2032	1022	102	874	479
V/C Ratio(X)	0.00	0.00	0.17	0.67	0.00	0.80	0.01	0.46	0.46	0.79	0.76	0.76
Avail Cap(c_a), veh/h	0	0	143	411	0	394	708	2032	1022	168	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.84	0.92	0.92	0.92
Uniform Delay (d), s/veh	0.0	0.0	50.5	46.4	0.0	47.2	6.8	0.0	0.0	48.0	24.1	24.1
Incr Delay (d2), s/veh	0.0	0.0	0.8	2.7	0.0	5.4	0.0	0.6	1.3	4.7	5.7	10.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	3.8	0.0	4.6	0.0	0.2	0.4	2.2	5.6	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	51.3	49.1	0.0	52.6	6.8	0.6	1.3	52.8	29.7	34.0
LnGrp LOS	A	A	D	D	A	D	A	A	A	D	C	C
Approach Vol, veh/h		13			303			1416			1107	
Approach Delay, s/veh		51.3			51.0			0.9			32.8	
Approach LOS		D			D			A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.7	71.0		9.6	49.1	33.6		17.6				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	10.4	44.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	6.9	2.0		2.8	2.1	19.1		12.2				
Green Ext Time (p_c), s	0.0	17.0		0.0	0.0	9.2		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			18.9
HCM 6th LOS			B

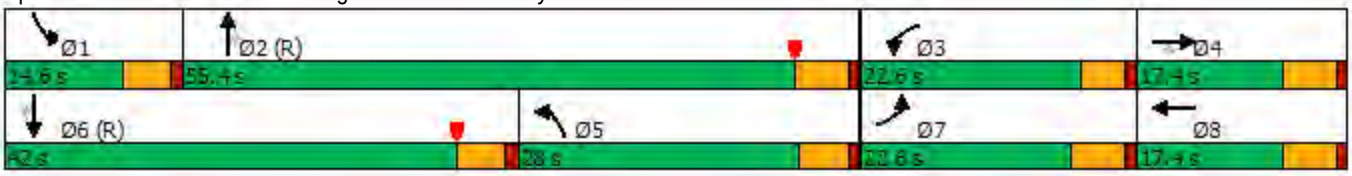
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	205	84	120	100	107	275	800	109	85	841	250
Future Volume (vph)	205	84	120	100	107	275	800	109	85	841	250
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	17.4	17.4	22.6	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	15.8%	15.8%	20.5%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	12.0	13.8	13.8	11.2	12.1	14.0	54.5	54.5	10.2	51.1	51.1
Actuated g/C Ratio	0.11	0.13	0.13	0.10	0.11	0.13	0.50	0.50	0.09	0.46	0.46
v/c Ratio	0.60	0.21	0.37	0.61	0.45	0.69	0.35	0.14	0.57	0.39	0.33
Control Delay	53.3	44.9	5.6	61.1	30.8	42.9	16.3	5.8	60.5	20.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	53.3	44.9	5.6	61.1	30.8	42.9	16.5	5.8	60.5	20.8	7.3
LOS	D	D	A	E	C	D	B	A	E	C	A
Approach Delay		37.6			41.7		21.6			20.7	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 85 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 25.3	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	84	120	100	107	72	275	800	109	85	841	250
Future Volume (veh/h)	205	84	120	100	107	72	275	800	109	85	841	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	92	132	110	118	79	302	879	120	93	924	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	445	198	137	229	143	1311	2796	868	117	1194	
Arrive On Green	0.09	0.13	0.13	0.08	0.11	0.11	0.76	1.00	1.00	0.07	0.23	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2100	1311	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	225	92	132	110	98	99	302	879	120	93	924	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1634	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	7.0	2.6	4.0	6.7	5.8	6.3	2.8	0.0	0.0	5.7	18.6	0.0
Cycle Q Clear(g_c), s	7.0	2.6	4.0	6.7	5.8	6.3	2.8	0.0	0.0	5.7	18.6	0.0
Prop In Lane	1.00		1.00	1.00		0.80	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	445	198	137	193	178	1311	2796	868	117	1194	
V/C Ratio(X)	0.77	0.21	0.67	0.80	0.51	0.55	0.23	0.31	0.14	0.79	0.77	
Avail Cap(c_a), veh/h	540	445	198	293	194	178	1311	2796	868	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.2	43.2	9.5	49.9	46.2	46.5	8.6	0.0	0.0	50.7	39.4	0.0
Incr Delay (d2), s/veh	2.5	0.1	6.2	4.1	1.7	3.1	0.0	0.3	0.3	13.5	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	1.1	3.6	3.1	2.6	2.7	1.0	0.1	0.1	3.0	8.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	43.4	15.6	54.0	47.9	49.6	8.6	0.3	0.3	64.2	44.3	0.0
LnGrp LOS	D	D	B	D	D	D	A	A	A	E	D	
Approach Vol, veh/h		449			307			1301			1017	A
Approach Delay, s/veh		39.4			50.6			2.2			46.1	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	65.6	13.0	19.2	47.1	30.7	14.8	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	18.1	12.0	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	7.7	2.0	8.7	6.0	4.8	20.6	9.0	8.3
Green Ext Time (p_c), s	0.0	6.5	0.1	0.4	0.5	5.1	0.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

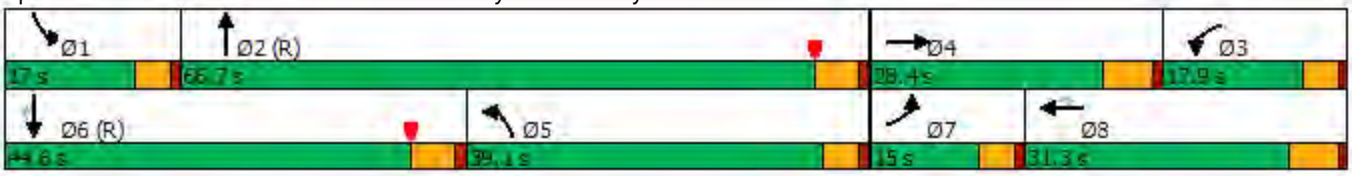
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	64	230	117	250	486	418	1771	157	847	312
Future Volume (vph)	64	230	117	250	486	418	1771	157	847	312
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	39.1	66.7	17.0	44.6	44.6
Total Split (%)	11.5%	21.8%	13.8%	24.1%	24.1%	30.1%	51.3%	13.1%	34.3%	34.3%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.6	17.4	17.8	28.5	28.5	39.6	61.9	12.8	35.1	35.1
Actuated g/C Ratio	0.07	0.13	0.14	0.22	0.22	0.30	0.48	0.10	0.27	0.27
v/c Ratio	0.57	0.70	0.26	0.33	0.96	0.41	0.86	0.93	0.64	0.51
Control Delay	77.0	53.6	58.5	49.8	63.1	49.0	44.8	110.5	43.9	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	27.9	0.0	0.0	0.0
Total Delay	77.0	53.6	58.5	49.8	63.1	49.0	72.7	110.5	43.9	9.6
LOS	E	D	E	D	E	D	E	F	D	A
Approach Delay		57.4		58.6			68.6		43.7	
Approach LOS		E		E			E		D	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 59.4 Intersection LOS: E
Intersection Capacity Utilization 86.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	230	104	117	250	486	418	1771	221	157	847	312
Future Volume (veh/h)	64	230	104	117	250	486	418	1771	221	157	847	312
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	237	107	121	258	467	431	1826	208	162	873	300
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	301	132	375	697	311	1246	2349	266	171	1192	370
Arrive On Green	0.05	0.13	0.13	0.18	0.33	0.33	0.72	1.00	1.00	0.10	0.23	0.23
Sat Flow, veh/h	1781	2406	1052	3456	3554	1585	3456	4653	527	1781	5106	1585
Grp Volume(v), veh/h	66	173	171	121	258	467	431	1333	701	162	873	300
Grp Sat Flow(s),veh/h/ln	1781	1777	1681	1728	1777	1585	1728	1702	1776	1781	1702	1585
Q Serve(g_s), s	4.8	12.3	12.9	4.0	7.2	25.5	6.0	0.0	0.0	11.8	20.6	19.5
Cycle Q Clear(g_c), s	4.8	12.3	12.9	4.0	7.2	25.5	6.0	0.0	0.0	11.8	20.6	19.5
Prop In Lane	1.00		0.63	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	84	222	210	375	697	311	1246	1719	897	171	1192	370
V/C Ratio(X)	0.78	0.78	0.81	0.32	0.37	1.50	0.35	0.78	0.78	0.95	0.73	0.81
Avail Cap(c_a), veh/h	144	309	292	375	697	311	1246	1719	897	171	1540	478
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	55.1	55.4	49.1	37.6	43.7	12.4	0.0	0.0	58.4	46.1	33.1
Incr Delay (d2), s/veh	5.8	9.1	12.5	0.2	0.3	239.5	0.1	2.9	5.5	52.4	4.0	17.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.1	6.2	1.7	3.0	29.7	2.0	0.7	1.4	7.8	9.1	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	64.2	67.9	49.2	37.9	283.2	12.6	2.9	5.5	110.8	50.1	50.5
LnGrp LOS	E	E	E	D	D	F	B	A	A	F	D	D
Approach Vol, veh/h		410			846			2465			1335	
Approach Delay, s/veh		66.2			174.9			5.3			57.5	
Approach LOS		E			F			A			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	71.0	19.9	22.1	52.3	35.8	10.7	31.3
Change Period (Y+Rc), s	4.5	5.4	5.8	* 5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	12.5	61.3	13.4	* 23	34.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	13.8	2.0	6.0	14.9	8.0	22.6	6.8	27.5
Green Ext Time (p_c), s	0.0	34.4	0.1	1.4	1.6	7.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

Notes

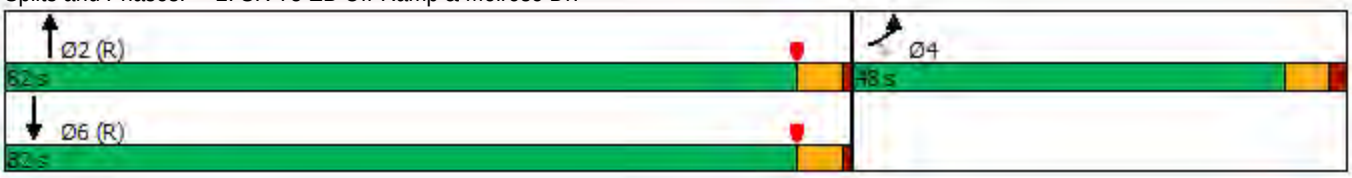
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	555	267	1518	996
Future Volume (vph)	555	267	1518	996
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	48.0	48.0	82.0	82.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	28.0	28.0	90.5	90.5
Actuated g/C Ratio	0.22	0.22	0.70	0.70
v/c Ratio	0.83	0.65	0.45	0.23
Control Delay	58.2	34.4	23.7	2.0
Queue Delay	0.0	0.0	49.3	0.0
Total Delay	58.2	34.4	73.0	2.0
LOS	E	C	E	A
Approach Delay	51.2		73.0	2.0
Approach LOS	D		E	A

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 25 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 46.4	Intersection LOS: D
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	555	267	0	1518	996	0
Future Volume (veh/h)	555	267	0	1518	996	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	584	281	0	1598	1048	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	714	318	0	3632	4576	0
Arrive On Green	0.20	0.20	0.00	1.00	1.00	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	584	281	0	1598	1048	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	20.4	22.4	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.4	22.4	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	714	318	0	3632	4576	0
V/C Ratio(X)	0.82	0.89	0.00	0.44	0.23	0.00
Avail Cap(c_a), veh/h	1148	511	0	3632	4576	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.60	0.78	0.00
Uniform Delay (d), s/veh	49.7	50.5	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.1	6.7	0.0	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	9.5	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.8	57.2	0.0	0.2	0.1	0.0
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	865			1598	1048	
Approach Delay, s/veh	52.9			0.2	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		97.9		32.1		97.9
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		76.6		41.9		76.6
Max Q Clear Time (g_c+I1), s		2.0		24.4		2.0
Green Ext Time (p_c), s		11.8		1.6		6.1

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

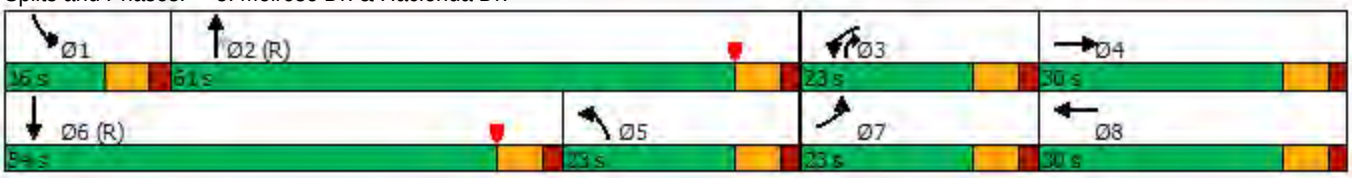
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	320	352	282	251	52	1343	329	331	703
Future Volume (vph)	320	352	282	251	52	1343	329	331	703
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	61.0	23.0	16.0	54.0
Total Split (%)	17.7%	23.1%	17.7%	23.1%	17.7%	46.9%	17.7%	12.3%	41.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	16.1	19.4	14.9	18.2	24.7	50.3	71.6	19.8	47.7
Actuated g/C Ratio	0.12	0.15	0.11	0.14	0.19	0.39	0.55	0.15	0.37
v/c Ratio	0.79	0.79	0.76	0.80	0.16	0.72	0.38	0.67	0.51
Control Delay	69.2	63.3	56.5	42.1	42.3	36.1	13.0	53.4	19.4
Queue Delay	0.5	0.0	0.0	0.1	0.0	50.4	0.0	8.4	0.5
Total Delay	69.7	63.3	56.5	42.3	42.3	86.4	13.0	61.8	19.8
LOS	E	E	E	D	D	F	B	E	B
Approach Delay		66.2		47.8		71.1			31.2
Approach LOS		E		D		E			C

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 55.3 — Intersection LOS: E
Intersection Capacity Utilization 78.8% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	352	44	282	251	188	52	1343	329	331	703	188
Future Volume (veh/h)	320	352	44	282	251	188	52	1343	329	331	703	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	371	41	297	264	176	55	1414	346	348	740	176
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	525	58	354	316	203	565	2371	898	255	913	215
Arrive On Green	0.11	0.16	0.16	0.03	0.05	0.05	0.32	0.46	0.46	0.07	0.22	0.22
Sat Flow, veh/h	3456	3229	355	3456	2072	1335	1781	5106	1585	3456	4128	971
Grp Volume(v), veh/h	337	203	209	297	225	215	55	1414	346	348	609	307
Grp Sat Flow(s),veh/h/ln	1728	1777	1807	1728	1777	1630	1781	1702	1585	1728	1702	1696
Q Serve(g_s), s	12.5	14.1	14.2	11.1	16.3	17.0	2.8	26.7	15.7	9.6	22.1	22.4
Cycle Q Clear(g_c), s	12.5	14.1	14.2	11.1	16.3	17.0	2.8	26.7	15.7	9.6	22.1	22.4
Prop In Lane	1.00		0.20	1.00		0.82	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	389	289	293	354	271	248	565	2371	898	255	753	375
V/C Ratio(X)	0.87	0.70	0.71	0.84	0.83	0.87	0.10	0.60	0.39	1.36	0.81	0.82
Avail Cap(c_a), veh/h	441	323	328	441	323	296	565	2371	898	255	1246	621
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	56.7	51.5	51.6	61.7	60.1	60.4	31.3	25.8	15.6	60.2	48.0	48.1
Incr Delay (d2), s/veh	13.8	4.6	4.8	9.0	12.1	17.2	0.0	1.1	1.2	186.0	8.8	17.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.6	6.9	5.6	8.7	8.7	1.2	11.0	6.0	10.8	10.3	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.5	56.0	56.4	70.7	72.2	77.6	31.3	26.9	16.9	246.2	56.8	65.4
LnGrp LOS	E	E	E	E	E	E	C	C	B	F	E	E
Approach Vol, veh/h		749			737			1815			1264	
Approach Delay, s/veh		62.7			73.2			25.1			111.0	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	66.8	19.7	27.5	47.6	35.2	21.0	26.2
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	54.6	16.6	23.6	16.6	47.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	28.7	13.1	16.2	4.8	24.4	14.5	19.0
Green Ext Time (p_c), s	0.0	13.8	0.2	1.0	0.0	4.4	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	62.8
HCM 6th LOS	E

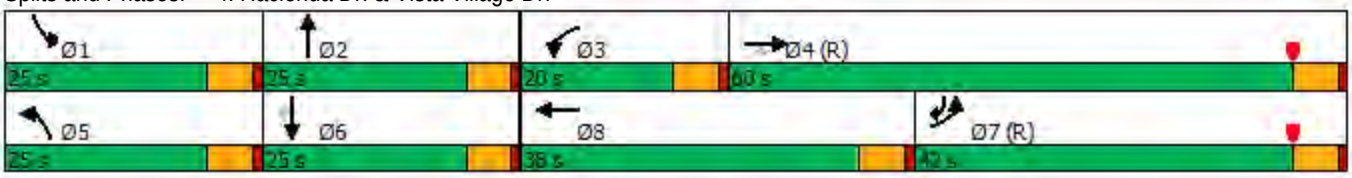
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	977	19	20	5	14	51	150	39	213	589
Future Volume (vph)	977	19	20	5	14	51	150	39	213	589
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	42.0	60.0	60.0	20.0	38.0	25.0	25.0	25.0	25.0	42.0
Total Split (%)	32.3%	46.2%	46.2%	15.4%	29.2%	19.2%	19.2%	19.2%	19.2%	32.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	66.4	83.4	83.4	5.3	15.9	8.6	22.5	7.7	21.6	90.2
Actuated g/C Ratio	0.51	0.64	0.64	0.04	0.12	0.07	0.17	0.06	0.17	0.69
v/c Ratio	0.62	0.02	0.02	0.08	0.18	0.49	0.55	0.41	0.77	0.31
Control Delay	41.4	16.0	0.9	62.2	23.2	71.6	54.2	73.5	93.6	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.1
Total Delay	41.4	16.0	0.9	62.2	23.2	71.6	54.2	73.5	103.8	9.5
LOS	D	B	A	E	C	E	D	E	F	A
Approach Delay		40.1			28.0		58.5		36.3	
Approach LOS		D			C		E		D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 64 (49%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 40.2	Intersection LOS: D
Intersection Capacity Utilization 63.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	977	19	20	5	14	23	51	150	7	39	213	589
Future Volume (veh/h)	977	19	20	5	14	23	51	150	7	39	213	589
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1086	21	22	6	16	26	57	167	8	43	237	654
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	973	1198	1015	13	235	382	74	274	13	56	271	1189
Arrive On Green	0.28	0.64	0.64	0.01	0.37	0.37	0.04	0.15	0.15	0.01	0.05	0.05
Sat Flow, veh/h	3456	1870	1585	1781	641	1042	1781	1770	85	1781	1870	2790
Grp Volume(v), veh/h	1086	21	22	6	0	42	57	0	175	43	237	654
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1683	1781	0	1855	1781	1870	1395
Q Serve(g_s), s	36.6	0.5	0.7	0.4	0.0	2.1	4.1	0.0	11.4	3.1	16.4	3.0
Cycle Q Clear(g_c), s	36.6	0.5	0.7	0.4	0.0	2.1	4.1	0.0	11.4	3.1	16.4	3.0
Prop In Lane	1.00		1.00	1.00		0.62	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	973	1198	1015	13	0	616	74	0	287	56	271	1189
V/C Ratio(X)	1.12	0.02	0.02	0.45	0.00	0.07	0.77	0.00	0.61	0.77	0.88	0.55
Avail Cap(c_a), veh/h	973	1198	1015	200	0	616	269	0	287	269	282	1206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.74	0.74	0.74	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	46.7	8.5	8.5	64.2	0.0	26.8	61.7	0.0	51.3	63.9	60.7	16.9
Incr Delay (d2), s/veh	63.2	0.0	0.0	8.5	0.0	0.0	6.3	0.0	2.7	7.7	22.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.1	0.2	0.2	0.2	0.0	0.9	2.0	0.0	5.6	1.6	10.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.9	8.5	8.6	72.8	0.0	26.8	68.0	0.0	54.0	71.6	83.2	17.2
LnGrp LOS	F	A	A	E	A	C	E	A	D	E	F	B
Approach Vol, veh/h		1129			48			232			934	
Approach Delay, s/veh		106.0			32.5			57.4			36.4	
Approach LOS		F			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	25.5	6.4	88.6	10.8	24.2	42.0	53.0
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	19.6	19.6	14.6	54.6	19.6	19.6	36.6	32.6
Max Q Clear Time (g_c+I1), s	5.1	13.4	2.4	2.7	6.1	18.4	38.6	4.1
Green Ext Time (p_c), s	0.0	0.3	0.0	0.1	0.0	0.4	0.0	0.1

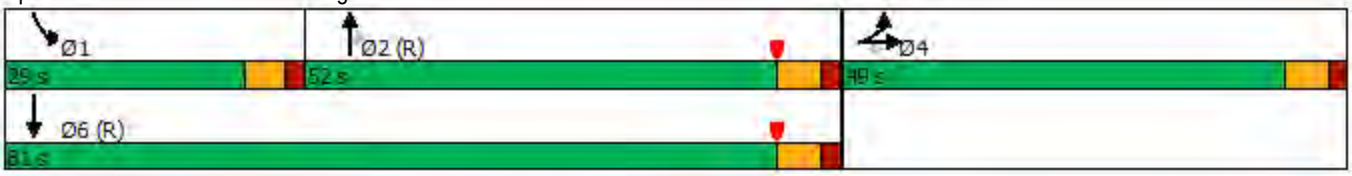
Intersection Summary	
HCM 6th Ctrl Delay	72.0
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	704	1	53	493	657	383	788
Future Volume (vph)	704	1	53	493	657	383	788
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	49.0	49.0	49.0	52.0	52.0	29.0	81.0
Total Split (%)	37.7%	37.7%	37.7%	40.0%	40.0%	22.3%	62.3%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	34.1	34.1	34.1	58.5	58.5	19.3	83.4
Actuated g/C Ratio	0.26	0.26	0.26	0.45	0.45	0.15	0.64
v/c Ratio	0.84	0.84	0.12	0.56	0.44	0.79	0.37
Control Delay	62.0	62.2	3.8	14.4	4.2	61.6	15.1
Queue Delay	0.6	0.6	0.0	0.4	0.5	0.0	0.5
Total Delay	62.7	62.8	3.8	14.8	4.7	61.6	15.5
LOS	E	E	A	B	A	E	B
Approach Delay		58.6		11.6			30.6
Approach LOS		E		B			C

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 65 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 30.4 — Intersection LOS: C
Intersection Capacity Utilization 112.2% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	704	1	53	0	0	0	0	493	657	383	788	0
Future Volume (veh/h)	704	1	53	0	0	0	0	493	657	383	788	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	742	0	56				0	519	692	403	829	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	818	0	364				0	927	1570	466	2396	0
Arrive On Green	0.23	0.00	0.23				0.00	0.16	0.16	0.04	0.22	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	742	0	56				0	519	692	403	829	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	26.3	0.0	3.7				0.0	33.2	25.6	15.1	25.5	0.0
Cycle Q Clear(g_c), s	26.3	0.0	3.7				0.0	33.2	25.6	15.1	25.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	818	0	364				0	927	1570	466	2396	0
V/C Ratio(X)	0.91	0.00	0.15				0.00	0.56	0.44	0.86	0.35	0.00
Avail Cap(c_a), veh/h	1176	0	523				0	927	1570	619	2396	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.76	0.76	0.94	0.94	0.00
Uniform Delay (d), s/veh	48.7	0.0	40.0				0.0	41.3	38.1	60.9	26.4	0.0
Incr Delay (d2), s/veh	6.0	0.0	0.1				0.0	1.9	0.7	7.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	0.0	1.5				0.0	17.2	11.1	7.5	12.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	40.1				0.0	43.2	38.8	68.3	26.8	0.0
LnGrp LOS	D	A	D				A	D	D	E	C	A
Approach Vol, veh/h		798						1211			1232	
Approach Delay, s/veh		53.7						40.7			40.4	
Approach LOS		D						D			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.2	70.8		36.0		94.0
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 23	45.6		42.9		74.6
Max Q Clear Time (g_c+I1), s	17.1	35.2		28.3		27.5
Green Ext Time (p_c), s	0.5	3.2		1.5		4.5

Intersection Summary	
HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	451	0	963	63	1134	720	434
Future Volume (vph)	451	0	963	63	1134	720	434
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	64.0	64.0	64.0	16.4	66.0	49.6	49.6
Total Split (%)	49.2%	49.2%	49.2%	12.6%	50.8%	38.2%	38.2%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	52.5	52.5	52.5	10.3	65.0	52.1	52.1
Actuated g/C Ratio	0.40	0.40	0.40	0.08	0.50	0.40	0.40
v/c Ratio	0.35	0.35	0.86	0.47	0.67	0.37	0.50
Control Delay	27.5	27.5	40.3	80.7	15.7	30.5	16.4
Queue Delay	0.0	0.0	0.0	0.0	1.1	0.0	0.2
Total Delay	27.5	27.5	40.3	80.7	16.8	30.5	16.6
LOS	C	C	D	F	B	C	B
Approach Delay		36.2			20.2	25.3	
Approach LOS		D			C	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 27.8	Intersection LOS: C
Intersection Capacity Utilization 112.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	451	0	963	63	1134	0	0	720	434
Future Volume (veh/h)	0	0	0	451	0	963	63	1134	0	0	720	434
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				470	0	1003	66	1181	0	0	750	452
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1231	0	1095	124	1984	0	0	2271	705
Arrive On Green				0.35	0.00	0.35	0.05	0.37	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				470	0	1003	66	1181	0	0	750	452
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				12.9	0.0	39.4	4.7	34.8	0.0	0.0	14.9	32.2
Cycle Q Clear(g_c), s				12.9	0.0	39.4	4.7	34.8	0.0	0.0	14.9	32.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1231	0	1095	124	1984	0	0	2271	705
V/C Ratio(X)				0.38	0.00	0.92	0.53	0.60	0.00	0.00	0.33	0.64
Avail Cap(c_a), veh/h				1587	0	1412	147	1984	0	0	2271	705
HCM Platoon Ratio				1.00	1.00	1.00	0.67	0.67	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	1.00	0.72	0.72	0.00	0.00	0.95	0.95
Uniform Delay (d), s/veh				32.1	0.0	40.7	59.9	28.9	0.0	0.0	30.6	36.6
Incr Delay (d2), s/veh				0.1	0.0	7.0	0.9	1.0	0.0	0.0	0.4	4.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.6	0.0	16.3	2.2	16.0	0.0	0.0	6.6	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.2	0.0	47.8	60.8	29.8	0.0	0.0	30.9	40.9
LnGrp LOS				C	A	D	E	C	A	A	C	D
Approach Vol, veh/h					1473			1247			1202	
Approach Delay, s/veh					42.8			31.4			34.7	
Approach LOS					D			C			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		79.0			14.8	64.2		51.0				
Change Period (Y+Rc), s		6.4			* 5.7	6.4		6.1				
Max Green Setting (Gmax), s		59.6			* 11	43.2		57.9				
Max Q Clear Time (g_c+I1), s		36.8			6.7	34.2		41.4				
Green Ext Time (p_c), s		6.5			0.0	3.3		3.5				

Intersection Summary			
HCM 6th Ctrl Delay			36.7
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

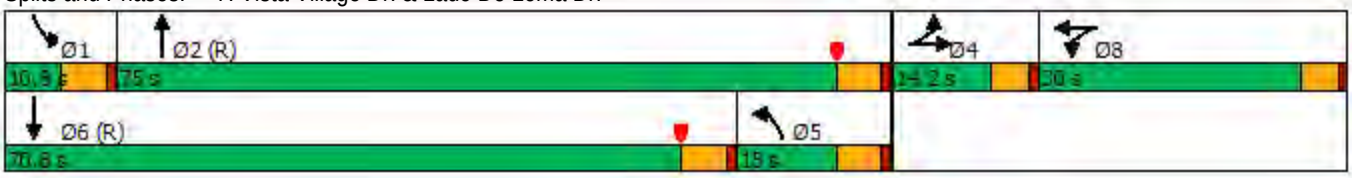
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2	192	3	9	1758	98	949
Future Volume (vph)	2	192	3	9	1758	98	949
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	75.0	10.8	70.8
Total Split (%)	10.9%	23.1%	23.1%	11.5%	57.7%	8.3%	54.5%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	6.2	17.3	17.3	11.4	77.1	15.5	90.3
Actuated g/C Ratio	0.05	0.13	0.13	0.09	0.59	0.12	0.69
v/c Ratio	0.18	0.69	0.53	0.06	0.73	0.48	0.28
Control Delay	34.6	69.1	33.4	50.7	18.4	45.1	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	0.2
Total Delay	34.6	69.1	33.4	50.7	19.1	45.1	10.9
LOS	C	E	C	D	B	D	B
Approach Delay	34.6		51.9		19.3		14.1
Approach LOS	C		D		B		B

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 110 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 20.5 — Intersection LOS: C
Intersection Capacity Utilization 74.5% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	13	192	3	93	9	1758	330	98	949	5
Future Volume (veh/h)	1	2	13	192	3	93	9	1758	330	98	949	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	2	13	148	72	96	9	1812	340	101	978	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3	22	214	87	116	844	2890	535	74	1233	6
Arrive On Green	0.02	0.02	0.02	0.12	0.12	0.12	0.95	1.00	1.00	0.08	0.47	0.47
Sat Flow, veh/h	102	203	1322	1781	727	969	1781	4329	801	1781	5243	27
Grp Volume(v), veh/h	16	0	0	148	0	168	9	1419	733	101	635	348
Grp Sat Flow(s),veh/h/ln	1627	0	0	1781	0	1696	1781	1702	1726	1781	1702	1866
Q Serve(g_s), s	1.3	0.0	0.0	10.4	0.0	12.6	0.0	0.0	0.0	5.4	20.5	20.5
Cycle Q Clear(g_c), s	1.3	0.0	0.0	10.4	0.0	12.6	0.0	0.0	0.0	5.4	20.5	20.5
Prop In Lane	0.06		0.81	1.00		0.57	1.00		0.46	1.00		0.01
Lane Grp Cap(c), veh/h	27	0	0	214	0	204	844	2273	1152	74	801	439
V/C Ratio(X)	0.58	0.00	0.00	0.69	0.00	0.82	0.01	0.62	0.64	1.37	0.79	0.79
Avail Cap(c_a), veh/h	120	0	0	348	0	331	844	2273	1152	74	1713	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.57	0.57	0.57	0.92	0.92	0.92
Uniform Delay (d), s/veh	63.4	0.0	0.0	54.9	0.0	55.9	1.8	0.0	0.0	59.6	31.8	31.8
Incr Delay (d2), s/veh	18.0	0.0	0.0	4.0	0.0	8.5	0.0	0.7	1.5	225.3	7.3	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	4.9	0.0	5.9	0.0	0.2	0.5	7.0	7.6	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	0.0	0.0	58.8	0.0	64.4	1.8	0.7	1.5	284.9	39.1	44.5
LnGrp LOS	F	A	A	E	A	E	A	A	A	F	D	D
Approach Vol, veh/h		16			316			2161			1084	
Approach Delay, s/veh		81.5			61.8			1.0			63.7	
Approach LOS		F			E			A			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	92.2		6.8	67.0	36.0		20.2				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	69.6		9.6	9.6	65.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	2.0		3.3	2.0	22.5		14.6				
Green Ext Time (p_c), s	0.0	33.7		0.0	0.0	8.1		1.0				

Intersection Summary												
HCM 6th Ctrl Delay			25.8									
HCM 6th LOS			C									

Notes

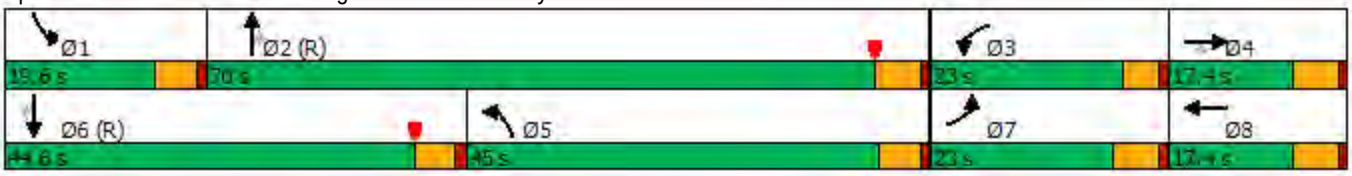
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	338	111	165	57	75	426	1287	139	65	830	318
Future Volume (vph)	338	111	165	57	75	426	1287	139	65	830	318
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	23.0	17.4	17.4	23.0	17.4	45.0	70.0	70.0	19.6	44.6	44.6
Total Split (%)	17.7%	13.4%	13.4%	17.7%	13.4%	34.6%	53.8%	53.8%	15.1%	34.3%	34.3%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	18.1	24.2	24.2	8.7	12.0	25.2	71.4	71.4	9.4	53.9	53.9
Actuated g/C Ratio	0.14	0.19	0.19	0.07	0.09	0.19	0.55	0.55	0.07	0.41	0.41
v/c Ratio	0.74	0.18	0.40	0.50	0.35	0.67	0.48	0.16	0.54	0.41	0.43
Control Delay	61.8	46.2	9.5	71.8	38.7	46.2	22.4	10.4	72.7	28.8	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	61.8	46.2	9.5	71.8	38.7	46.2	22.8	10.4	72.7	28.8	12.6
LOS	E	D	A	E	D	D	C	B	E	C	B
Approach Delay		44.9			49.6		27.2			26.9	
Approach LOS		D			D		C			C	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 70 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 31.0 — Intersection LOS: C
Intersection Capacity Utilization 58.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	111	165	57	75	40	426	1287	139	65	830	318
Future Volume (veh/h)	338	111	165	57	75	40	426	1287	139	65	830	318
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	352	116	172	59	78	42	444	1341	145	68	865	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	406	614	274	76	209	105	1436	2959	918	87	1087	
Arrive On Green	0.12	0.17	0.17	0.04	0.09	0.09	0.83	1.00	1.00	0.05	0.21	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2289	1151	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	352	116	172	59	59	61	444	1341	145	68	865	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1663	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	13.0	3.6	5.2	4.3	4.1	4.5	3.8	0.0	0.0	4.9	20.9	0.0
Cycle Q Clear(g_c), s	13.0	3.6	5.2	4.3	4.1	4.5	3.8	0.0	0.0	4.9	20.9	0.0
Prop In Lane	1.00		1.00	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	406	614	274	76	162	152	1436	2959	918	87	1087	
V/C Ratio(X)	0.87	0.19	0.63	0.78	0.37	0.40	0.31	0.45	0.16	0.78	0.80	
Avail Cap(c_a), veh/h	468	614	274	253	164	154	1436	2959	918	200	1555	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.54	0.54	1.00	1.00	1.00	0.61	0.61	0.61	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.4	46.0	7.9	61.6	55.6	55.7	6.7	0.0	0.0	61.1	48.5	0.0
Incr Delay (d2), s/veh	8.0	0.1	2.2	6.2	1.0	1.3	0.0	0.3	0.2	5.6	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	1.6	5.0	2.1	1.9	1.9	1.2	0.1	0.1	2.4	9.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	46.0	10.1	67.8	56.6	57.0	6.8	0.3	0.2	66.8	54.6	0.0
LnGrp LOS	E	D	B	E	E	E	A	A	A	E	D	
Approach Vol, veh/h		640			179			1930			933	A
Approach Delay, s/veh		46.4			60.4			1.8			55.4	
Approach LOS		D			E			A			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	80.7	10.1	27.9	59.4	32.7	20.7	17.2
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	14.6	64.6	18.5	12.0	40.0	* 40	17.6	12.0
Max Q Clear Time (g_c+I1), s	6.9	2.0	6.3	7.2	5.8	22.9	15.0	6.5
Green Ext Time (p_c), s	0.0	12.2	0.0	0.4	0.9	4.8	0.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX C

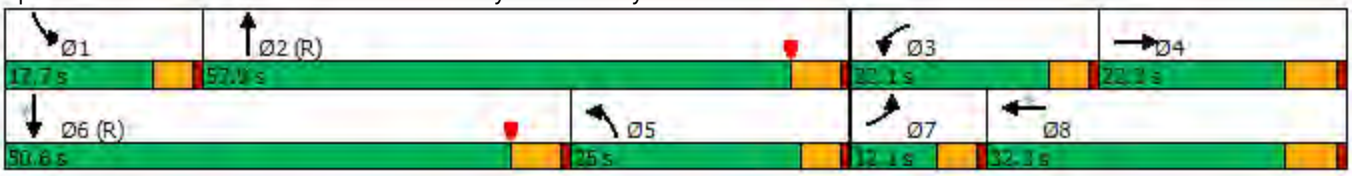
PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT AM, MIDDAY AND PM PEAK HOURS

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	213	201	298	384	284	846	174	1450	509
Future Volume (vph)	50	213	201	298	384	284	846	174	1450	509
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	12.1	22.3	22.1	32.3	32.3	25.0	57.9	17.7	50.6	50.6
Total Split (%)	10.1%	18.6%	18.4%	26.9%	26.9%	20.8%	48.3%	14.8%	42.2%	42.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	7.5	15.8	11.8	22.0	22.0	15.7	56.1	16.1	56.5	56.5
Actuated g/C Ratio	0.06	0.13	0.10	0.18	0.18	0.13	0.47	0.13	0.47	0.47
v/c Ratio	0.48	0.72	0.63	0.48	0.75	0.67	0.45	0.77	0.64	0.60
Control Delay	68.8	39.4	60.3	46.3	21.4	47.3	19.0	72.2	27.1	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	39.4	60.3	46.3	21.4	47.3	19.0	72.2	27.1	14.8
LOS	E	D	E	D	C	D	B	E	C	B
Approach Delay		42.9		38.7			25.3		27.9	
Approach LOS		D		D			C		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 30.5 — Intersection LOS: C
Intersection Capacity Utilization 70.0% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	213	169	201	298	384	284	846	159	174	1450	509
Future Volume (veh/h)	50	213	169	201	298	384	284	846	159	174	1450	509
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	224	178	212	314	369	299	891	147	183	1526	514
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	347	263	272	785	350	704	2043	336	196	1845	573
Arrive On Green	0.04	0.18	0.18	0.08	0.22	0.22	0.20	0.46	0.46	0.11	0.36	0.36
Sat Flow, veh/h	1781	1924	1460	3456	3554	1585	3456	4418	726	1781	5106	1585
Grp Volume(v), veh/h	53	206	196	212	314	369	299	686	352	183	1526	514
Grp Sat Flow(s),veh/h/ln	1781	1777	1607	1728	1777	1585	1728	1702	1740	1781	1702	1585
Q Serve(g_s), s	3.5	12.9	13.7	7.2	9.1	26.5	9.1	16.3	16.4	12.2	32.7	29.8
Cycle Q Clear(g_c), s	3.5	12.9	13.7	7.2	9.1	26.5	9.1	16.3	16.4	12.2	32.7	29.8
Prop In Lane	1.00		0.91	1.00		1.00	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	68	320	290	272	785	350	704	1574	805	196	1845	573
V/C Ratio(X)	0.78	0.64	0.68	0.78	0.40	1.05	0.42	0.44	0.44	0.93	0.83	0.90
Avail Cap(c_a), veh/h	113	320	290	507	785	350	704	1574	805	196	1923	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	45.6	45.9	54.2	40.0	46.8	41.7	21.7	21.7	53.0	34.9	23.8
Incr Delay (d2), s/veh	6.9	4.7	6.5	1.2	0.3	54.4	0.4	0.8	1.6	45.2	4.4	19.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.1	6.0	3.2	4.0	15.7	3.9	6.6	7.0	7.9	14.1	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	50.3	52.4	55.5	40.2	101.2	42.0	22.5	23.3	98.2	39.3	43.1
LnGrp LOS	E	D	D	E	D	F	D	C	C	F	D	D
Approach Vol, veh/h		455			895			1337			2223	
Approach Delay, s/veh		52.8			69.0			27.1			45.0	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	60.9	14.0	27.4	29.8	48.8	9.1	32.3
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	13.2	52.5	17.6	16.5	20.5	* 45	7.6	26.5
Max Q Clear Time (g_c+I1), s	14.2	18.4	9.2	15.7	11.1	34.7	5.5	28.5
Green Ext Time (p_c), s	0.0	10.3	0.2	0.2	0.7	8.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

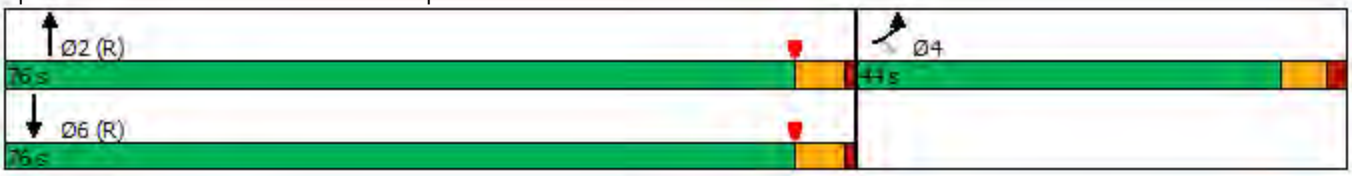
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	218	282	979	1749
Future Volume (vph)	218	282	979	1749
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	44.0	44.0	76.0	76.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	17.4	17.4	91.1	91.1
Actuated g/C Ratio	0.14	0.14	0.76	0.76
v/c Ratio	0.71	0.72	0.26	0.37
Control Delay	53.9	61.0	11.5	9.4
Queue Delay	0.4	1.0	2.4	0.3
Total Delay	54.3	62.1	13.9	9.7
LOS	D	E	B	A
Approach Delay	56.7		13.9	9.7
Approach LOS	E		B	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 46.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	218	282	0	979	1749	0
Future Volume (veh/h)	218	282	0	979	1749	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	170	344	0	999	1785	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	233	415	0	3949	4976	0
Arrive On Green	0.13	0.13	0.00	1.00	1.00	0.00
Sat Flow, veh/h	1781	3170	0	5443	6958	0
Grp Volume(v), veh/h	170	344	0	999	1785	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	11.0	12.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.0	12.7	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	233	415	0	3949	4976	0
V/C Ratio(X)	0.73	0.83	0.00	0.25	0.36	0.00
Avail Cap(c_a), veh/h	563	1001	0	3949	4976	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.75	0.73	0.00
Uniform Delay (d), s/veh	50.1	50.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.6	1.7	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	5.1	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.8	52.5	0.0	0.1	0.1	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	514			999	1785	
Approach Delay, s/veh	52.3			0.1	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.2		21.8		98.2
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		70.6		37.9		70.6
Max Q Clear Time (g_c+I1), s		2.0		14.7		2.0
Green Ext Time (p_c), s		5.7		1.0		14.5

Intersection Summary	
HCM 6th Ctrl Delay	8.3
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	187	263	508	247	19	816	252	593	1463
Future Volume (vph)	187	263	508	247	19	816	252	593	1463
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	32.0	18.0	27.0	27.0	54.0	18.0	16.0	43.0
Total Split (%)	19.2%	26.7%	15.0%	22.5%	22.5%	45.0%	15.0%	13.3%	35.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	16.4	26.1	31.2	6.1	33.1	65.6	18.8	45.8
Actuated g/C Ratio	0.09	0.14	0.22	0.26	0.05	0.28	0.55	0.16	0.38
v/c Ratio	0.62	0.67	0.72	0.39	0.22	0.62	0.29	1.18	0.87
Control Delay	60.4	53.4	50.2	33.8	60.1	40.1	7.9	145.6	39.6
Queue Delay	1.6	0.0	0.0	0.0	0.0	0.1	0.0	2.0	46.8
Total Delay	62.0	53.4	50.2	33.8	60.1	40.2	7.9	147.6	86.4
LOS	E	D	D	C	E	D	A	F	F
Approach Delay		56.7		43.7		33.0			103.1
Approach LOS		E		D		C			F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 70.6	Intersection LOS: E
Intersection Capacity Utilization 79.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	263	42	508	247	90	19	816	252	593	1463	120
Future Volume (veh/h)	187	263	42	508	247	90	19	816	252	593	1463	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	280	39	540	263	92	20	868	268	631	1556	102
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	354	49	334	349	119	485	2539	941	276	1493	98
Arrive On Green	0.07	0.11	0.11	0.10	0.13	0.13	0.27	0.50	0.50	0.16	0.61	0.61
Sat Flow, veh/h	3456	3137	432	3456	2599	888	1781	5106	1585	3456	4896	321
Grp Volume(v), veh/h	199	157	162	540	178	177	20	868	268	631	1082	576
Grp Sat Flow(s),veh/h/ln	1728	1777	1793	1728	1777	1711	1781	1702	1585	1728	1702	1813
Q Serve(g_s), s	6.8	10.3	10.6	11.6	11.5	12.0	1.0	12.4	9.9	9.6	36.6	36.6
Cycle Q Clear(g_c), s	6.8	10.3	10.6	11.6	11.5	12.0	1.0	12.4	9.9	9.6	36.6	36.6
Prop In Lane	1.00		0.24	1.00		0.52	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	259	200	202	334	239	230	485	2539	941	276	1038	553
V/C Ratio(X)	0.77	0.79	0.80	1.62	0.74	0.77	0.04	0.34	0.28	2.28	1.04	1.04
Avail Cap(c_a), veh/h	478	379	382	334	305	294	485	2539	941	276	1038	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	54.5	51.8	51.9	54.2	50.0	50.1	32.1	18.3	11.9	50.4	23.4	23.4
Incr Delay (d2), s/veh	1.8	2.6	2.8	288.4	4.0	5.5	0.0	0.4	0.8	587.6	38.3	48.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	4.7	4.9	18.4	5.4	5.5	0.4	4.9	3.6	26.3	15.1	17.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.4	54.7	342.6	53.9	55.6	32.2	18.6	12.7	638.0	61.7	71.6
LnGrp LOS	E	D	D	F	D	E	C	B	B	F	F	F
Approach Vol, veh/h		518			895			1156			2289	
Approach Delay, s/veh		55.2			228.5			17.5			223.1	
Approach LOS		E			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	66.1	18.0	19.9	39.1	43.0	15.4	22.5
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	47.6	11.6	25.6	20.6	36.6	16.6	20.6
Max Q Clear Time (g_c+I1), s	11.6	14.4	13.6	12.6	3.0	38.6	8.8	14.0
Green Ext Time (p_c), s	0.0	8.4	0.0	1.0	0.0	0.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	157.2
HCM 6th LOS	F

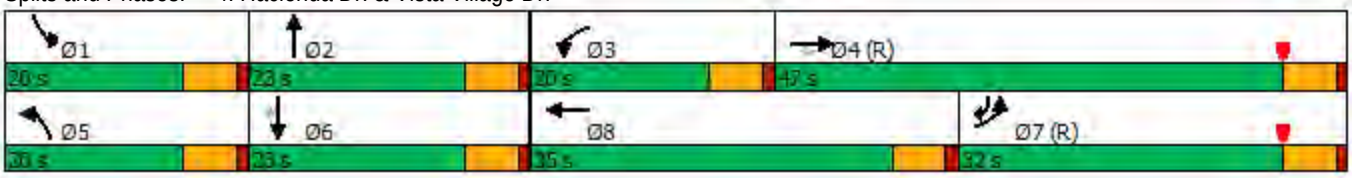
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	871	149	10	1	126	14	31	247	84	733
Future Volume (vph)	871	149	10	1	126	14	31	247	84	733
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	23.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	45.1	74.1	74.1	5.0	25.7	5.7	7.2	14.6	16.4	62.6
Actuated g/C Ratio	0.41	0.67	0.67	0.05	0.23	0.05	0.07	0.13	0.15	0.57
v/c Ratio	0.67	0.13	0.01	0.01	0.86	0.16	0.28	1.14	0.32	0.41
Control Delay	32.5	8.9	0.0	51.0	49.0	53.4	51.5	141.3	48.8	5.8
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	32.6	8.9	0.0	51.0	49.0	53.4	51.5	141.3	48.8	6.1
LOS	C	A	A	D	D	D	D	F	D	A
Approach Delay		28.8			49.0		52.0		40.9	
Approach LOS		C			D		D		D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 24 (22%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 37.3	Intersection LOS: D
Intersection Capacity Utilization 80.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	871	149	10	1	126	239	14	31	2	247	84	733
Future Volume (veh/h)	871	149	10	1	126	239	14	31	2	247	84	733
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	937	160	11	1	135	257	15	33	2	266	90	788
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1196	1014	2	230	438	30	52	3	236	273	1082
Arrive On Green	0.24	0.64	0.64	0.00	0.40	0.40	0.02	0.03	0.03	0.04	0.05	0.05
Sat Flow, veh/h	3456	1870	1585	1781	576	1097	1781	1746	106	1781	1870	2790
Grp Volume(v), veh/h	937	160	11	1	0	392	15	0	35	266	90	788
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1673	1781	0	1851	1781	1870	1395
Q Serve(g_s), s	26.6	3.7	0.3	0.1	0.0	20.2	0.9	0.0	2.1	14.6	5.1	2.5
Cycle Q Clear(g_c), s	26.6	3.7	0.3	0.1	0.0	20.2	0.9	0.0	2.1	14.6	5.1	2.5
Prop In Lane	1.00		1.00	1.00		0.66	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	836	1196	1014	2	0	668	30	0	55	236	273	1082
V/C Ratio(X)	1.12	0.13	0.01	0.41	0.00	0.59	0.50	0.00	0.63	1.13	0.33	0.73
Avail Cap(c_a), veh/h	836	1196	1014	236	0	668	236	0	296	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.42	0.42	0.42	1.00	0.00	1.00	1.00	0.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	41.7	7.8	7.2	54.9	0.0	25.9	53.6	0.0	52.8	52.6	47.2	18.3
Incr Delay (d2), s/veh	61.9	0.1	0.0	36.3	0.0	0.9	4.8	0.0	4.4	94.3	0.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.4	1.5	0.1	0.1	0.0	8.1	0.5	0.0	1.0	13.2	2.5	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.6	7.9	7.2	91.2	0.0	26.8	58.5	0.0	57.2	146.9	47.4	20.2
LnGrp LOS	F	A	A	F	A	C	E	A	E	F	D	C
Approach Vol, veh/h		1108			393			50			1144	
Approach Delay, s/veh		88.9			27.0			57.5			51.8	
Approach LOS		F			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	8.7	5.6	75.8	7.2	21.4	32.0	49.3
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	16.6	4.1	2.1	5.7	2.9	7.1	28.6	22.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	1.9	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	63.5
HCM 6th LOS	E

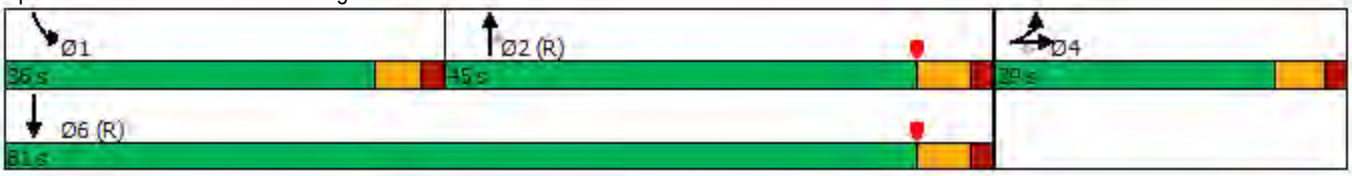
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	301	4	60	331	811	542	1006
Future Volume (vph)	301	4	60	331	811	542	1006
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	29.0	29.0	29.0	45.0	45.0	36.0	81.0
Total Split (%)	26.4%	26.4%	26.4%	40.9%	40.9%	32.7%	73.6%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	15.0	15.0	15.0	54.3	54.3	22.5	82.5
Actuated g/C Ratio	0.14	0.14	0.14	0.49	0.49	0.20	0.75
v/c Ratio	0.70	0.69	0.22	0.45	0.46	0.80	0.39
Control Delay	60.8	59.9	5.2	3.2	2.2	50.3	10.5
Queue Delay	0.0	0.0	0.0	0.4	0.9	0.0	0.7
Total Delay	60.8	59.9	5.2	3.7	3.1	50.3	11.1
LOS	E	E	A	A	A	D	B
Approach Delay		51.3		3.5			24.8
Approach LOS		D		A			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 20.0	Intersection LOS: C
Intersection Capacity Utilization 81.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	4	60	0	0	0	0	331	811	542	1006	0
Future Volume (veh/h)	301	4	60	0	0	0	0	331	811	542	1006	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	317	0	62				0	345	845	565	1048	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	393	0	175				0	1001	1697	652	2758	0
Arrive On Green	0.11	0.00	0.11				0.00	0.89	0.89	0.06	0.26	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	317	0	62				0	345	845	565	1048	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	9.6	0.0	4.0				0.0	3.1	5.6	17.8	26.7	0.0
Cycle Q Clear(g_c), s	9.6	0.0	4.0				0.0	3.1	5.6	17.8	26.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	393	0	175				0	1001	1697	652	2758	0
V/C Ratio(X)	0.81	0.00	0.35				0.00	0.34	0.50	0.87	0.38	0.00
Avail Cap(c_a), veh/h	742	0	330				0	1001	1697	952	2758	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.67	1.67	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.71	0.71	0.89	0.89	0.00
Uniform Delay (d), s/veh	47.8	0.0	45.3				0.0	2.9	3.0	50.2	19.1	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.5				0.0	0.7	0.7	3.8	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	1.6				0.0	1.1	1.3	8.6	12.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	0.0	45.8				0.0	3.5	3.7	54.0	19.5	0.0
LnGrp LOS	D	A	D				A	A	A	D	B	A
Approach Vol, veh/h		379						1190			1613	
Approach Delay, s/veh		48.7						3.7			31.6	
Approach LOS		D						A			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	26.5	65.3		18.2		91.8
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 30	38.6		22.9		74.6
Max Q Clear Time (g_c+I1), s	19.8	7.6		11.6		28.7
Green Ext Time (p_c), s	0.9	3.7		0.6		6.1

Intersection Summary			
HCM 6th Ctrl Delay			23.2
HCM 6th LOS			C

Notes

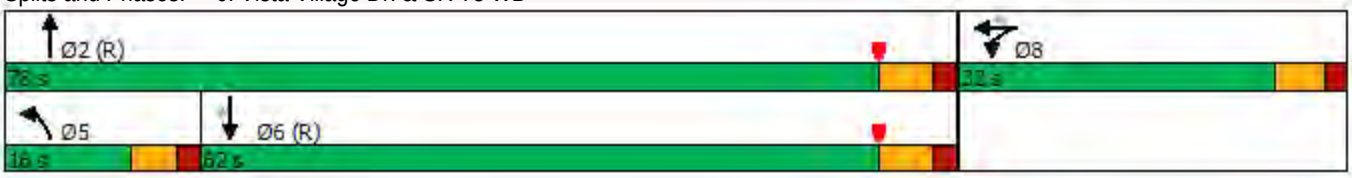
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	518	0	610	85	546	1029	702
Future Volume (vph)	518	0	610	85	546	1029	702
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	32.0	32.0	32.0	16.0	78.0	62.0	62.0
Total Split (%)	29.1%	29.1%	29.1%	14.5%	70.9%	56.4%	56.4%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	24.8	24.8	24.8	10.4	72.7	59.8	59.8
Actuated g/C Ratio	0.23	0.23	0.23	0.09	0.66	0.54	0.54
v/c Ratio	0.71	0.71	0.57	0.53	0.24	0.38	0.61
Control Delay	48.6	48.6	4.6	58.1	5.2	26.9	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	48.6	48.6	4.6	58.1	5.2	26.9	16.9
LOS	D	D	A	E	A	C	B
Approach Delay		24.8			12.3	22.9	
Approach LOS		C			B	C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 81.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	518	0	610	85	546	0	0	1029	702
Future Volume (veh/h)	0	0	0	518	0	610	85	546	0	0	1029	702
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				534	0	629	88	563	0	0	1061	724
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				784	0	698	151	2368	0	0	2705	840
Arrive On Green				0.22	0.00	0.22	0.17	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				534	0	629	88	563	0	0	1061	724
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				15.1	0.0	21.2	5.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				15.1	0.0	21.2	5.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				784	0	698	151	2368	0	0	2705	840
V/C Ratio(X)				0.68	0.00	0.90	0.58	0.24	0.00	0.00	0.39	0.86
Avail Cap(c_a), veh/h				839	0	746	167	2368	0	0	2705	840
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	0.81	0.81
Uniform Delay (d), s/veh				39.4	0.0	41.7	43.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				1.6	0.0	13.0	1.9	0.2	0.0	0.0	0.3	9.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.7	0.0	9.5	2.2	0.1	0.0	0.0	0.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				41.0	0.0	54.7	45.7	0.2	0.0	0.0	0.3	9.4
LnGrp LOS				D	A	D	D	A	A	A	A	A
Approach Vol, veh/h					1163			651			1785	
Approach Delay, s/veh					48.4			6.4			4.0	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	79.7	15.0	64.7	30.3
Change Period (Y+Rc), s	6.4	* 5.7	6.4	6.1
Max Green Setting (Gmax), s	71.6	* 10	55.6	25.9
Max Q Clear Time (g_c+I1), s	2.0	7.0	2.0	23.2
Green Ext Time (p_c), s	2.8	0.0	8.7	1.0

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Notes

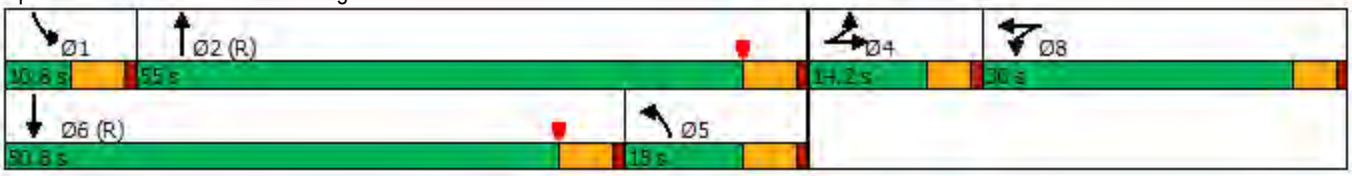
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	222	2	7	1015	116	1504
Future Volume (vph)	1	222	2	7	1015	116	1504
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	55.0	10.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	50.0%	9.8%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	C-Min	Max	C-Min
Act Effct Green (s)	5.3	15.6	15.6	15.1	49.6	27.2	61.7
Actuated g/C Ratio	0.05	0.14	0.14	0.14	0.45	0.25	0.56
v/c Ratio	0.07	0.65	0.57	0.03	0.53	0.28	0.55
Control Delay	34.0	56.5	40.0	52.7	25.3	61.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	34.0	56.5	40.0	52.7	25.3	61.1	6.1
LOS	C	E	D	D	C	E	A
Approach Delay	34.0		48.4		25.5		10.0
Approach LOS	C		D		C		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 15 (14%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	5	222	2	67	7	1015	134	116	1504	6
Future Volume (veh/h)	0	1	5	222	2	67	7	1015	134	116	1504	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1	5	152	113	70	7	1057	140	121	1567	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	10	229	139	86	590	2888	382	87	1843	7
Arrive On Green	0.00	0.01	0.01	0.13	0.13	0.13	0.11	0.21	0.21	0.10	0.70	0.70
Sat Flow, veh/h	0	271	1355	1781	1081	669	1781	4562	603	1781	5251	20
Grp Volume(v), veh/h	0	0	6	152	0	183	7	788	409	121	1016	557
Grp Sat Flow(s),veh/h/ln	0	0	1626	1781	0	1750	1781	1702	1762	1781	1702	1867
Q Serve(g_s), s	0.0	0.0	0.4	8.9	0.0	11.2	0.4	21.8	21.9	5.4	24.3	24.3
Cycle Q Clear(g_c), s	0.0	0.0	0.4	8.9	0.0	11.2	0.4	21.8	21.9	5.4	24.3	24.3
Prop In Lane	0.00		0.83	1.00		0.38	1.00		0.34	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	12	229	0	225	590	2154	1115	87	1195	655
V/C Ratio(X)	0.00	0.00	0.48	0.66	0.00	0.81	0.01	0.37	0.37	1.38	0.85	0.85
Avail Cap(c_a), veh/h	0	0	142	411	0	404	590	2154	1115	87	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	0.71	0.71	0.71
Uniform Delay (d), s/veh	0.0	0.0	54.4	45.7	0.0	46.6	32.9	24.6	24.6	49.6	14.3	14.3
Incr Delay (d2), s/veh	0.0	0.0	20.2	2.4	0.0	5.3	0.0	0.4	0.9	215.0	5.6	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	4.1	0.0	5.2	0.2	10.0	10.5	7.5	5.5	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	74.5	48.1	0.0	51.9	33.0	25.0	25.5	264.6	19.9	24.0
LnGrp LOS	A	A	E	D	A	D	C	C	C	F	B	C
Approach Vol, veh/h		6			335			1204			1694	
Approach Delay, s/veh		74.5			50.2			25.2			38.7	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	75.0		5.4	41.8	44.0		18.7				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	49.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	23.9		2.4	2.4	26.3		13.2				
Green Ext Time (p_c), s	0.0	11.0		0.0	0.0	12.3		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			34.9
HCM 6th LOS			C

Notes

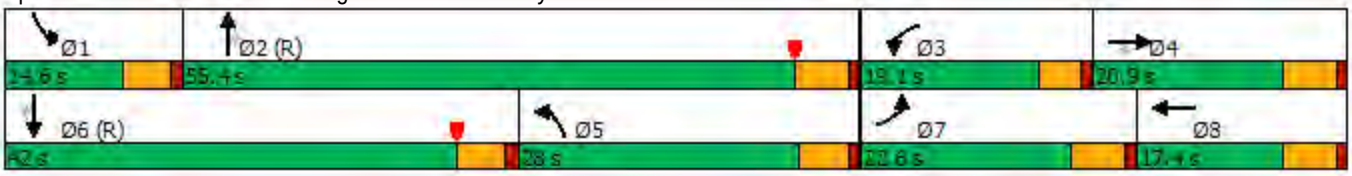
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	284	60	210	28	71	385	689	8	20	1388	532
Future Volume (vph)	284	60	210	28	71	385	689	8	20	1388	532
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.5	17.4	17.4	9.5	17.4	16.5	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	20.9	20.9	19.1	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	19.0%	19.0%	17.4%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	14.8	21.5	21.5	6.6	12.0	17.8	65.6	65.6	6.1	48.1	48.1
Actuated g/C Ratio	0.13	0.20	0.20	0.06	0.11	0.16	0.60	0.60	0.06	0.44	0.44
v/c Ratio	0.68	0.10	0.47	0.29	0.23	0.76	0.25	0.01	0.23	0.69	0.70
Control Delay	52.9	35.9	8.3	56.0	41.3	35.2	4.6	0.0	54.7	29.2	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	35.9	8.3	56.0	41.3	35.2	4.6	0.0	54.7	29.2	21.0
LOS	D	D	A	E	D	D	A	A	D	C	C
Approach Delay		34.2			45.1		15.5			27.2	
Approach LOS		C			D		B			C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 25.3 — Intersection LOS: C
Intersection Capacity Utilization 66.8% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	60	210	28	71	9	385	689	8	20	1388	532
Future Volume (veh/h)	284	60	210	28	71	9	385	689	8	20	1388	532
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	312	66	231	31	78	10	423	757	9	22	1525	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	381	684	305	50	323	41	923	2926	908	40	1676	
Arrive On Green	0.11	0.19	0.19	0.03	0.10	0.10	0.53	1.00	1.00	0.02	0.33	0.00
Sat Flow, veh/h	3456	3554	1585	1781	3175	400	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	312	66	231	31	43	45	423	757	9	22	1525	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1798	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	9.7	1.7	8.3	1.9	2.5	2.5	8.3	0.0	0.0	1.3	31.5	0.0
Cycle Q Clear(g_c), s	9.7	1.7	8.3	1.9	2.5	2.5	8.3	0.0	0.0	1.3	31.5	0.0
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	381	684	305	50	181	183	923	2926	908	40	1676	
V/C Ratio(X)	0.82	0.10	0.76	0.63	0.24	0.25	0.46	0.26	0.01	0.56	0.91	
Avail Cap(c_a), veh/h	540	684	305	236	194	196	923	2926	908	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.9	36.6	12.6	52.9	45.5	45.5	20.7	0.0	0.0	53.2	35.4	0.0
Incr Delay (d2), s/veh	3.6	0.0	6.2	4.7	0.5	0.5	0.1	0.2	0.0	4.4	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.7	3.4	0.9	1.1	1.2	2.9	0.0	0.0	0.7	14.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	36.6	18.8	57.6	46.0	46.0	20.8	0.2	0.0	57.7	44.3	0.0
LnGrp LOS	D	D	B	E	D	D	C	A	A	E	D	
Approach Vol, veh/h		609			119			1189			1547	A
Approach Delay, s/veh		37.4			49.0			7.5			44.5	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	68.4	7.6	26.6	34.8	41.1	17.5	16.6
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	14.6	15.5	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	3.3	2.0	3.9	10.3	10.3	33.5	11.7	4.5
Green Ext Time (p_c), s	0.0	5.1	0.0	0.4	0.7	2.6	0.4	0.1

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	302	95	66	3	3	300
Future Vol, veh/h	302	95	66	3	3	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	328	103	72	3	3	326

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	75	0	-	0	833	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	759	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1524	-	-	-	339	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	462	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1524	-	-	-	266	988
Mov Cap-2 Maneuver	-	-	-	-	266	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	462	-

Approach	EB	WB	SB
HCM Control Delay, s	6.1	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1524	-	-	-	962
HCM Lane V/C Ratio	0.215	-	-	-	0.342
HCM Control Delay (s)	8	-	-	-	10.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.8	-	-	-	1.5

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	27	27	71	42	3
Future Vol, veh/h	3	27	27	71	42	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	29	29	77	46	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	183	48	49	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	135	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	806	1021	1558	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	1021	1558	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	891	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	2	0
HCM LOS	A		

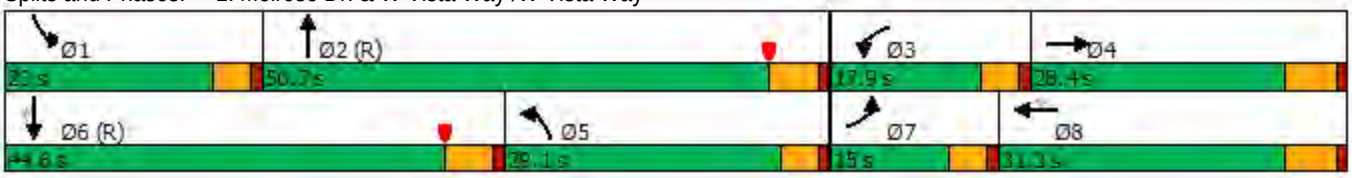
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1558	-	992	-	-
HCM Lane V/C Ratio	0.019	-	0.033	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	58	145	162	208	280	341	713	99	709	256
Future Volume (vph)	58	145	162	208	280	341	713	99	709	256
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	29.1	50.7	23.0	44.6	44.6
Total Split (%)	12.5%	23.7%	14.9%	26.1%	26.1%	24.3%	42.3%	19.2%	37.2%	37.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.5	13.7	10.2	17.4	17.4	19.1	64.6	11.3	56.7	56.7
Actuated g/C Ratio	0.07	0.11	0.08	0.14	0.14	0.16	0.54	0.09	0.47	0.47
v/c Ratio	0.48	0.53	0.57	0.42	0.61	0.64	0.34	0.61	0.30	0.30
Control Delay	65.6	32.6	60.4	48.8	10.6	74.8	34.8	67.5	21.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	32.6	60.4	48.8	10.6	74.8	34.8	67.5	21.6	4.1
LOS	E	C	E	D	B	E	C	E	C	A
Approach Delay		39.0		35.2			46.0		21.6	
Approach LOS		D		D			D		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 35.1 — Intersection LOS: D
Intersection Capacity Utilization 52.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	145	97	162	208	280	341	713	164	99	709	256
Future Volume (veh/h)	58	145	97	162	208	280	341	713	164	99	709	256
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	149	100	167	214	255	352	735	149	102	731	242
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	337	213	225	650	290	1343	2278	457	127	1068	332
Arrive On Green	0.04	0.16	0.16	0.07	0.18	0.18	0.78	1.00	1.00	0.07	0.21	0.21
Sat Flow, veh/h	1781	2091	1319	3456	3554	1585	3456	4265	856	1781	5106	1585
Grp Volume(v), veh/h	60	125	124	167	214	255	352	585	299	102	731	242
Grp Sat Flow(s),veh/h/ln	1781	1777	1633	1728	1777	1585	1728	1702	1716	1781	1702	1585
Q Serve(g_s), s	4.0	7.6	8.3	5.7	6.3	18.8	3.4	0.0	0.0	6.8	15.9	14.4
Cycle Q Clear(g_c), s	4.0	7.6	8.3	5.7	6.3	18.8	3.4	0.0	0.0	6.8	15.9	14.4
Prop In Lane	1.00		0.81	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	77	287	263	225	650	290	1343	1818	917	127	1068	332
V/C Ratio(X)	0.78	0.44	0.47	0.74	0.33	0.88	0.26	0.32	0.33	0.80	0.68	0.73
Avail Cap(c_a), veh/h	156	335	308	386	755	337	1343	1818	917	275	1668	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	45.4	45.7	55.1	42.6	47.7	8.6	0.0	0.0	54.9	43.8	31.3
Incr Delay (d2), s/veh	6.1	1.3	1.6	1.6	0.3	18.6	0.1	0.4	0.9	4.4	3.6	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.5	3.5	2.5	2.8	8.9	1.2	0.1	0.2	3.2	7.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	46.7	47.2	56.7	42.9	66.3	8.6	0.4	0.9	59.3	47.3	44.5
LnGrp LOS	E	D	D	E	D	E	A	A	A	E	D	D
Approach Vol, veh/h		309			636			1236			1075	
Approach Delay, s/veh		50.1			55.9			2.9			47.8	
Approach LOS		D			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	69.5	12.3	25.2	52.0	30.5	9.7	27.8
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	18.5	45.3	13.4	22.6	24.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	8.8	2.0	7.7	10.3	5.4	17.9	6.0	20.8
Green Ext Time (p_c), s	0.1	8.8	0.1	1.3	1.2	7.3	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	250	254	988	951
Future Volume (vph)	250	254	988	951
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	51.0	51.0	69.0	69.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	15.4	15.4	93.1	93.1
Actuated g/C Ratio	0.13	0.13	0.78	0.78
v/c Ratio	0.74	0.61	0.26	0.20
Control Delay	51.7	30.6	9.0	4.0
Queue Delay	0.0	0.0	1.1	0.0
Total Delay	51.7	30.6	10.2	4.0
LOS	D	C	B	A
Approach Delay	45.0		10.2	4.0
Approach LOS	D		B	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	250	254	0	988	951	0
Future Volume (veh/h)	250	254	0	988	951	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	337	171	0	1008	970	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	462	206	0	3954	4983	0
Arrive On Green	0.13	0.13	0.00	0.77	0.77	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	337	171	0	1008	970	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	10.9	12.6	0.0	6.7	4.8	0.0
Cycle Q Clear(g_c), s	10.9	12.6	0.0	6.7	4.8	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	462	206	0	3954	4983	0
V/C Ratio(X)	0.73	0.83	0.00	0.25	0.19	0.00
Avail Cap(c_a), veh/h	1333	593	0	3954	4983	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.83	0.94	0.00
Uniform Delay (d), s/veh	50.2	50.9	0.0	3.8	3.6	0.0
Incr Delay (d2), s/veh	0.8	3.3	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.2	0.0	2.0	1.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.0	54.3	0.0	3.9	3.7	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	508			1008	970	
Approach Delay, s/veh	52.1			3.9	3.7	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.3		21.7		98.3
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		63.6		44.9		63.6
Max Q Clear Time (g_c+I1), s		8.7		14.6		6.8
Green Ext Time (p_c), s		5.8		0.9		5.5

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

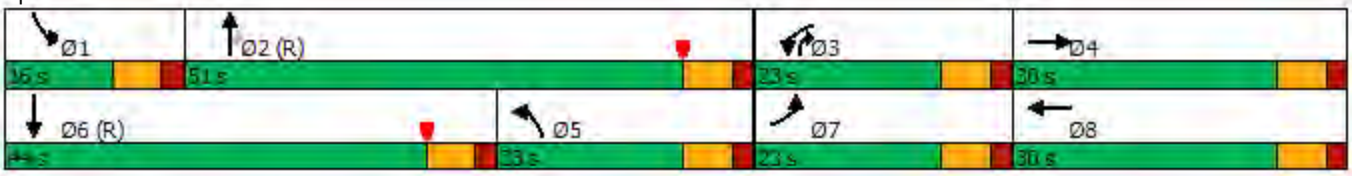
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	185	283	369	229	99	669	365	406	630
Future Volume (vph)	185	283	369	229	99	669	365	406	630
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	51.0	23.0	16.0	44.0
Total Split (%)	19.2%	25.0%	19.2%	25.0%	19.2%	42.5%	19.2%	13.3%	36.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	17.2	18.5	24.3	13.6	32.7	57.6	26.1	45.2
Actuated g/C Ratio	0.09	0.14	0.15	0.20	0.11	0.27	0.48	0.22	0.38
v/c Ratio	0.62	0.73	0.75	0.51	0.53	0.52	0.48	0.59	0.46
Control Delay	60.4	55.0	57.7	35.6	60.3	38.1	16.5	42.5	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5	0.0	3.3	2.6
Total Delay	60.4	55.0	57.7	35.6	60.3	38.6	16.5	45.8	27.0
LOS	E	E	E	D	E	D	B	D	C
Approach Delay		56.9		46.9		33.4			33.3
Approach LOS		E		D		C			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 39.5	Intersection LOS: D
Intersection Capacity Utilization 66.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	283	64	369	229	124	99	669	365	406	630	175
Future Volume (veh/h)	185	283	64	369	229	124	99	669	365	406	630	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	304	63	397	246	129	106	719	392	437	677	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	374	76	451	417	211	590	2293	919	276	816	193
Arrive On Green	0.07	0.13	0.13	0.13	0.18	0.18	0.33	0.45	0.45	0.16	0.40	0.40
Sat Flow, veh/h	3456	2938	601	3456	2282	1157	1781	5106	1585	3456	4126	973
Grp Volume(v), veh/h	199	182	185	397	190	185	106	719	392	437	557	282
Grp Sat Flow(s),veh/h/ln	1728	1777	1762	1728	1777	1662	1781	1702	1585	1728	1702	1695
Q Serve(g_s), s	6.8	12.0	12.3	13.5	11.7	12.3	5.1	10.8	16.6	9.6	17.6	18.1
Cycle Q Clear(g_c), s	6.8	12.0	12.3	13.5	11.7	12.3	5.1	10.8	16.6	9.6	17.6	18.1
Prop In Lane	1.00		0.34	1.00		0.70	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	259	226	224	451	324	304	590	2293	919	276	673	335
V/C Ratio(X)	0.77	0.81	0.83	0.88	0.58	0.61	0.18	0.31	0.43	1.58	0.83	0.84
Avail Cap(c_a), veh/h	478	349	347	478	349	327	590	2293	919	276	1067	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	54.5	50.9	51.1	51.3	44.9	45.1	28.5	21.2	14.1	50.4	34.4	34.6
Incr Delay (d2), s/veh	1.8	3.8	5.0	12.3	0.9	1.4	0.1	0.4	1.5	277.7	11.0	21.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.6	5.7	6.6	5.3	5.2	2.2	4.4	6.2	14.4	7.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.7	56.1	63.6	45.8	46.5	28.6	21.6	15.5	328.1	45.4	56.0
LnGrp LOS	E	D	E	E	D	D	C	C	B	F	D	E
Approach Vol, veh/h		566			772			1217			1276	
Approach Delay, s/veh		55.7			55.1			20.2			144.6	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	60.3	22.1	21.7	46.2	30.1	15.4	28.3
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	44.6	16.6	23.6	16.6	37.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	18.6	15.5	14.3	7.1	20.1	8.8	14.3
Green Ext Time (p_c), s	0.0	7.2	0.1	1.0	0.1	3.6	0.2	1.0

Intersection Summary	
HCM 6th Ctrl Delay	73.9
HCM 6th LOS	E

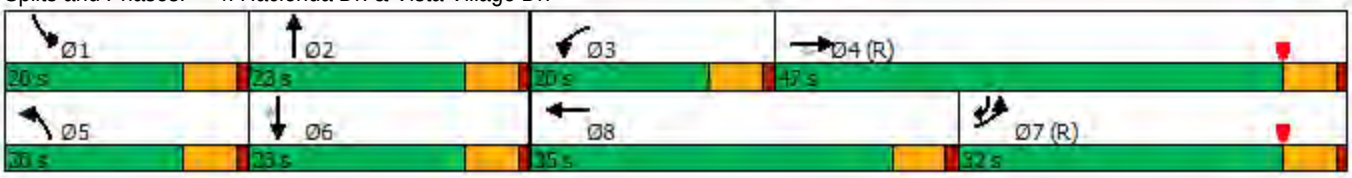
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	822	205	19	4	191	27	107	253	121	504
Future Volume (vph)	822	205	19	4	191	27	107	253	121	504
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	33.1	65.7	65.7	5.1	29.4	6.4	11.3	14.6	23.7	59.0
Actuated g/C Ratio	0.30	0.60	0.60	0.05	0.27	0.06	0.10	0.13	0.22	0.54
v/c Ratio	0.85	0.20	0.02	0.05	0.98	0.28	0.62	1.16	0.33	0.31
Control Delay	46.5	12.2	0.1	51.2	70.3	55.9	60.2	161.3	52.1	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	12.2	0.1	51.2	70.3	55.9	60.2	161.3	52.1	9.6
LOS	D	B	A	D	E	E	E	F	D	A
Approach Delay		38.9			70.2		59.3		59.2	
Approach LOS		D			E		E		E	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 60 (55%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 52.8	Intersection LOS: D
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	822	205	19	4	191	262	27	107	3	253	121	504
Future Volume (veh/h)	822	205	19	4	191	262	27	107	3	253	121	504
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	884	220	20	4	205	282	29	115	3	272	130	542
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1091	925	9	247	340	48	149	4	236	352	1200
Arrive On Green	0.24	0.58	0.58	0.01	0.35	0.35	0.03	0.08	0.08	0.04	0.06	0.06
Sat Flow, veh/h	3456	1870	1585	1781	713	981	1781	1815	47	1781	1870	2790
Grp Volume(v), veh/h	884	220	20	4	0	487	29	0	118	272	130	542
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1694	1781	0	1862	1781	1870	1395
Q Serve(g_s), s	26.6	6.1	0.6	0.2	0.0	29.0	1.8	0.0	6.8	14.6	7.3	2.0
Cycle Q Clear(g_c), s	26.6	6.1	0.6	0.2	0.0	29.0	1.8	0.0	6.8	14.6	7.3	2.0
Prop In Lane	1.00		1.00	1.00		0.58	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	836	1091	925	9	0	588	48	0	153	236	352	1200
V/C Ratio(X)	1.06	0.20	0.02	0.43	0.00	0.83	0.61	0.00	0.77	1.15	0.37	0.45
Avail Cap(c_a), veh/h	836	1091	925	236	0	588	236	0	298	236	352	1200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.77	0.77	0.77	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	41.7	10.8	9.7	54.5	0.0	32.9	53.0	0.0	49.5	52.6	45.3	13.3
Incr Delay (d2), s/veh	44.0	0.3	0.0	11.2	0.0	9.1	4.6	0.0	3.1	104.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.3	2.6	0.2	0.1	0.0	13.2	0.9	0.0	3.3	13.8	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.7	11.1	9.7	65.7	0.0	42.0	57.6	0.0	52.6	156.7	45.5	13.4
LnGrp LOS	F	B	A	E	A	D	E	A	D	F	D	B
Approach Vol, veh/h		1124			491			147			944	
Approach Delay, s/veh		69.7			42.2			53.5			59.1	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	14.4	6.0	69.6	8.3	26.1	32.0	43.6
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	16.6	8.8	2.2	8.1	3.8	9.3	28.6	31.0
Green Ext Time (p_c), s	0.0	0.2	0.0	0.9	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	60.2
HCM 6th LOS	E

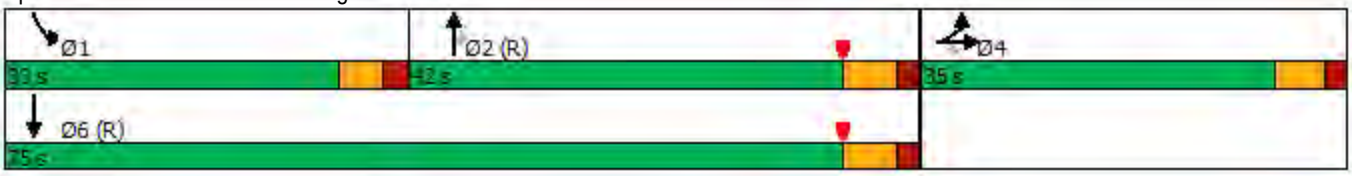
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	409	1	67	430	768	454	807
Future Volume (vph)	409	1	67	430	768	454	807
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	35.0	35.0	35.0	42.0	42.0	33.0	75.0
Total Split (%)	31.8%	31.8%	31.8%	38.2%	38.2%	30.0%	68.2%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	18.7	18.7	18.7	53.6	53.6	19.5	78.8
Actuated g/C Ratio	0.17	0.17	0.17	0.49	0.49	0.18	0.72
v/c Ratio	0.75	0.75	0.20	0.52	0.44	0.78	0.33
Control Delay	58.8	58.9	5.7	22.2	8.8	48.9	7.2
Queue Delay	0.0	0.0	0.0	1.1	1.1	0.0	0.4
Total Delay	58.8	58.9	5.7	23.3	9.9	48.9	7.6
LOS	E	E	A	C	A	D	A
Approach Delay		51.4		19.0			22.5
Approach LOS		D		B			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	409	1	67	0	0	0	0	430	768	454	807	0
Future Volume (veh/h)	409	1	67	0	0	0	0	430	768	454	807	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	427	0	70				0	448	800	473	841	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	508	0	226				0	993	1684	556	2643	0
Arrive On Green	0.14	0.00	0.14				0.00	0.18	0.18	0.05	0.25	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	427	0	70				0	448	800	473	841	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	12.8	0.0	4.4				0.0	23.6	25.0	14.9	21.3	0.0
Cycle Q Clear(g_c), s	12.8	0.0	4.4				0.0	23.6	25.0	14.9	21.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	508	0	226				0	993	1684	556	2643	0
V/C Ratio(X)	0.84	0.00	0.31				0.00	0.45	0.48	0.85	0.32	0.00
Avail Cap(c_a), veh/h	936	0	416				0	993	1684	858	2643	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.45	0.45	0.93	0.93	0.00
Uniform Delay (d), s/veh	45.9	0.0	42.3				0.0	31.0	31.6	50.8	18.7	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.3				0.0	0.7	0.4	2.9	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	1.7				0.0	12.0	10.7	7.2	10.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	42.6				0.0	31.7	32.0	53.7	19.0	0.0
LnGrp LOS	D	A	D				A	C	C	D	B	A
Approach Vol, veh/h		497						1248			1314	
Approach Delay, s/veh		46.7						31.9			31.5	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.4	64.8		21.8		88.2
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 27	35.6		28.9		68.6
Max Q Clear Time (g_c+I1), s	16.9	27.0		14.8		23.3
Green Ext Time (p_c), s	0.8	2.9		0.9		7.3

Intersection Summary		
HCM 6th Ctrl Delay		34.1
HCM 6th LOS		C

Notes

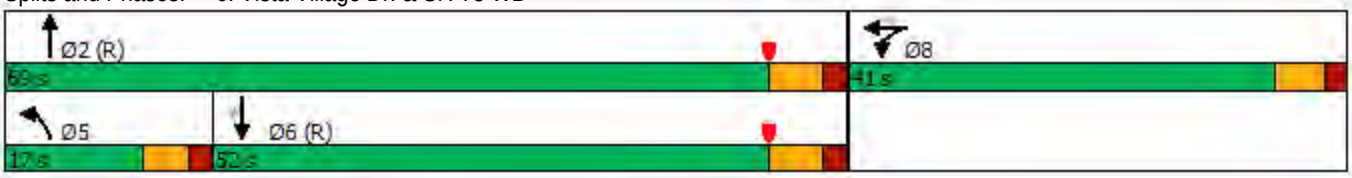
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	477	0	642	80	777	805	457
Future Volume (vph)	477	0	642	80	777	805	457
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	41.0	41.0	41.0	17.0	69.0	52.0	52.0
Total Split (%)	37.3%	37.3%	37.3%	15.5%	62.7%	47.3%	47.3%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	27.1	27.1	27.1	10.8	70.4	57.0	57.0
Actuated g/C Ratio	0.25	0.25	0.25	0.10	0.64	0.52	0.52
v/c Ratio	0.59	0.59	0.72	0.47	0.35	0.32	0.45
Control Delay	41.2	41.2	23.9	60.5	5.7	4.9	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.2
Total Delay	41.2	41.2	23.9	60.5	5.9	4.9	3.2
LOS	D	D	C	E	A	A	A
Approach Delay		31.2			11.0	4.3	
Approach LOS		C			B	A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	477	0	642	80	777	0	0	805	457
Future Volume (veh/h)	0	0	0	477	0	642	80	777	0	0	805	457
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				492	0	662	82	801	0	0	830	471
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				893	0	795	149	2259	0	0	2555	793
Arrive On Green				0.25	0.00	0.25	0.17	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				492	0	662	82	801	0	0	830	471
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				13.2	0.0	21.8	4.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				13.2	0.0	21.8	4.6	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				893	0	795	149	2259	0	0	2555	793
V/C Ratio(X)				0.55	0.00	0.83	0.55	0.35	0.00	0.00	0.32	0.59
Avail Cap(c_a), veh/h				1130	0	1006	183	2259	0	0	2555	793
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.81	0.81	0.00	0.00	0.94	0.94
Uniform Delay (d), s/veh				35.8	0.0	39.0	43.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.5	0.0	4.9	2.6	0.4	0.0	0.0	0.3	3.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.8	0.0	8.9	2.1	0.1	0.0	0.0	0.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.4	0.0	44.0	46.5	0.4	0.0	0.0	0.3	3.1
LnGrp LOS				D	A	D	D	A	A	A	A	A
Approach Vol, veh/h					1154			883			1301	
Approach Delay, s/veh					40.7			4.6			1.3	
Approach LOS					D			A			A	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		76.3			14.9	61.4		33.7				
Change Period (Y+Rc), s		6.4			* 5.7	6.4		6.1				
Max Green Setting (Gmax), s		62.6			* 11	45.6		34.9				
Max Q Clear Time (g_c+I1), s		2.0			6.6	2.0		23.8				
Green Ext Time (p_c), s		6.9			0.1	9.8		3.8				

Intersection Summary												
HCM 6th Ctrl Delay			15.8									
HCM 6th LOS			B									

Notes

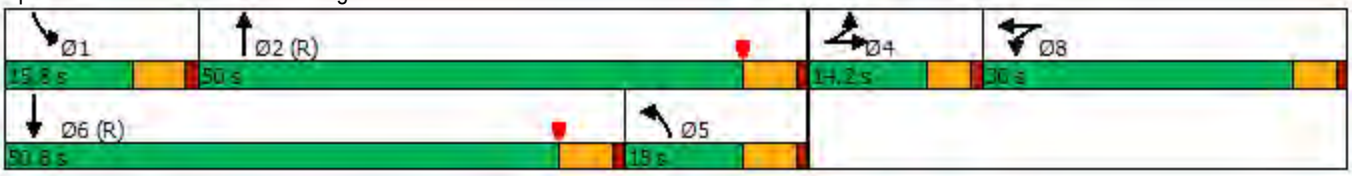
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	3	194	3	7	1180	78	1039
Future Volume (vph)	3	194	3	7	1180	78	1039
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	50.0	15.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	45.5%	14.4%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	Min	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	5.6	15.4	15.4	6.9	61.8	9.4	70.5
Actuated g/C Ratio	0.05	0.14	0.14	0.06	0.56	0.09	0.64
v/c Ratio	0.14	0.64	0.50	0.06	0.53	0.54	0.33
Control Delay	32.2	56.3	28.1	50.0	16.6	41.9	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.3
Total Delay	32.2	56.3	28.1	50.0	16.8	41.9	10.2
LOS	C	E	C	D	B	D	B
Approach Delay	32.3		42.7		16.9		12.4
Approach LOS	C		D		B		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 60.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	3	10	194	3	83	7	1180	241	78	1039	6
Future Volume (veh/h)	0	3	10	194	3	83	7	1180	241	78	1039	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	3	10	146	82	86	7	1229	251	81	1082	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	17	57	217	102	107	680	2522	515	102	1409	8
Arrive On Green	0.00	0.05	0.05	0.12	0.12	0.12	0.76	1.00	1.00	0.11	0.54	0.54
Sat Flow, veh/h	0	379	1264	1781	836	877	1781	4250	868	1781	5240	29
Grp Volume(v), veh/h	0	0	13	146	0	168	7	984	496	81	703	385
Grp Sat Flow(s),veh/h/ln	0	0	1643	1781	0	1713	1781	1702	1714	1781	1702	1865
Q Serve(g_s), s	0.0	0.0	0.8	8.6	0.0	10.5	0.1	0.0	0.0	4.9	17.9	17.9
Cycle Q Clear(g_c), s	0.0	0.0	0.8	8.6	0.0	10.5	0.1	0.0	0.0	4.9	17.9	17.9
Prop In Lane	0.00		0.77	1.00		0.51	1.00		0.51	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	75	217	0	209	680	2020	1017	102	915	502
V/C Ratio(X)	0.00	0.00	0.17	0.67	0.00	0.81	0.01	0.49	0.49	0.79	0.77	0.77
Avail Cap(c_a), veh/h	0	0	143	411	0	395	680	2020	1017	168	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.84	0.84	0.84	0.90	0.90	0.90
Uniform Delay (d), s/veh	0.0	0.0	50.5	46.2	0.0	47.0	8.0	0.0	0.0	48.0	22.7	22.7
Incr Delay (d2), s/veh	0.0	0.0	0.8	2.7	0.0	5.4	0.0	0.7	1.4	4.6	5.6	9.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	4.0	0.0	4.8	0.0	0.2	0.4	2.2	5.7	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	51.3	48.9	0.0	52.4	8.0	0.7	1.4	52.7	28.3	32.5
LnGrp LOS	A	A	D	D	A	D	A	A	A	D	C	C
Approach Vol, veh/h		13			314			1487			1169	
Approach Delay, s/veh		51.3			50.8			1.0			31.3	
Approach LOS		D			D			A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.7	70.7		9.6	47.4	35.0		18.0				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	10.4	44.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	6.9	2.0		2.8	2.1	19.9		12.5				
Green Ext Time (p_c), s	0.0	18.2		0.0	0.0	9.7		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			18.3
HCM 6th LOS			B

Notes

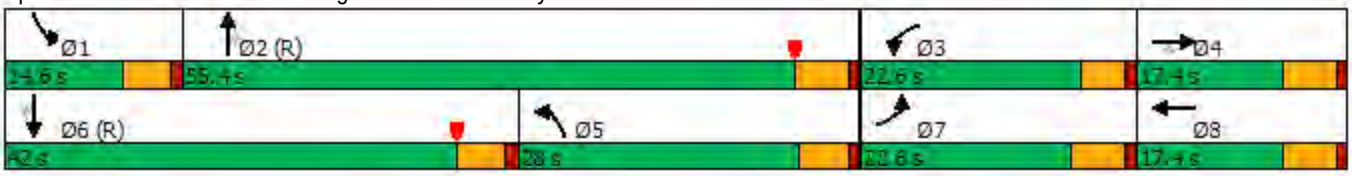
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	205	84	120	100	107	275	860	109	85	901	250
Future Volume (vph)	205	84	120	100	107	275	860	109	85	901	250
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	17.4	17.4	22.6	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	15.8%	15.8%	20.5%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	12.0	13.8	13.8	11.2	12.1	14.0	54.5	54.5	10.2	51.1	51.1
Actuated g/C Ratio	0.11	0.13	0.13	0.10	0.11	0.13	0.50	0.50	0.09	0.46	0.46
v/c Ratio	0.60	0.21	0.37	0.61	0.45	0.69	0.38	0.14	0.57	0.42	0.33
Control Delay	53.3	44.9	5.6	61.1	30.8	43.5	17.0	6.3	60.5	21.1	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	53.3	44.9	5.7	61.1	30.8	43.5	17.1	6.3	60.5	21.1	8.1
LOS	D	D	A	E	C	D	B	A	E	C	A
Approach Delay		37.6			41.7		22.0			21.2	
Approach LOS		D			D		C			C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 85 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 25.4 — Intersection LOS: C
Intersection Capacity Utilization 58.4% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	84	120	100	107	72	275	860	109	85	901	250
Future Volume (veh/h)	205	84	120	100	107	72	275	860	109	85	901	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	92	132	110	118	79	302	945	120	93	990	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	445	198	137	229	143	1265	2796	868	117	1263	
Arrive On Green	0.09	0.13	0.13	0.08	0.11	0.11	0.73	1.00	1.00	0.07	0.25	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2100	1311	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	225	92	132	110	98	99	302	945	120	93	990	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1634	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	7.0	2.6	4.1	6.7	5.8	6.3	3.1	0.0	0.0	5.7	19.9	0.0
Cycle Q Clear(g_c), s	7.0	2.6	4.1	6.7	5.8	6.3	3.1	0.0	0.0	5.7	19.9	0.0
Prop In Lane	1.00		1.00	1.00		0.80	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	445	198	137	193	178	1265	2796	868	117	1263	
V/C Ratio(X)	0.77	0.21	0.67	0.80	0.51	0.55	0.24	0.34	0.14	0.79	0.78	
Avail Cap(c_a), veh/h	540	445	198	293	194	178	1265	2796	868	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.2	43.2	10.1	49.9	46.2	46.5	9.8	0.0	0.0	50.7	38.6	0.0
Incr Delay (d2), s/veh	2.5	0.1	6.2	4.1	1.7	3.1	0.0	0.3	0.3	13.5	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	1.1	3.6	3.1	2.6	2.7	1.1	0.1	0.1	3.0	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	43.4	16.3	54.0	47.9	49.6	9.8	0.3	0.3	64.2	43.6	0.0
LnGrp LOS	D	D	B	D	D	D	A	A	A	E	D	
Approach Vol, veh/h		449			307			1367			1083	A
Approach Delay, s/veh		39.6			50.6			2.4			45.3	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	65.6	13.0	19.2	45.7	32.2	14.8	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	18.1	12.0	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	7.7	2.0	8.7	6.1	5.1	21.9	9.0	8.3
Green Ext Time (p_c), s	0.0	7.2	0.1	0.4	0.5	5.3	0.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	389	71	95	3	3	386
Future Vol, veh/h	389	71	95	3	3	386
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	423	77	103	3	3	420

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	106	0	-	0	1028	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	923	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1485	-	-	-	259	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	387	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1485	-	-	-	185	949
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	387	-

Approach	EB	WB	SB
HCM Control Delay, s	7.1	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1485	-	-	-	920
HCM Lane V/C Ratio	0.285	-	-	-	0.46
HCM Control Delay (s)	8.4	-	-	-	12.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	1.2	-	-	-	2.5

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	30	30	44	68	3
Future Vol, veh/h	3	30	30	44	68	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	33	33	48	74	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	190	76	77	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	799	985	1522	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	781	985	1522	-	-	-
Mov Cap-2 Maneuver	781	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	911	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	3	0
HCM LOS	A		

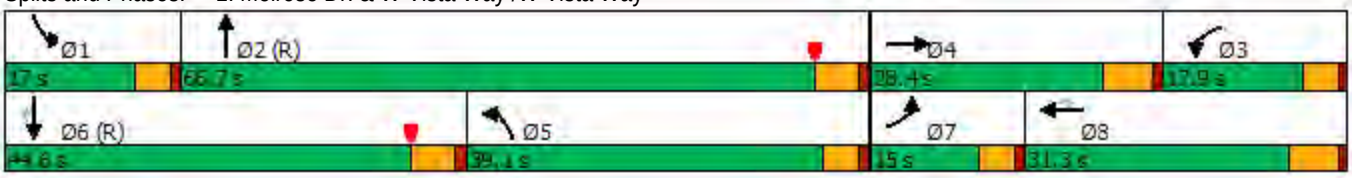
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1522	-	962	-	-
HCM Lane V/C Ratio	0.021	-	0.037	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	64	230	117	250	486	418	1794	157	877	305
Future Volume (vph)	64	230	117	250	486	418	1794	157	877	305
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	39.1	66.7	17.0	44.6	44.6
Total Split (%)	11.5%	21.8%	13.8%	24.1%	24.1%	30.1%	51.3%	13.1%	34.3%	34.3%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.6	17.4	17.8	28.5	28.5	39.1	61.9	12.8	35.6	35.6
Actuated g/C Ratio	0.07	0.13	0.14	0.22	0.22	0.30	0.48	0.10	0.27	0.27
v/c Ratio	0.57	0.70	0.26	0.33	0.96	0.42	0.87	0.93	0.65	0.50
Control Delay	77.0	53.6	57.6	49.5	62.8	49.3	45.1	110.5	43.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	33.4	0.0	0.0	0.0
Total Delay	77.0	53.6	57.6	49.5	62.8	49.3	78.6	110.5	43.8	10.2
LOS	E	D	E	D	E	D	E	F	D	B
Approach Delay		57.4		58.2			73.5		44.0	
Approach LOS		E		E			E		D	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 61.8 — Intersection LOS: E
Intersection Capacity Utilization 86.9% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	230	104	117	250	486	418	1794	221	157	877	305
Future Volume (veh/h)	64	230	104	117	250	486	418	1794	221	157	877	305
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	237	107	121	258	467	431	1849	208	162	904	292
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	301	132	375	697	311	1227	2353	263	171	1220	379
Arrive On Green	0.05	0.13	0.13	0.18	0.33	0.33	0.71	1.00	1.00	0.10	0.24	0.24
Sat Flow, veh/h	1781	2406	1052	3456	3554	1585	3456	4660	521	1781	5106	1585
Grp Volume(v), veh/h	66	173	171	121	258	467	431	1348	709	162	904	292
Grp Sat Flow(s),veh/h/ln	1781	1777	1681	1728	1777	1585	1728	1702	1777	1781	1702	1585
Q Serve(g_s), s	4.8	12.3	12.9	4.0	7.2	25.5	6.3	0.0	0.0	11.8	21.3	18.7
Cycle Q Clear(g_c), s	4.8	12.3	12.9	4.0	7.2	25.5	6.3	0.0	0.0	11.8	21.3	18.7
Prop In Lane	1.00		0.63	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	84	222	210	375	697	311	1227	1719	897	171	1220	379
V/C Ratio(X)	0.78	0.78	0.81	0.32	0.37	1.50	0.35	0.78	0.79	0.95	0.74	0.77
Avail Cap(c_a), veh/h	144	309	292	375	697	311	1227	1719	897	171	1540	478
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	55.1	55.4	49.1	37.6	43.7	13.0	0.0	0.0	58.4	45.7	32.4
Incr Delay (d2), s/veh	5.8	9.1	12.5	0.2	0.3	239.5	0.1	3.0	5.8	52.4	4.1	14.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.1	6.2	1.7	3.0	29.7	2.1	0.7	1.4	7.8	9.5	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	64.2	67.9	49.2	37.9	283.2	13.2	3.0	5.8	110.8	49.8	46.4
LnGrp LOS	E	E	E	D	D	F	B	A	A	F	D	D
Approach Vol, veh/h		410			846			2488			1358	
Approach Delay, s/veh		66.2			174.9			5.6			56.4	
Approach LOS		E			F			A			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	71.0	19.9	22.1	51.6	36.5	10.7	31.3
Change Period (Y+Rc), s	4.5	5.4	5.8	* 5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	12.5	61.3	13.4	* 23	34.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	13.8	2.0	6.0	14.9	8.3	23.3	6.8	27.5
Green Ext Time (p_c), s	0.0	35.0	0.1	1.4	1.6	7.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.0
HCM 6th LOS	D

Notes

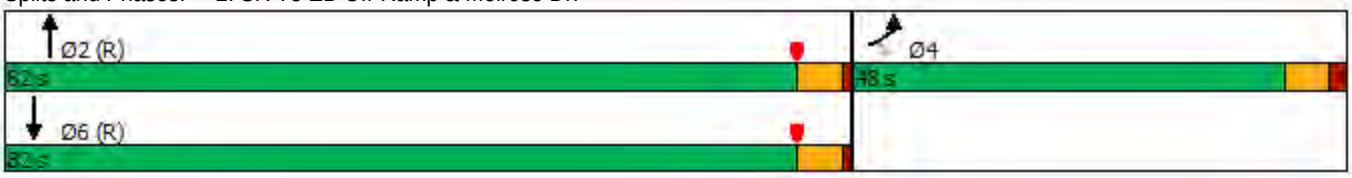
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	548	286	1548	1026
Future Volume (vph)	548	286	1548	1026
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	48.0	48.0	82.0	82.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	27.8	27.8	90.7	90.7
Actuated g/C Ratio	0.21	0.21	0.70	0.70
v/c Ratio	0.82	0.71	0.46	0.24
Control Delay	58.2	40.0	21.7	2.0
Queue Delay	0.0	0.0	49.2	0.0
Total Delay	58.2	40.0	70.8	2.0
LOS	E	D	E	A
Approach Delay	52.6		70.8	2.0
Approach LOS	D		E	A

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 25 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 45.6	Intersection LOS: D
Intersection Capacity Utilization 58.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	548	286	0	1548	1026	0
Future Volume (veh/h)	548	286	0	1548	1026	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	585	293	0	1629	1080	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	740	329	0	3594	4528	0
Arrive On Green	0.21	0.21	0.00	1.00	1.00	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	585	293	0	1629	1080	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	20.2	23.4	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.2	23.4	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	740	329	0	3594	4528	0
V/C Ratio(X)	0.79	0.89	0.00	0.45	0.24	0.00
Avail Cap(c_a), veh/h	1148	511	0	3594	4528	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.57	0.76	0.00
Uniform Delay (d), s/veh	48.8	50.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	8.2	0.0	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	10.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.7	58.2	0.0	0.2	0.1	0.0
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	878			1629	1080	
Approach Delay, s/veh	52.5			0.2	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		96.9		33.1		96.9
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		76.6		41.9		76.6
Max Q Clear Time (g_c+I1), s		2.0		25.4		2.0
Green Ext Time (p_c), s		12.2		1.7		6.4

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

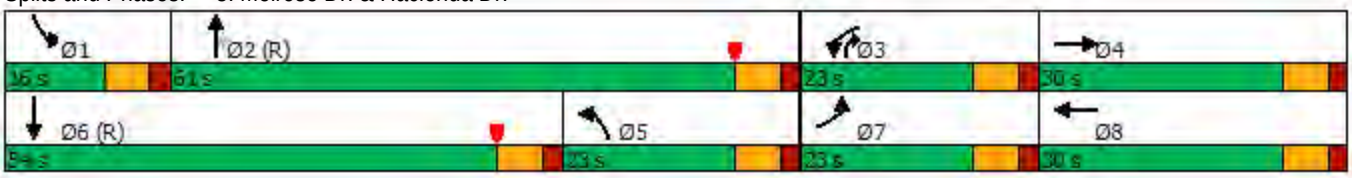
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	320	371	319	270	52	1330	365	392	689
Future Volume (vph)	320	371	319	270	52	1330	365	392	689
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	61.0	23.0	16.0	54.0
Total Split (%)	17.7%	23.1%	17.7%	23.1%	17.7%	46.9%	17.7%	12.3%	41.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	16.2	20.1	16.2	20.1	25.0	48.1	70.7	20.0	45.5
Actuated g/C Ratio	0.12	0.15	0.12	0.15	0.19	0.37	0.54	0.15	0.35
v/c Ratio	0.79	0.80	0.79	0.83	0.16	0.74	0.43	0.78	0.52
Control Delay	69.0	63.6	55.2	39.4	42.1	38.0	14.3	55.3	21.3
Queue Delay	0.5	0.0	0.0	0.3	0.0	50.4	0.0	12.2	0.4
Total Delay	69.6	63.6	55.2	39.6	42.1	88.4	14.3	67.5	21.7
LOS	E	E	E	D	D	F	B	E	C
Approach Delay		66.2		45.7		71.5			35.9
Approach LOS		E		D		E			D

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 56.1 — Intersection LOS: E
Intersection Capacity Utilization 82.2% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	371	44	319	270	231	52	1330	365	392	689	188
Future Volume (veh/h)	320	371	44	319	270	231	52	1330	365	392	689	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	391	41	336	284	221	55	1400	384	413	725	176
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	549	57	392	328	247	539	2281	888	255	897	215
Arrive On Green	0.11	0.17	0.17	0.04	0.06	0.06	0.30	0.45	0.45	0.07	0.22	0.22
Sat Flow, veh/h	3456	3248	339	3456	1929	1456	1781	5106	1585	3456	4110	986
Grp Volume(v), veh/h	337	213	219	336	261	244	55	1400	384	413	599	302
Grp Sat Flow(s),veh/h/ln	1728	1777	1809	1728	1777	1608	1781	1702	1585	1728	1702	1693
Q Serve(g_s), s	12.5	14.7	14.9	12.6	18.9	19.6	2.9	27.2	18.3	9.6	21.7	22.1
Cycle Q Clear(g_c), s	12.5	14.7	14.9	12.6	18.9	19.6	2.9	27.2	18.3	9.6	21.7	22.1
Prop In Lane	1.00		0.19	1.00		0.91	1.00		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	389	300	306	392	302	273	539	2281	888	255	743	369
V/C Ratio(X)	0.87	0.71	0.72	0.86	0.86	0.89	0.10	0.61	0.43	1.62	0.81	0.82
Avail Cap(c_a), veh/h	441	323	328	441	323	292	539	2281	888	255	1246	620
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	56.7	51.0	51.1	61.5	59.9	60.2	32.6	27.4	16.6	60.2	48.2	48.4
Incr Delay (d2), s/veh	13.8	5.3	5.5	10.4	15.4	21.0	0.0	1.2	1.5	294.8	8.7	17.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	7.0	7.2	6.4	10.4	10.1	1.3	11.3	7.0	14.7	10.1	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.5	56.2	56.6	72.0	75.3	81.1	32.7	28.7	18.1	355.0	57.0	65.6
LnGrp LOS	E	E	E	E	E	F	C	C	B	F	E	E
Approach Vol, veh/h		769			841			1839			1314	
Approach Delay, s/veh		62.6			75.7			26.6			152.6	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	64.5	21.1	28.4	45.7	34.8	21.0	28.5
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	54.6	16.6	23.6	16.6	47.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	29.2	14.6	16.9	4.9	24.1	14.5	21.6
Green Ext Time (p_c), s	0.0	13.7	0.2	1.0	0.0	4.3	0.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	75.8
HCM 6th LOS	E

Notes

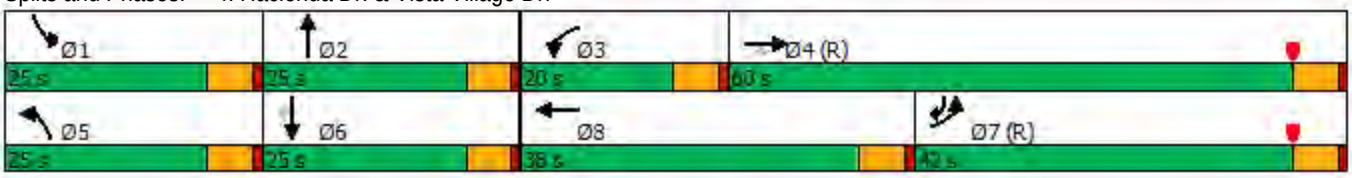
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	951	161	20	5	137	51	150	256	213	563
Future Volume (vph)	951	161	20	5	137	51	150	256	213	563
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	42.0	60.0	60.0	20.0	38.0	25.0	25.0	25.0	25.0	42.0
Total Split (%)	32.3%	46.2%	46.2%	15.4%	29.2%	19.2%	19.2%	19.2%	19.2%	32.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	40.7	76.0	76.0	5.3	32.3	8.6	15.9	19.6	28.9	70.7
Actuated g/C Ratio	0.31	0.58	0.58	0.04	0.25	0.07	0.12	0.15	0.22	0.54
v/c Ratio	0.98	0.16	0.02	0.08	0.94	0.49	0.77	1.07	0.57	0.35
Control Delay	79.5	18.8	0.9	62.2	68.4	71.6	76.2	134.0	72.7	11.7
Queue Delay	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.1
Total Delay	82.2	18.8	0.9	62.2	68.4	71.6	76.2	134.0	76.6	11.7
LOS	F	B	A	E	E	E	E	F	E	B
Approach Delay		71.7			68.3		75.1		55.4	
Approach LOS		E			E		E		E	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 64 (49%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 65.4 — Intersection LOS: E
Intersection Capacity Utilization 90.7% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	951	161	20	5	137	258	51	150	7	256	213	563
Future Volume (veh/h)	951	161	20	5	137	258	51	150	7	256	213	563
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1057	179	22	6	152	287	57	167	8	284	237	626
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	973	1058	897	13	169	319	74	195	9	269	410	1397
Arrive On Green	0.47	0.94	0.94	0.01	0.29	0.29	0.04	0.11	0.11	0.05	0.07	0.07
Sat Flow, veh/h	3456	1870	1585	1781	579	1094	1781	1770	85	1781	1870	2790
Grp Volume(v), veh/h	1057	179	22	6	0	439	57	0	175	284	237	626
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1673	1781	0	1855	1781	1870	1395
Q Serve(g_s), s	36.6	0.8	0.1	0.4	0.0	32.7	4.1	0.0	12.1	19.6	15.9	3.1
Cycle Q Clear(g_c), s	36.6	0.8	0.1	0.4	0.0	32.7	4.1	0.0	12.1	19.6	15.9	3.1
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	973	1058	897	13	0	488	74	0	204	269	410	1397
V/C Ratio(X)	1.09	0.17	0.02	0.45	0.00	0.90	0.77	0.00	0.86	1.06	0.58	0.45
Avail Cap(c_a), veh/h	973	1058	897	200	0	488	269	0	280	269	410	1397
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.68	0.68	0.68	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	34.4	1.6	1.6	64.2	0.0	44.2	61.7	0.0	56.9	61.8	54.5	12.4
Incr Delay (d2), s/veh	51.0	0.2	0.0	8.5	0.0	19.0	6.3	0.0	13.7	68.6	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.0	0.4	0.0	0.2	0.0	16.1	2.0	0.0	6.4	14.5	8.2	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.4	1.8	1.6	72.8	0.0	63.2	68.0	0.0	70.6	130.4	55.7	12.5
LnGrp LOS	F	A	A	E	A	E	E	A	E	F	E	B
Approach Vol, veh/h		1258			445			232			1147	
Approach Delay, s/veh		72.0			63.3			69.9			50.6	
Approach LOS		E			E			E			D	

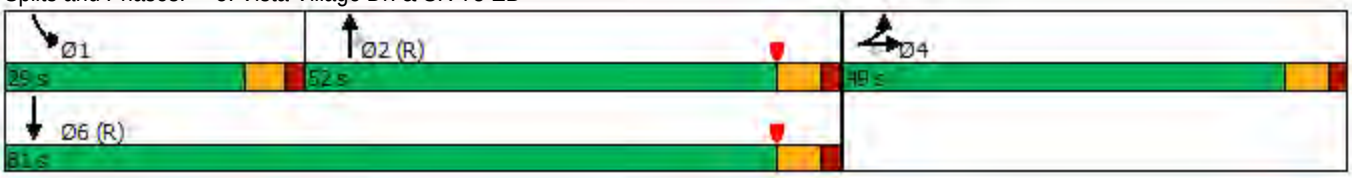
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	19.7	6.4	78.9	10.8	33.9	42.0	43.3
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	19.6	19.6	14.6	54.6	19.6	19.6	36.6	32.6
Max Q Clear Time (g_c+I1), s	21.6	14.1	2.4	2.8	6.1	17.9	38.6	34.7
Green Ext Time (p_c), s	0.0	0.3	0.0	0.7	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.6
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	697	1	101	608	753	376	931
Future Volume (vph)	697	1	101	608	753	376	931
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	49.0	49.0	49.0	52.0	52.0	29.0	81.0
Total Split (%)	37.7%	37.7%	37.7%	40.0%	40.0%	22.3%	62.3%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	34.0	34.0	34.0	58.7	58.7	19.1	83.5
Actuated g/C Ratio	0.26	0.26	0.26	0.45	0.45	0.15	0.64
v/c Ratio	0.84	0.84	0.23	0.66	0.50	0.79	0.43
Control Delay	61.6	61.5	12.7	18.5	2.5	63.3	14.6
Queue Delay	1.1	1.1	0.1	2.1	1.3	0.0	0.5
Total Delay	62.7	62.6	12.8	20.7	3.8	63.3	15.1
LOS	E	E	B	C	A	E	B
Approach Delay		56.3		15.5			29.0
Approach LOS		E		B			C

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 65 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 115.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	697	1	101	0	0	0	0	608	753	376	931	0
Future Volume (veh/h)	697	1	101	0	0	0	0	608	753	376	931	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	735	0	106				0	635	796	396	980	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	813	0	362				0	933	1581	459	2401	0
Arrive On Green	0.23	0.00	0.23				0.00	0.16	0.16	0.04	0.22	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	735	0	106				0	635	796	396	980	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	26.1	0.0	7.2				0.0	41.5	29.7	14.8	30.6	0.0
Cycle Q Clear(g_c), s	26.1	0.0	7.2				0.0	41.5	29.7	14.8	30.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	813	0	362				0	933	1581	459	2401	0
V/C Ratio(X)	0.90	0.00	0.29				0.00	0.68	0.50	0.86	0.41	0.00
Avail Cap(c_a), veh/h	1176	0	523				0	933	1581	619	2401	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.20	0.20	0.90	0.90	0.00
Uniform Delay (d), s/veh	48.8	0.0	41.5				0.0	44.6	39.6	61.0	28.3	0.0
Incr Delay (d2), s/veh	5.7	0.0	0.2				0.0	0.8	0.2	6.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	0.0	2.9				0.0	21.1	12.7	7.3	14.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	0.0	41.7				0.0	45.4	39.9	67.7	28.8	0.0
LnGrp LOS	D	A	D				A	D	D	E	C	A
Approach Vol, veh/h		841						1431			1376	
Approach Delay, s/veh		52.9						42.3			40.0	
Approach LOS		D						D			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.0	71.2		35.8		94.2
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 23	45.6		42.9		74.6
Max Q Clear Time (g_c+I1), s	16.8	43.5		28.1		32.6
Green Ext Time (p_c), s	0.5	1.2		1.6		5.5

Intersection Summary			
HCM 6th Ctrl Delay			43.9
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	546	0	956	130	1176	762	427
Future Volume (vph)	546	0	956	130	1176	762	427
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	64.0	64.0	64.0	16.4	66.0	49.6	49.6
Total Split (%)	49.2%	49.2%	49.2%	12.6%	50.8%	38.2%	38.2%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	52.7	52.7	52.7	14.0	64.8	45.1	45.1
Actuated g/C Ratio	0.41	0.41	0.41	0.11	0.50	0.35	0.35
v/c Ratio	0.42	0.42	0.85	0.71	0.69	0.45	0.53
Control Delay	28.9	29.0	39.6	81.7	14.8	36.5	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.9	0.0	0.2
Total Delay	28.9	29.0	39.6	81.7	15.7	36.5	19.0
LOS	C	C	D	F	B	D	B
Approach Delay		35.7			22.3	30.3	
Approach LOS		D			C	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 29.7	Intersection LOS: C
Intersection Capacity Utilization 115.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	546	0	956	130	1176	0	0	762	427
Future Volume (veh/h)	0	0	0	546	0	956	130	1176	0	0	762	427
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				569	0	996	135	1225	0	0	794	445
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1228	0	1093	147	1987	0	0	2211	686
Arrive On Green				0.34	0.00	0.34	0.06	0.37	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				569	0	996	135	1225	0	0	794	445
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				16.2	0.0	39.0	9.8	36.4	0.0	0.0	16.0	31.9
Cycle Q Clear(g_c), s				16.2	0.0	39.0	9.8	36.4	0.0	0.0	16.0	31.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1228	0	1093	147	1987	0	0	2211	686
V/C Ratio(X)				0.46	0.00	0.91	0.92	0.62	0.00	0.00	0.36	0.65
Avail Cap(c_a), veh/h				1587	0	1412	147	1987	0	0	2211	686
HCM Platoon Ratio				1.00	1.00	1.00	0.67	0.67	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	1.00	0.64	0.64	0.00	0.00	0.95	0.95
Uniform Delay (d), s/veh				33.2	0.0	40.7	61.0	29.3	0.0	0.0	31.8	37.5
Incr Delay (d2), s/veh				0.1	0.0	6.7	37.8	0.9	0.0	0.0	0.4	4.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.1	0.0	16.1	6.1	16.7	0.0	0.0	7.1	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.3	0.0	47.4	98.8	30.2	0.0	0.0	32.3	42.0
LnGrp LOS				C	A	D	F	C	A	A	C	D
Approach Vol, veh/h					1565			1360			1239	
Approach Delay, s/veh					42.3			37.0			35.8	
Approach LOS					D			D			D	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		79.1			16.4	62.7		50.9				
Change Period (Y+Rc), s		6.4			* 5.7	6.4		6.1				
Max Green Setting (Gmax), s		59.6			* 11	43.2		57.9				
Max Q Clear Time (g_c+I1), s		38.4			11.8	33.9		41.0				
Green Ext Time (p_c), s		6.6			0.0	3.4		3.8				

Intersection Summary	
HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

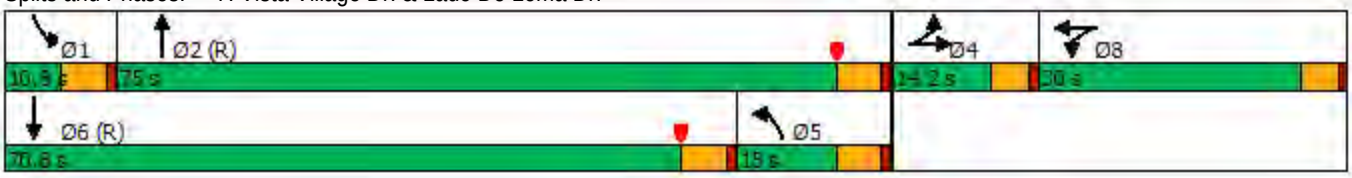
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2	194	3	9	1790	98	982
Future Volume (vph)	2	194	3	9	1790	98	982
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	75.0	10.8	70.8
Total Split (%)	10.9%	23.1%	23.1%	11.5%	57.7%	8.3%	54.5%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	6.2	17.4	17.4	11.2	77.1	15.4	90.4
Actuated g/C Ratio	0.05	0.13	0.13	0.09	0.59	0.12	0.70
v/c Ratio	0.18	0.70	0.53	0.06	0.74	0.48	0.29
Control Delay	34.6	69.3	33.2	51.2	18.0	46.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.8	0.0	0.2
Total Delay	34.6	69.3	33.2	51.2	18.8	46.6	10.4
LOS	C	E	C	D	B	D	B
Approach Delay	34.6		52.1		18.9		13.7
Approach LOS	C		D		B		B

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 110 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 20.1	Intersection LOS: C
Intersection Capacity Utilization 75.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	13	194	3	93	9	1790	333	98	982	5
Future Volume (veh/h)	1	2	13	194	3	93	9	1790	333	98	982	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	2	13	150	74	96	9	1845	343	101	1012	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3	22	216	90	116	829	2891	529	74	1271	6
Arrive On Green	0.02	0.02	0.02	0.12	0.12	0.12	0.93	1.00	1.00	0.08	0.48	0.48
Sat Flow, veh/h	102	203	1322	1781	739	959	1781	4337	794	1781	5244	26
Grp Volume(v), veh/h	16	0	0	150	0	170	9	1442	746	101	657	360
Grp Sat Flow(s),veh/h/ln	1627	0	0	1781	0	1698	1781	1702	1727	1781	1702	1866
Q Serve(g_s), s	1.3	0.0	0.0	10.5	0.0	12.7	0.0	0.0	0.0	5.4	21.0	21.1
Cycle Q Clear(g_c), s	1.3	0.0	0.0	10.5	0.0	12.7	0.0	0.0	0.0	5.4	21.0	21.1
Prop In Lane	0.06		0.81	1.00		0.56	1.00		0.46	1.00		0.01
Lane Grp Cap(c), veh/h	27	0	0	216	0	206	829	2269	1151	74	825	452
V/C Ratio(X)	0.58	0.00	0.00	0.69	0.00	0.83	0.01	0.64	0.65	1.37	0.80	0.80
Avail Cap(c_a), veh/h	120	0	0	348	0	332	829	2269	1151	74	1713	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.56	0.56	0.56	0.91	0.91	0.91
Uniform Delay (d), s/veh	63.4	0.0	0.0	54.8	0.0	55.8	2.4	0.0	0.0	59.6	30.8	30.8
Incr Delay (d2), s/veh	18.0	0.0	0.0	4.0	0.0	8.8	0.0	0.8	1.6	224.8	7.2	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	5.0	0.0	6.0	0.0	0.2	0.5	7.0	7.7	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	0.0	0.0	58.8	0.0	64.6	2.4	0.8	1.6	284.4	38.0	43.3
LnGrp LOS	F	A	A	E	A	E	A	A	A	F	D	D
Approach Vol, veh/h		16			320			2197			1118	
Approach Delay, s/veh		81.5			61.9			1.1			61.9	
Approach LOS		F			E			A			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	92.0		6.8	65.9	36.9		20.4				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	69.6		9.6	9.6	65.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	2.0		3.3	2.0	23.1		14.7				
Green Ext Time (p_c), s	0.0	34.8		0.0	0.0	8.5		1.0				

Intersection Summary			
HCM 6th Ctrl Delay			25.4
HCM 6th LOS			C

Notes

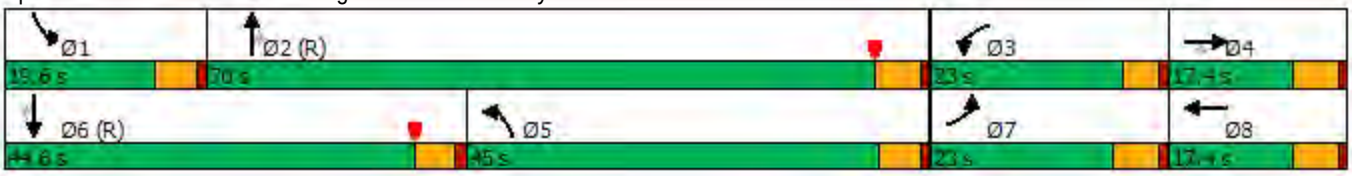
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	338	111	165	57	75	426	1319	139	65	863	318
Future Volume (vph)	338	111	165	57	75	426	1319	139	65	863	318
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	23.0	17.4	17.4	23.0	17.4	45.0	70.0	70.0	19.6	44.6	44.6
Total Split (%)	17.7%	13.4%	13.4%	17.7%	13.4%	34.6%	53.8%	53.8%	15.1%	34.3%	34.3%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	18.1	24.2	24.2	8.7	12.0	25.3	71.4	71.4	9.4	53.8	53.8
Actuated g/C Ratio	0.14	0.19	0.19	0.07	0.09	0.19	0.55	0.55	0.07	0.41	0.41
v/c Ratio	0.74	0.18	0.40	0.50	0.35	0.66	0.49	0.16	0.54	0.43	0.43
Control Delay	61.8	45.4	9.5	71.8	38.7	44.3	21.1	9.3	72.7	29.2	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	61.8	45.4	9.5	71.8	38.7	44.3	21.5	9.3	72.7	29.2	13.4
LOS	E	D	A	E	D	D	C	A	E	C	B
Approach Delay		44.8			49.6		25.8			27.4	
Approach LOS		D			D		C			C	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 70 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 30.3 — Intersection LOS: C
Intersection Capacity Utilization 59.1% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	111	165	57	75	40	426	1319	139	65	863	318
Future Volume (veh/h)	338	111	165	57	75	40	426	1319	139	65	863	318
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	352	116	172	59	78	42	444	1374	145	68	899	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	406	614	274	76	209	105	1411	2959	918	87	1122	
Arrive On Green	0.12	0.17	0.17	0.04	0.09	0.09	0.82	1.00	1.00	0.05	0.22	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2289	1151	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	352	116	172	59	59	61	444	1374	145	68	899	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1663	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	13.0	3.6	5.3	4.3	4.1	4.5	4.1	0.0	0.0	4.9	21.7	0.0
Cycle Q Clear(g_c), s	13.0	3.6	5.3	4.3	4.1	4.5	4.1	0.0	0.0	4.9	21.7	0.0
Prop In Lane	1.00		1.00	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	406	614	274	76	162	152	1411	2959	918	87	1122	
V/C Ratio(X)	0.87	0.19	0.63	0.78	0.37	0.40	0.31	0.46	0.16	0.78	0.80	
Avail Cap(c_a), veh/h	468	614	274	253	164	154	1411	2959	918	200	1555	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.54	0.54	0.54	1.00	1.00	1.00	0.60	0.60	0.60	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.4	46.0	8.2	61.6	55.6	55.7	7.4	0.0	0.0	61.1	48.0	0.0
Incr Delay (d2), s/veh	8.0	0.1	2.2	6.2	1.0	1.3	0.0	0.3	0.2	5.6	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	1.6	5.0	2.1	1.9	1.9	1.3	0.1	0.1	2.4	9.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	46.0	10.4	67.8	56.6	57.0	7.4	0.3	0.2	66.8	54.1	0.0
LnGrp LOS	E	D	B	E	E	E	A	A	A	E	D	
Approach Vol, veh/h		640			179			1963			967	A
Approach Delay, s/veh		46.5			60.4			1.9			55.0	
Approach LOS		D			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	80.7	10.1	27.9	58.5	33.6	20.7	17.2
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	14.6	64.6	18.5	12.0	40.0	* 40	17.6	12.0
Max Q Clear Time (g_c+I1), s	6.9	2.0	6.3	7.3	6.1	23.7	15.0	6.5
Green Ext Time (p_c), s	0.0	12.7	0.0	0.4	0.9	4.9	0.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	336	88	65	2	2	335
Future Vol, veh/h	336	88	65	2	2	335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	365	96	71	2	2	364

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	898	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	826	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1527	-	-	-	310	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	430	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	236	990
Mov Cap-2 Maneuver	-	-	-	-	236	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	430	-

Approach	EB	WB	SB
HCM Control Delay, s	6.4	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	972
HCM Lane V/C Ratio	0.239	-	-	-	0.377
HCM Control Delay (s)	8.1	-	-	-	10.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.9	-	-	-	1.8

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	23	23	67	44	2
Future Vol, veh/h	2	23	23	67	44	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	25	25	73	48	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	172	49	50	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	123	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	818	1020	1557	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	804	1020	1557	-	-	-
Mov Cap-2 Maneuver	804	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	902	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1557	-	999	-	-
HCM Lane V/C Ratio	0.016	-	0.027	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

APPENDIX D

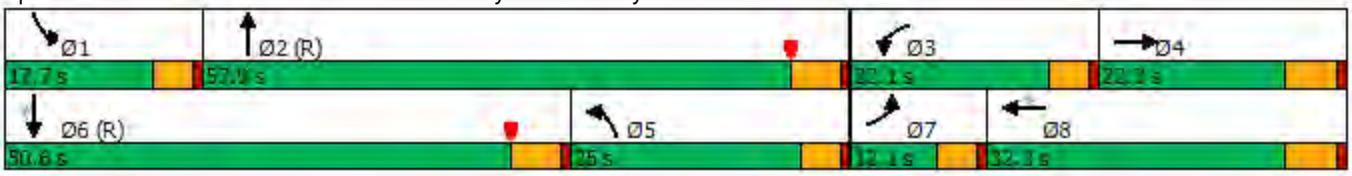
CUMULATIVE PROJECTS TRIP ASSIGNMENTS AND PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + CUMULATIVE PROJECTS AM, MIDDAY AND PM PEAK HOURS

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	213	229	298	402	292	829	185	1424	512
Future Volume (vph)	50	213	229	298	402	292	829	185	1424	512
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	12.1	22.3	22.1	32.3	32.3	25.0	57.9	17.7	50.6	50.6
Total Split (%)	10.1%	18.6%	18.4%	26.9%	26.9%	20.8%	48.3%	14.8%	42.2%	42.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	7.4	15.6	12.8	22.9	22.9	16.0	54.2	17.2	55.5	55.5
Actuated g/C Ratio	0.06	0.13	0.11	0.19	0.19	0.13	0.45	0.14	0.46	0.46
v/c Ratio	0.49	0.73	0.66	0.47	0.77	0.67	0.47	0.77	0.64	0.61
Control Delay	69.2	40.0	60.2	45.4	23.0	46.8	19.0	70.4	27.7	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	40.0	60.2	45.4	23.0	46.8	19.0	70.4	27.7	15.6
LOS	E	D	E	D	C	D	B	E	C	B
Approach Delay		43.4		39.4			25.3		28.5	
Approach LOS		D		D			C		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 31.1 — Intersection LOS: C
Intersection Capacity Utilization 70.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	213	169	229	298	402	292	829	177	185	1424	512
Future Volume (veh/h)	50	213	169	229	298	402	292	829	177	185	1424	512
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	224	178	241	314	388	307	873	166	195	1499	517
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	331	251	302	785	350	711	1994	377	196	1834	569
Arrive On Green	0.04	0.17	0.17	0.09	0.22	0.22	0.21	0.46	0.46	0.11	0.36	0.36
Sat Flow, veh/h	1781	1924	1460	3456	3554	1585	3456	4312	816	1781	5106	1585
Grp Volume(v), veh/h	53	206	196	241	314	388	307	688	351	195	1499	517
Grp Sat Flow(s),veh/h/ln	1781	1777	1607	1728	1777	1585	1728	1702	1724	1781	1702	1585
Q Serve(g_s), s	3.5	13.0	13.8	8.2	9.1	26.5	9.3	16.3	16.5	13.1	32.0	30.2
Cycle Q Clear(g_c), s	3.5	13.0	13.8	8.2	9.1	26.5	9.3	16.3	16.5	13.1	32.0	30.2
Prop In Lane	1.00		0.91	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	68	305	276	302	785	350	711	1574	797	196	1834	569
V/C Ratio(X)	0.78	0.67	0.71	0.80	0.40	1.11	0.43	0.44	0.44	1.00	0.82	0.91
Avail Cap(c_a), veh/h	113	305	276	507	785	350	711	1574	797	196	1923	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.61	0.61	0.61	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	46.5	46.9	53.7	40.0	46.8	41.5	21.7	21.8	53.4	34.9	24.1
Incr Delay (d2), s/veh	6.9	6.1	8.5	1.1	0.2	70.9	0.4	0.8	1.7	62.8	4.2	20.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.3	6.2	3.6	4.0	17.3	4.0	6.7	7.0	9.3	13.8	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	52.7	55.4	54.9	40.2	117.6	41.9	22.6	23.4	116.2	39.1	44.9
LnGrp LOS	E	D	E	D	D	F	D	C	C	F	D	D
Approach Vol, veh/h		455			943			1346			2211	
Approach Delay, s/veh		55.2			75.8			27.2			47.2	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	60.9	15.0	26.4	30.1	48.5	9.1	32.3
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	13.2	52.5	17.6	16.5	20.5	* 45	7.6	26.5
Max Q Clear Time (g_c+I1), s	15.1	18.5	10.2	15.8	11.3	34.0	5.5	28.5
Green Ext Time (p_c), s	0.0	10.3	0.3	0.2	0.7	9.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D

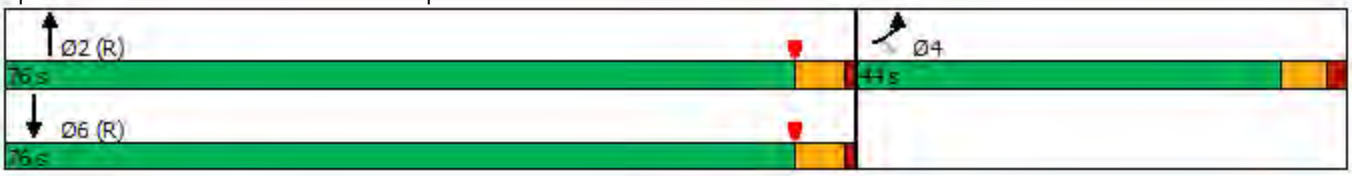
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	221	267	985	1751
Future Volume (vph)	221	267	985	1751
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	44.0	44.0	76.0	76.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	17.1	17.1	91.4	91.4
Actuated g/C Ratio	0.14	0.14	0.76	0.76
v/c Ratio	0.70	0.72	0.26	0.37
Control Delay	53.7	61.3	12.0	9.3
Queue Delay	0.3	1.0	3.5	0.2
Total Delay	54.0	62.3	15.6	9.6
LOS	D	E	B	A
Approach Delay	56.6		15.6	9.6
Approach LOS	E		B	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 18.5	Intersection LOS: B
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	221	267	0	985	1751	0
Future Volume (veh/h)	221	267	0	985	1751	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	166	336	0	1005	1787	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	228	406	0	3962	4993	0
Arrive On Green	0.13	0.13	0.00	1.00	1.00	0.00
Sat Flow, veh/h	1781	3170	0	5443	6958	0
Grp Volume(v), veh/h	166	336	0	1005	1787	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	10.8	12.4	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.8	12.4	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	228	406	0	3962	4993	0
V/C Ratio(X)	0.73	0.83	0.00	0.25	0.36	0.00
Avail Cap(c_a), veh/h	563	1001	0	3962	4993	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	50.3	51.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	1.7	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.0	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.0	52.7	0.0	0.1	0.1	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	502			1005	1787	
Approach Delay, s/veh	52.4			0.1	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.5		21.5		98.5
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		70.6		37.9		70.6
Max Q Clear Time (g_c+I1), s		2.0		14.4		2.0
Green Ext Time (p_c), s		5.8		1.0		14.5

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	187	241	479	225	19	859	229	538	1503
Future Volume (vph)	187	241	479	225	19	859	229	538	1503
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	32.0	18.0	27.0	27.0	54.0	18.0	16.0	43.0
Total Split (%)	19.2%	26.7%	15.0%	22.5%	22.5%	45.0%	15.0%	13.3%	35.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	15.7	25.8	30.2	6.4	33.4	65.6	19.5	46.5
Actuated g/C Ratio	0.09	0.13	0.22	0.25	0.05	0.28	0.55	0.16	0.39
v/c Ratio	0.62	0.64	0.69	0.33	0.21	0.65	0.26	1.03	0.88
Control Delay	60.4	52.7	49.4	35.1	58.8	40.4	5.9	99.7	39.9
Queue Delay	2.2	0.0	0.0	0.0	0.0	0.1	0.0	27.5	44.7
Total Delay	62.5	52.7	49.4	35.1	58.8	40.5	5.9	127.1	84.6
LOS	E	D	D	D	E	D	A	F	F
Approach Delay		56.6		44.2		33.6			95.2
Approach LOS		E		D		C			F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 67.4 — Intersection LOS: E
Intersection Capacity Utilization 78.9% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	241	42	479	225	53	19	859	229	538	1503	120
Future Volume (veh/h)	187	241	42	479	225	53	19	859	229	538	1503	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	256	39	510	239	52	20	914	244	572	1599	102
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	328	49	334	372	79	497	2574	952	276	1496	95
Arrive On Green	0.07	0.11	0.11	0.10	0.13	0.13	0.28	0.50	0.50	0.16	0.61	0.61
Sat Flow, veh/h	3456	3097	466	3456	2913	622	1781	5106	1585	3456	4905	313
Grp Volume(v), veh/h	199	145	150	510	144	147	20	914	244	572	1109	592
Grp Sat Flow(s),veh/h/ln	1728	1777	1786	1728	1777	1758	1781	1702	1585	1728	1702	1814
Q Serve(g_s), s	6.8	9.6	9.8	11.6	9.2	9.5	1.0	13.0	8.7	9.6	36.6	36.6
Cycle Q Clear(g_c), s	6.8	9.6	9.8	11.6	9.2	9.5	1.0	13.0	8.7	9.6	36.6	36.6
Prop In Lane	1.00		0.26	1.00		0.35	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	259	188	189	334	227	224	497	2574	952	276	1038	553
V/C Ratio(X)	0.77	0.77	0.79	1.53	0.64	0.65	0.04	0.36	0.26	2.07	1.07	1.07
Avail Cap(c_a), veh/h	478	379	381	334	305	302	497	2574	952	276	1038	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	54.5	52.2	52.3	54.2	49.7	49.8	31.5	18.0	11.3	50.4	23.4	23.4
Incr Delay (d2), s/veh	1.8	2.6	2.8	251.0	1.0	1.2	0.0	0.4	0.6	492.4	47.1	56.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	4.4	4.5	16.7	4.2	4.3	0.4	5.2	3.2	22.7	16.4	18.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.8	55.1	305.2	50.7	51.0	31.5	18.4	12.0	542.8	70.5	80.0
LnGrp LOS	E	D	E	F	D	D	C	B	B	F	F	F
Approach Vol, veh/h		494			801			1178			2273	
Approach Delay, s/veh		55.5			212.8			17.3			191.8	
Approach LOS		E			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	66.9	18.0	19.1	39.9	43.0	15.4	21.7
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	47.6	11.6	25.6	20.6	36.6	16.6	20.6
Max Q Clear Time (g_c+I1), s	11.6	15.0	13.6	11.8	3.0	38.6	8.8	11.5
Green Ext Time (p_c), s	0.0	8.8	0.0	0.9	0.0	0.0	0.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	137.9
HCM 6th LOS	F

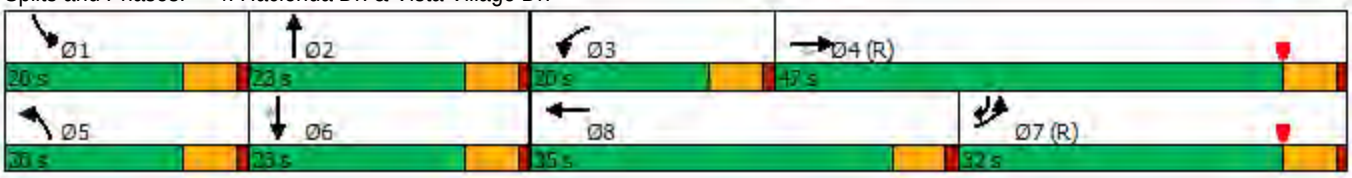
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	895	27	10	1	21	14	31	39	85	751
Future Volume (vph)	895	27	10	1	21	14	31	39	85	751
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	23.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	73.7	83.8	83.8	5.0	11.0	5.7	7.6	7.2	11.8	87.6
Actuated g/C Ratio	0.67	0.76	0.76	0.05	0.10	0.05	0.07	0.07	0.11	0.80
v/c Ratio	0.42	0.02	0.01	0.01	0.22	0.16	0.27	0.37	0.46	0.34
Control Delay	16.0	7.3	0.0	51.0	28.4	53.4	50.3	46.5	52.5	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	16.0	7.3	0.0	51.0	28.4	53.4	50.3	46.5	52.5	3.0
LOS	B	A	A	D	C	D	D	D	D	A
Approach Delay		15.6			28.9		51.2		9.7	
Approach LOS		B			C		D		A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 24 (22%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 50.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	895	27	10	1	21	17	14	31	2	39	85	751
Future Volume (veh/h)	895	27	10	1	21	17	14	31	2	39	85	751
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	962	29	11	1	23	18	15	33	2	42	91	808
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1312	1112	2	448	351	30	118	7	59	157	909
Arrive On Green	0.24	0.70	0.70	0.00	0.46	0.46	0.02	0.07	0.07	0.01	0.03	0.03
Sat Flow, veh/h	3456	1870	1585	1781	972	761	1781	1746	106	1781	1870	2790
Grp Volume(v), veh/h	962	29	11	1	0	41	15	0	35	42	91	808
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1733	1781	0	1851	1781	1870	1395
Q Serve(g_s), s	26.6	0.5	0.2	0.1	0.0	1.4	0.9	0.0	2.0	2.6	5.3	2.5
Cycle Q Clear(g_c), s	26.6	0.5	0.2	0.1	0.0	1.4	0.9	0.0	2.0	2.6	5.3	2.5
Prop In Lane	1.00		1.00	1.00		0.44	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	836	1312	1112	2	0	799	30	0	126	59	157	909
V/C Ratio(X)	1.15	0.02	0.01	0.41	0.00	0.05	0.50	0.00	0.28	0.72	0.58	0.89
Avail Cap(c_a), veh/h	836	1312	1112	236	0	799	236	0	296	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.57	0.57	0.57	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	41.7	5.0	4.9	54.9	0.0	16.4	53.6	0.0	48.7	53.9	51.6	22.3
Incr Delay (d2), s/veh	76.4	0.0	0.0	36.3	0.0	0.0	4.8	0.0	0.4	5.7	1.2	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.0	0.2	0.1	0.1	0.0	0.6	0.5	0.0	0.9	1.3	2.6	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	118.1	5.0	4.9	91.2	0.0	16.4	58.5	0.0	49.2	59.6	52.8	28.8
LnGrp LOS	F	A	A	F	A	B	E	A	D	E	D	C
Approach Vol, veh/h		1002			42			50			941	
Approach Delay, s/veh		113.6			18.1			51.9			32.5	
Approach LOS		F			B			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	12.9	5.6	82.6	7.2	14.6	32.0	56.1
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	4.6	4.0	2.1	2.5	2.9	7.3	28.6	3.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.1	0.0	1.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	72.6
HCM 6th LOS	E

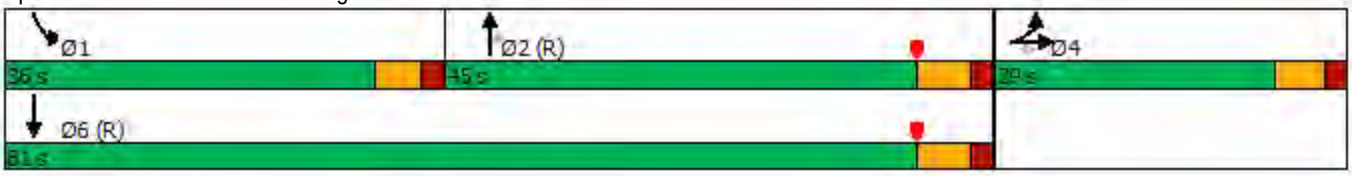
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	316	4	13	221	722	566	862
Future Volume (vph)	316	4	13	221	722	566	862
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	29.0	29.0	29.0	45.0	45.0	36.0	81.0
Total Split (%)	26.4%	26.4%	26.4%	40.9%	40.9%	32.7%	73.6%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	15.3	15.3	15.3	53.2	53.2	23.3	82.2
Actuated g/C Ratio	0.14	0.14	0.14	0.48	0.48	0.21	0.75
v/c Ratio	0.72	0.70	0.05	0.36	0.42	0.81	0.34
Control Delay	61.8	60.5	0.3	3.8	4.6	53.6	5.3
Queue Delay	0.0	0.0	0.0	0.2	0.6	0.0	0.3
Total Delay	61.8	60.5	0.3	4.0	5.2	53.6	5.6
LOS	E	E	A	A	A	D	A
Approach Delay		58.7		4.5			24.6
Approach LOS		E		A			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 21.8	Intersection LOS: C
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	4	13	0	0	0	0	221	722	566	862	0
Future Volume (veh/h)	316	4	13	0	0	0	0	221	722	566	862	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	332	0	14				0	230	752	590	898	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	406	0	181				0	981	1663	678	2745	0
Arrive On Green	0.11	0.00	0.11				0.00	0.88	0.88	0.06	0.25	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	332	0	14				0	230	752	590	898	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	10.0	0.0	0.9				0.0	2.1	5.4	18.6	22.6	0.0
Cycle Q Clear(g_c), s	10.0	0.0	0.9				0.0	2.1	5.4	18.6	22.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	406	0	181				0	981	1663	678	2745	0
V/C Ratio(X)	0.82	0.00	0.08				0.00	0.23	0.45	0.87	0.33	0.00
Avail Cap(c_a), veh/h	742	0	330				0	981	1663	952	2745	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.67	1.67	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.91	0.91	0.93	0.93	0.00
Uniform Delay (d), s/veh	47.6	0.0	43.6				0.0	3.4	3.6	50.1	17.7	0.0
Incr Delay (d2), s/veh	1.6	0.0	0.1				0.0	0.5	0.8	4.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.3				0.0	0.9	1.4	9.1	10.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	0.0	43.6				0.0	3.9	4.4	54.7	18.0	0.0
LnGrp LOS	D	A	D				A	A	A	D	B	A
Approach Vol, veh/h		346						982			1488	
Approach Delay, s/veh		49.0						4.3			32.6	
Approach LOS		D						A			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	27.3	64.1		18.6		91.4
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 30	38.6		22.9		74.6
Max Q Clear Time (g_c+I1), s	20.6	7.4		12.0		24.6
Green Ext Time (p_c), s	1.0	2.8		0.5		5.0

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

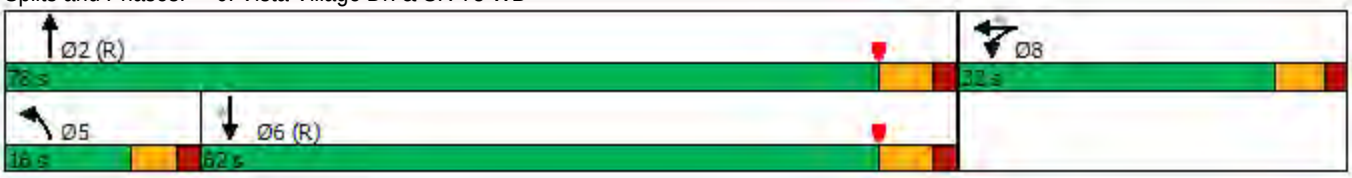
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	421	0	627	22	515	1007	720
Future Volume (vph)	421	0	627	22	515	1007	720
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	32.0	32.0	32.0	16.0	78.0	62.0	62.0
Total Split (%)	29.1%	29.1%	29.1%	14.5%	70.9%	56.4%	56.4%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	21.3	21.3	21.3	10.0	76.2	69.9	69.9
Actuated g/C Ratio	0.19	0.19	0.19	0.09	0.69	0.64	0.64
v/c Ratio	0.67	0.67	0.61	0.14	0.22	0.32	0.58
Control Delay	50.3	50.3	5.2	54.5	4.2	15.8	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	50.3	50.3	5.2	54.5	4.2	15.8	13.4
LOS	D	D	A	D	A	B	B
Approach Delay		23.3			6.2	14.8	
Approach LOS		C			A	B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	421	0	627	22	515	0	0	1007	720
Future Volume (veh/h)	0	0	0	421	0	627	22	515	0	0	1007	720
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				434	0	646	23	531	0	0	1038	742
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				796	0	709	82	2355	0	0	2885	896
Arrive On Green				0.22	0.00	0.22	0.09	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				434	0	646	23	531	0	0	1038	742
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				11.8	0.0	21.9	1.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				11.8	0.0	21.9	1.3	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				796	0	709	82	2355	0	0	2885	896
V/C Ratio(X)				0.54	0.00	0.91	0.28	0.23	0.00	0.00	0.36	0.83
Avail Cap(c_a), veh/h				839	0	746	167	2355	0	0	2885	896
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.90	0.90	0.00	0.00	0.81	0.81
Uniform Delay (d), s/veh				37.8	0.0	41.6	48.3	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.3	0.0	14.4	0.6	0.2	0.0	0.0	0.3	7.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.2	0.0	9.9	0.6	0.1	0.0	0.0	0.1	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				38.1	0.0	56.1	48.9	0.2	0.0	0.0	0.3	7.2
LnGrp LOS				D	A	E	D	A	A	A	A	A
Approach Vol, veh/h					1080			554			1780	
Approach Delay, s/veh					48.8			2.2			3.2	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	79.3	10.7	68.6	30.7
Change Period (Y+Rc), s	6.4	* 5.7	6.4	6.1
Max Green Setting (Gmax), s	71.6	* 10	55.6	25.9
Max Q Clear Time (g_c+I1), s	2.0	3.3	2.0	23.9
Green Ext Time (p_c), s	2.6	0.0	8.6	0.7

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Notes

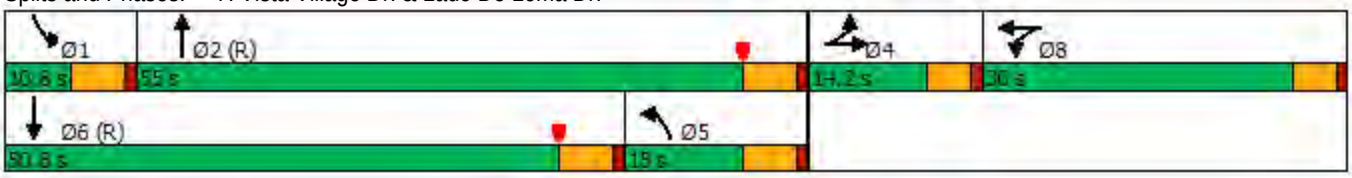
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	219	2	7	1003	116	1503
Future Volume (vph)	1	219	2	7	1003	116	1503
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	55.0	10.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	50.0%	9.8%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	C-Min	Max	C-Min
Act Effct Green (s)	5.3	15.6	15.6	15.2	49.6	27.2	61.6
Actuated g/C Ratio	0.05	0.14	0.14	0.14	0.45	0.25	0.56
v/c Ratio	0.07	0.65	0.56	0.03	0.52	0.28	0.55
Control Delay	34.0	56.5	38.6	52.4	26.4	62.3	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	34.0	56.5	38.6	52.4	26.4	62.3	6.3
LOS	C	E	D	D	C	E	A
Approach Delay	34.0		47.8		26.6		10.3
Approach LOS	C		D		C		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 15 (14%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 20.0	Intersection LOS: B
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	5	219	2	67	7	1003	132	116	1503	6
Future Volume (veh/h)	0	1	5	219	2	67	7	1003	132	116	1503	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1	5	150	111	70	7	1045	138	121	1566	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	10	227	137	86	592	2894	382	87	1842	7
Arrive On Green	0.00	0.01	0.01	0.13	0.13	0.13	0.11	0.21	0.21	0.10	0.70	0.70
Sat Flow, veh/h	0	271	1355	1781	1072	676	1781	4564	602	1781	5251	20
Grp Volume(v), veh/h	0	0	6	150	0	181	7	779	404	121	1015	557
Grp Sat Flow(s),veh/h/ln	0	0	1626	1781	0	1749	1781	1702	1762	1781	1702	1867
Q Serve(g_s), s	0.0	0.0	0.4	8.8	0.0	11.1	0.4	21.5	21.6	5.4	24.3	24.3
Cycle Q Clear(g_c), s	0.0	0.0	0.4	8.8	0.0	11.1	0.4	21.5	21.6	5.4	24.3	24.3
Prop In Lane	0.00		0.83	1.00		0.39	1.00		0.34	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	12	227	0	223	592	2158	1117	87	1194	655
V/C Ratio(X)	0.00	0.00	0.48	0.66	0.00	0.81	0.01	0.36	0.36	1.38	0.85	0.85
Avail Cap(c_a), veh/h	0	0	142	411	0	404	592	2158	1117	87	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90	0.66	0.66	0.66
Uniform Delay (d), s/veh	0.0	0.0	54.4	45.7	0.0	46.7	32.9	24.4	24.4	49.6	14.3	14.3
Incr Delay (d2), s/veh	0.0	0.0	20.2	2.4	0.0	5.3	0.0	0.4	0.8	212.5	5.2	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	4.0	0.0	5.1	0.2	9.9	10.4	7.4	5.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	74.5	48.2	0.0	52.0	32.9	24.9	25.3	262.1	19.5	23.3
LnGrp LOS	A	A	E	D	A	D	C	C	C	F	B	C
Approach Vol, veh/h		6			331			1190			1693	
Approach Delay, s/veh		74.5			50.3			25.0			38.1	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	75.1		5.4	42.0	44.0		18.6				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	49.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	23.6		2.4	2.4	26.3		13.1				
Green Ext Time (p_c), s	0.0	10.9		0.0	0.0	12.3		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			34.6
HCM 6th LOS			C

Notes

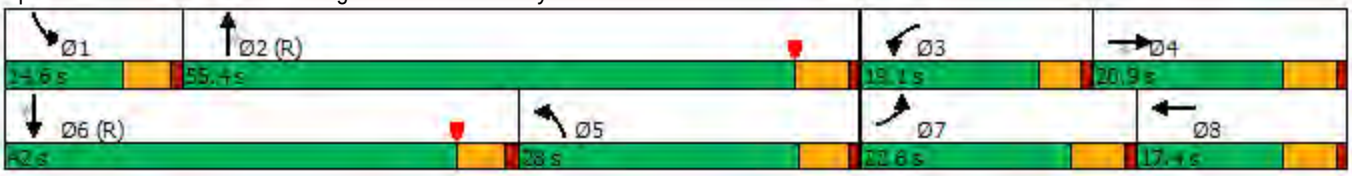
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	296	60	210	28	88	385	677	8	20	1387	579
Future Volume (vph)	296	60	210	28	88	385	677	8	20	1387	579
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.5	17.4	17.4	9.5	17.4	16.5	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	20.9	20.9	19.1	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	19.0%	19.0%	17.4%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	14.8	25.0	25.0	6.6	12.0	17.8	62.1	62.1	6.1	44.5	44.5
Actuated g/C Ratio	0.13	0.23	0.23	0.06	0.11	0.16	0.56	0.56	0.06	0.40	0.40
v/c Ratio	0.70	0.08	0.43	0.29	0.28	0.76	0.26	0.01	0.23	0.74	0.79
Control Delay	53.8	35.4	7.6	56.0	43.7	34.9	4.7	0.0	54.7	31.7	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	35.4	7.6	56.0	43.7	34.9	4.7	0.0	54.7	31.7	24.9
LOS	D	D	A	E	D	C	A	A	D	C	C
Approach Delay		34.7			46.4		15.5			29.9	
Approach LOS		C			D		B			C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 27.1 — Intersection LOS: C
Intersection Capacity Utilization 69.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	60	210	28	88	9	385	677	8	20	1387	579
Future Volume (veh/h)	296	60	210	28	88	9	385	677	8	20	1387	579
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	66	231	31	97	10	423	744	9	22	1524	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	394	708	316	50	342	35	899	2891	897	40	1675	
Arrive On Green	0.11	0.20	0.20	0.03	0.10	0.10	0.52	1.00	1.00	0.02	0.33	0.00
Sat Flow, veh/h	3456	3554	1585	1781	3257	331	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	325	66	231	31	52	55	423	744	9	22	1524	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1811	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	10.1	1.7	8.3	1.9	3.0	3.1	8.5	0.0	0.0	1.3	31.4	0.0
Cycle Q Clear(g_c), s	10.1	1.7	8.3	1.9	3.0	3.1	8.5	0.0	0.0	1.3	31.4	0.0
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	394	708	316	50	186	190	899	2891	897	40	1675	
V/C Ratio(X)	0.83	0.09	0.73	0.63	0.28	0.29	0.47	0.26	0.01	0.56	0.91	
Avail Cap(c_a), veh/h	540	708	316	236	194	198	899	2891	897	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.59	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.7	35.9	12.6	52.9	45.4	45.4	21.6	0.0	0.0	53.2	35.4	0.0
Incr Delay (d2), s/veh	4.0	0.0	4.8	4.7	0.6	0.6	0.1	0.2	0.0	4.4	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.7	3.3	0.9	1.3	1.4	3.0	0.0	0.0	0.7	14.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	36.0	17.4	57.6	46.0	46.0	21.7	0.2	0.0	57.7	44.3	0.0
LnGrp LOS	D	D	B	E	D	D	C	A	A	E	D	
Approach Vol, veh/h		622			138			1176			1546	A
Approach Delay, s/veh		37.3			48.6			7.9			44.5	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	67.7	7.6	27.3	34.0	41.1	17.9	16.9
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	14.6	15.5	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	3.3	2.0	3.9	10.3	10.5	33.4	12.1	5.1
Green Ext Time (p_c), s	0.0	5.0	0.0	0.4	0.7	2.6	0.4	0.2

Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

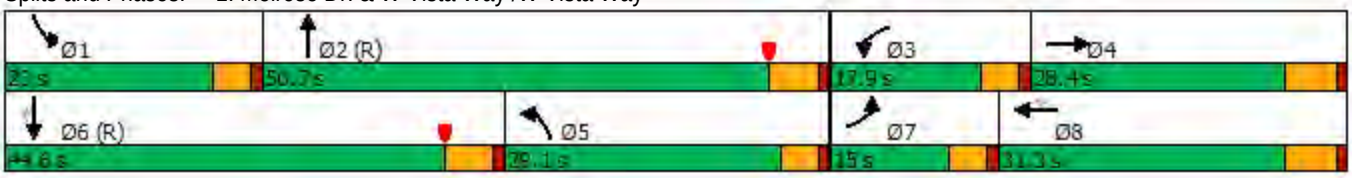
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	58	145	189	208	299	343	686	122	679	262
Future Volume (vph)	58	145	189	208	299	343	686	122	679	262
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	29.1	50.7	23.0	44.6	44.6
Total Split (%)	12.5%	23.7%	14.9%	26.1%	26.1%	24.3%	42.3%	19.2%	37.2%	37.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.5	13.1	11.2	17.7	17.7	20.0	62.6	12.9	55.5	55.5
Actuated g/C Ratio	0.07	0.11	0.09	0.15	0.15	0.17	0.52	0.11	0.46	0.46
v/c Ratio	0.48	0.55	0.61	0.41	0.62	0.62	0.35	0.67	0.30	0.31
Control Delay	65.6	33.5	60.4	48.5	10.5	74.0	36.5	67.8	22.1	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	33.5	60.4	48.5	10.5	74.0	36.5	67.8	22.1	4.1
LOS	E	C	E	D	B	E	D	E	C	A
Approach Delay		39.7		35.4			47.0		22.9	
Approach LOS		D		D			D		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 36.1 — Intersection LOS: D
Intersection Capacity Utilization 53.7% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	145	97	189	208	299	343	686	195	122	679	262
Future Volume (veh/h)	58	145	97	189	208	299	343	686	195	122	679	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	149	100	195	214	274	354	707	181	126	700	248
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	341	215	253	685	306	1333	2071	524	153	1034	321
Arrive On Green	0.04	0.16	0.16	0.07	0.19	0.19	0.51	0.68	0.68	0.09	0.20	0.20
Sat Flow, veh/h	1781	2091	1319	3456	3554	1585	3456	4063	1027	1781	5106	1585
Grp Volume(v), veh/h	60	125	124	195	214	274	354	591	297	126	700	248
Grp Sat Flow(s),veh/h/ln	1781	1777	1633	1728	1777	1585	1728	1702	1686	1781	1702	1585
Q Serve(g_s), s	4.0	7.6	8.2	6.7	6.2	20.2	6.9	8.7	8.9	8.4	15.2	15.0
Cycle Q Clear(g_c), s	4.0	7.6	8.2	6.7	6.2	20.2	6.9	8.7	8.9	8.4	15.2	15.0
Prop In Lane	1.00		0.81	1.00		1.00	1.00		0.61	1.00		1.00
Lane Grp Cap(c), veh/h	77	290	266	253	685	306	1333	1735	859	153	1034	321
V/C Ratio(X)	0.78	0.43	0.47	0.77	0.31	0.90	0.27	0.34	0.35	0.83	0.68	0.77
Avail Cap(c_a), veh/h	156	335	308	386	755	337	1333	1735	859	275	1668	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	45.2	45.5	54.6	41.6	47.3	19.6	10.9	10.9	54.0	44.2	32.1
Incr Delay (d2), s/veh	6.1	1.2	1.5	1.8	0.3	21.3	0.1	0.5	1.0	4.2	3.6	16.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.5	3.5	3.0	2.8	9.8	2.7	3.1	3.2	3.9	6.8	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	46.5	47.0	56.4	41.9	68.6	19.7	11.4	11.9	58.2	47.8	48.5
LnGrp LOS	E	D	D	E	D	E	B	B	B	E	D	D
Approach Vol, veh/h		309			683			1242			1074	
Approach Delay, s/veh		49.9			56.7			13.9			49.2	
Approach LOS		D			E			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	66.6	13.3	25.4	51.7	29.7	9.7	28.9
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	18.5	45.3	13.4	22.6	24.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	10.4	10.9	8.7	10.2	8.9	17.2	6.0	22.2
Green Ext Time (p_c), s	0.1	8.5	0.1	1.3	1.1	7.1	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	256	252	987	947
Future Volume (vph)	256	252	987	947
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	51.0	51.0	69.0	69.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	15.6	15.6	92.9	92.9
Actuated g/C Ratio	0.13	0.13	0.77	0.77
v/c Ratio	0.74	0.60	0.26	0.19
Control Delay	52.3	30.2	13.5	3.3
Queue Delay	0.0	0.0	1.6	0.0
Total Delay	52.3	30.2	15.1	3.3
LOS	D	C	B	A
Approach Delay	45.3		15.1	3.3
Approach LOS	D		B	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 16.8	Intersection LOS: B
Intersection Capacity Utilization 38.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	256	252	0	987	947	0
Future Volume (veh/h)	256	252	0	987	947	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	340	173	0	1007	966	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	467	208	0	3948	4974	0
Arrive On Green	0.13	0.13	0.00	0.97	0.97	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	340	173	0	1007	966	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	11.0	12.8	0.0	1.1	0.7	0.0
Cycle Q Clear(g_c), s	11.0	12.8	0.0	1.1	0.7	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	467	208	0	3948	4974	0
V/C Ratio(X)	0.73	0.83	0.00	0.26	0.19	0.00
Avail Cap(c_a), veh/h	1333	593	0	3948	4974	0
HCM Platoon Ratio	1.00	1.00	1.00	1.25	1.25	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.87	0.94	0.00
Uniform Delay (d), s/veh	50.1	50.9	0.0	0.5	0.5	0.0
Incr Delay (d2), s/veh	0.8	3.3	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	5.3	0.0	0.3	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.9	54.2	0.0	0.6	0.6	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	513			1007	966	
Approach Delay, s/veh	52.0			0.6	0.6	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.2		21.8		98.2
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		63.6		44.9		63.6
Max Q Clear Time (g_c+I1), s		3.1		14.8		2.7
Green Ext Time (p_c), s		5.8		1.0		5.5

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

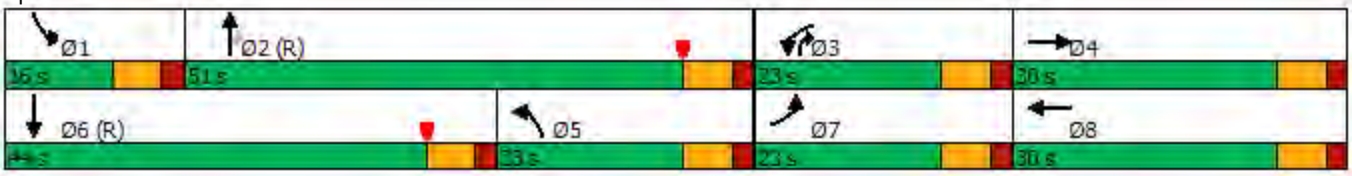
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	185	252	303	199	99	716	296	352	678
Future Volume (vph)	185	252	303	199	99	716	296	352	678
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	51.0	23.0	16.0	44.0
Total Split (%)	19.2%	25.0%	19.2%	25.0%	19.2%	42.5%	19.2%	13.3%	36.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	16.4	15.7	20.7	13.0	40.6	62.7	21.8	49.4
Actuated g/C Ratio	0.09	0.14	0.13	0.17	0.11	0.34	0.52	0.18	0.41
v/c Ratio	0.62	0.70	0.73	0.48	0.55	0.45	0.36	0.61	0.44
Control Delay	60.4	53.4	59.7	40.0	61.9	32.0	10.4	43.8	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.9	0.0	4.2	2.1
Total Delay	60.4	53.4	59.7	40.1	61.9	34.0	10.4	48.0	24.1
LOS	E	D	E	D	E	C	B	D	C
Approach Delay		55.9		50.3		30.2			31.1
Approach LOS		E		D		C			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 37.7 — Intersection LOS: D
Intersection Capacity Utilization 62.9% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	252	64	303	199	76	99	716	296	352	678	175
Future Volume (veh/h)	185	252	64	303	199	76	99	716	296	352	678	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	271	63	326	214	78	106	770	318	378	729	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	339	77	384	397	140	623	2438	933	276	869	191
Arrive On Green	0.07	0.12	0.12	0.11	0.15	0.15	0.35	0.48	0.48	0.16	0.41	0.41
Sat Flow, veh/h	3456	2873	657	3456	2573	910	1781	5106	1585	3456	4188	921
Grp Volume(v), veh/h	199	166	168	326	146	146	106	770	318	378	591	300
Grp Sat Flow(s),veh/h/ln	1728	1777	1752	1728	1777	1707	1781	1702	1585	1728	1702	1705
Q Serve(g_s), s	6.8	10.9	11.2	11.1	9.1	9.5	4.9	11.1	12.4	9.6	18.7	19.1
Cycle Q Clear(g_c), s	6.8	10.9	11.2	11.1	9.1	9.5	4.9	11.1	12.4	9.6	18.7	19.1
Prop In Lane	1.00		0.37	1.00		0.53	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	259	210	207	384	274	263	623	2438	933	276	706	354
V/C Ratio(X)	0.77	0.79	0.81	0.85	0.53	0.56	0.17	0.32	0.34	1.37	0.84	0.85
Avail Cap(c_a), veh/h	478	349	345	478	349	336	623	2438	933	276	1067	534
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	54.5	51.5	51.6	52.3	46.7	46.9	27.0	19.3	12.7	50.4	33.3	33.4
Incr Delay (d2), s/veh	1.8	2.5	2.9	9.3	0.6	0.7	0.0	0.3	1.0	186.4	11.1	21.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.0	5.1	5.3	4.1	4.1	2.1	4.5	4.6	10.9	7.3	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.0	54.6	61.7	47.3	47.6	27.0	19.6	13.7	236.8	44.4	54.7
LnGrp LOS	E	D	D	E	D	D	C	B	B	F	D	D
Approach Vol, veh/h		533			618			1194			1269	
Approach Delay, s/veh		55.0			55.0			18.7			104.1	
Approach LOS		E			D			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	63.7	19.8	20.6	48.4	31.3	15.4	24.9
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	44.6	16.6	23.6	16.6	37.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	14.4	13.1	13.2	6.9	21.1	8.8	11.5
Green Ext Time (p_c), s	0.0	7.5	0.2	0.9	0.1	3.8	0.2	0.9

Intersection Summary	
HCM 6th Ctrl Delay	60.3
HCM 6th LOS	E

Notes

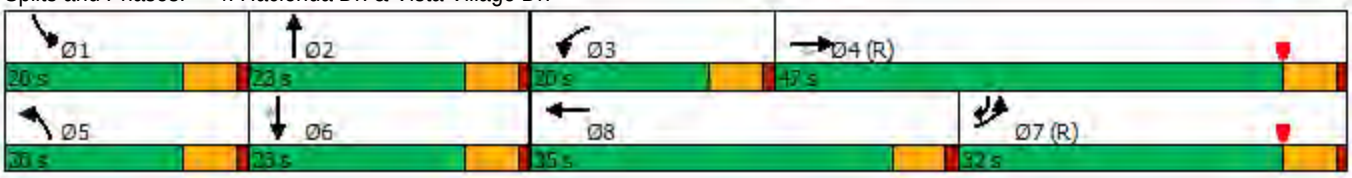
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	849	22	19	4	16	27	108	16	121	534
Future Volume (vph)	849	22	19	4	16	27	108	16	121	534
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	67.9	77.4	77.4	5.1	10.4	6.4	14.8	5.8	12.0	84.3
Actuated g/C Ratio	0.62	0.70	0.70	0.05	0.09	0.06	0.13	0.05	0.11	0.77
v/c Ratio	0.43	0.02	0.02	0.05	0.22	0.28	0.48	0.18	0.64	0.25
Control Delay	17.4	9.0	0.1	51.2	24.9	55.9	49.1	72.9	69.7	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	17.4	9.0	0.1	51.2	24.9	55.9	49.1	72.9	69.7	6.2
LOS	B	A	A	D	C	E	D	E	E	A
Approach Delay		16.8			27.3		50.4		19.2	
Approach LOS		B			C		D		B	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 60 (55%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 20.6 — Intersection LOS: C
Intersection Capacity Utilization 54.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	849	22	19	4	16	21	27	108	3	16	121	534
Future Volume (veh/h)	849	22	19	4	16	21	27	108	3	16	121	534
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	913	24	20	4	17	23	29	116	3	17	130	574
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1258	1066	9	314	425	48	195	5	33	186	951
Arrive On Green	0.24	0.67	0.67	0.01	0.44	0.44	0.03	0.11	0.11	0.01	0.03	0.03
Sat Flow, veh/h	3456	1870	1585	1781	720	975	1781	1815	47	1781	1870	2790
Grp Volume(v), veh/h	913	24	20	4	0	40	29	0	119	17	130	574
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1695	1781	0	1862	1781	1870	1395
Q Serve(g_s), s	26.6	0.5	0.5	0.2	0.0	1.5	1.8	0.0	6.7	1.0	7.6	2.0
Cycle Q Clear(g_c), s	26.6	0.5	0.5	0.2	0.0	1.5	1.8	0.0	6.7	1.0	7.6	2.0
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	836	1258	1066	9	0	739	48	0	200	33	186	951
V/C Ratio(X)	1.09	0.02	0.02	0.43	0.00	0.05	0.61	0.00	0.59	0.52	0.70	0.60
Avail Cap(c_a), veh/h	836	1258	1066	236	0	739	236	0	298	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	41.7	6.0	6.0	54.5	0.0	17.9	53.0	0.0	46.8	54.2	51.6	18.2
Incr Delay (d2), s/veh	56.8	0.0	0.0	11.2	0.0	0.0	4.6	0.0	1.1	4.5	1.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	0.2	0.2	0.1	0.0	0.6	0.9	0.0	3.2	0.5	3.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.5	6.0	6.0	65.7	0.0	17.9	57.6	0.0	47.8	58.7	53.3	18.5
LnGrp LOS	F	A	A	E	A	B	E	A	D	E	D	B
Approach Vol, veh/h		957			44			148			721	
Approach Delay, s/veh		94.2			22.3			49.8			25.8	
Approach LOS		F			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	17.2	6.0	79.4	8.3	16.3	32.0	53.3
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	3.0	8.7	2.2	2.5	3.8	9.6	28.6	3.5
Green Ext Time (p_c), s	0.0	0.2	0.0	0.1	0.0	1.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	62.6
HCM 6th LOS	E

Notes

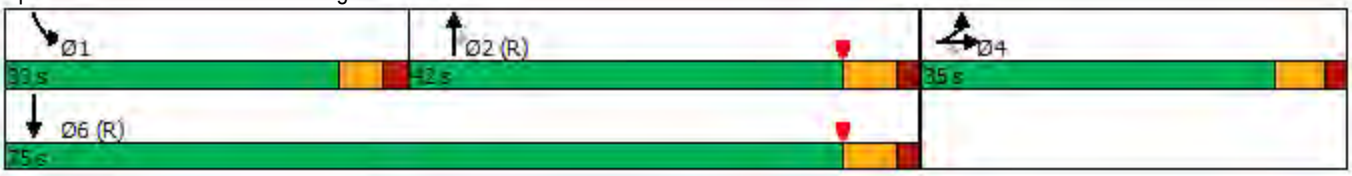
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	438	1	25	302	684	486	644
Future Volume (vph)	438	1	25	302	684	486	644
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	35.0	35.0	35.0	42.0	42.0	33.0	75.0
Total Split (%)	31.8%	31.8%	31.8%	38.2%	38.2%	30.0%	68.2%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	19.6	19.6	19.6	51.6	51.6	20.5	77.9
Actuated g/C Ratio	0.18	0.18	0.18	0.47	0.47	0.19	0.71
v/c Ratio	0.76	0.76	0.07	0.42	0.41	0.79	0.27
Control Delay	58.7	58.7	0.4	12.9	6.9	45.6	4.4
Queue Delay	0.0	0.0	0.0	0.2	0.2	0.0	0.3
Total Delay	58.7	58.7	0.4	13.1	7.1	45.6	4.7
LOS	E	E	A	B	A	D	A
Approach Delay		55.5		11.0			22.3
Approach LOS		E		B			C

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 23.9 — Intersection LOS: C
Intersection Capacity Utilization 69.4% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	438	1	25	0	0	0	0	302	684	486	644	0
Future Volume (veh/h)	438	1	25	0	0	0	0	302	684	486	644	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	457	0	26				0	315	712	506	671	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	537	0	239				0	960	1627	589	2614	0
Arrive On Green	0.15	0.00	0.15				0.00	0.17	0.17	0.06	0.24	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	457	0	26				0	315	712	506	671	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	13.7	0.0	1.6				0.0	16.3	22.2	16.0	16.8	0.0
Cycle Q Clear(g_c), s	13.7	0.0	1.6				0.0	16.3	22.2	16.0	16.8	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	537	0	239				0	960	1627	589	2614	0
V/C Ratio(X)	0.85	0.00	0.11				0.00	0.33	0.44	0.86	0.26	0.00
Avail Cap(c_a), veh/h	936	0	416				0	960	1627	858	2614	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.90	0.90	0.96	0.96	0.00
Uniform Delay (d), s/veh	45.5	0.0	40.3				0.0	29.0	31.4	50.6	17.4	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.1				0.0	0.8	0.8	4.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	0.6				0.0	8.4	9.6	7.8	8.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	40.4				0.0	29.8	32.2	54.7	17.6	0.0
LnGrp LOS	D	A	D				A	C	C	D	B	A
Approach Vol, veh/h		483						1027			1177	
Approach Delay, s/veh		46.7						31.5			33.5	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	24.5	62.9		22.7		87.3
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 27	35.6		28.9		68.6
Max Q Clear Time (g_c+I1), s	18.0	24.2		15.7		18.8
Green Ext Time (p_c), s	0.8	2.6		0.8		5.5

Intersection Summary			
HCM 6th Ctrl Delay			35.1
HCM 6th LOS			D

Notes

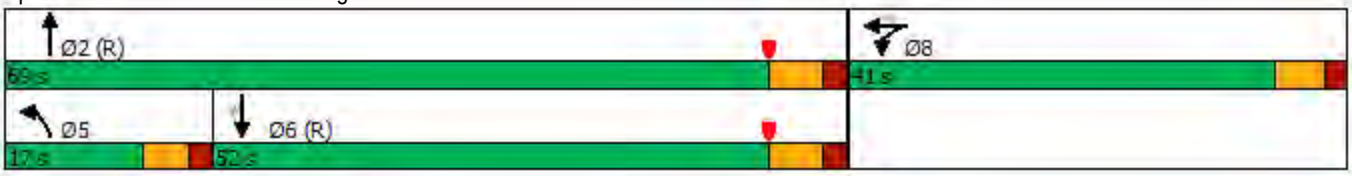
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	395	0	678	32	726	756	483
Future Volume (vph)	395	0	678	32	726	756	483
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	41.0	41.0	41.0	17.0	69.0	52.0	52.0
Total Split (%)	37.3%	37.3%	37.3%	15.5%	62.7%	47.3%	47.3%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	26.4	26.4	26.4	10.0	71.1	61.7	61.7
Actuated g/C Ratio	0.24	0.24	0.24	0.09	0.65	0.56	0.56
v/c Ratio	0.50	0.51	0.75	0.21	0.33	0.27	0.45
Control Delay	38.8	38.9	23.6	60.1	4.2	4.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Total Delay	38.8	38.9	23.6	60.1	4.4	4.5	4.1
LOS	D	D	C	E	A	A	A
Approach Delay		29.2			6.8	4.3	
Approach LOS		C			A	A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 69.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	395	0	678	32	726	0	0	756	483
Future Volume (veh/h)	0	0	0	395	0	678	32	726	0	0	756	483
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				407	0	699	33	748	0	0	779	498
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				923	0	821	103	2229	0	0	2643	821
Arrive On Green				0.26	0.00	0.26	0.12	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				407	0	699	33	748	0	0	779	498
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				10.5	0.0	23.1	1.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				10.5	0.0	23.1	1.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				923	0	821	103	2229	0	0	2643	821
V/C Ratio(X)				0.44	0.00	0.85	0.32	0.34	0.00	0.00	0.29	0.61
Avail Cap(c_a), veh/h				1130	0	1006	183	2229	0	0	2643	821
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.85	0.85	0.00	0.00	0.94	0.94
Uniform Delay (d), s/veh				34.1	0.0	38.7	46.7	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.3	0.0	6.0	1.5	0.3	0.0	0.0	0.3	3.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	9.5	0.9	0.1	0.0	0.0	0.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.4	0.0	44.7	48.2	0.3	0.0	0.0	0.3	3.1
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h					1106			781			1277	
Approach Delay, s/veh					40.9			2.4			1.4	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	75.4	12.1	63.3	34.6
Change Period (Y+Rc), s	6.4	* 5.7	6.4	6.1
Max Green Setting (Gmax), s	62.6	* 11	45.6	34.9
Max Q Clear Time (g_c+I1), s	2.0	3.9	2.0	25.1
Green Ext Time (p_c), s	6.3	0.0	9.3	3.5

Intersection Summary	
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

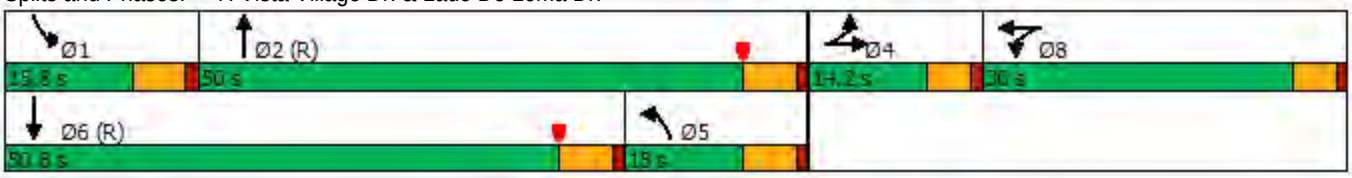
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	3	185	3	7	1173	78	1025
Future Volume (vph)	3	185	3	7	1173	78	1025
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	50.0	15.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	45.5%	14.4%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	Min	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	5.6	15.2	15.2	6.9	62.0	9.4	70.7
Actuated g/C Ratio	0.05	0.14	0.14	0.06	0.56	0.09	0.64
v/c Ratio	0.14	0.63	0.48	0.06	0.52	0.54	0.33
Control Delay	32.2	56.0	25.1	50.0	16.1	41.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.3
Total Delay	32.2	56.0	25.1	50.0	16.3	41.6	9.5
LOS	C	E	C	D	B	D	A
Approach Delay	32.3		41.2		16.4		11.8
Approach LOS	C		D		B		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 59.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	3	10	185	3	83	7	1173	232	78	1025	6
Future Volume (veh/h)	0	3	10	185	3	83	7	1173	232	78	1025	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	3	10	141	76	86	7	1222	242	81	1068	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	17	57	211	95	107	674	2550	505	103	1444	8
Arrive On Green	0.00	0.05	0.05	0.12	0.12	0.12	0.76	1.00	1.00	0.09	0.41	0.41
Sat Flow, veh/h	0	379	1264	1781	801	906	1781	4275	847	1781	5240	29
Grp Volume(v), veh/h	0	0	13	141	0	162	7	973	491	81	694	380
Grp Sat Flow(s),veh/h/ln	0	0	1643	1781	0	1707	1781	1702	1718	1781	1702	1865
Q Serve(g_s), s	0.0	0.0	0.8	8.3	0.0	10.2	0.1	0.0	0.0	4.9	18.9	18.9
Cycle Q Clear(g_c), s	0.0	0.0	0.8	8.3	0.0	10.2	0.1	0.0	0.0	4.9	18.9	18.9
Prop In Lane	0.00		0.77	1.00		0.53	1.00		0.49	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	75	211	0	202	674	2031	1025	103	938	514
V/C Ratio(X)	0.00	0.00	0.17	0.67	0.00	0.80	0.01	0.48	0.48	0.79	0.74	0.74
Avail Cap(c_a), veh/h	0	0	143	411	0	394	674	2031	1025	168	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.50	1.50	1.50
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.83	0.83	0.83	0.91	0.91	0.91
Uniform Delay (d), s/veh	0.0	0.0	50.5	46.4	0.0	47.2	8.3	0.0	0.0	49.6	28.9	28.9
Incr Delay (d2), s/veh	0.0	0.0	0.8	2.7	0.0	5.4	0.0	0.7	1.3	4.5	4.8	8.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	3.8	0.0	4.6	0.0	0.2	0.4	2.3	7.4	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	51.3	49.1	0.0	52.6	8.3	0.7	1.3	54.1	33.7	37.4
LnGrp LOS	A	A	D	D	A	D	A	A	A	D	C	D
Approach Vol, veh/h		13			303			1471			1155	
Approach Delay, s/veh		51.3			51.0			0.9			36.3	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.7	71.0		9.6	47.0	35.7		17.6				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	10.4	44.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	6.9	2.0		2.8	2.1	20.9		12.2				
Green Ext Time (p_c), s	0.0	17.9		0.0	0.0	9.4		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			20.2
HCM 6th LOS			C

Notes

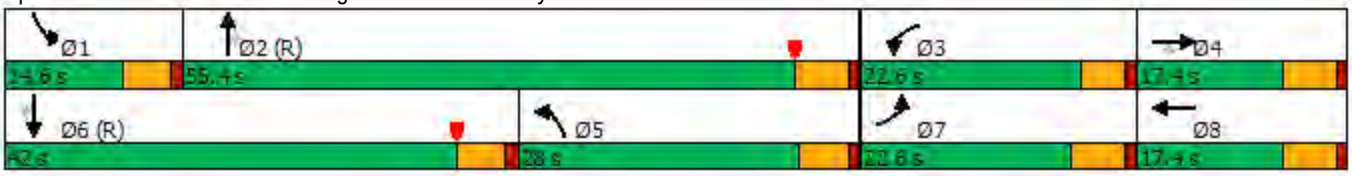
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	222	102	120	100	125	275	853	109	85	887	296
Future Volume (vph)	222	102	120	100	125	275	853	109	85	887	296
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	17.4	17.4	22.6	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	15.8%	15.8%	20.5%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	12.6	14.5	14.5	11.2	12.2	14.0	53.8	53.8	10.2	50.4	50.4
Actuated g/C Ratio	0.11	0.13	0.13	0.10	0.11	0.13	0.49	0.49	0.09	0.46	0.46
v/c Ratio	0.62	0.24	0.36	0.61	0.49	0.69	0.38	0.14	0.57	0.42	0.38
Control Delay	53.2	44.5	5.4	61.1	32.9	43.1	16.9	6.0	60.5	21.6	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	53.2	44.5	5.4	61.1	32.9	43.1	17.1	6.0	60.5	21.6	8.4
LOS	D	D	A	E	C	D	B	A	E	C	A
Approach Delay		38.3			42.4		21.9			21.1	
Approach LOS		D			D		C			C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 85 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 25.7 — Intersection LOS: C
Intersection Capacity Utilization 58.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	102	120	100	125	72	275	853	109	85	887	296
Future Volume (veh/h)	222	102	120	100	125	72	275	853	109	85	887	296
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	244	112	132	110	137	79	302	937	120	93	975	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	313	465	207	137	242	132	1255	2767	859	117	1248	
Arrive On Green	0.09	0.13	0.13	0.08	0.11	0.11	0.73	1.00	1.00	0.07	0.24	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2221	1209	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	244	112	132	110	108	108	302	937	120	93	975	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1653	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	7.6	3.1	4.1	6.7	6.3	6.9	3.2	0.0	0.0	5.7	19.6	0.0
Cycle Q Clear(g_c), s	7.6	3.1	4.1	6.7	6.3	6.9	3.2	0.0	0.0	5.7	19.6	0.0
Prop In Lane	1.00		1.00	1.00		0.73	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	313	465	207	137	194	180	1255	2767	859	117	1248	
V/C Ratio(X)	0.78	0.24	0.64	0.80	0.56	0.60	0.24	0.34	0.14	0.79	0.78	
Avail Cap(c_a), veh/h	540	465	207	293	194	180	1255	2767	859	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	0.84	0.84	0.84	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.9	42.9	10.0	49.9	46.5	46.7	10.0	0.0	0.0	50.7	38.8	0.0
Incr Delay (d2), s/veh	2.5	0.2	4.5	4.1	3.0	4.8	0.0	0.3	0.3	13.5	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	1.4	3.5	3.1	3.0	3.1	1.1	0.1	0.1	3.0	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	43.1	14.5	54.0	49.5	51.5	10.0	0.3	0.3	64.2	43.7	0.0
LnGrp LOS	D	D	B	D	D	D	B	A	A	E	D	
Approach Vol, veh/h		488			326			1359			1068	A
Approach Delay, s/veh		39.5			51.7			2.4			45.5	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	65.0	13.0	19.8	45.4	31.9	15.4	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	18.1	12.0	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	7.7	2.0	8.7	6.1	5.2	21.6	9.6	8.9
Green Ext Time (p_c), s	0.0	7.1	0.1	0.4	0.5	5.3	0.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

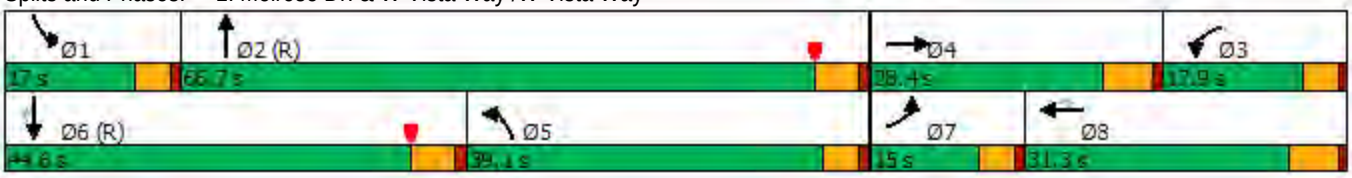
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	64	230	170	250	523	421	1776	202	858	312
Future Volume (vph)	64	230	170	250	523	421	1776	202	858	312
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	39.1	66.7	17.0	44.6	44.6
Total Split (%)	11.5%	21.8%	13.8%	24.1%	24.1%	30.1%	51.3%	13.1%	34.3%	34.3%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.6	17.4	18.6	29.3	29.3	39.3	61.3	12.5	34.5	34.5
Actuated g/C Ratio	0.07	0.13	0.14	0.23	0.23	0.30	0.47	0.10	0.27	0.27
v/c Ratio	0.57	0.70	0.36	0.32	1.01	0.42	0.90	1.22	0.66	0.52
Control Delay	77.0	53.6	56.8	47.3	73.0	49.2	47.2	189.8	44.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	46.0	0.0	0.0	0.0
Total Delay	77.0	53.6	56.8	47.3	73.0	49.2	93.2	189.8	44.6	9.9
LOS	E	D	E	D	E	D	F	F	D	A
Approach Delay		57.4		63.3			85.7		58.0	
Approach LOS		E		E			F		E	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 72.2 — Intersection LOS: E
Intersection Capacity Utilization 90.2% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	230	104	170	250	523	421	1776	282	202	858	312
Future Volume (veh/h)	64	230	104	170	250	523	421	1776	282	202	858	312
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	237	107	175	258	505	434	1831	271	208	885	300
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	301	132	375	697	311	1239	2270	333	171	1204	374
Arrive On Green	0.05	0.13	0.13	0.18	0.33	0.33	0.72	1.00	1.00	0.10	0.24	0.24
Sat Flow, veh/h	1781	2406	1052	3456	3554	1585	3456	4496	659	1781	5106	1585
Grp Volume(v), veh/h	66	173	171	175	258	505	434	1382	720	208	885	300
Grp Sat Flow(s),veh/h/ln	1781	1777	1681	1728	1777	1585	1728	1702	1752	1781	1702	1585
Q Serve(g_s), s	4.8	12.3	12.9	5.9	7.2	25.5	6.2	0.0	0.0	12.5	20.8	19.4
Cycle Q Clear(g_c), s	4.8	12.3	12.9	5.9	7.2	25.5	6.2	0.0	0.0	12.5	20.8	19.4
Prop In Lane	1.00		0.63	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	84	222	210	375	697	311	1239	1719	885	171	1204	374
V/C Ratio(X)	0.78	0.78	0.81	0.47	0.37	1.62	0.35	0.80	0.81	1.21	0.74	0.80
Avail Cap(c_a), veh/h	144	309	292	375	697	311	1239	1719	885	171	1540	478
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	55.1	55.4	49.9	37.6	43.7	12.7	0.0	0.0	58.8	45.9	32.9
Incr Delay (d2), s/veh	5.8	9.1	12.5	0.3	0.3	292.3	0.1	3.3	6.6	138.1	4.0	16.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.1	6.2	2.5	3.0	34.2	2.1	0.8	1.6	12.2	9.3	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	64.2	67.9	50.1	37.9	336.1	12.8	3.3	6.6	196.8	49.9	49.5
LnGrp LOS	E	E	E	D	D	F	B	A	A	F	D	D
Approach Vol, veh/h		410			938			2536			1393	
Approach Delay, s/veh		66.2			200.7			5.9			71.8	
Approach LOS		E			F			A			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	71.0	19.9	22.1	52.0	36.0	10.7	31.3
Change Period (Y+Rc), s	4.5	5.4	5.8	* 5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	12.5	61.3	13.4	* 23	34.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	14.5	2.0	7.9	14.9	8.2	22.8	6.8	27.5
Green Ext Time (p_c), s	0.0	36.3	0.1	1.4	1.6	7.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.6
HCM 6th LOS	E

Notes

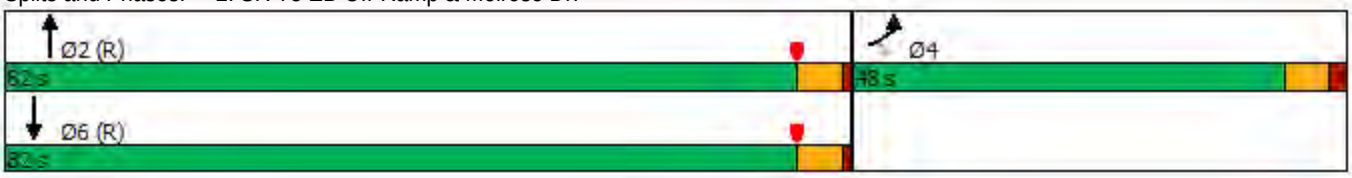
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	555	275	1587	1060
Future Volume (vph)	555	275	1587	1060
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	48.0	48.0	82.0	82.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	28.0	28.0	90.5	90.5
Actuated g/C Ratio	0.22	0.22	0.70	0.70
v/c Ratio	0.83	0.69	0.47	0.25
Control Delay	58.2	39.7	23.9	1.6
Queue Delay	0.0	0.0	49.1	0.0
Total Delay	58.2	39.7	73.1	1.6
LOS	E	D	E	A
Approach Delay	52.7		73.1	1.6
Approach LOS	D		E	A

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 25 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 46.4	Intersection LOS: D
Intersection Capacity Utilization 59.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	555	275	0	1587	1060	0
Future Volume (veh/h)	555	275	0	1587	1060	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	584	289	0	1671	1116	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	731	325	0	3606	4544	0
Arrive On Green	0.21	0.21	0.00	1.00	1.00	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	584	289	0	1671	1116	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	20.3	23.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.3	23.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	731	325	0	3606	4544	0
V/C Ratio(X)	0.80	0.89	0.00	0.46	0.25	0.00
Avail Cap(c_a), veh/h	1148	511	0	3606	4544	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.57	0.76	0.00
Uniform Delay (d), s/veh	49.1	50.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	7.7	0.0	0.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	9.8	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.0	57.9	0.0	0.2	0.1	0.0
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	873			1671	1116	
Approach Delay, s/veh	52.6			0.2	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		97.2		32.8		97.2
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		76.6		41.9		76.6
Max Q Clear Time (g_c+I1), s		2.0		25.0		2.0
Green Ext Time (p_c), s		12.8		1.6		6.7

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

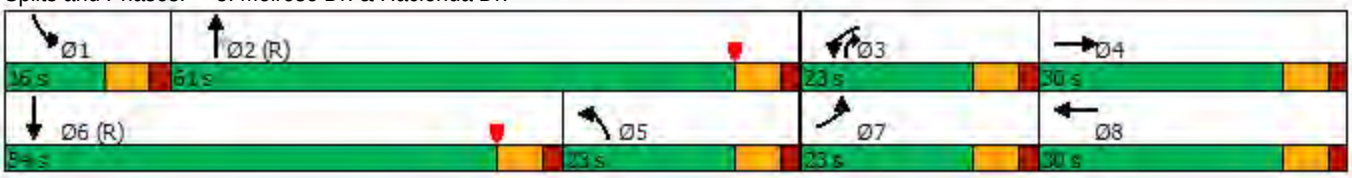
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	320	352	293	251	52	1412	334	331	775
Future Volume (vph)	320	352	293	251	52	1412	334	331	775
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	61.0	23.0	16.0	54.0
Total Split (%)	17.7%	23.1%	17.7%	23.1%	17.7%	46.9%	17.7%	12.3%	41.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.7	19.4	15.0	18.7	24.2	51.2	72.6	18.9	48.1
Actuated g/C Ratio	0.12	0.15	0.12	0.14	0.19	0.39	0.56	0.15	0.37
v/c Ratio	0.82	0.79	0.78	0.79	0.17	0.74	0.38	0.70	0.55
Control Delay	71.9	63.6	57.5	40.5	43.2	36.2	12.7	54.5	20.9
Queue Delay	2.3	0.0	0.0	0.1	0.0	50.4	0.0	4.4	0.6
Total Delay	74.2	63.6	57.5	40.6	43.2	86.6	12.7	58.8	21.5
LOS	E	E	E	D	D	F	B	E	C
Approach Delay		68.3		47.4		71.6			31.1
Approach LOS		E		D		E			C

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 55.6 — Intersection LOS: E
Intersection Capacity Utilization 80.2% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	352	44	293	251	188	52	1412	334	331	775	188
Future Volume (veh/h)	320	352	44	293	251	188	52	1412	334	331	775	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	371	41	308	264	176	55	1486	352	348	816	176
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	515	57	365	316	203	543	2371	903	255	983	211
Arrive On Green	0.11	0.16	0.16	0.03	0.05	0.05	0.30	0.46	0.46	0.10	0.31	0.31
Sat Flow, veh/h	3456	3229	355	3456	2072	1335	1781	5106	1585	3456	4211	902
Grp Volume(v), veh/h	337	203	209	308	225	215	55	1486	352	348	659	333
Grp Sat Flow(s),veh/h/ln	1728	1777	1807	1728	1777	1630	1781	1702	1585	1728	1702	1708
Q Serve(g_s), s	12.5	14.1	14.3	11.5	16.3	17.0	2.9	28.6	16.0	9.6	23.3	23.6
Cycle Q Clear(g_c), s	12.5	14.1	14.3	11.5	16.3	17.0	2.9	28.6	16.0	9.6	23.3	23.6
Prop In Lane	1.00		0.20	1.00		0.82	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	389	283	288	365	271	248	543	2371	903	255	795	399
V/C Ratio(X)	0.87	0.72	0.73	0.84	0.83	0.87	0.10	0.63	0.39	1.36	0.83	0.84
Avail Cap(c_a), veh/h	441	323	328	441	323	296	543	2371	903	255	1246	625
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	56.7	51.9	51.9	61.7	60.1	60.4	32.4	26.3	15.5	58.6	42.4	42.5
Incr Delay (d2), s/veh	13.8	4.9	5.3	10.0	12.1	17.2	0.0	1.3	1.3	185.8	9.3	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.7	6.9	5.9	8.7	8.7	1.3	11.8	6.0	10.7	10.4	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.5	56.8	57.2	71.7	72.2	77.6	32.5	27.6	16.7	244.4	51.7	60.1
LnGrp LOS	E	E	E	E	E	E	C	C	B	F	D	E
Approach Vol, veh/h		749			748			1893			1340	
Approach Delay, s/veh		63.1			73.5			25.7			103.8	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	66.8	20.1	27.1	46.0	36.8	21.0	26.2
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	54.6	16.6	23.6	16.6	47.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	30.6	13.5	16.3	4.9	25.6	14.5	19.0
Green Ext Time (p_c), s	0.0	13.9	0.2	1.0	0.0	4.7	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	61.3
HCM 6th LOS	E

Notes

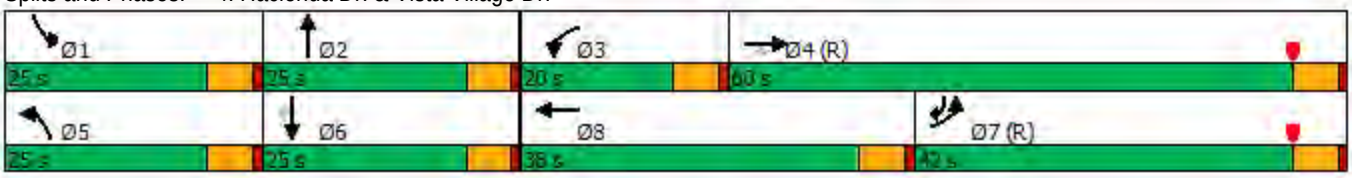
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	982	19	20	5	14	51	151	39	213	600
Future Volume (vph)	982	19	20	5	14	51	151	39	213	600
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	42.0	60.0	60.0	20.0	38.0	25.0	25.0	25.0	25.0	42.0
Total Split (%)	32.3%	46.2%	46.2%	15.4%	29.2%	19.2%	19.2%	19.2%	19.2%	32.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	66.4	83.4	83.4	5.3	15.9	8.6	22.5	7.7	21.6	90.2
Actuated g/C Ratio	0.51	0.64	0.64	0.04	0.12	0.07	0.17	0.06	0.17	0.69
v/c Ratio	0.62	0.02	0.02	0.08	0.18	0.49	0.55	0.41	0.77	0.31
Control Delay	40.9	15.2	0.9	62.2	23.2	71.6	54.3	71.5	96.0	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.1
Total Delay	40.9	15.2	0.9	62.2	23.2	71.6	54.3	71.5	106.1	9.0
LOS	D	B	A	E	C	E	D	E	F	A
Approach Delay		39.7			28.0		58.5		36.2	
Approach LOS		D			C		E		D	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 64 (49%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 39.9 — Intersection LOS: D
Intersection Capacity Utilization 63.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	982	19	20	5	14	23	51	151	7	39	213	600
Future Volume (veh/h)	982	19	20	5	14	23	51	151	7	39	213	600
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1091	21	22	6	16	26	57	168	8	43	237	667
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	973	1198	1015	13	235	382	74	274	13	56	271	1189
Arrive On Green	0.28	0.64	0.64	0.01	0.37	0.37	0.04	0.15	0.15	0.01	0.05	0.05
Sat Flow, veh/h	3456	1870	1585	1781	641	1042	1781	1771	84	1781	1870	2790
Grp Volume(v), veh/h	1091	21	22	6	0	42	57	0	176	43	237	667
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1683	1781	0	1855	1781	1870	1395
Q Serve(g_s), s	36.6	0.5	0.7	0.4	0.0	2.1	4.1	0.0	11.5	3.1	16.4	3.1
Cycle Q Clear(g_c), s	36.6	0.5	0.7	0.4	0.0	2.1	4.1	0.0	11.5	3.1	16.4	3.1
Prop In Lane	1.00		1.00	1.00		0.62	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	973	1198	1015	13	0	616	74	0	287	56	271	1189
V/C Ratio(X)	1.12	0.02	0.02	0.45	0.00	0.07	0.77	0.00	0.61	0.77	0.88	0.56
Avail Cap(c_a), veh/h	973	1198	1015	200	0	616	269	0	287	269	282	1206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.73	0.73	0.73	1.00	0.00	1.00	1.00	0.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	46.7	8.5	8.5	64.2	0.0	26.8	61.7	0.0	51.3	63.9	60.7	17.0
Incr Delay (d2), s/veh	65.1	0.0	0.0	8.5	0.0	0.0	6.3	0.0	2.8	7.7	22.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.4	0.2	0.2	0.2	0.0	0.9	2.0	0.0	5.6	1.6	9.9	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.8	8.5	8.6	72.8	0.0	26.8	68.0	0.0	54.1	71.5	82.9	17.4
LnGrp LOS	F	A	A	E	A	C	E	A	D	E	F	B
Approach Vol, veh/h		1134			48			233			947	
Approach Delay, s/veh		107.9			32.5			57.5			36.2	
Approach LOS		F			C			E			D	

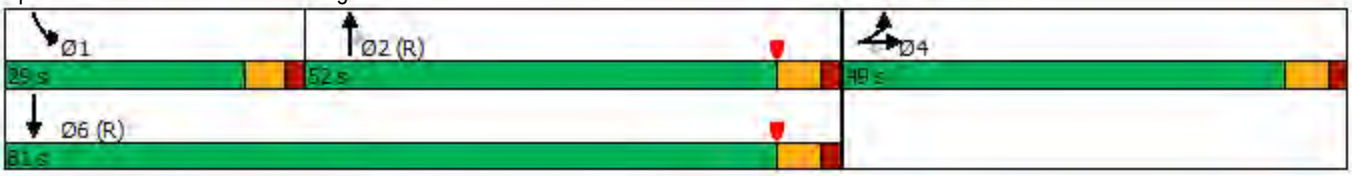
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	25.5	6.4	88.6	10.8	24.2	42.0	53.0
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	19.6	19.6	14.6	54.6	19.6	19.6	36.6	32.6
Max Q Clear Time (g_c+I1), s	5.1	13.5	2.4	2.7	6.1	18.4	38.6	4.1
Green Ext Time (p_c), s	0.0	0.3	0.0	0.1	0.0	0.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	72.7
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	750	1	53	494	662	435	799
Future Volume (vph)	750	1	53	494	662	435	799
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	49.0	49.0	49.0	52.0	52.0	29.0	81.0
Total Split (%)	37.7%	37.7%	37.7%	40.0%	40.0%	22.3%	62.3%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	35.5	35.5	35.5	55.4	55.4	20.8	82.0
Actuated g/C Ratio	0.27	0.27	0.27	0.43	0.43	0.16	0.63
v/c Ratio	0.86	0.86	0.11	0.59	0.45	0.83	0.38
Control Delay	62.6	62.8	3.8	14.1	3.7	61.4	15.5
Queue Delay	2.0	2.0	0.0	0.5	0.6	0.0	0.6
Total Delay	64.5	64.7	3.8	14.6	4.3	61.4	16.0
LOS	E	E	A	B	A	E	B
Approach Delay		60.6		11.4			32.0
Approach LOS		E		B			C

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 65 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 118.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	750	1	53	0	0	0	0	494	662	435	799	0
Future Volume (veh/h)	750	1	53	0	0	0	0	494	662	435	799	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	790	0	56				0	520	697	458	841	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	866	0	385				0	872	1478	520	2348	0
Arrive On Green	0.24	0.00	0.24				0.00	0.15	0.15	0.05	0.22	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	790	0	56				0	520	697	458	841	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	28.0	0.0	3.6				0.0	33.7	26.1	17.1	26.1	0.0
Cycle Q Clear(g_c), s	28.0	0.0	3.6				0.0	33.7	26.1	17.1	26.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	866	0	385				0	872	1478	520	2348	0
V/C Ratio(X)	0.91	0.00	0.15				0.00	0.60	0.47	0.88	0.36	0.00
Avail Cap(c_a), veh/h	1176	0	523				0	872	1478	619	2348	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.76	0.76	0.93	0.93	0.00
Uniform Delay (d), s/veh	47.8	0.0	38.6				0.0	43.6	40.4	60.6	27.5	0.0
Incr Delay (d2), s/veh	7.2	0.0	0.1				0.0	2.3	0.8	10.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	0.0	1.4				0.0	17.5	11.3	8.7	12.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	0.0	38.7				0.0	45.9	41.2	71.0	27.8	0.0
LnGrp LOS	E	A	D				A	D	D	E	C	A
Approach Vol, veh/h		846						1217			1299	
Approach Delay, s/veh		54.0						43.2			43.1	
Approach LOS		D						D			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.3	67.0		37.7		92.3
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 23	45.6		42.9		74.6
Max Q Clear Time (g_c+I1), s	19.1	35.7		30.0		28.1
Green Ext Time (p_c), s	0.4	3.1		1.6		4.5

Intersection Summary			
HCM 6th Ctrl Delay			45.9
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	462	0	1022	63	1181	772	474
Future Volume (vph)	462	0	1022	63	1181	772	474
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	64.0	64.0	64.0	16.4	66.0	49.6	49.6
Total Split (%)	49.2%	49.2%	49.2%	12.6%	50.8%	38.2%	38.2%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	54.4	54.4	54.4	10.3	63.1	50.2	50.2
Actuated g/C Ratio	0.42	0.42	0.42	0.08	0.49	0.39	0.39
v/c Ratio	0.34	0.34	0.88	0.47	0.72	0.41	0.54
Control Delay	26.4	26.4	41.3	80.3	17.6	32.4	18.0
Queue Delay	0.0	0.0	0.0	0.0	2.2	0.0	0.2
Total Delay	26.4	26.4	41.3	80.3	19.8	32.4	18.3
LOS	C	C	D	F	B	C	B
Approach Delay		36.7			22.9	27.0	
Approach LOS		D			C	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 118.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	462	0	1022	63	1181	0	0	772	474
Future Volume (veh/h)	0	0	0	462	0	1022	63	1181	0	0	772	474
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				481	0	1065	66	1230	0	0	804	494
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1299	0	1156	124	1916	0	0	2173	675
Arrive On Green				0.36	0.00	0.36	0.05	0.36	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				481	0	1065	66	1230	0	0	804	494
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				12.9	0.0	41.8	4.7	37.4	0.0	0.0	16.4	36.6
Cycle Q Clear(g_c), s				12.9	0.0	41.8	4.7	37.4	0.0	0.0	16.4	36.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1299	0	1156	124	1916	0	0	2173	675
V/C Ratio(X)				0.37	0.00	0.92	0.53	0.64	0.00	0.00	0.37	0.73
Avail Cap(c_a), veh/h				1587	0	1412	147	1916	0	0	2173	675
HCM Platoon Ratio				1.00	1.00	1.00	0.67	0.67	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	1.00	0.68	0.68	0.00	0.00	0.94	0.94
Uniform Delay (d), s/veh				30.3	0.0	39.5	59.9	31.1	0.0	0.0	32.5	39.8
Incr Delay (d2), s/veh				0.1	0.0	8.1	0.9	1.1	0.0	0.0	0.5	6.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.6	0.0	17.4	2.2	17.2	0.0	0.0	7.2	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.4	0.0	47.7	60.8	32.2	0.0	0.0	33.0	46.3
LnGrp LOS				C	A	D	E	C	A	A	C	D
Approach Vol, veh/h					1546			1296			1298	
Approach Delay, s/veh					42.3			33.7			38.1	
Approach LOS					D			C			D	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		76.5			14.8	61.7		53.5				
Change Period (Y+Rc), s		6.4			* 5.7	6.4		6.1				
Max Green Setting (Gmax), s		59.6			* 11	43.2		57.9				
Max Q Clear Time (g_c+I1), s		39.4			6.7	38.6		43.8				
Green Ext Time (p_c), s		6.5			0.0	2.2		3.6				

Intersection Summary			
HCM 6th Ctrl Delay			38.3
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

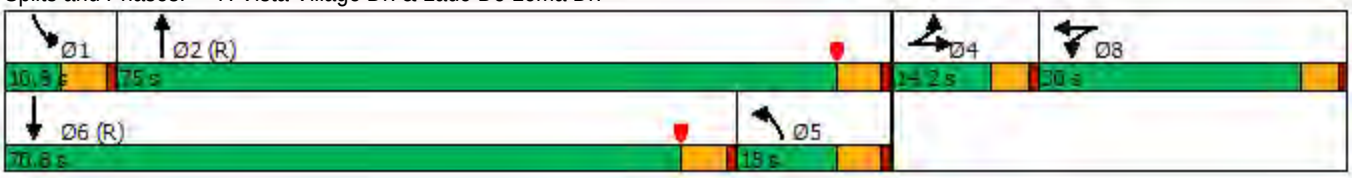
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2	192	3	9	1864	98	1041
Future Volume (vph)	2	192	3	9	1864	98	1041
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	75.0	10.8	70.8
Total Split (%)	10.9%	23.1%	23.1%	11.5%	57.7%	8.3%	54.5%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	6.2	17.3	17.3	10.7	77.1	15.5	91.0
Actuated g/C Ratio	0.05	0.13	0.13	0.08	0.59	0.12	0.70
v/c Ratio	0.18	0.69	0.53	0.06	0.76	0.48	0.30
Control Delay	34.6	69.1	33.4	53.4	19.2	49.0	7.3
Queue Delay	0.0	0.0	0.0	0.0	1.1	0.0	0.2
Total Delay	34.6	69.1	33.4	53.4	20.3	49.0	7.5
LOS	C	E	C	D	C	D	A
Approach Delay	34.6		51.9		20.4		11.0
Approach LOS	C		D		C		B

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 110 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 20.0 — Intersection LOS: C
Intersection Capacity Utilization 76.5% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	13	192	3	93	9	1864	330	98	1041	5
Future Volume (veh/h)	1	2	13	192	3	93	9	1864	330	98	1041	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	2	13	148	72	96	9	1922	340	101	1073	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3	22	214	87	116	809	2922	508	74	1338	6
Arrive On Green	0.02	0.02	0.02	0.12	0.12	0.12	0.91	1.00	1.00	0.08	0.51	0.51
Sat Flow, veh/h	102	203	1322	1781	727	969	1781	4377	761	1781	5246	24
Grp Volume(v), veh/h	16	0	0	148	0	168	9	1487	775	101	696	382
Grp Sat Flow(s),veh/h/ln	1627	0	0	1781	0	1696	1781	1702	1733	1781	1702	1866
Q Serve(g_s), s	1.3	0.0	0.0	10.4	0.0	12.6	0.1	0.0	0.0	5.4	22.0	22.0
Cycle Q Clear(g_c), s	1.3	0.0	0.0	10.4	0.0	12.6	0.1	0.0	0.0	5.4	22.0	22.0
Prop In Lane	0.06		0.81	1.00		0.57	1.00		0.44	1.00		0.01
Lane Grp Cap(c), veh/h	27	0	0	214	0	204	809	2273	1157	74	869	476
V/C Ratio(X)	0.58	0.00	0.00	0.69	0.00	0.82	0.01	0.65	0.67	1.37	0.80	0.80
Avail Cap(c_a), veh/h	120	0	0	348	0	331	809	2273	1157	74	1713	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.51	0.51	0.51	0.88	0.88	0.88
Uniform Delay (d), s/veh	63.4	0.0	0.0	54.9	0.0	55.9	3.3	0.0	0.0	59.6	29.1	29.1
Incr Delay (d2), s/veh	18.0	0.0	0.0	4.0	0.0	8.5	0.0	0.8	1.6	223.2	6.8	11.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	4.9	0.0	5.9	0.0	0.2	0.5	6.9	7.8	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	0.0	0.0	58.8	0.0	64.4	3.3	0.8	1.6	282.8	35.9	41.0
LnGrp LOS	F	A	A	E	A	E	A	A	A	F	D	D
Approach Vol, veh/h		16			316			2271			1179	
Approach Delay, s/veh		81.5			61.8			1.1			58.7	
Approach LOS		F			E			A			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	92.2		6.8	64.4	38.6		20.2				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	69.6		9.6	9.6	65.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	2.0		3.3	2.1	24.0		14.6				
Green Ext Time (p_c), s	0.0	36.9		0.0	0.0	9.1		1.0				

Intersection Summary			
HCM 6th Ctrl Delay			24.4
HCM 6th LOS			C

Notes

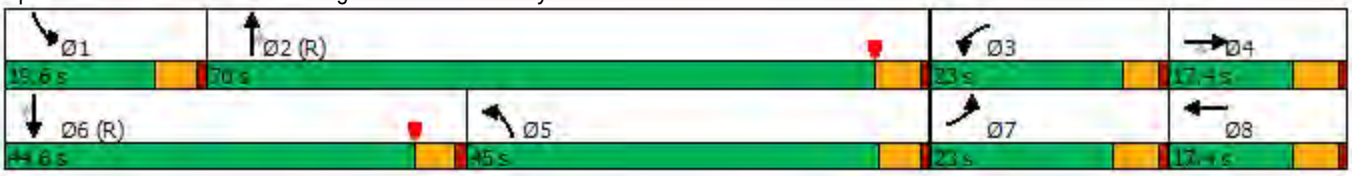
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	372	147	165	57	111	426	1393	139	65	922	410
Future Volume (vph)	372	147	165	57	111	426	1393	139	65	922	410
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	23.0	17.4	17.4	23.0	17.4	45.0	70.0	70.0	19.6	44.6	44.6
Total Split (%)	17.7%	13.4%	13.4%	17.7%	13.4%	34.6%	53.8%	53.8%	15.1%	34.3%	34.3%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	19.3	25.4	25.4	8.7	12.0	26.2	70.2	70.2	9.4	51.7	51.7
Actuated g/C Ratio	0.15	0.20	0.20	0.07	0.09	0.20	0.54	0.54	0.07	0.40	0.40
v/c Ratio	0.76	0.22	0.38	0.50	0.46	0.64	0.53	0.16	0.54	0.48	0.55
Control Delay	62.2	45.4	8.1	71.8	49.6	41.6	20.8	8.2	72.7	31.5	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	62.2	45.4	8.1	71.8	49.6	41.6	21.2	8.2	72.7	31.5	16.8
LOS	E	D	A	E	D	D	C	A	E	C	B
Approach Delay		45.6			55.6		24.7			29.1	
Approach LOS		D			E		C			C	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 70 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 31.0 — Intersection LOS: C
Intersection Capacity Utilization 69.4% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	147	165	57	111	40	426	1393	139	65	922	410
Future Volume (veh/h)	372	147	165	57	111	40	426	1393	139	65	922	410
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	388	153	172	59	116	42	444	1451	145	68	960	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	439	651	290	76	238	83	1334	2906	902	87	1184	
Arrive On Green	0.13	0.18	0.18	0.04	0.09	0.09	0.77	1.00	1.00	0.05	0.23	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2588	898	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	388	153	172	59	78	80	444	1451	145	68	960	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1709	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	14.4	4.8	5.5	4.3	5.4	5.8	5.1	0.0	0.0	4.9	23.1	0.0
Cycle Q Clear(g_c), s	14.4	4.8	5.5	4.3	5.4	5.8	5.1	0.0	0.0	4.9	23.1	0.0
Prop In Lane	1.00		1.00	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	439	651	290	76	163	157	1334	2906	902	87	1184	
V/C Ratio(X)	0.88	0.23	0.59	0.78	0.48	0.51	0.33	0.50	0.16	0.78	0.81	
Avail Cap(c_a), veh/h	468	651	290	253	164	158	1334	2906	902	200	1555	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	1.00	1.00	1.00	0.56	0.56	0.56	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.8	45.3	8.8	61.6	56.1	56.2	9.7	0.0	0.0	61.1	47.2	0.0
Incr Delay (d2), s/veh	6.3	0.0	0.9	6.2	1.6	2.0	0.0	0.3	0.2	5.6	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	2.1	4.8	2.1	2.5	2.6	1.7	0.1	0.1	2.4	10.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	45.4	9.7	67.8	57.7	58.2	9.7	0.3	0.2	66.8	53.3	0.0
LnGrp LOS	E	D	A	E	E	E	A	A	A	E	D	
Approach Vol, veh/h		713			217			2040			1028	A
Approach Delay, s/veh		45.9			60.6			2.4			54.2	
Approach LOS		D			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	79.4	10.1	29.2	55.6	35.1	21.9	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	14.6	64.6	18.5	12.0	40.0	* 40	17.6	12.0
Max Q Clear Time (g_c+I1), s	6.9	2.0	6.3	7.5	7.1	25.1	16.4	7.8
Green Ext Time (p_c), s	0.0	13.9	0.0	0.5	0.9	5.0	0.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

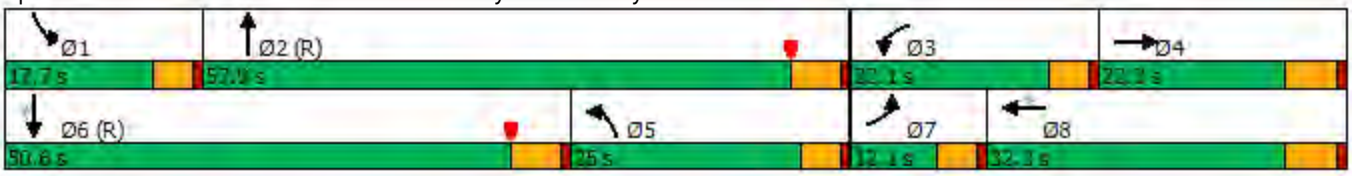
APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + CUMULATIVE PROJECTS + PROJECT AM, MIDDAY AND PM PEAK HOURS

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	50	213	229	298	402	292	856	185	1454	509
Future Volume (vph)	50	213	229	298	402	292	856	185	1454	509
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	12.1	22.3	22.1	32.3	32.3	25.0	57.9	17.7	50.6	50.6
Total Split (%)	10.1%	18.6%	18.4%	26.9%	26.9%	20.8%	48.3%	14.8%	42.2%	42.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	7.4	15.7	12.8	22.9	22.9	16.0	54.2	17.2	55.4	55.4
Actuated g/C Ratio	0.06	0.13	0.11	0.19	0.19	0.13	0.45	0.14	0.46	0.46
v/c Ratio	0.49	0.73	0.66	0.47	0.77	0.67	0.48	0.77	0.65	0.61
Control Delay	69.2	39.9	60.2	45.3	23.6	47.5	19.7	70.8	28.1	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	39.9	60.2	45.3	23.6	47.5	19.7	70.8	28.1	15.5
LOS	E	D	E	D	C	D	B	E	C	B
Approach Delay		43.3		39.6			25.8		28.8	
Approach LOS		D		D			C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 31.4	Intersection LOS: C
Intersection Capacity Utilization 71.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	213	169	229	298	402	292	856	177	185	1454	509
Future Volume (veh/h)	50	213	169	229	298	402	292	856	177	185	1454	509
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	224	178	241	314	388	307	901	166	195	1531	514
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	331	251	302	785	350	702	2005	368	196	1848	574
Arrive On Green	0.04	0.17	0.17	0.09	0.22	0.22	0.27	0.62	0.62	0.11	0.36	0.36
Sat Flow, veh/h	1781	1924	1460	3456	3554	1585	3456	4336	795	1781	5106	1585
Grp Volume(v), veh/h	53	206	196	241	314	388	307	707	360	195	1531	514
Grp Sat Flow(s),veh/h/ln	1781	1777	1607	1728	1777	1585	1728	1702	1727	1781	1702	1585
Q Serve(g_s), s	3.5	13.0	13.8	8.2	9.1	26.5	8.8	13.2	13.3	13.1	32.8	29.8
Cycle Q Clear(g_c), s	3.5	13.0	13.8	8.2	9.1	26.5	8.8	13.2	13.3	13.1	32.8	29.8
Prop In Lane	1.00		0.91	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	68	305	276	302	785	350	702	1574	799	196	1848	574
V/C Ratio(X)	0.78	0.67	0.71	0.80	0.40	1.11	0.44	0.45	0.45	1.00	0.83	0.90
Avail Cap(c_a), veh/h	113	305	276	507	785	350	702	1574	799	196	1923	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.60	0.60	0.60	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	46.5	46.9	53.7	40.0	46.8	38.1	15.0	15.0	53.4	34.9	23.8
Incr Delay (d2), s/veh	6.9	6.1	8.5	1.1	0.2	70.6	0.4	0.9	1.7	62.8	4.5	19.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.3	6.2	3.6	4.0	17.2	3.7	4.7	4.9	9.3	14.2	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	52.7	55.4	54.9	40.2	117.4	38.5	15.8	16.7	116.2	39.4	43.0
LnGrp LOS	E	D	E	D	D	F	D	B	B	F	D	D
Approach Vol, veh/h		455			943			1374			2240	
Approach Delay, s/veh		55.2			75.7			21.1			46.9	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	60.9	15.0	26.4	29.8	48.8	9.1	32.3
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	13.2	52.5	17.6	16.5	20.5	* 45	7.6	26.5
Max Q Clear Time (g_c+I1), s	15.1	15.3	10.2	15.8	10.8	34.8	5.5	28.5
Green Ext Time (p_c), s	0.0	11.0	0.3	0.2	0.8	8.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

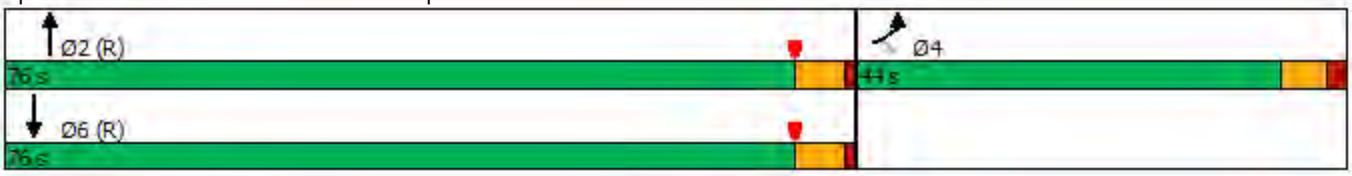
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	218	284	1015	1781
Future Volume (vph)	218	284	1015	1781
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	44.0	44.0	76.0	76.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	17.6	17.6	90.9	90.9
Actuated g/C Ratio	0.15	0.15	0.76	0.76
v/c Ratio	0.70	0.72	0.27	0.37
Control Delay	53.8	61.5	11.2	9.5
Queue Delay	0.4	1.2	2.5	0.2
Total Delay	54.2	62.7	13.7	9.7
LOS	D	E	B	A
Approach Delay	56.9		13.7	9.7
Approach LOS	E		B	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 47.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	218	284	0	1015	1781	0
Future Volume (veh/h)	218	284	0	1015	1781	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	171	345	0	1036	1817	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	234	416	0	3947	4974	0
Arrive On Green	0.13	0.13	0.00	1.00	1.00	0.00
Sat Flow, veh/h	1781	3170	0	5443	6958	0
Grp Volume(v), veh/h	171	345	0	1036	1817	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	11.1	12.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.1	12.7	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	234	416	0	3947	4974	0
V/C Ratio(X)	0.73	0.83	0.00	0.26	0.37	0.00
Avail Cap(c_a), veh/h	563	1001	0	3947	4974	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.73	0.71	0.00
Uniform Delay (d), s/veh	50.1	50.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	1.7	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	5.1	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.8	52.5	0.0	0.1	0.1	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	516			1036	1817	
Approach Delay, s/veh	52.2			0.1	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.2		21.8		98.2
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		70.6		37.9		70.6
Max Q Clear Time (g_c+I1), s		2.0		14.7		2.0
Green Ext Time (p_c), s		6.0		1.0		15.0

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

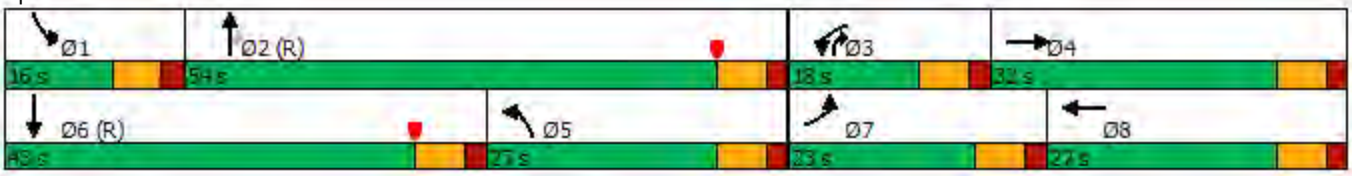
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	187	263	512	247	19	852	262	593	1497
Future Volume (vph)	187	263	512	247	19	852	262	593	1497
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	32.0	18.0	27.0	27.0	54.0	18.0	16.0	43.0
Total Split (%)	19.2%	26.7%	15.0%	22.5%	22.5%	45.0%	15.0%	13.3%	35.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	16.4	25.9	31.0	6.3	33.3	65.6	18.8	45.8
Actuated g/C Ratio	0.09	0.14	0.22	0.26	0.05	0.28	0.55	0.16	0.38
v/c Ratio	0.62	0.67	0.74	0.40	0.22	0.64	0.30	1.18	0.89
Control Delay	60.4	53.4	51.1	34.1	59.0	40.3	8.3	145.1	41.3
Queue Delay	2.2	0.0	0.0	0.0	0.0	0.1	0.0	2.0	46.3
Total Delay	62.5	53.4	51.1	34.1	59.0	40.4	8.3	147.1	87.6
LOS	E	D	D	C	E	D	A	F	F
Approach Delay		56.9		44.4		33.3			103.5
Approach LOS		E		D		C			F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 70.9	Intersection LOS: E
Intersection Capacity Utilization 80.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	263	42	512	247	90	19	852	262	593	1497	120
Future Volume (veh/h)	187	263	42	512	247	90	19	852	262	593	1497	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	280	39	545	263	92	20	906	279	631	1593	102
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	354	49	334	349	119	485	2539	941	276	1496	96
Arrive On Green	0.07	0.11	0.11	0.10	0.13	0.13	0.27	0.50	0.50	0.16	0.61	0.61
Sat Flow, veh/h	3456	3137	432	3456	2599	888	1781	5106	1585	3456	4904	314
Grp Volume(v), veh/h	199	157	162	545	178	177	20	906	279	631	1105	590
Grp Sat Flow(s),veh/h/ln	1728	1777	1793	1728	1777	1711	1781	1702	1585	1728	1702	1814
Q Serve(g_s), s	6.8	10.3	10.6	11.6	11.5	12.0	1.0	13.0	10.4	9.6	36.6	36.6
Cycle Q Clear(g_c), s	6.8	10.3	10.6	11.6	11.5	12.0	1.0	13.0	10.4	9.6	36.6	36.6
Prop In Lane	1.00		0.24	1.00		0.52	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	259	200	202	334	239	230	485	2539	941	276	1038	553
V/C Ratio(X)	0.77	0.79	0.80	1.63	0.74	0.77	0.04	0.36	0.30	2.28	1.06	1.07
Avail Cap(c_a), veh/h	478	379	382	334	305	294	485	2539	941	276	1038	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	54.5	51.8	51.9	54.2	50.0	50.1	32.1	18.4	12.0	50.4	23.4	23.4
Incr Delay (d2), s/veh	1.8	2.6	2.8	295.0	4.0	5.5	0.0	0.4	0.8	587.6	45.8	55.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	4.7	4.9	18.7	5.4	5.5	0.4	5.2	3.8	26.3	16.2	18.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.4	54.7	349.2	53.9	55.6	32.2	18.8	12.8	638.0	69.2	78.8
LnGrp LOS	E	D	D	F	D	E	C	B	B	F	F	F
Approach Vol, veh/h		518			900			1205			2326	
Approach Delay, s/veh		55.2			233.1			17.7			225.9	
Approach LOS		E			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	66.1	18.0	19.9	39.1	43.0	15.4	22.5
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	47.6	11.6	25.6	20.6	36.6	16.6	20.6
Max Q Clear Time (g_c+I1), s	11.6	15.0	13.6	12.6	3.0	38.6	8.8	14.0
Green Ext Time (p_c), s	0.0	8.9	0.0	1.0	0.0	0.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	158.7
HCM 6th LOS	F

Notes

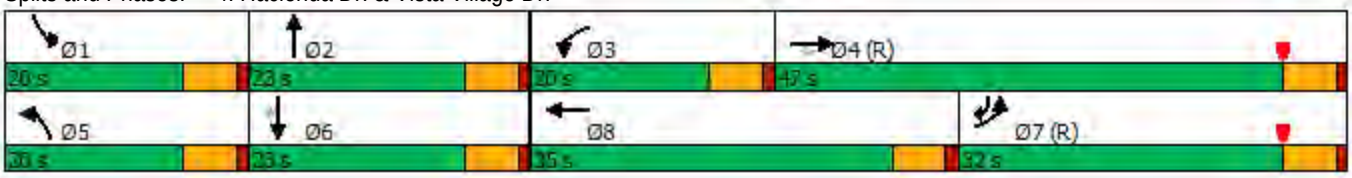
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	881	149	10	1	126	14	31	247	85	737
Future Volume (vph)	881	149	10	1	126	14	31	247	85	737
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	23.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	45.1	74.1	74.1	5.0	25.7	5.7	7.2	14.6	16.4	62.6
Actuated g/C Ratio	0.41	0.67	0.67	0.05	0.23	0.05	0.07	0.13	0.15	0.57
v/c Ratio	0.67	0.13	0.01	0.01	0.86	0.16	0.28	1.14	0.33	0.41
Control Delay	32.7	8.9	0.0	51.0	49.0	53.4	51.5	141.0	48.4	5.8
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	32.8	8.9	0.0	51.0	49.0	53.4	51.5	141.0	48.4	6.0
LOS	C	A	A	D	D	D	D	F	D	A
Approach Delay		29.0			49.0		52.0		40.6	
Approach LOS		C			D		D		D	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 24 (22%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 37.3 — Intersection LOS: D
Intersection Capacity Utilization 80.3% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	881	149	10	1	126	239	14	31	2	247	85	737
Future Volume (veh/h)	881	149	10	1	126	239	14	31	2	247	85	737
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	947	160	11	1	135	257	15	33	2	266	91	792
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1196	1014	2	230	438	30	52	3	236	273	1082
Arrive On Green	0.24	0.64	0.64	0.00	0.40	0.40	0.02	0.03	0.03	0.04	0.05	0.05
Sat Flow, veh/h	3456	1870	1585	1781	576	1097	1781	1746	106	1781	1870	2790
Grp Volume(v), veh/h	947	160	11	1	0	392	15	0	35	266	91	792
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1673	1781	0	1851	1781	1870	1395
Q Serve(g_s), s	26.6	3.7	0.3	0.1	0.0	20.2	0.9	0.0	2.1	14.6	5.2	2.5
Cycle Q Clear(g_c), s	26.6	3.7	0.3	0.1	0.0	20.2	0.9	0.0	2.1	14.6	5.2	2.5
Prop In Lane	1.00		1.00	1.00		0.66	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	836	1196	1014	2	0	668	30	0	55	236	273	1082
V/C Ratio(X)	1.13	0.13	0.01	0.41	0.00	0.59	0.50	0.00	0.63	1.13	0.33	0.73
Avail Cap(c_a), veh/h	836	1196	1014	236	0	668	236	0	296	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.42	0.42	0.42	1.00	0.00	1.00	1.00	0.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	41.7	7.8	7.2	54.9	0.0	25.9	53.6	0.0	52.8	52.6	47.2	18.4
Incr Delay (d2), s/veh	66.9	0.1	0.0	36.3	0.0	0.9	4.8	0.0	4.4	94.3	0.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.9	1.5	0.1	0.1	0.0	8.1	0.5	0.0	1.0	13.2	2.5	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.6	7.9	7.2	91.2	0.0	26.8	58.5	0.0	57.2	146.9	47.4	20.3
LnGrp LOS	F	A	A	F	A	C	E	A	E	F	D	C
Approach Vol, veh/h		1118			393			50			1149	
Approach Delay, s/veh		93.2			27.0			57.5			51.8	
Approach LOS		F			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	8.7	5.6	75.8	7.2	21.4	32.0	49.3
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	16.6	4.1	2.1	5.7	2.9	7.2	28.6	22.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	1.9	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	65.4
HCM 6th LOS	E

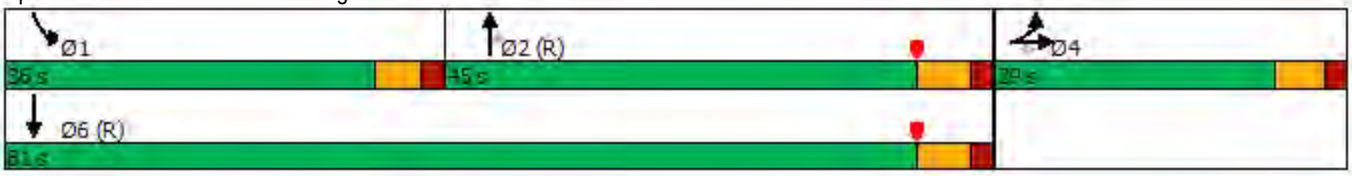
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	313	4	60	331	821	563	1011
Future Volume (vph)	313	4	60	331	821	563	1011
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	29.0	29.0	29.0	45.0	45.0	36.0	81.0
Total Split (%)	26.4%	26.4%	26.4%	40.9%	40.9%	32.7%	73.6%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	15.3	15.3	15.3	53.3	53.3	23.1	82.2
Actuated g/C Ratio	0.14	0.14	0.14	0.48	0.48	0.21	0.75
v/c Ratio	0.71	0.70	0.21	0.46	0.47	0.81	0.40
Control Delay	60.9	60.2	5.2	3.6	2.6	49.8	11.0
Queue Delay	0.0	0.0	0.0	0.5	0.9	0.0	0.7
Total Delay	60.9	60.2	5.2	4.1	3.5	49.8	11.6
LOS	E	E	A	A	A	D	B
Approach Delay		51.7		3.9			25.3
Approach LOS		D		A			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 82.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	313	4	60	0	0	0	0	331	821	563	1011	0
Future Volume (veh/h)	313	4	60	0	0	0	0	331	821	563	1011	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	329	0	62				0	345	855	586	1053	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	405	0	180				0	984	1667	674	2746	0
Arrive On Green	0.11	0.00	0.11				0.00	0.88	0.88	0.06	0.25	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	329	0	62				0	345	855	586	1053	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	9.9	0.0	4.0				0.0	3.6	6.6	18.5	26.9	0.0
Cycle Q Clear(g_c), s	9.9	0.0	4.0				0.0	3.6	6.6	18.5	26.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	405	0	180				0	984	1667	674	2746	0
V/C Ratio(X)	0.81	0.00	0.34				0.00	0.35	0.51	0.87	0.38	0.00
Avail Cap(c_a), veh/h	742	0	330				0	984	1667	952	2746	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.67	1.67	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.70	0.70	0.89	0.89	0.00
Uniform Delay (d), s/veh	47.6	0.0	45.0				0.0	3.4	3.6	50.1	19.3	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.4				0.0	0.7	0.8	4.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	1.6				0.0	1.3	1.6	9.0	12.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	0.0	45.4				0.0	4.1	4.4	54.4	19.7	0.0
LnGrp LOS	D	A	D				A	A	A	D	B	A
Approach Vol, veh/h		391						1200			1639	
Approach Delay, s/veh		48.5						4.3			32.1	
Approach LOS		D						A			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	27.1	64.2		18.6		91.4
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 30	38.6		22.9		74.6
Max Q Clear Time (g_c+I1), s	20.5	8.6		11.9		28.9
Green Ext Time (p_c), s	1.0	3.8		0.6		6.2

Intersection Summary		
HCM 6th Ctrl Delay		23.8
HCM 6th LOS		C

Notes

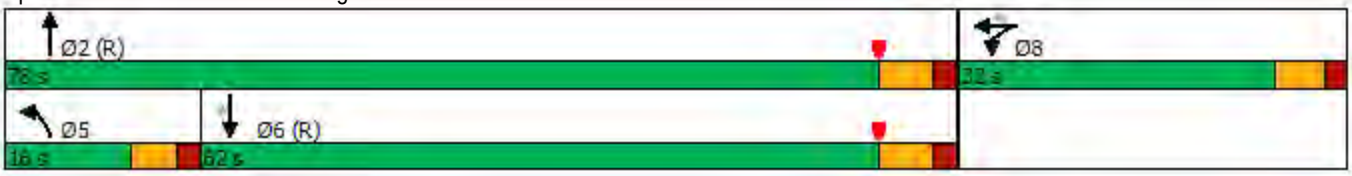
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	522	0	624	85	558	1051	717
Future Volume (vph)	522	0	624	85	558	1051	717
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	32.0	32.0	32.0	16.0	78.0	62.0	62.0
Total Split (%)	29.1%	29.1%	29.1%	14.5%	70.9%	56.4%	56.4%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	24.7	24.7	24.7	10.4	72.8	59.9	59.9
Actuated g/C Ratio	0.22	0.22	0.22	0.09	0.66	0.54	0.54
v/c Ratio	0.72	0.72	0.59	0.53	0.25	0.39	0.62
Control Delay	49.4	49.4	5.7	58.2	5.0	26.5	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	49.4	49.4	5.7	58.2	5.0	26.5	17.1
LOS	D	D	A	E	A	C	B
Approach Delay		25.6			12.1	22.7	
Approach LOS		C			B	C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 82.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	522	0	624	85	558	0	0	1051	717
Future Volume (veh/h)	0	0	0	522	0	624	85	558	0	0	1051	717
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				538	0	643	88	575	0	0	1084	739
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				796	0	708	151	2356	0	0	2688	834
Arrive On Green				0.22	0.00	0.22	0.17	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				538	0	643	88	575	0	0	1084	739
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				15.2	0.0	21.7	5.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				15.2	0.0	21.7	5.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				796	0	708	151	2356	0	0	2688	834
V/C Ratio(X)				0.68	0.00	0.91	0.58	0.24	0.00	0.00	0.40	0.89
Avail Cap(c_a), veh/h				839	0	746	167	2356	0	0	2688	834
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.85	0.85	0.00	0.00	0.80	0.80
Uniform Delay (d), s/veh				39.1	0.0	41.6	43.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				1.6	0.0	14.0	1.8	0.2	0.0	0.0	0.4	11.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.8	0.0	9.8	2.2	0.1	0.0	0.0	0.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				40.7	0.0	55.6	45.7	0.2	0.0	0.0	0.4	11.0
LnGrp LOS				D	A	E	D	A	A	A	A	B
Approach Vol, veh/h					1181			663			1823	
Approach Delay, s/veh					48.8			6.3			4.7	
Approach LOS					D			A			A	

Timer - Assigned Phs	2		5	6		8
Phs Duration (G+Y+Rc), s	79.3		15.0	64.3		30.7
Change Period (Y+Rc), s	6.4		* 5.7	6.4		6.1
Max Green Setting (Gmax), s	71.6		* 10	55.6		25.9
Max Q Clear Time (g_c+I1), s	2.0		7.0	2.0		23.7
Green Ext Time (p_c), s	2.9		0.0	9.0		0.8

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

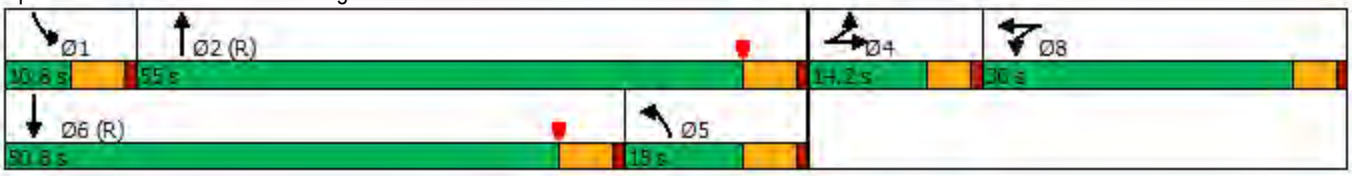
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	1	222	2	7	1041	116	1541
Future Volume (vph)	1	222	2	7	1041	116	1541
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	55.0	10.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	50.0%	9.8%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	C-Min	Max	C-Min
Act Effct Green (s)	5.3	15.6	15.6	14.3	49.6	27.2	62.5
Actuated g/C Ratio	0.05	0.14	0.14	0.13	0.45	0.25	0.57
v/c Ratio	0.07	0.65	0.57	0.03	0.54	0.28	0.56
Control Delay	34.0	56.5	40.0	52.7	25.2	62.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	34.0	56.5	40.0	52.7	25.2	62.5	6.0
LOS	C	E	D	D	C	E	A
Approach Delay	34.0		48.4		25.3		9.9
Approach LOS	C		D		C		A

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 15 (14%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 19.3 — Intersection LOS: B
Intersection Capacity Utilization 61.8% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	5	222	2	67	7	1041	134	116	1541	6
Future Volume (veh/h)	0	1	5	222	2	67	7	1041	134	116	1541	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1	5	152	113	70	7	1084	140	121	1605	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	10	229	139	86	580	2897	374	87	1871	7
Arrive On Green	0.00	0.01	0.01	0.13	0.13	0.13	0.22	0.42	0.42	0.10	0.71	0.71
Sat Flow, veh/h	0	271	1355	1781	1081	669	1781	4578	591	1781	5251	20
Grp Volume(v), veh/h	0	0	6	152	0	183	7	806	418	121	1040	571
Grp Sat Flow(s),veh/h/ln	0	0	1626	1781	0	1750	1781	1702	1764	1781	1702	1867
Q Serve(g_s), s	0.0	0.0	0.4	8.9	0.0	11.2	0.3	17.8	17.9	5.4	24.9	24.9
Cycle Q Clear(g_c), s	0.0	0.0	0.4	8.9	0.0	11.2	0.3	17.8	17.9	5.4	24.9	24.9
Prop In Lane	0.00		0.83	1.00		0.38	1.00		0.33	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	12	229	0	225	580	2154	1117	87	1213	665
V/C Ratio(X)	0.00	0.00	0.48	0.66	0.00	0.81	0.01	0.37	0.37	1.38	0.86	0.86
Avail Cap(c_a), veh/h	0	0	142	411	0	404	580	2154	1117	87	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	0.63	0.63	0.63
Uniform Delay (d), s/veh	0.0	0.0	54.4	45.7	0.0	46.6	29.1	16.8	16.8	49.6	13.8	13.8
Incr Delay (d2), s/veh	0.0	0.0	20.2	2.4	0.0	5.3	0.0	0.5	0.9	211.0	5.2	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	4.1	0.0	5.2	0.1	7.6	8.1	7.4	5.4	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	74.5	48.1	0.0	51.9	29.2	17.2	17.6	260.6	19.0	22.8
LnGrp LOS	A	A	E	D	A	D	C	B	B	F	B	C
Approach Vol, veh/h		6			335			1231			1732	
Approach Delay, s/veh		74.5			50.2			17.4			37.1	
Approach LOS		E			D			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	75.0		5.4	41.2	44.6		18.7				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	49.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	19.9		2.4	2.3	26.9		13.2				
Green Ext Time (p_c), s	0.0	12.1		0.0	0.0	12.3		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			31.2
HCM 6th LOS			C

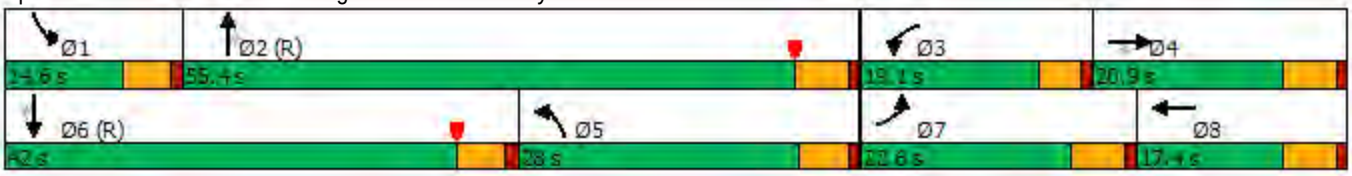
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	296	60	210	28	88	385	715	8	20	1425	579
Future Volume (vph)	296	60	210	28	88	385	715	8	20	1425	579
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.5	17.4	17.4	9.5	17.4	16.5	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	20.9	20.9	19.1	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	19.0%	19.0%	17.4%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	14.8	25.0	25.0	6.6	12.0	17.8	62.1	62.1	6.1	44.5	44.5
Actuated g/C Ratio	0.13	0.23	0.23	0.06	0.11	0.16	0.56	0.56	0.06	0.40	0.40
v/c Ratio	0.70	0.08	0.43	0.29	0.28	0.76	0.27	0.01	0.23	0.76	0.79
Control Delay	53.8	35.4	7.6	56.0	43.7	35.0	4.9	0.0	54.7	32.3	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	35.4	7.6	56.0	43.7	35.0	4.9	0.0	54.7	32.3	25.6
LOS	D	D	A	E	D	C	A	A	D	C	C
Approach Delay		34.7			46.4		15.3			30.6	
Approach LOS		C			D		B			C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 10 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 27.3	Intersection LOS: C
Intersection Capacity Utilization 69.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	296	60	210	28	88	9	385	715	8	20	1425	579
Future Volume (veh/h)	296	60	210	28	88	9	385	715	8	20	1425	579
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	66	231	31	97	10	423	786	9	22	1566	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	394	708	316	50	342	35	888	2891	897	40	1692	
Arrive On Green	0.11	0.20	0.20	0.03	0.10	0.10	0.51	1.00	1.00	0.02	0.33	0.00
Sat Flow, veh/h	3456	3554	1585	1781	3257	331	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	325	66	231	31	52	55	423	786	9	22	1566	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1811	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	10.1	1.7	8.4	1.9	3.0	3.1	8.7	0.0	0.0	1.3	32.5	0.0
Cycle Q Clear(g_c), s	10.1	1.7	8.4	1.9	3.0	3.1	8.7	0.0	0.0	1.3	32.5	0.0
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	394	708	316	50	186	190	888	2891	897	40	1692	
V/C Ratio(X)	0.83	0.09	0.73	0.63	0.28	0.29	0.48	0.27	0.01	0.56	0.93	
Avail Cap(c_a), veh/h	540	708	316	236	194	198	888	2891	897	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.59	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.7	35.9	12.8	52.9	45.4	45.4	22.0	0.0	0.0	53.2	35.5	0.0
Incr Delay (d2), s/veh	4.0	0.0	4.8	4.7	0.6	0.6	0.1	0.2	0.0	4.4	10.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.7	3.3	0.9	1.3	1.4	3.0	0.1	0.0	0.7	14.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	36.0	17.6	57.6	46.0	46.0	22.1	0.2	0.0	57.7	45.6	0.0
LnGrp LOS	D	D	B	E	D	D	C	A	A	E	D	
Approach Vol, veh/h		622			138			1218			1588	A
Approach Delay, s/veh		37.3			48.6			7.8			45.8	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	67.7	7.6	27.3	33.7	41.5	17.9	16.9
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	14.6	15.5	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	3.3	2.0	3.9	10.4	10.7	34.5	12.1	5.1
Green Ext Time (p_c), s	0.0	5.4	0.0	0.4	0.7	1.9	0.4	0.2

Intersection Summary	
HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	302	95	66	3	3	300
Future Vol, veh/h	302	95	66	3	3	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	328	103	72	3	3	326

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	75	0	-	0	833	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	759	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1524	-	-	-	339	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	462	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1524	-	-	-	266	988
Mov Cap-2 Maneuver	-	-	-	-	266	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	462	-

Approach	EB	WB	SB
HCM Control Delay, s	6.1	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1524	-	-	-	962
HCM Lane V/C Ratio	0.215	-	-	-	0.342
HCM Control Delay (s)	8	-	-	-	10.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.8	-	-	-	1.5

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	27	27	71	42	3
Future Vol, veh/h	3	27	27	71	42	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	29	29	77	46	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	183	48	49	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	135	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	806	1021	1558	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	1021	1558	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	891	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	2	0
HCM LOS	A		

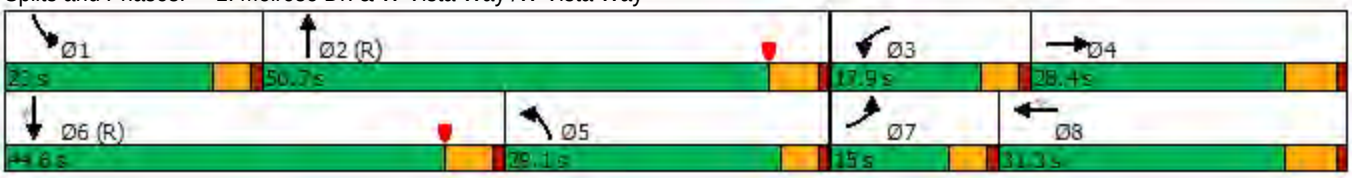
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1558	-	992	-	-
HCM Lane V/C Ratio	0.019	-	0.033	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	58	145	189	208	299	343	716	122	715	256
Future Volume (vph)	58	145	189	208	299	343	716	122	715	256
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	29.1	50.7	23.0	44.6	44.6
Total Split (%)	12.5%	23.7%	14.9%	26.1%	26.1%	24.3%	42.3%	19.2%	37.2%	37.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.5	13.1	11.2	17.7	17.7	19.9	62.6	12.9	55.6	55.6
Actuated g/C Ratio	0.07	0.11	0.09	0.15	0.15	0.17	0.52	0.11	0.46	0.46
v/c Ratio	0.48	0.55	0.61	0.41	0.62	0.62	0.36	0.67	0.31	0.30
Control Delay	65.6	33.5	60.4	48.5	10.5	74.5	36.7	67.8	22.2	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	33.5	60.4	48.5	10.5	74.5	36.7	67.8	22.2	4.1
LOS	E	C	E	D	B	E	D	E	C	A
Approach Delay		39.7		35.4			47.0		23.1	
Approach LOS		D		D			D		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 36.1 — Intersection LOS: D
Intersection Capacity Utilization 54.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	145	97	189	208	299	343	716	195	122	715	256
Future Volume (veh/h)	58	145	97	189	208	299	343	716	195	122	715	256
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	149	100	195	214	274	354	738	181	126	737	242
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	341	215	253	685	306	1304	2090	507	153	1075	334
Arrive On Green	0.04	0.16	0.16	0.07	0.19	0.19	0.50	0.68	0.68	0.09	0.21	0.21
Sat Flow, veh/h	1781	2091	1319	3456	3554	1585	3456	4101	995	1781	5106	1585
Grp Volume(v), veh/h	60	125	124	195	214	274	354	611	308	126	737	242
Grp Sat Flow(s),veh/h/ln	1781	1777	1633	1728	1777	1585	1728	1702	1691	1781	1702	1585
Q Serve(g_s), s	4.0	7.6	8.2	6.7	6.2	20.2	7.1	9.1	9.3	8.4	16.0	14.3
Cycle Q Clear(g_c), s	4.0	7.6	8.2	6.7	6.2	20.2	7.1	9.1	9.3	8.4	16.0	14.3
Prop In Lane	1.00		0.81	1.00		1.00	1.00		0.59	1.00		1.00
Lane Grp Cap(c), veh/h	77	290	266	253	685	306	1304	1735	862	153	1075	334
V/C Ratio(X)	0.78	0.43	0.47	0.77	0.31	0.90	0.27	0.35	0.36	0.83	0.69	0.73
Avail Cap(c_a), veh/h	156	335	308	386	755	337	1304	1735	862	275	1668	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	45.2	45.5	54.6	41.6	47.3	20.4	10.9	11.0	54.0	43.7	31.2
Incr Delay (d2), s/veh	6.1	1.2	1.5	1.8	0.3	21.3	0.1	0.5	1.1	4.2	3.6	12.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.5	3.5	3.0	2.8	9.8	2.8	3.2	3.3	3.9	7.1	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	46.5	47.0	56.4	41.9	68.6	20.5	11.5	12.0	58.2	47.3	44.1
LnGrp LOS	E	D	D	E	D	E	C	B	B	E	D	D
Approach Vol, veh/h		309			683			1273			1105	
Approach Delay, s/veh		49.9			56.7			14.1			47.8	
Approach LOS		D			E			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	66.6	13.3	25.4	50.7	30.7	9.7	28.9
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	18.5	45.3	13.4	22.6	24.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	10.4	11.3	8.7	10.2	9.1	18.0	6.0	22.2
Green Ext Time (p_c), s	0.1	8.9	0.1	1.3	1.1	7.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	250	258	1023	983
Future Volume (vph)	250	258	1023	983
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	51.0	51.0	69.0	69.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	15.4	15.4	93.1	93.1
Actuated g/C Ratio	0.13	0.13	0.78	0.78
v/c Ratio	0.74	0.62	0.26	0.20
Control Delay	51.3	33.5	9.0	3.6
Queue Delay	0.0	0.0	1.2	0.0
Total Delay	51.3	33.5	10.2	3.6
LOS	D	C	B	A
Approach Delay	45.7		10.2	3.6
Approach LOS	D		B	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 39.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	250	258	0	1023	983	0
Future Volume (veh/h)	250	258	0	1023	983	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	339	173	0	1044	1003	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	467	208	0	3948	4974	0
Arrive On Green	0.13	0.13	0.00	0.77	0.77	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	339	173	0	1044	1003	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	11.0	12.8	0.0	7.0	5.0	0.0
Cycle Q Clear(g_c), s	11.0	12.8	0.0	7.0	5.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	467	208	0	3948	4974	0
V/C Ratio(X)	0.73	0.83	0.00	0.26	0.20	0.00
Avail Cap(c_a), veh/h	1333	593	0	3948	4974	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.81	0.93	0.00
Uniform Delay (d), s/veh	50.1	50.9	0.0	3.9	3.7	0.0
Incr Delay (d2), s/veh	0.8	3.3	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	5.3	0.0	2.1	1.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.9	54.2	0.0	4.0	3.7	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	512			1044	1003	
Approach Delay, s/veh	52.0			4.0	3.7	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		98.2		21.8		98.2
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		63.6		44.9		63.6
Max Q Clear Time (g_c+I1), s		9.0		14.8		7.0
Green Ext Time (p_c), s		6.1		1.0		5.7

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

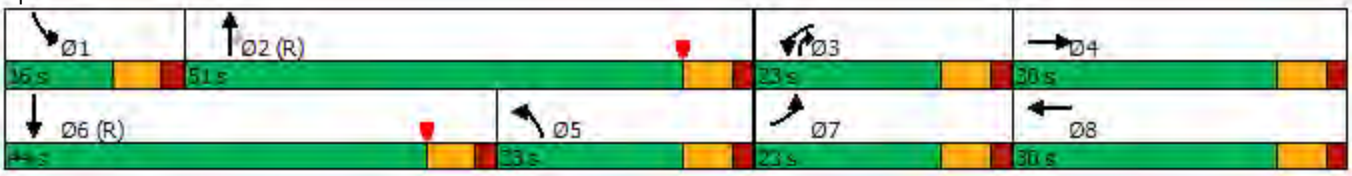
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	185	283	375	229	99	704	368	406	666
Future Volume (vph)	185	283	375	229	99	704	368	406	666
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	51.0	23.0	16.0	44.0
Total Split (%)	19.2%	25.0%	19.2%	25.0%	19.2%	42.5%	19.2%	13.3%	36.7%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	11.3	17.2	18.5	24.4	13.4	32.6	57.5	26.2	45.3
Actuated g/C Ratio	0.09	0.14	0.15	0.20	0.11	0.27	0.48	0.22	0.38
v/c Ratio	0.62	0.73	0.76	0.51	0.54	0.55	0.49	0.58	0.48
Control Delay	60.4	55.0	58.4	35.6	60.7	38.7	16.7	42.9	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.6	0.0	3.1	3.6
Total Delay	60.4	55.0	58.4	35.6	60.7	39.3	16.7	46.0	28.0
LOS	E	E	E	D	E	D	B	D	C
Approach Delay		56.9		47.3		34.0			33.9
Approach LOS		E		D		C			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 39.9 — Intersection LOS: D
Intersection Capacity Utilization 67.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	283	64	375	229	124	99	704	368	406	666	175
Future Volume (veh/h)	185	283	64	375	229	124	99	704	368	406	666	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	304	63	403	246	129	106	757	396	437	716	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	374	76	456	420	213	574	2285	919	276	856	191
Arrive On Green	0.07	0.13	0.13	0.13	0.18	0.18	0.32	0.45	0.45	0.16	0.41	0.41
Sat Flow, veh/h	3456	2938	601	3456	2282	1157	1781	5106	1585	3456	4173	933
Grp Volume(v), veh/h	199	182	185	403	190	185	106	757	396	437	582	296
Grp Sat Flow(s),veh/h/ln	1728	1777	1762	1728	1777	1662	1781	1702	1585	1728	1702	1702
Q Serve(g_s), s	6.8	12.0	12.3	13.7	11.7	12.3	5.1	11.5	16.8	9.6	18.4	18.8
Cycle Q Clear(g_c), s	6.8	12.0	12.3	13.7	11.7	12.3	5.1	11.5	16.8	9.6	18.4	18.8
Prop In Lane	1.00		0.34	1.00		0.70	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	259	226	224	456	327	306	574	2285	919	276	698	349
V/C Ratio(X)	0.77	0.81	0.83	0.88	0.58	0.61	0.18	0.33	0.43	1.58	0.83	0.85
Avail Cap(c_a), veh/h	478	349	347	478	349	327	574	2285	919	276	1067	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	54.5	50.9	51.1	51.2	44.7	44.9	29.3	21.5	14.1	50.4	33.6	33.7
Incr Delay (d2), s/veh	1.8	3.8	5.0	12.8	0.9	1.4	0.1	0.4	1.5	277.7	11.1	21.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.6	5.7	6.7	5.2	5.2	2.2	4.7	6.2	14.4	7.2	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	54.7	56.1	64.0	45.6	46.3	29.3	21.9	15.6	328.1	44.7	55.0
LnGrp LOS	E	D	E	E	D	D	C	C	B	F	D	E
Approach Vol, veh/h		566			778			1259			1315	
Approach Delay, s/veh		55.7			55.3			20.5			141.2	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	60.1	22.2	21.7	45.1	31.0	15.4	28.5
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	44.6	16.6	23.6	16.6	37.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	18.8	15.7	14.3	7.1	20.8	8.8	14.3
Green Ext Time (p_c), s	0.0	7.5	0.1	1.0	0.1	3.8	0.2	1.0

Intersection Summary	
HCM 6th Ctrl Delay	73.0
HCM 6th LOS	E

Notes

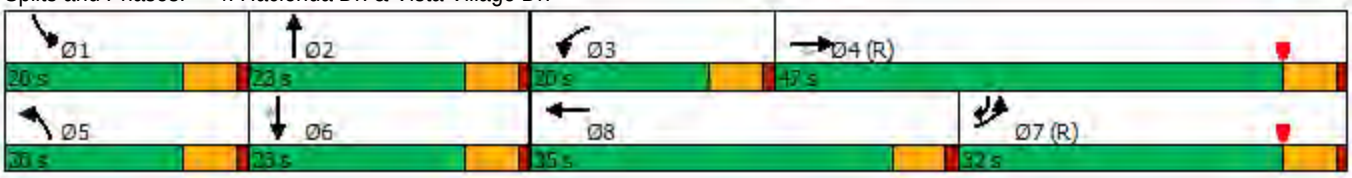
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	825	205	19	4	191	27	108	253	121	510
Future Volume (vph)	825	205	19	4	191	27	108	253	121	510
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	33.1	65.6	65.6	5.1	29.4	6.4	11.4	14.6	23.7	59.0
Actuated g/C Ratio	0.30	0.60	0.60	0.05	0.27	0.06	0.10	0.13	0.22	0.54
v/c Ratio	0.86	0.20	0.02	0.05	0.98	0.28	0.62	1.16	0.32	0.31
Control Delay	46.9	12.2	0.1	51.2	70.3	55.9	60.2	161.6	52.7	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	12.2	0.1	51.2	70.3	55.9	60.2	161.6	52.7	9.5
LOS	D	B	A	D	E	E	E	F	D	A
Approach Delay		39.3			70.2		59.4		59.0	
Approach LOS		D			E		E		E	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 60 (55%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 52.8 — Intersection LOS: D
Intersection Capacity Utilization 85.6% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	825	205	19	4	191	262	27	108	3	253	121	510
Future Volume (veh/h)	825	205	19	4	191	262	27	108	3	253	121	510
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	887	220	20	4	205	282	29	116	3	272	130	548
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1090	924	9	247	340	48	150	4	236	353	1201
Arrive On Green	0.24	0.58	0.58	0.01	0.35	0.35	0.03	0.08	0.08	0.04	0.06	0.06
Sat Flow, veh/h	3456	1870	1585	1781	713	981	1781	1815	47	1781	1870	2790
Grp Volume(v), veh/h	887	220	20	4	0	487	29	0	119	272	130	548
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1694	1781	0	1862	1781	1870	1395
Q Serve(g_s), s	26.6	6.1	0.6	0.2	0.0	29.0	1.8	0.0	6.9	14.6	7.3	2.0
Cycle Q Clear(g_c), s	26.6	6.1	0.6	0.2	0.0	29.0	1.8	0.0	6.9	14.6	7.3	2.0
Prop In Lane	1.00		1.00	1.00		0.58	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	836	1090	924	9	0	587	48	0	154	236	353	1201
V/C Ratio(X)	1.06	0.20	0.02	0.43	0.00	0.83	0.61	0.00	0.77	1.15	0.37	0.46
Avail Cap(c_a), veh/h	836	1090	924	236	0	587	236	0	298	236	353	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.77	0.77	0.77	1.00	0.00	1.00	1.00	0.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	41.7	10.8	9.7	54.5	0.0	33.0	53.0	0.0	49.4	52.6	45.3	13.3
Incr Delay (d2), s/veh	45.2	0.3	0.0	11.2	0.0	9.2	4.6	0.0	3.1	103.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.4	2.6	0.2	0.1	0.0	13.2	0.9	0.0	3.3	13.8	3.6	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.9	11.2	9.7	65.7	0.0	42.2	57.6	0.0	52.5	156.4	45.5	13.4
LnGrp LOS	F	B	A	E	A	D	E	A	D	F	D	B
Approach Vol, veh/h		1127			491			148			950	
Approach Delay, s/veh		70.7			42.4			53.5			58.7	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	14.5	6.0	69.5	8.3	26.2	32.0	43.5
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	16.6	8.9	2.2	8.1	3.8	9.3	28.6	31.0
Green Ext Time (p_c), s	0.0	0.2	0.0	0.9	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	60.5
HCM 6th LOS	E

Notes

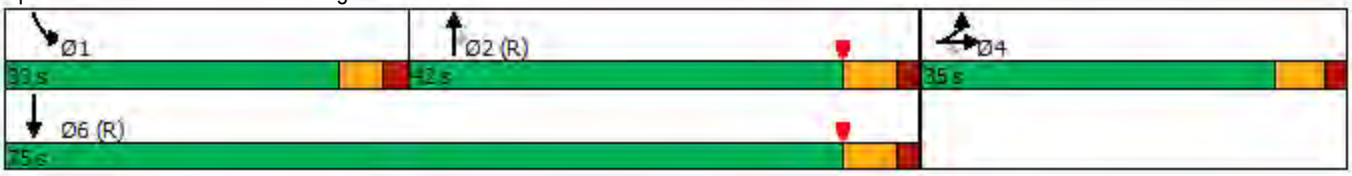
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	432	1	67	431	771	480	813
Future Volume (vph)	432	1	67	431	771	480	813
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	35.0	35.0	35.0	42.0	42.0	33.0	75.0
Total Split (%)	31.8%	31.8%	31.8%	38.2%	38.2%	30.0%	68.2%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	19.6	19.6	19.6	51.8	51.8	20.4	77.9
Actuated g/C Ratio	0.18	0.18	0.18	0.47	0.47	0.19	0.71
v/c Ratio	0.75	0.75	0.20	0.53	0.45	0.79	0.34
Control Delay	57.9	58.0	5.4	22.7	8.7	48.4	7.7
Queue Delay	0.0	0.0	0.0	1.1	1.1	0.0	0.4
Total Delay	57.9	58.0	5.4	23.8	9.7	48.4	8.1
LOS	E	E	A	C	A	D	A
Approach Delay		50.9		19.3			23.0
Approach LOS		D		B			C

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 26.2 — Intersection LOS: C
Intersection Capacity Utilization 72.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	432	1	67	0	0	0	0	431	771	480	813	0
Future Volume (veh/h)	432	1	67	0	0	0	0	431	771	480	813	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	451	0	70				0	449	803	500	847	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	533	0	237				0	966	1637	583	2618	0
Arrive On Green	0.15	0.00	0.15				0.00	0.17	0.17	0.06	0.24	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	451	0	70				0	449	803	500	847	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	13.6	0.0	4.3				0.0	23.8	25.2	15.8	21.5	0.0
Cycle Q Clear(g_c), s	13.6	0.0	4.3				0.0	23.8	25.2	15.8	21.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	533	0	237				0	966	1637	583	2618	0
V/C Ratio(X)	0.85	0.00	0.30				0.00	0.47	0.49	0.86	0.32	0.00
Avail Cap(c_a), veh/h	936	0	416				0	966	1637	858	2618	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.45	0.45	0.93	0.93	0.00
Uniform Delay (d), s/veh	45.5	0.0	41.6				0.0	31.9	32.5	50.6	19.1	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.3				0.0	0.7	0.5	3.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	1.7				0.0	12.1	10.8	7.6	10.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	41.9				0.0	32.7	33.0	54.4	19.4	0.0
LnGrp LOS	D	A	D				A	C	C	D	B	A
Approach Vol, veh/h		521						1252			1347	
Approach Delay, s/veh		46.3						32.9			32.4	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	24.3	63.2		22.6		87.4
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 27	35.6		28.9		68.6
Max Q Clear Time (g_c+I1), s	17.8	27.2		15.6		23.5
Green Ext Time (p_c), s	0.8	2.8		0.9		7.3

Intersection Summary	
HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Notes

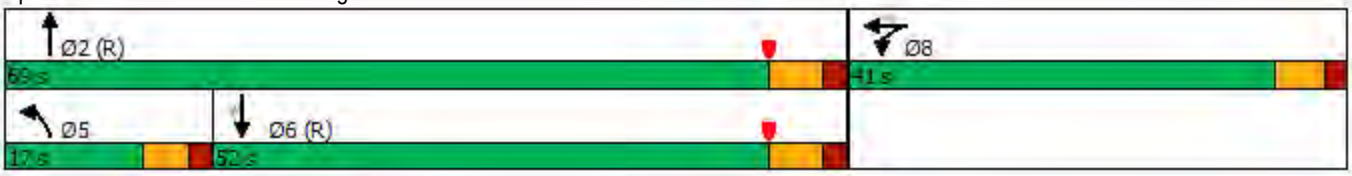
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	483	0	672	80	801	831	477
Future Volume (vph)	483	0	672	80	801	831	477
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	41.0	41.0	41.0	17.0	69.0	52.0	52.0
Total Split (%)	37.3%	37.3%	37.3%	15.5%	62.7%	47.3%	47.3%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	28.3	28.3	28.3	10.7	69.2	55.9	55.9
Actuated g/C Ratio	0.26	0.26	0.26	0.10	0.63	0.51	0.51
v/c Ratio	0.58	0.58	0.75	0.48	0.37	0.33	0.47
Control Delay	39.8	39.8	26.0	62.4	5.8	5.0	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.2
Total Delay	39.8	39.8	26.0	62.4	6.0	5.0	3.5
LOS	D	D	C	E	A	A	A
Approach Delay		31.8			11.1	4.5	
Approach LOS		C			B	A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 15.7	Intersection LOS: B
Intersection Capacity Utilization 72.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	483	0	672	80	801	0	0	831	477
Future Volume (veh/h)	0	0	0	483	0	672	80	801	0	0	831	477
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				498	0	693	82	826	0	0	857	492
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				925	0	823	149	2228	0	0	2510	779
Arrive On Green				0.26	0.00	0.26	0.11	0.83	0.00	0.00	0.98	0.98
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				498	0	693	82	826	0	0	857	492
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				13.2	0.0	22.8	4.8	6.2	0.0	0.0	0.5	1.5
Cycle Q Clear(g_c), s				13.2	0.0	22.8	4.8	6.2	0.0	0.0	0.5	1.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				925	0	823	149	2228	0	0	2510	779
V/C Ratio(X)				0.54	0.00	0.84	0.55	0.37	0.00	0.00	0.34	0.63
Avail Cap(c_a), veh/h				1130	0	1006	183	2228	0	0	2510	779
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.79	0.79	0.00	0.00	0.93	0.93
Uniform Delay (d), s/veh				35.1	0.0	38.6	46.9	3.9	0.0	0.0	0.5	0.5
Incr Delay (d2), s/veh				0.5	0.0	5.6	2.5	0.4	0.0	0.0	0.3	3.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.8	0.0	9.4	2.2	1.9	0.0	0.0	0.2	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				35.5	0.0	44.2	49.5	4.3	0.0	0.0	0.8	4.1
LnGrp LOS				D	A	D	D	A	A	A	A	A
Approach Vol, veh/h					1191			908			1349	
Approach Delay, s/veh					40.6			8.4			2.0	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	75.4	14.9	60.5	34.6
Change Period (Y+Rc), s	6.4	* 5.7	6.4	6.1
Max Green Setting (Gmax), s	62.6	* 11	45.6	34.9
Max Q Clear Time (g_c+I1), s	8.2	6.8	3.5	24.8
Green Ext Time (p_c), s	7.2	0.1	10.2	3.8

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

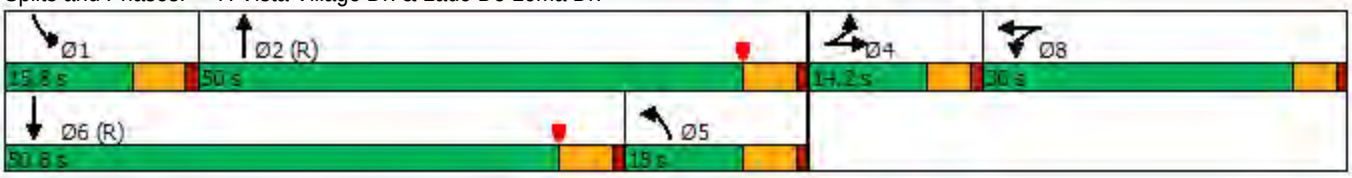
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	3	194	3	7	1233	78	1085
Future Volume (vph)	3	194	3	7	1233	78	1085
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	50.0	15.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	45.5%	14.4%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	Min	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	5.6	15.4	15.4	6.5	61.8	9.4	71.0
Actuated g/C Ratio	0.05	0.14	0.14	0.06	0.56	0.09	0.65
v/c Ratio	0.14	0.64	0.50	0.07	0.55	0.54	0.35
Control Delay	32.2	56.3	28.1	51.7	17.6	42.0	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.3
Total Delay	32.2	56.3	28.1	51.7	17.8	42.0	9.7
LOS	C	E	C	D	B	D	A
Approach Delay	32.3		42.7		18.0		11.8
Approach LOS	C		D		B		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	3	10	194	3	83	7	1233	241	78	1085	6
Future Volume (veh/h)	0	3	10	194	3	83	7	1233	241	78	1085	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	3	10	146	82	86	7	1284	251	81	1130	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	17	57	217	102	107	628	2541	497	103	1562	8
Arrive On Green	0.00	0.05	0.05	0.12	0.12	0.12	0.71	1.00	1.00	0.06	0.30	0.30
Sat Flow, veh/h	0	379	1264	1781	836	877	1781	4286	838	1781	5242	28
Grp Volume(v), veh/h	0	0	13	146	0	168	7	1020	515	81	734	402
Grp Sat Flow(s),veh/h/ln	0	0	1643	1781	0	1713	1781	1702	1720	1781	1702	1865
Q Serve(g_s), s	0.0	0.0	0.8	8.6	0.0	10.5	0.1	0.0	0.0	4.9	21.2	21.2
Cycle Q Clear(g_c), s	0.0	0.0	0.8	8.6	0.0	10.5	0.1	0.0	0.0	4.9	21.2	21.2
Prop In Lane	0.00		0.77	1.00		0.51	1.00		0.49	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	75	217	0	209	628	2018	1020	103	1015	556
V/C Ratio(X)	0.00	0.00	0.17	0.67	0.00	0.81	0.01	0.51	0.51	0.78	0.72	0.72
Avail Cap(c_a), veh/h	0	0	143	411	0	395	628	2018	1020	168	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.82	0.82	0.82	0.89	0.89	0.89
Uniform Delay (d), s/veh	0.0	0.0	50.5	46.2	0.0	47.0	10.5	0.0	0.0	51.1	34.5	34.6
Incr Delay (d2), s/veh	0.0	0.0	0.8	2.7	0.0	5.4	0.0	0.7	1.5	4.3	4.0	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	4.0	0.0	4.8	0.1	0.2	0.4	2.3	9.2	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	51.3	48.9	0.0	52.4	10.5	0.7	1.5	55.5	38.5	41.7
LnGrp LOS	A	A	D	D	A	D	B	A	A	E	D	D
Approach Vol, veh/h		13			314			1542			1217	
Approach Delay, s/veh		51.3			50.8			1.0			40.7	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	70.6		9.6	44.2	38.2		18.0				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	10.4	44.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	6.9	2.0		2.8	2.1	23.2		12.5				
Green Ext Time (p_c), s	0.0	19.2		0.0	0.0	9.6		0.9				

Intersection Summary			
HCM 6th Ctrl Delay			22.0
HCM 6th LOS			C

Notes

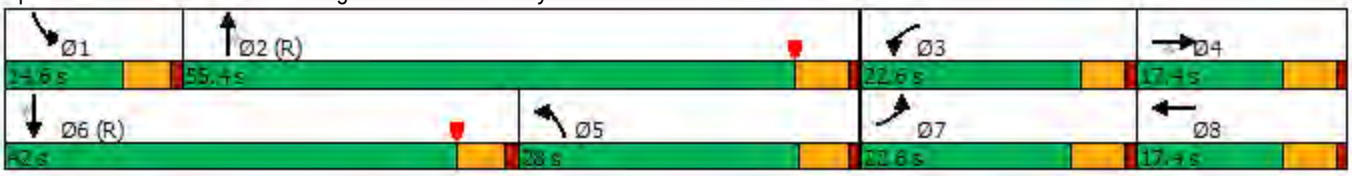
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	222	102	120	100	125	275	913	109	85	947	296
Future Volume (vph)	222	102	120	100	125	275	913	109	85	947	296
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	17.4	17.4	22.6	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	15.8%	15.8%	20.5%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	12.6	14.5	14.5	11.2	12.2	14.0	53.8	53.8	10.2	50.4	50.4
Actuated g/C Ratio	0.11	0.13	0.13	0.10	0.11	0.13	0.49	0.49	0.09	0.46	0.46
v/c Ratio	0.62	0.24	0.36	0.61	0.49	0.69	0.40	0.14	0.57	0.45	0.39
Control Delay	53.2	44.5	5.4	61.1	32.9	43.7	17.7	6.5	60.5	22.0	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	53.2	44.5	5.4	61.1	32.9	43.7	17.9	6.5	60.5	22.1	9.2
LOS	D	D	A	E	C	D	B	A	E	C	A
Approach Delay		38.3			42.4		22.4			21.6	
Approach LOS		D			D		C			C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 85 (77%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 26.0 — Intersection LOS: C
Intersection Capacity Utilization 59.8% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	102	120	100	125	72	275	913	109	85	947	296
Future Volume (veh/h)	222	102	120	100	125	72	275	913	109	85	947	296
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	244	112	132	110	137	79	302	1003	120	93	1041	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	313	465	207	137	242	132	1210	2767	859	117	1315	
Arrive On Green	0.09	0.13	0.13	0.08	0.11	0.11	0.70	1.00	1.00	0.07	0.26	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2221	1209	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	244	112	132	110	108	108	302	1003	120	93	1041	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1653	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	7.6	3.1	4.2	6.7	6.3	6.9	3.5	0.0	0.0	5.7	20.9	0.0
Cycle Q Clear(g_c), s	7.6	3.1	4.2	6.7	6.3	6.9	3.5	0.0	0.0	5.7	20.9	0.0
Prop In Lane	1.00		1.00	1.00		0.73	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	313	465	207	137	194	180	1210	2767	859	117	1315	
V/C Ratio(X)	0.78	0.24	0.64	0.80	0.56	0.60	0.25	0.36	0.14	0.79	0.79	
Avail Cap(c_a), veh/h	540	465	207	293	194	180	1210	2767	859	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.9	42.9	10.6	49.9	46.5	46.7	11.2	0.0	0.0	50.7	38.1	0.0
Incr Delay (d2), s/veh	2.5	0.2	4.5	4.1	3.0	4.8	0.0	0.3	0.3	13.5	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	1.4	3.5	3.1	3.0	3.1	1.2	0.1	0.1	3.0	9.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	43.1	15.1	54.0	49.5	51.5	11.3	0.3	0.3	64.2	43.0	0.0
LnGrp LOS	D	D	B	D	D	D	B	A	A	E	D	
Approach Vol, veh/h		488			326			1425			1134	A
Approach Delay, s/veh		39.7			51.7			2.6			44.8	
Approach LOS		D			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	65.0	13.0	19.8	43.9	33.3	15.4	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	18.1	12.0	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	7.7	2.0	8.7	6.2	5.5	22.9	9.6	8.9
Green Ext Time (p_c), s	0.0	7.7	0.1	0.4	0.5	5.4	0.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	389	71	95	3	3	386
Future Vol, veh/h	389	71	95	3	3	386
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	423	77	103	3	3	420

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	106	0	-	0	1028	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	923	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1485	-	-	-	259	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	387	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1485	-	-	-	185	949
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	387	-

Approach	EB	WB	SB
HCM Control Delay, s	7.1	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1485	-	-	-	920
HCM Lane V/C Ratio	0.285	-	-	-	0.46
HCM Control Delay (s)	8.4	-	-	-	12.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	1.2	-	-	-	2.5

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	30	30	44	68	3
Future Vol, veh/h	3	30	30	44	68	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	33	33	48	74	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	190	76	77	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	799	985	1522	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	781	985	1522	-	-	-
Mov Cap-2 Maneuver	781	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	911	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	3	0
HCM LOS	A		

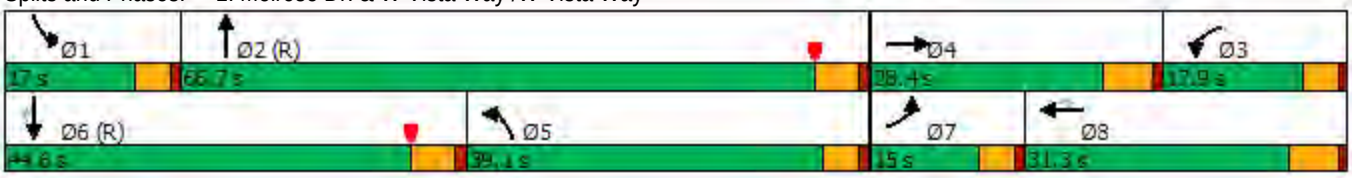
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1522	-	962	-	-
HCM Lane V/C Ratio	0.021	-	0.037	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	64	230	170	250	523	421	1799	202	888	305
Future Volume (vph)	64	230	170	250	523	421	1799	202	888	305
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	39.1	66.7	17.0	44.6	44.6
Total Split (%)	11.5%	21.8%	13.8%	24.1%	24.1%	30.1%	51.3%	13.1%	34.3%	34.3%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.6	17.4	18.6	29.3	29.3	38.8	61.3	12.5	35.0	35.0
Actuated g/C Ratio	0.07	0.13	0.14	0.23	0.23	0.30	0.47	0.10	0.27	0.27
v/c Ratio	0.57	0.70	0.36	0.32	1.01	0.42	0.91	1.22	0.67	0.51
Control Delay	77.0	53.6	57.0	47.6	73.2	49.1	47.4	189.8	44.6	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	45.8	0.0	0.0	0.0
Total Delay	77.0	53.6	57.0	47.6	73.2	49.1	93.2	189.8	44.6	10.6
LOS	E	D	E	D	E	D	F	F	D	B
Approach Delay		57.4		63.5			85.8		58.2	
Approach LOS		E		E			F		E	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 72.3 — Intersection LOS: E
Intersection Capacity Utilization 90.7% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	230	104	170	250	523	421	1799	282	202	888	305
Future Volume (veh/h)	64	230	104	170	250	523	421	1799	282	202	888	305
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	237	107	175	258	505	434	1855	271	208	915	292
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	301	132	375	697	311	1220	2275	329	171	1231	382
Arrive On Green	0.05	0.13	0.13	0.18	0.33	0.33	0.71	1.00	1.00	0.10	0.24	0.24
Sat Flow, veh/h	1781	2406	1052	3456	3554	1585	3456	4505	652	1781	5106	1585
Grp Volume(v), veh/h	66	173	171	175	258	505	434	1397	729	208	915	292
Grp Sat Flow(s),veh/h/ln	1781	1777	1681	1728	1777	1585	1728	1702	1753	1781	1702	1585
Q Serve(g_s), s	4.8	12.3	12.9	5.9	7.2	25.5	6.4	0.0	0.0	12.5	21.5	18.7
Cycle Q Clear(g_c), s	4.8	12.3	12.9	5.9	7.2	25.5	6.4	0.0	0.0	12.5	21.5	18.7
Prop In Lane	1.00		0.63	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	84	222	210	375	697	311	1220	1719	885	171	1231	382
V/C Ratio(X)	0.78	0.78	0.81	0.47	0.37	1.62	0.36	0.81	0.82	1.21	0.74	0.76
Avail Cap(c_a), veh/h	144	309	292	375	697	311	1220	1719	885	171	1540	478
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	55.1	55.4	49.9	37.6	43.7	13.3	0.0	0.0	58.8	45.6	32.2
Incr Delay (d2), s/veh	5.8	9.1	12.5	0.3	0.3	292.3	0.1	3.5	7.0	138.1	4.1	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.1	6.2	2.5	3.0	34.2	2.2	0.8	1.7	12.2	9.6	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	64.2	67.9	50.1	37.9	336.1	13.4	3.5	7.0	196.8	49.7	45.7
LnGrp LOS	E	E	E	D	D	F	B	A	A	F	D	D
Approach Vol, veh/h		410			938			2560			1415	
Approach Delay, s/veh		66.2			200.7			6.2			70.5	
Approach LOS		E			F			A			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	71.0	19.9	22.1	51.3	36.7	10.7	31.3
Change Period (Y+Rc), s	4.5	5.4	5.8	* 5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	12.5	61.3	13.4	* 23	34.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	14.5	2.0	7.9	14.9	8.4	23.5	6.8	27.5
Green Ext Time (p_c), s	0.0	36.9	0.1	1.4	1.6	7.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.2
HCM 6th LOS	E

Notes

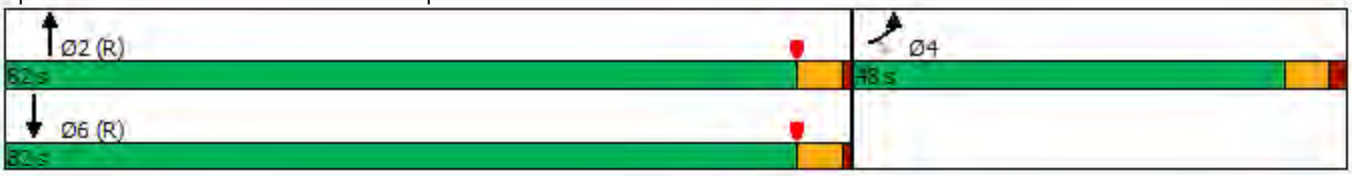
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	548	294	1617	1090
Future Volume (vph)	548	294	1617	1090
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	48.0	48.0	82.0	82.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	28.1	28.1	90.4	90.4
Actuated g/C Ratio	0.22	0.22	0.70	0.70
v/c Ratio	0.82	0.73	0.48	0.26
Control Delay	57.6	44.3	22.9	1.6
Queue Delay	0.0	0.0	49.1	0.0
Total Delay	57.6	44.4	72.1	1.6
LOS	E	D	E	A
Approach Delay	53.5		72.1	1.6
Approach LOS	D		E	A

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 25 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 46.0	Intersection LOS: D
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	548	294	0	1617	1090	0
Future Volume (veh/h)	548	294	0	1617	1090	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	590	295	0	1702	1147	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	745	331	0	3587	4520	0
Arrive On Green	0.21	0.21	0.00	1.00	1.00	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	590	295	0	1702	1147	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	20.4	23.5	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.4	23.5	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	745	331	0	3587	4520	0
V/C Ratio(X)	0.79	0.89	0.00	0.47	0.25	0.00
Avail Cap(c_a), veh/h	1148	511	0	3587	4520	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.56	0.75	0.00
Uniform Delay (d), s/veh	48.7	50.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.0	8.4	0.0	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	10.1	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.7	58.3	0.0	0.3	0.1	0.0
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	885			1702	1147	
Approach Delay, s/veh	52.6			0.3	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		96.7		33.3		96.7
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		76.6		41.9		76.6
Max Q Clear Time (g_c+I1), s		2.0		25.5		2.0
Green Ext Time (p_c), s		13.3		1.7		6.9

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

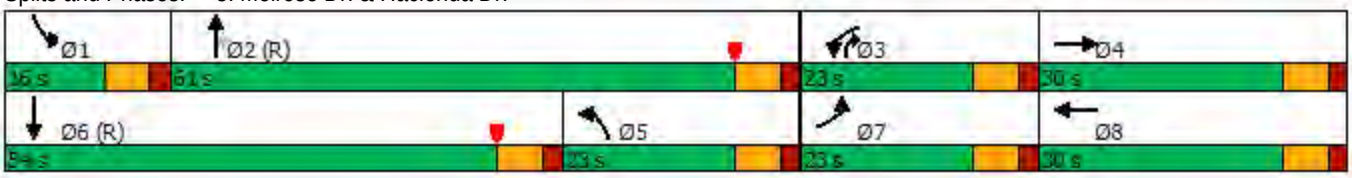
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	320	371	330	270	52	1399	370	392	761
Future Volume (vph)	320	371	330	270	52	1399	370	392	761
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	61.0	23.0	16.0	54.0
Total Split (%)	17.7%	23.1%	17.7%	23.1%	17.7%	46.9%	17.7%	12.3%	41.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.7	20.1	15.9	20.4	24.2	49.9	72.3	18.4	46.5
Actuated g/C Ratio	0.12	0.15	0.12	0.16	0.19	0.38	0.56	0.14	0.36
v/c Ratio	0.82	0.80	0.82	0.82	0.17	0.75	0.42	0.85	0.56
Control Delay	71.9	63.6	57.9	38.2	43.2	37.2	13.7	62.2	22.4
Queue Delay	4.0	0.0	0.0	0.3	0.0	50.4	0.0	13.6	0.5
Total Delay	75.8	63.6	57.9	38.5	43.2	87.6	13.7	75.8	23.0
LOS	E	E	E	D	D	F	B	E	C
Approach Delay		68.9		46.2		71.3			38.4
Approach LOS		E		D		E			D

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 57.2 — Intersection LOS: E
Intersection Capacity Utilization 83.6% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	371	44	330	270	231	52	1399	370	392	761	188
Future Volume (veh/h)	320	371	44	330	270	231	52	1399	370	392	761	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	391	41	347	284	221	55	1473	389	413	801	176
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	539	56	402	328	247	517	2281	893	255	967	211
Arrive On Green	0.11	0.17	0.17	0.04	0.06	0.06	0.29	0.45	0.45	0.10	0.31	0.31
Sat Flow, veh/h	3456	3248	339	3456	1929	1456	1781	5106	1585	3456	4195	915
Grp Volume(v), veh/h	337	213	219	347	261	244	55	1473	389	413	649	328
Grp Sat Flow(s),veh/h/ln	1728	1777	1809	1728	1777	1608	1781	1702	1585	1728	1702	1706
Q Serve(g_s), s	12.5	14.8	14.9	13.0	18.9	19.6	2.9	29.2	18.5	9.6	23.0	23.3
Cycle Q Clear(g_c), s	12.5	14.8	14.9	13.0	18.9	19.6	2.9	29.2	18.5	9.6	23.0	23.3
Prop In Lane	1.00		0.19	1.00		0.91	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	389	295	301	402	302	273	517	2281	893	255	785	393
V/C Ratio(X)	0.87	0.72	0.73	0.86	0.86	0.89	0.11	0.65	0.44	1.62	0.83	0.83
Avail Cap(c_a), veh/h	441	323	328	441	323	292	517	2281	893	255	1246	625
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	56.7	51.4	51.4	61.5	59.9	60.2	33.8	28.0	16.4	58.6	42.7	42.8
Incr Delay (d2), s/veh	13.8	5.7	5.9	11.3	15.4	21.0	0.0	1.4	1.5	294.8	9.3	17.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	7.1	7.3	6.7	10.4	10.1	1.3	12.1	7.0	14.5	10.2	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.5	57.0	57.4	72.8	75.3	81.1	33.8	29.4	18.0	353.4	52.0	60.5
LnGrp LOS	E	E	E	E	E	F	C	C	B	F	D	E
Approach Vol, veh/h		769			852			1917			1390	
Approach Delay, s/veh		63.0			75.9			27.2			143.6	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	64.5	21.5	28.0	44.1	36.4	21.0	28.5
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	54.6	16.6	23.6	16.6	47.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	31.2	15.0	16.9	4.9	25.3	14.5	21.6
Green Ext Time (p_c), s	0.0	13.8	0.1	1.0	0.0	4.7	0.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	74.0
HCM 6th LOS	E

Notes

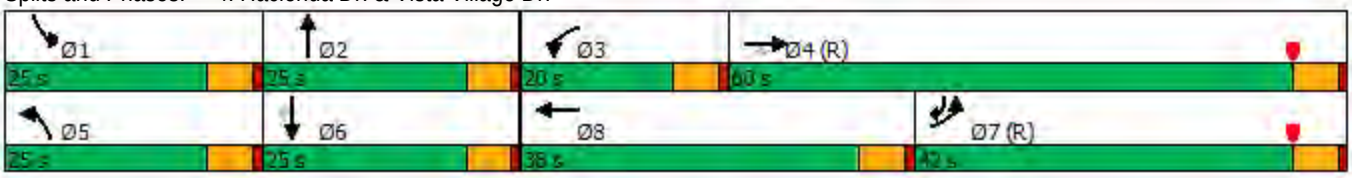
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	956	161	20	5	137	51	151	256	213	574
Future Volume (vph)	956	161	20	5	137	51	151	256	213	574
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	42.0	60.0	60.0	20.0	38.0	25.0	25.0	25.0	25.0	42.0
Total Split (%)	32.3%	46.2%	46.2%	15.4%	29.2%	19.2%	19.2%	19.2%	19.2%	32.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	40.7	76.0	76.0	5.3	32.2	8.6	15.9	19.6	29.0	70.7
Actuated g/C Ratio	0.31	0.58	0.58	0.04	0.25	0.07	0.12	0.15	0.22	0.54
v/c Ratio	0.99	0.16	0.02	0.08	0.94	0.49	0.77	1.07	0.57	0.35
Control Delay	79.5	18.2	0.9	62.2	68.6	71.6	76.4	133.3	72.5	11.5
Queue Delay	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.1
Total Delay	82.7	18.2	0.9	62.2	68.6	71.6	76.4	133.3	76.2	11.5
LOS	F	B	A	E	E	E	E	F	E	B
Approach Delay		72.1			68.5		75.2		54.6	
Approach LOS		E			E		E		D	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 64 (49%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 65.3 — Intersection LOS: E
Intersection Capacity Utilization 90.9% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	956	161	20	5	137	258	51	151	7	256	213	574
Future Volume (veh/h)	956	161	20	5	137	258	51	151	7	256	213	574
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1062	179	22	6	152	287	57	168	8	284	237	638
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	973	1057	896	13	169	318	74	196	9	269	411	1399
Arrive On Green	0.47	0.94	0.94	0.01	0.29	0.29	0.04	0.11	0.11	0.05	0.07	0.07
Sat Flow, veh/h	3456	1870	1585	1781	579	1094	1781	1771	84	1781	1870	2790
Grp Volume(v), veh/h	1062	179	22	6	0	439	57	0	176	284	237	638
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1673	1781	0	1855	1781	1870	1395
Q Serve(g_s), s	36.6	0.8	0.1	0.4	0.0	32.8	4.1	0.0	12.1	19.6	15.9	3.2
Cycle Q Clear(g_c), s	36.6	0.8	0.1	0.4	0.0	32.8	4.1	0.0	12.1	19.6	15.9	3.2
Prop In Lane	1.00		1.00	1.00		0.65	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	973	1057	896	13	0	487	74	0	205	269	411	1399
V/C Ratio(X)	1.09	0.17	0.02	0.45	0.00	0.90	0.77	0.00	0.86	1.06	0.58	0.46
Avail Cap(c_a), veh/h	973	1057	896	200	0	487	269	0	280	269	411	1399
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.65	0.65	0.65	1.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	34.4	1.6	1.6	64.2	0.0	44.3	61.7	0.0	56.8	61.8	54.4	12.4
Incr Delay (d2), s/veh	52.5	0.2	0.0	8.5	0.0	19.2	6.3	0.0	13.9	68.3	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.2	0.4	0.0	0.2	0.0	16.1	2.0	0.0	6.5	14.5	8.2	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.9	1.8	1.6	72.8	0.0	63.5	68.0	0.0	70.8	130.1	55.6	12.5
LnGrp LOS	F	A	A	E	A	E	E	A	E	F	E	B
Approach Vol, veh/h		1263			445			233			1159	
Approach Delay, s/veh		73.4			63.7			70.1			50.1	
Approach LOS		E			E			E			D	

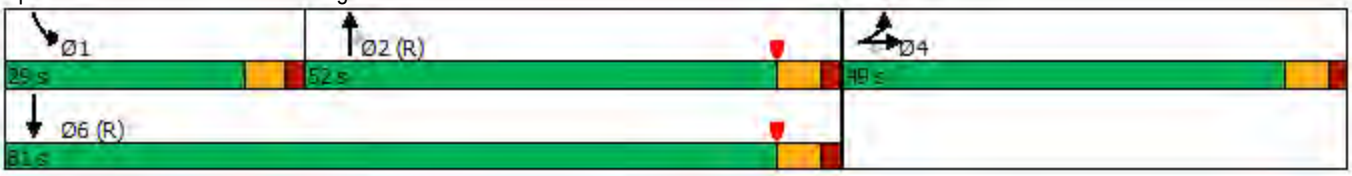
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	19.8	6.4	78.9	10.8	34.0	42.0	43.2
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	19.6	19.6	14.6	54.6	19.6	19.6	36.6	32.6
Max Q Clear Time (g_c+I1), s	21.6	14.1	2.4	2.8	6.1	17.9	38.6	34.8
Green Ext Time (p_c), s	0.0	0.3	0.0	0.7	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	63.0
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	743	1	101	609	758	428	942
Future Volume (vph)	743	1	101	609	758	428	942
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	49.0	49.0	49.0	52.0	52.0	29.0	81.0
Total Split (%)	37.7%	37.7%	37.7%	40.0%	40.0%	22.3%	62.3%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	35.3	35.3	35.3	55.9	55.9	20.6	82.2
Actuated g/C Ratio	0.27	0.27	0.27	0.43	0.43	0.16	0.63
v/c Ratio	0.86	0.86	0.22	0.70	0.51	0.83	0.44
Control Delay	62.7	62.7	12.4	19.0	2.3	63.4	14.4
Queue Delay	1.7	1.7	0.1	2.2	1.2	0.0	0.5
Total Delay	64.5	64.4	12.5	21.1	3.6	63.4	14.9
LOS	E	E	B	C	A	E	B
Approach Delay		58.2		15.7			30.1
Approach LOS		E		B			C

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 65 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 121.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	743	1	101	0	0	0	0	609	758	428	942	0
Future Volume (veh/h)	743	1	101	0	0	0	0	609	758	428	942	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	783	0	106				0	639	799	451	992	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	861	0	383				0	879	1489	513	2353	0
Arrive On Green	0.24	0.00	0.24				0.00	0.16	0.16	0.05	0.22	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	783	0	106				0	639	799	451	992	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	27.8	0.0	7.1				0.0	42.3	30.2	16.9	31.2	0.0
Cycle Q Clear(g_c), s	27.8	0.0	7.1				0.0	42.3	30.2	16.9	31.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	861	0	383				0	879	1489	513	2353	0
V/C Ratio(X)	0.91	0.00	0.28				0.00	0.73	0.54	0.88	0.42	0.00
Avail Cap(c_a), veh/h	1176	0	523				0	879	1489	619	2353	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.19	0.19	0.88	0.88	0.00
Uniform Delay (d), s/veh	47.9	0.0	40.0				0.0	47.0	41.9	60.7	29.4	0.0
Incr Delay (d2), s/veh	6.9	0.0	0.1				0.0	1.0	0.3	9.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	0.0	2.8				0.0	21.6	12.9	8.5	15.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.8	0.0	40.2				0.0	48.0	42.1	70.2	29.9	0.0
LnGrp LOS	D	A	D				A	D	D	E	C	A
Approach Vol, veh/h		889						1438			1443	
Approach Delay, s/veh		53.1						44.8			42.5	
Approach LOS		D						D			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.0	67.5		37.5		92.5
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 23	45.6		42.9		74.6
Max Q Clear Time (g_c+I1), s	18.9	44.3		29.8		33.2
Green Ext Time (p_c), s	0.4	0.8		1.7		5.6

Intersection Summary			
HCM 6th Ctrl Delay			45.8
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	557	0	1015	130	1223	814	467
Future Volume (vph)	557	0	1015	130	1223	814	467
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	64.0	64.0	64.0	16.4	66.0	49.6	49.6
Total Split (%)	49.2%	49.2%	49.2%	12.6%	50.8%	38.2%	38.2%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	54.3	54.3	54.3	12.8	63.2	44.7	44.7
Actuated g/C Ratio	0.42	0.42	0.42	0.10	0.49	0.34	0.34
v/c Ratio	0.41	0.41	0.88	0.78	0.74	0.48	0.56
Control Delay	28.0	28.0	41.0	88.5	16.5	37.4	19.9
Queue Delay	0.0	0.0	0.0	0.0	1.8	0.1	0.2
Total Delay	28.0	28.0	41.1	88.5	18.3	37.5	20.2
LOS	C	C	D	F	B	D	C
Approach Delay		36.4			25.0	31.2	
Approach LOS		D			C	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 121.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	557	0	1015	130	1223	0	0	814	467
Future Volume (veh/h)	0	0	0	557	0	1015	130	1223	0	0	814	467
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				580	0	1057	135	1274	0	0	848	486
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1295	0	1152	147	1921	0	0	2115	657
Arrive On Green				0.36	0.00	0.36	0.06	0.36	0.00	0.00	0.28	0.28
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				580	0	1057	135	1274	0	0	848	486
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				16.1	0.0	41.4	9.8	39.1	0.0	0.0	17.6	36.2
Cycle Q Clear(g_c), s				16.1	0.0	41.4	9.8	39.1	0.0	0.0	17.6	36.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1295	0	1152	147	1921	0	0	2115	657
V/C Ratio(X)				0.45	0.00	0.92	0.92	0.66	0.00	0.00	0.40	0.74
Avail Cap(c_a), veh/h				1587	0	1412	147	1921	0	0	2115	657
HCM Platoon Ratio				1.00	1.00	1.00	0.67	0.67	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	1.00	0.59	0.59	0.00	0.00	0.94	0.94
Uniform Delay (d), s/veh				31.5	0.0	39.5	61.0	31.5	0.0	0.0	33.8	40.6
Incr Delay (d2), s/veh				0.1	0.0	7.7	35.9	1.1	0.0	0.0	0.5	6.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.0	0.0	17.2	6.0	18.0	0.0	0.0	7.8	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.6	0.0	47.2	96.9	32.6	0.0	0.0	34.4	47.5
LnGrp LOS				C	A	D	F	C	A	A	C	D
Approach Vol, veh/h					1637			1409			1334	
Approach Delay, s/veh					41.7			38.8			39.2	
Approach LOS					D			D			D	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		76.7			16.4	60.3		53.3				
Change Period (Y+Rc), s		6.4			* 5.7	6.4		6.1				
Max Green Setting (Gmax), s		59.6			* 11	43.2		57.9				
Max Q Clear Time (g_c+I1), s		41.1			11.8	38.2		43.4				
Green Ext Time (p_c), s		6.6			0.0	2.4		3.8				

Intersection Summary			
HCM 6th Ctrl Delay			40.0
HCM 6th LOS			D

Notes

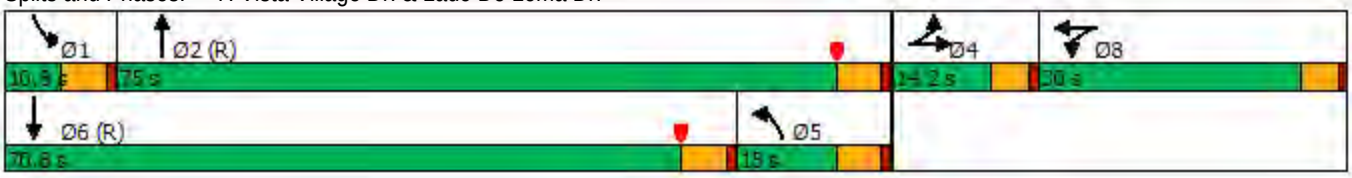
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	2	194	3	9	1896	98	1074
Future Volume (vph)	2	194	3	9	1896	98	1074
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	75.0	10.8	70.8
Total Split (%)	10.9%	23.1%	23.1%	11.5%	57.7%	8.3%	54.5%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	6.2	17.4	17.4	10.4	77.1	15.4	91.2
Actuated g/C Ratio	0.05	0.13	0.13	0.08	0.59	0.12	0.70
v/c Ratio	0.18	0.70	0.53	0.06	0.78	0.48	0.31
Control Delay	34.6	69.3	33.2	53.9	19.0	50.4	7.0
Queue Delay	0.0	0.0	0.0	0.0	1.3	0.0	0.2
Total Delay	34.6	69.3	33.2	53.9	20.3	50.4	7.2
LOS	C	E	C	D	C	D	A
Approach Delay	34.6		52.1		20.4		10.8
Approach LOS	C		D		C		B

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 110 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 19.9	Intersection LOS: B
Intersection Capacity Utilization 77.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	13	194	3	93	9	1896	333	98	1074	5
Future Volume (veh/h)	1	2	13	194	3	93	9	1896	333	98	1074	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	2	13	150	74	96	9	1955	343	101	1107	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3	22	216	90	116	794	2922	503	74	1376	6
Arrive On Green	0.02	0.02	0.02	0.12	0.12	0.12	0.89	1.00	1.00	0.08	0.52	0.52
Sat Flow, veh/h	102	203	1322	1781	739	959	1781	4384	755	1781	5246	24
Grp Volume(v), veh/h	16	0	0	150	0	170	9	1510	788	101	718	394
Grp Sat Flow(s),veh/h/ln	1627	0	0	1781	0	1698	1781	1702	1734	1781	1702	1866
Q Serve(g_s), s	1.3	0.0	0.0	10.5	0.0	12.7	0.1	0.0	0.0	5.4	22.6	22.6
Cycle Q Clear(g_c), s	1.3	0.0	0.0	10.5	0.0	12.7	0.1	0.0	0.0	5.4	22.6	22.6
Prop In Lane	0.06		0.81	1.00		0.56	1.00		0.44	1.00		0.01
Lane Grp Cap(c), veh/h	27	0	0	216	0	206	794	2269	1156	74	893	489
V/C Ratio(X)	0.58	0.00	0.00	0.69	0.00	0.83	0.01	0.67	0.68	1.37	0.80	0.80
Avail Cap(c_a), veh/h	120	0	0	348	0	332	794	2269	1156	74	1713	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.50	0.50	0.50	0.87	0.87	0.87
Uniform Delay (d), s/veh	63.4	0.0	0.0	54.8	0.0	55.8	3.9	0.0	0.0	59.6	28.2	28.2
Incr Delay (d2), s/veh	18.0	0.0	0.0	4.0	0.0	8.8	0.0	0.8	1.6	222.6	6.7	11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	5.0	0.0	6.0	0.0	0.2	0.5	6.9	7.9	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	0.0	0.0	58.8	0.0	64.6	3.9	0.8	1.6	282.2	34.9	39.8
LnGrp LOS	F	A	A	E	A	E	A	A	A	F	C	D
Approach Vol, veh/h		16			320			2307			1213	
Approach Delay, s/veh		81.5			61.9			1.1			57.1	
Approach LOS		F			E			A			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	92.0		6.8	63.4	39.5		20.4				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	69.6		9.6	9.6	65.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	2.0		3.3	2.1	24.6		14.7				
Green Ext Time (p_c), s	0.0	38.0		0.0	0.0	9.5		1.0				

Intersection Summary			
HCM 6th Ctrl Delay			24.1
HCM 6th LOS			C

Notes

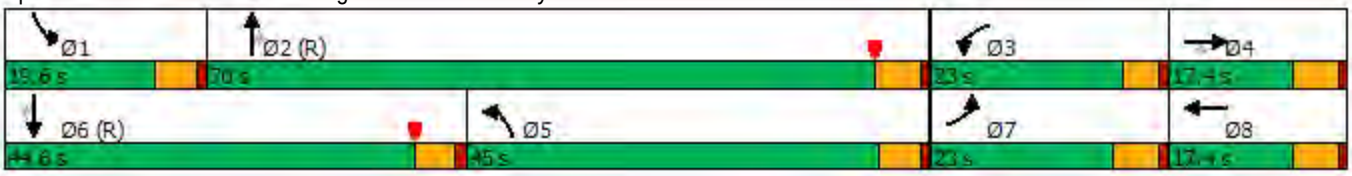
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	372	147	165	57	111	426	1425	139	65	955	410
Future Volume (vph)	372	147	165	57	111	426	1425	139	65	955	410
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	23.0	17.4	17.4	23.0	17.4	45.0	70.0	70.0	19.6	44.6	44.6
Total Split (%)	17.7%	13.4%	13.4%	17.7%	13.4%	34.6%	53.8%	53.8%	15.1%	34.3%	34.3%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	19.1	25.1	25.1	8.7	12.0	26.6	70.4	70.4	9.4	51.5	51.5
Actuated g/C Ratio	0.15	0.19	0.19	0.07	0.09	0.20	0.54	0.54	0.07	0.40	0.40
v/c Ratio	0.77	0.22	0.39	0.50	0.46	0.63	0.54	0.16	0.54	0.49	0.56
Control Delay	61.9	45.5	8.2	71.8	49.6	41.5	20.7	7.9	72.7	31.9	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	61.9	45.5	8.2	71.8	49.6	41.5	21.1	7.9	72.7	31.9	17.6
LOS	E	D	A	E	D	D	C	A	E	C	B
Approach Delay		45.4			55.6		24.5			29.7	
Approach LOS		D			E		C			C	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 70 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 31.0 — Intersection LOS: C
Intersection Capacity Utilization 70.0% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	147	165	57	111	40	426	1425	139	65	955	410
Future Volume (veh/h)	372	147	165	57	111	40	426	1425	139	65	955	410
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	388	153	172	59	116	42	444	1484	145	68	995	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	439	651	290	76	238	83	1310	2906	902	87	1218	
Arrive On Green	0.13	0.18	0.18	0.04	0.09	0.09	0.76	1.00	1.00	0.05	0.24	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2588	898	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	388	153	172	59	78	80	444	1484	145	68	995	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1709	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	14.4	4.8	5.6	4.3	5.4	5.8	5.4	0.0	0.0	4.9	24.0	0.0
Cycle Q Clear(g_c), s	14.4	4.8	5.6	4.3	5.4	5.8	5.4	0.0	0.0	4.9	24.0	0.0
Prop In Lane	1.00		1.00	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	439	651	290	76	163	157	1310	2906	902	87	1218	
V/C Ratio(X)	0.88	0.23	0.59	0.78	0.48	0.51	0.34	0.51	0.16	0.78	0.82	
Avail Cap(c_a), veh/h	468	651	290	253	164	158	1310	2906	902	200	1555	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	1.00	1.00	1.00	0.54	0.54	0.54	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.8	45.3	9.2	61.6	56.1	56.2	10.4	0.0	0.0	61.1	46.8	0.0
Incr Delay (d2), s/veh	6.3	0.0	0.9	6.2	1.6	2.0	0.0	0.3	0.2	5.6	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	2.1	4.9	2.1	2.5	2.6	1.8	0.1	0.1	2.4	10.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	45.4	10.1	67.8	57.7	58.2	10.4	0.3	0.2	66.8	52.9	0.0
LnGrp LOS	E	D	B	E	E	E	B	A	A	E	D	
Approach Vol, veh/h		713			217			2073			1063	A
Approach Delay, s/veh		46.0			60.6			2.5			53.8	
Approach LOS		D			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	79.4	10.1	29.2	54.7	36.0	21.9	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	14.6	64.6	18.5	12.0	40.0	* 40	17.6	12.0
Max Q Clear Time (g_c+I1), s	6.9	2.0	6.3	7.6	7.4	26.0	16.4	7.8
Green Ext Time (p_c), s	0.0	14.4	0.0	0.5	0.9	5.1	0.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	336	88	65	2	2	335
Future Vol, veh/h	336	88	65	2	2	335
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	365	96	71	2	2	364

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	898	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	826	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1527	-	-	-	310	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	430	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	236	990
Mov Cap-2 Maneuver	-	-	-	-	236	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	430	-

Approach	EB	WB	SB
HCM Control Delay, s	6.4	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	972
HCM Lane V/C Ratio	0.239	-	-	-	0.377
HCM Control Delay (s)	8.1	-	-	-	10.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.9	-	-	-	1.8

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	23	23	67	44	2
Future Vol, veh/h	2	23	23	67	44	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	25	25	73	48	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	172	49	50	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	123	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	818	1020	1557	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	804	1020	1557	-	-	-
Mov Cap-2 Maneuver	804	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	902	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1557	-	999	-	-
HCM Lane V/C Ratio	0.016	-	0.027	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

APPENDIX F

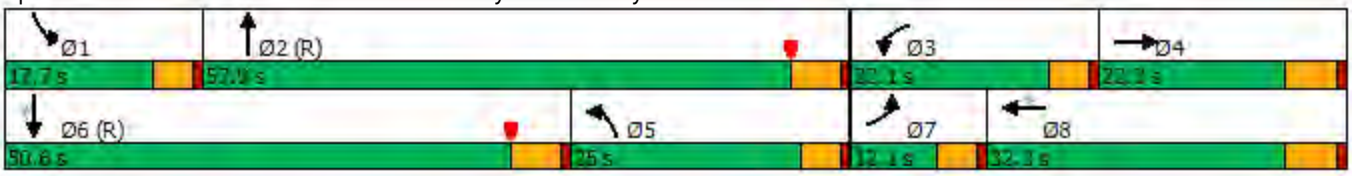
PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – YEAR 2030 WITHOUT PROJECT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	53	234	327	425	384	622	976	271	1415	616
Future Volume (vph)	53	234	327	425	384	622	976	271	1415	616
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	12.1	22.3	22.1	32.3	32.3	25.0	57.9	17.7	50.6	50.6
Total Split (%)	10.1%	18.6%	18.4%	26.9%	26.9%	20.8%	48.3%	14.8%	42.2%	42.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	6.9	17.3	15.6	27.8	27.8	20.5	52.5	14.5	46.5	46.5
Actuated g/C Ratio	0.06	0.14	0.13	0.23	0.23	0.17	0.44	0.12	0.39	0.39
v/c Ratio	0.55	0.90	0.77	0.54	0.69	1.12	0.54	1.34	0.76	0.88
Control Delay	75.2	45.9	62.7	43.8	19.8	114.3	20.7	222.3	35.2	38.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	75.2	45.9	62.7	43.8	19.8	114.3	21.3	222.3	35.2	38.4
LOS	E	D	E	D	B	F	C	F	D	D
Approach Delay		48.3		41.2			54.2		58.1	
Approach LOS		D		D			D		E	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.34
Intersection Signal Delay: 52.5 — Intersection LOS: D
Intersection Capacity Utilization 89.2% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	234	358	327	425	384	622	976	160	271	1415	616
Future Volume (veh/h)	53	234	358	327	425	384	622	976	160	271	1415	616
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	246	377	344	447	369	655	1027	148	285	1489	626
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	257	229	403	785	350	673	2076	299	196	1879	583
Arrive On Green	0.04	0.14	0.14	0.12	0.22	0.22	0.26	0.61	0.61	0.11	0.37	0.37
Sat Flow, veh/h	1781	1777	1585	3456	3554	1585	3456	4509	649	1781	5106	1585
Grp Volume(v), veh/h	56	246	377	344	447	369	655	775	400	285	1489	626
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1702	1754	1781	1702	1585
Q Serve(g_s), s	3.7	16.5	17.4	11.7	13.5	26.5	22.5	15.2	15.2	13.2	31.2	35.6
Cycle Q Clear(g_c), s	3.7	16.5	17.4	11.7	13.5	26.5	22.5	15.2	15.2	13.2	31.2	35.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	72	257	229	403	785	350	673	1567	807	196	1879	583
V/C Ratio(X)	0.78	0.96	1.64	0.85	0.57	1.05	0.97	0.49	0.50	1.45	0.79	1.07
Avail Cap(c_a), veh/h	113	257	229	507	785	350	673	1567	807	196	1923	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.39	0.39	0.39	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	51.0	51.3	52.0	41.7	46.8	44.1	15.5	15.5	53.4	33.8	24.6
Incr Delay (d2), s/veh	6.5	44.4	308.8	3.9	0.4	45.4	25.7	1.0	1.9	230.6	3.5	58.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	10.5	26.5	5.3	5.9	14.8	11.5	5.3	5.6	18.4	13.4	22.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	95.4	360.1	55.9	42.1	92.1	69.8	16.5	17.4	284.0	37.4	83.0
LnGrp LOS	E	F	F	E	D	F	E	B	B	F	D	F
Approach Vol, veh/h		679			1160			1830			2400	
Approach Delay, s/veh		239.8			62.1			35.8			78.6	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	60.6	18.5	23.2	28.8	49.6	9.4	32.3
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	13.2	52.5	17.6	16.5	20.5	* 45	7.6	26.5
Max Q Clear Time (g_c+I1), s	15.2	17.2	13.7	19.4	24.5	37.6	5.7	28.5
Green Ext Time (p_c), s	0.0	12.3	0.3	0.0	0.0	6.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	80.5
HCM 6th LOS	F

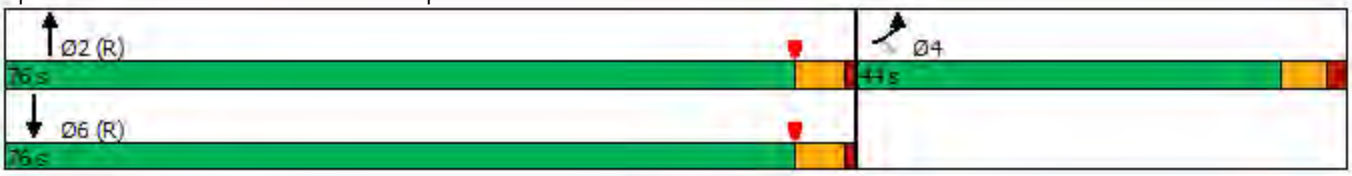
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	290	504	1206	1951
Future Volume (vph)	290	504	1206	1951
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	44.0	44.0	76.0	76.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	26.1	26.1	82.4	82.4
Actuated g/C Ratio	0.22	0.22	0.69	0.69
v/c Ratio	0.77	0.80	0.35	0.45
Control Delay	50.3	60.7	10.8	11.2
Queue Delay	5.8	64.0	1.4	0.3
Total Delay	56.1	124.7	12.2	11.5
LOS	E	F	B	B
Approach Delay	77.9		12.2	11.5
Approach LOS	E		B	B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 25.1	Intersection LOS: C
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	290	504	0	1206	1951	0
Future Volume (veh/h)	290	504	0	1206	1951	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	270	542	0	1231	1991	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	349	621	0	3617	4558	0
Arrive On Green	0.20	0.20	0.00	0.94	1.00	0.00
Sat Flow, veh/h	1781	3170	0	5443	6958	0
Grp Volume(v), veh/h	270	542	0	1231	1991	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	17.2	19.9	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	17.2	19.9	0.0	2.5	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	349	621	0	3617	4558	0
V/C Ratio(X)	0.77	0.87	0.00	0.34	0.44	0.00
Avail Cap(c_a), veh/h	563	1001	0	3617	4558	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.65	0.56	0.00
Uniform Delay (d), s/veh	45.7	46.8	0.0	1.1	0.0	0.0
Incr Delay (d2), s/veh	1.4	3.0	0.0	0.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	8.1	0.0	0.6	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.1	49.8	0.0	1.3	0.2	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	812			1231	1991	
Approach Delay, s/veh	48.9			1.3	0.2	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		90.4		29.6		90.4
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		70.6		37.9		70.6
Max Q Clear Time (g_c+I1), s		4.5		21.9		2.0
Green Ext Time (p_c), s		7.7		1.6		18.1

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

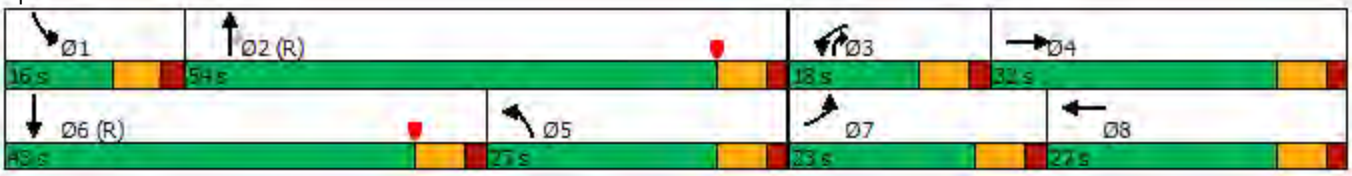
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	255	281	611	277	44	994	290	680	1637
Future Volume (vph)	255	281	611	277	44	994	290	680	1637
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	32.0	18.0	27.0	27.0	54.0	18.0	16.0	43.0
Total Split (%)	19.2%	26.7%	15.0%	22.5%	22.5%	45.0%	15.0%	13.3%	35.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	13.8	17.2	23.5	26.9	8.7	35.7	65.6	18.0	45.0
Actuated g/C Ratio	0.12	0.14	0.20	0.22	0.07	0.30	0.55	0.15	0.38
v/c Ratio	0.69	0.70	0.97	0.48	0.37	0.70	0.34	1.41	1.08
Control Delay	60.1	53.7	76.2	40.3	59.4	39.8	10.0	232.8	85.8
Queue Delay	9.5	0.0	0.0	0.1	0.0	0.0	0.0	1.6	6.9
Total Delay	69.6	53.7	76.2	40.4	59.4	39.8	10.0	234.4	92.7
LOS	E	D	E	D	E	D	B	F	F
Approach Delay		60.5		63.0		34.0			129.8
Approach LOS		E		E		C			F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.41
Intersection Signal Delay: 87.3 — Intersection LOS: F
Intersection Capacity Utilization 90.3% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	281	55	611	277	78	44	994	290	680	1637	279
Future Volume (veh/h)	255	281	55	611	277	78	44	994	290	680	1637	279
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	271	299	53	650	295	79	47	1057	309	723	1741	252
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	385	67	334	357	94	459	2464	918	276	1375	198
Arrive On Green	0.10	0.13	0.13	0.10	0.13	0.13	0.26	0.48	0.48	0.16	0.61	0.61
Sat Flow, veh/h	3456	3023	529	3456	2783	733	1781	5106	1585	3456	4509	649
Grp Volume(v), veh/h	271	174	178	650	187	187	47	1057	309	723	1312	681
Grp Sat Flow(s),veh/h/ln	1728	1777	1775	1728	1777	1739	1781	1702	1585	1728	1702	1754
Q Serve(g_s), s	9.2	11.4	11.7	11.6	12.3	12.6	2.4	16.2	12.2	9.6	36.6	36.6
Cycle Q Clear(g_c), s	9.2	11.4	11.7	11.6	12.3	12.6	2.4	16.2	12.2	9.6	36.6	36.6
Prop In Lane	1.00		0.30	1.00		0.42	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	331	227	226	334	228	223	459	2464	918	276	1038	535
V/C Ratio(X)	0.82	0.77	0.79	1.95	0.82	0.84	0.10	0.43	0.34	2.62	1.26	1.27
Avail Cap(c_a), veh/h	478	379	379	334	305	298	459	2464	918	276	1038	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	53.2	50.6	50.8	54.2	50.9	51.1	34.0	20.3	13.2	50.4	23.4	23.4
Incr Delay (d2), s/veh	4.7	2.1	2.3	435.4	8.2	10.5	0.0	0.5	1.0	735.8	125.3	135.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	5.2	5.3	25.2	6.0	6.1	1.1	6.5	4.5	32.0	27.7	30.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	52.7	53.0	489.6	59.2	61.6	34.0	20.8	14.2	786.2	148.7	158.9
LnGrp LOS	E	D	D	F	E	E	C	C	B	F	F	F
Approach Vol, veh/h		623			1024			1413			2716	
Approach Delay, s/veh		55.1			332.8			19.8			321.0	
Approach LOS		E			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	64.3	18.0	21.7	37.3	43.0	17.9	21.8
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	47.6	11.6	25.6	20.6	36.6	16.6	20.6
Max Q Clear Time (g_c+I1), s	11.6	18.2	13.6	13.7	4.4	38.6	11.2	14.6
Green Ext Time (p_c), s	0.0	10.4	0.0	1.1	0.0	0.0	0.3	0.8

Intersection Summary	
HCM 6th Ctrl Delay	220.7
HCM 6th LOS	F

Notes

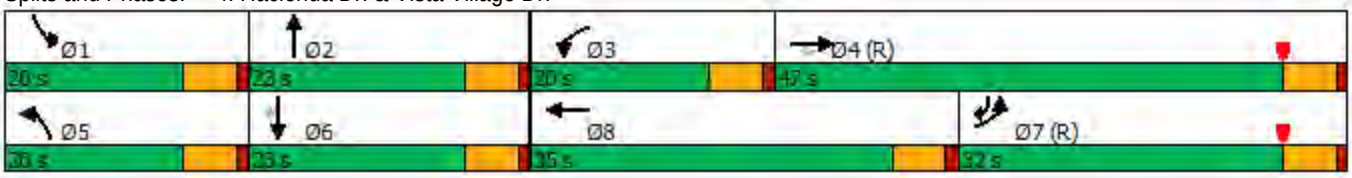
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1332	24	41	4	16	123	42	28	107	812
Future Volume (vph)	1332	24	41	4	16	123	42	28	107	812
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	23.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	58.8	68.6	68.6	5.1	10.7	11.9	17.9	6.5	11.1	72.1
Actuated g/C Ratio	0.53	0.62	0.62	0.05	0.10	0.11	0.16	0.06	0.10	0.66
v/c Ratio	0.78	0.02	0.04	0.05	0.17	0.69	0.18	0.29	0.61	0.41
Control Delay	27.9	11.4	0.1	51.2	27.6	65.5	35.0	43.8	58.8	2.9
Queue Delay	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	11.4	0.1	51.2	27.6	65.5	35.0	43.8	58.8	2.9
LOS	C	B	A	D	C	E	C	D	E	A
Approach Delay		27.3			30.3		56.7		10.4	
Approach LOS		C			C		E		B	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 24 (22%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 23.1 — Intersection LOS: C
Intersection Capacity Utilization 67.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1332	24	41	4	16	13	123	42	7	28	107	812
Future Volume (veh/h)	1332	24	41	4	16	13	123	42	7	28	107	812
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1432	26	44	4	17	14	132	45	8	30	115	873
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1143	968	9	355	292	160	248	44	49	182	947
Arrive On Green	0.24	0.61	0.61	0.01	0.37	0.37	0.09	0.16	0.16	0.01	0.03	0.03
Sat Flow, veh/h	3456	1870	1585	1781	949	781	1781	1546	275	1781	1870	2790
Grp Volume(v), veh/h	1432	26	44	4	0	31	132	0	53	30	115	873
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1730	1781	0	1821	1781	1870	1395
Q Serve(g_s), s	26.6	0.6	1.2	0.2	0.0	1.3	8.0	0.0	2.8	1.8	6.7	5.7
Cycle Q Clear(g_c), s	26.6	0.6	1.2	0.2	0.0	1.3	8.0	0.0	2.8	1.8	6.7	5.7
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	836	1143	968	9	0	647	160	0	292	49	182	947
V/C Ratio(X)	1.71	0.02	0.05	0.43	0.00	0.05	0.82	0.00	0.18	0.62	0.63	0.92
Avail Cap(c_a), veh/h	836	1143	968	236	0	647	236	0	292	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.12	0.12	0.12	1.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	41.7	8.4	8.6	54.5	0.0	21.9	49.2	0.0	39.9	53.9	51.3	17.5
Incr Delay (d2), s/veh	321.8	0.0	0.0	11.2	0.0	0.0	8.8	0.0	0.1	4.3	1.2	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	48.5	0.2	0.4	0.1	0.0	0.5	3.9	0.0	1.3	0.9	3.3	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	363.5	8.5	8.6	65.7	0.0	21.9	58.0	0.0	40.1	58.2	52.5	27.0
LnGrp LOS	F	A	A	E	A	C	E	A	D	E	D	C
Approach Vol, veh/h		1502			35			185			1018	
Approach Delay, s/veh		346.9			26.9			52.9			30.8	
Approach LOS		F			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	23.0	6.0	72.6	15.3	16.1	32.0	46.6
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	3.8	4.8	2.2	3.2	10.0	8.7	28.6	3.3
Green Ext Time (p_c), s	0.0	0.1	0.0	0.1	0.1	2.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	205.5
HCM 6th LOS	F

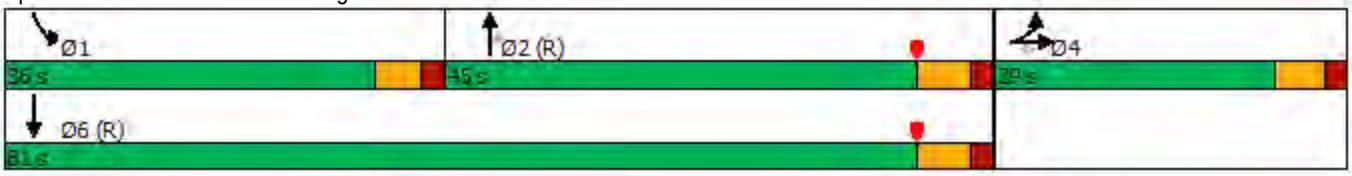
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	525	4	36	326	975	820	1003
Future Volume (vph)	525	4	36	326	975	820	1003
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	29.0	29.0	29.0	45.0	45.0	36.0	81.0
Total Split (%)	26.4%	26.4%	26.4%	40.9%	40.9%	32.7%	73.6%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	21.8	21.8	21.8	39.8	39.8	30.2	75.7
Actuated g/C Ratio	0.20	0.20	0.20	0.36	0.36	0.27	0.69
v/c Ratio	0.82	0.83	0.10	0.62	0.62	0.91	0.43
Control Delay	62.3	63.6	0.5	17.2	16.5	47.7	5.6
Queue Delay	0.0	0.0	0.0	4.2	17.3	3.0	0.4
Total Delay	62.3	63.6	0.5	21.3	33.9	50.7	6.0
LOS	E	E	A	C	C	D	A
Approach Delay		58.9		26.0			26.1
Approach LOS		E		C			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 93.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	525	4	36	0	0	0	0	326	975	820	1003	0
Future Volume (veh/h)	525	4	36	0	0	0	0	326	975	820	1003	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	550	0	38				0	340	1016	854	1045	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	621	0	276				0	738	1251	918	2530	0
Arrive On Green	0.17	0.00	0.17				0.00	0.39	0.39	0.18	0.48	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	550	0	38				0	340	1016	854	1045	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	16.6	0.0	2.2				0.0	14.8	31.4	26.8	21.1	0.0
Cycle Q Clear(g_c), s	16.6	0.0	2.2				0.0	14.8	31.4	26.8	21.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	621	0	276				0	738	1251	918	2530	0
V/C Ratio(X)	0.89	0.00	0.14				0.00	0.46	0.81	0.93	0.41	0.00
Avail Cap(c_a), veh/h	742	0	330				0	738	1251	952	2530	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.67	0.67	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.57	0.57	0.79	0.79	0.00
Uniform Delay (d), s/veh	44.3	0.0	38.4				0.0	24.6	29.7	44.2	13.8	0.0
Incr Delay (d2), s/veh	9.8	0.0	0.1				0.0	1.2	3.4	12.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	0.0	0.9				0.0	6.7	12.3	13.4	9.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	0.0	38.5				0.0	25.8	33.1	56.4	14.2	0.0
LnGrp LOS	D	A	D				A	C	C	E	B	A
Approach Vol, veh/h		588						1356			1899	
Approach Delay, s/veh		53.2						31.3			33.2	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	34.9	49.8		25.3		84.7
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 30	38.6		22.9		74.6
Max Q Clear Time (g_c+I1), s	28.8	33.4		18.6		23.1
Green Ext Time (p_c), s	0.4	2.2		0.6		6.1

Intersection Summary			
HCM 6th Ctrl Delay			35.5
HCM 6th LOS			D

Notes

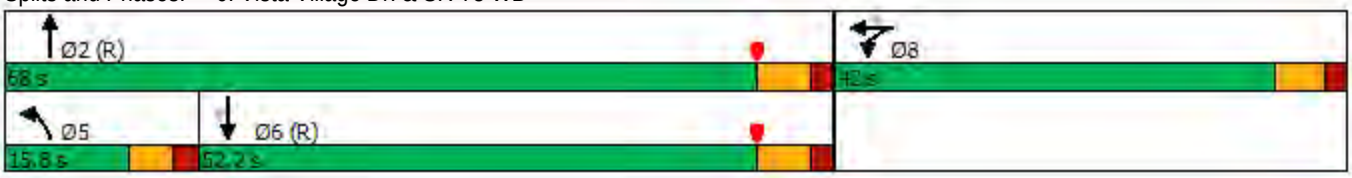
User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	607	0	884	61	813	1320	813
Future Volume (vph)	607	0	884	61	813	1320	813
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	42.0	42.0	42.0	15.8	68.0	52.2	52.2
Total Split (%)	38.2%	38.2%	38.2%	14.4%	61.8%	47.5%	47.5%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	33.3	33.3	33.3	10.0	64.2	51.6	51.6
Actuated g/C Ratio	0.30	0.30	0.30	0.09	0.58	0.47	0.47
v/c Ratio	0.62	0.62	0.88	0.39	0.41	0.57	0.71
Control Delay	38.2	38.2	36.4	66.4	7.2	31.3	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.6	0.1	1.7
Total Delay	38.2	38.2	36.4	66.4	7.8	31.3	16.6
LOS	D	D	D	E	A	C	B
Approach Delay		37.2			11.9	25.7	
Approach LOS		D			B	C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 93.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	607	0	884	61	813	0	0	1320	813
Future Volume (veh/h)	0	0	0	607	0	884	61	813	0	0	1320	813
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				626	0	911	63	838	0	0	1361	838
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1105	0	984	138	2047	0	0	2280	708
Arrive On Green				0.31	0.00	0.31	0.16	1.00	0.00	0.00	0.89	0.89
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				626	0	911	63	838	0	0	1361	838
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				16.2	0.0	30.6	3.5	0.0	0.0	0.0	6.7	49.1
Cycle Q Clear(g_c), s				16.2	0.0	30.6	3.5	0.0	0.0	0.0	6.7	49.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1105	0	984	138	2047	0	0	2280	708
V/C Ratio(X)				0.57	0.00	0.93	0.46	0.41	0.00	0.00	0.60	1.18
Avail Cap(c_a), veh/h				1163	0	1035	164	2047	0	0	2280	708
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.69	0.69	0.00	0.00	0.68	0.68
Uniform Delay (d), s/veh				31.7	0.0	36.7	44.3	0.0	0.0	0.0	3.6	5.9
Incr Delay (d2), s/veh				0.3	0.0	12.9	0.6	0.4	0.0	0.0	0.8	92.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.0	0.0	13.4	1.5	0.1	0.0	0.0	1.5	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.1	0.0	49.6	44.9	0.4	0.0	0.0	4.4	98.5
LnGrp LOS				C	A	D	D	A	A	A	A	F
Approach Vol, veh/h					1537			901			2199	
Approach Delay, s/veh					42.5			3.5			40.3	
Approach LOS					D			A			D	

Timer - Assigned Phs	2		5	6		8
Phs Duration (G+Y+Rc), s	69.8		14.2	55.5		40.2
Change Period (Y+Rc), s	6.4		* 5.7	6.4		6.1
Max Green Setting (Gmax), s	61.6		* 10	45.8		35.9
Max Q Clear Time (g_c+I1), s	2.0		5.5	51.1		32.6
Green Ext Time (p_c), s	4.5		0.0	0.0		1.5

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

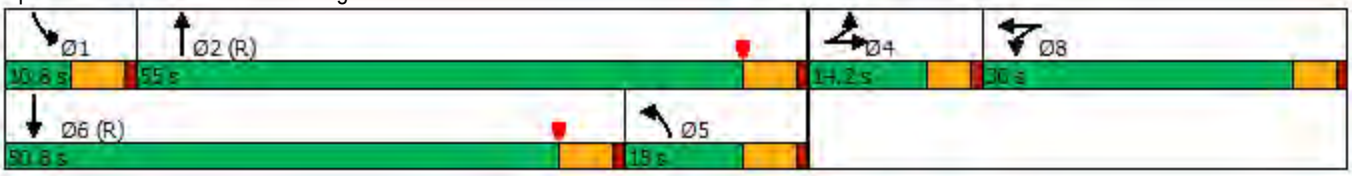
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	5	230	5	10	1280	130	1920
Future Volume (vph)	5	230	5	10	1280	130	1920
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	55.0	10.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	50.0%	9.8%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	C-Min	Max	C-Min
Act Effct Green (s)	5.7	16.0	16.0	9.6	49.6	24.6	64.6
Actuated g/C Ratio	0.05	0.15	0.15	0.09	0.45	0.22	0.59
v/c Ratio	0.16	0.67	0.58	0.06	0.65	0.34	0.67
Control Delay	34.2	57.2	40.9	55.3	29.8	60.5	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.2
Total Delay	34.2	57.2	40.9	55.3	30.1	60.5	8.9
LOS	C	E	D	E	C	E	A
Approach Delay	34.2		49.3		30.3		12.1
Approach LOS	C		D		C		B

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 15 (14%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 22.0 — Intersection LOS: C
Intersection Capacity Utilization 69.6% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	10	230	5	70	10	1280	140	130	1920	10
Future Volume (veh/h)	0	5	10	230	5	70	10	1280	140	130	1920	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	5	10	159	118	73	10	1333	146	135	2000	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	9	19	237	144	89	473	2892	317	87	2110	11
Arrive On Green	0.00	0.02	0.02	0.13	0.13	0.13	0.35	0.82	0.82	0.10	0.80	0.80
Sat Flow, veh/h	0	557	1113	1781	1081	669	1781	4671	512	1781	5243	26
Grp Volume(v), veh/h	0	0	15	159	0	191	10	971	508	135	1298	712
Grp Sat Flow(s),veh/h/ln	0	0	1670	1781	0	1750	1781	1702	1778	1781	1702	1866
Q Serve(g_s), s	0.0	0.0	1.0	9.3	0.0	11.7	0.4	8.9	8.9	5.4	34.5	34.6
Cycle Q Clear(g_c), s	0.0	0.0	1.0	9.3	0.0	11.7	0.4	8.9	8.9	5.4	34.5	34.6
Prop In Lane	0.00		0.67	1.00		0.38	1.00		0.29	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	28	237	0	233	473	2107	1101	87	1370	751
V/C Ratio(X)	0.00	0.00	0.54	0.67	0.00	0.82	0.02	0.46	0.46	1.54	0.95	0.95
Avail Cap(c_a), veh/h	0	0	146	411	0	404	473	2107	1101	87	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.71	0.71	0.71	0.57	0.57	0.57
Uniform Delay (d), s/veh	0.0	0.0	53.7	45.4	0.0	46.4	26.2	4.5	4.5	49.6	9.8	9.8
Incr Delay (d2), s/veh	0.0	0.0	11.4	2.4	0.0	5.3	0.1	0.5	1.0	274.4	9.6	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.5	4.3	0.0	5.4	0.2	2.4	2.7	8.9	5.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	65.1	47.8	0.0	51.6	26.3	5.0	5.5	324.0	19.4	24.9
LnGrp LOS	A	A	E	D	A	D	C	A	A	F	B	C
Approach Vol, veh/h		15			350			1489			2145	
Approach Delay, s/veh		65.1			49.9			5.3			40.4	
Approach LOS		E			D			A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	73.5		6.4	34.6	49.7		19.3				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	49.6		9.6	9.6	45.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	10.9		3.0	2.4	36.6		13.7				
Green Ext Time (p_c), s	0.0	17.4		0.0	0.0	7.7		1.0				

Intersection Summary			
HCM 6th Ctrl Delay			28.3
HCM 6th LOS			C

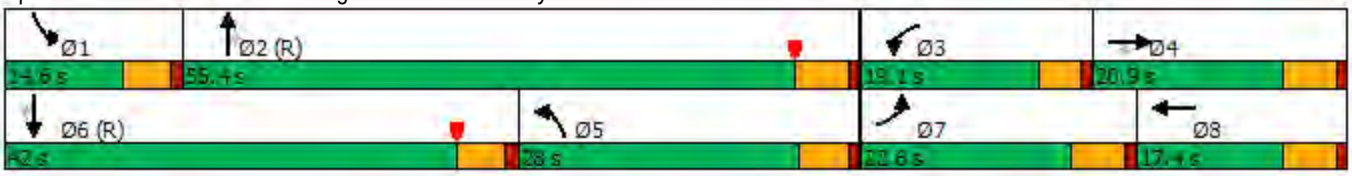
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	330	50	325	44	73	499	1039	26	18	1480	719
Future Volume (vph)	330	50	325	44	73	499	1039	26	18	1480	719
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.5	17.4	17.4	9.5	17.4	16.5	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	20.9	20.9	19.1	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	19.0%	19.0%	17.4%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	15.5	19.2	19.2	7.5	12.0	20.8	65.0	65.0	6.0	44.5	44.5
Actuated g/C Ratio	0.14	0.17	0.17	0.07	0.11	0.19	0.59	0.59	0.05	0.40	0.40
v/c Ratio	0.75	0.09	0.63	0.40	0.23	0.85	0.38	0.03	0.21	0.79	0.95
Control Delay	55.8	37.3	9.6	57.9	41.9	37.3	4.8	0.0	54.3	34.4	41.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	55.8	37.3	9.6	57.9	41.9	37.3	4.9	0.0	54.3	34.4	41.9
LOS	E	D	A	E	D	D	A	A	D	C	D
Approach Delay		33.2			47.5		15.2			37.0	
Approach LOS		C			D		B			D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 10 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 29.3	Intersection LOS: C
Intersection Capacity Utilization 81.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	50	325	44	73	8	499	1039	26	18	1480	719
Future Volume (veh/h)	330	50	325	44	73	8	499	1039	26	18	1480	719
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	363	55	357	48	80	9	548	1142	29	20	1626	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	710	317	62	329	36	849	2859	888	37	1711	
Arrive On Green	0.12	0.20	0.20	0.03	0.10	0.10	0.49	1.00	1.00	0.02	0.34	0.00
Sat Flow, veh/h	3456	3554	1585	1781	3226	357	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	363	55	357	48	43	46	548	1142	29	20	1626	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1806	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	11.3	1.4	12.5	2.9	2.5	2.6	13.0	0.0	0.0	1.2	34.2	0.0
Cycle Q Clear(g_c), s	11.3	1.4	12.5	2.9	2.5	2.6	13.0	0.0	0.0	1.2	34.2	0.0
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	430	710	317	62	181	184	849	2859	888	37	1711	
V/C Ratio(X)	0.84	0.08	1.13	0.77	0.24	0.25	0.65	0.40	0.03	0.54	0.95	
Avail Cap(c_a), veh/h	540	710	317	236	194	197	849	2859	888	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.1	35.8	14.3	52.6	45.5	45.5	24.4	0.0	0.0	53.3	35.7	0.0
Incr Delay (d2), s/veh	0.9	0.0	61.8	7.3	0.5	0.5	0.9	0.3	0.0	4.5	12.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.6	9.8	1.4	1.1	1.2	4.3	0.1	0.0	0.6	15.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	35.8	76.1	59.9	46.0	46.0	25.3	0.3	0.0	57.8	48.5	0.0
LnGrp LOS	D	D	F	E	D	D	C	A	A	E	D	
Approach Vol, veh/h		775			137			1719			1646	A
Approach Delay, s/veh		60.1			50.9			8.3			48.6	
Approach LOS		E			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	67.0	8.3	27.4	32.4	41.9	19.1	16.6
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	14.6	15.5	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	3.2	2.0	4.9	14.5	15.0	36.2	13.3	4.6
Green Ext Time (p_c), s	0.0	8.9	0.0	0.2	0.8	0.7	0.4	0.2

Intersection Summary	
HCM 6th Ctrl Delay	34.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

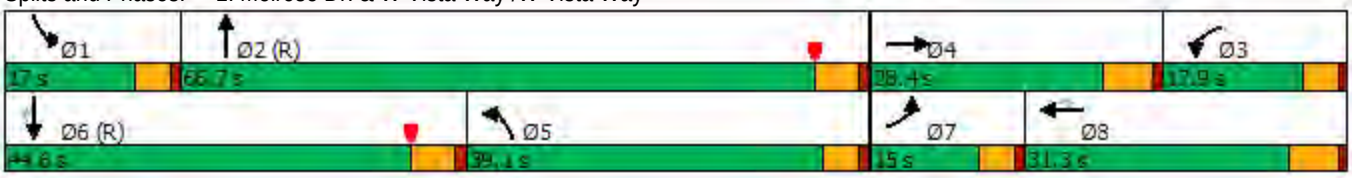
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	115	347	199	428	667	506	1614	246	1170	420
Future Volume (vph)	115	347	199	428	667	506	1614	246	1170	420
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	39.1	66.7	17.0	44.6	44.6
Total Split (%)	11.5%	21.8%	13.8%	24.1%	24.1%	30.1%	51.3%	13.1%	34.3%	34.3%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	10.2	21.8	14.2	25.8	25.8	34.8	61.3	12.5	39.0	39.0
Actuated g/C Ratio	0.08	0.17	0.11	0.20	0.20	0.27	0.47	0.10	0.30	0.30
v/c Ratio	0.86	0.87	0.55	0.63	1.45	0.57	0.83	1.49	0.79	0.68
Control Delay	105.5	62.6	67.7	58.4	242.9	49.3	39.1	290.3	46.2	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0
Total Delay	105.5	62.6	67.7	58.4	242.9	49.3	51.6	290.3	46.2	23.1
LOS	F	E	E	E	F	D	D	F	D	C
Approach Delay		70.5		155.0			51.2		73.7	
Approach LOS		E		F			D		E	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.49
Intersection Signal Delay: 81.6 — Intersection LOS: F
Intersection Capacity Utilization 98.4% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	347	166	199	428	667	506	1614	289	246	1170	420
Future Volume (veh/h)	115	347	166	199	428	667	506	1614	289	246	1170	420
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	358	171	205	441	654	522	1664	278	254	1206	411
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	399	188	332	697	311	956	2082	346	171	1454	451
Arrive On Green	0.08	0.17	0.17	0.16	0.33	0.33	0.55	0.94	0.94	0.10	0.28	0.28
Sat Flow, veh/h	1781	2347	1102	3456	3554	1585	3456	4410	732	1781	5106	1585
Grp Volume(v), veh/h	119	270	259	205	441	654	522	1282	660	254	1206	411
Grp Sat Flow(s),veh/h/ln	1781	1777	1672	1728	1777	1585	1728	1702	1739	1781	1702	1585
Q Serve(g_s), s	8.6	19.3	19.8	7.2	13.7	25.5	12.6	11.0	11.4	12.5	28.8	25.4
Cycle Q Clear(g_c), s	8.6	19.3	19.8	7.2	13.7	25.5	12.6	11.0	11.4	12.5	28.8	25.4
Prop In Lane	1.00		0.66	1.00		1.00	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	143	302	284	332	697	311	956	1607	821	171	1454	451
V/C Ratio(X)	0.83	0.89	0.91	0.62	0.63	2.10	0.55	0.80	0.80	1.48	0.83	0.91
Avail Cap(c_a), veh/h	144	309	291	356	697	311	956	1607	821	171	1540	478
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.44	0.44	0.44	0.72	0.72	0.72	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.9	52.8	53.0	52.3	39.7	43.7	23.8	2.2	2.2	58.8	43.5	27.4
Incr Delay (d2), s/veh	30.6	26.0	30.9	0.8	0.9	501.4	0.5	3.1	6.1	245.9	5.6	25.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	10.8	10.8	3.0	5.5	52.3	4.2	1.8	2.6	17.3	12.8	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.5	78.7	83.9	53.2	40.6	545.1	24.3	5.3	8.3	304.6	49.1	52.5
LnGrp LOS	F	E	F	D	D	F	C	A	A	F	D	D
Approach Vol, veh/h		648			1300			2464			1871	
Approach Delay, s/veh		82.8			296.4			10.1			84.6	
Approach LOS		F			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	66.8	18.3	27.9	41.4	42.4	14.9	31.3
Change Period (Y+Rc), s	4.5	5.4	5.8	* 5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	12.5	61.3	13.4	* 23	34.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	14.5	13.4	9.2	21.8	14.6	30.8	10.6	27.5
Green Ext Time (p_c), s	0.0	28.6	0.1	0.3	1.9	6.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	99.0
HCM 6th LOS	F

Notes

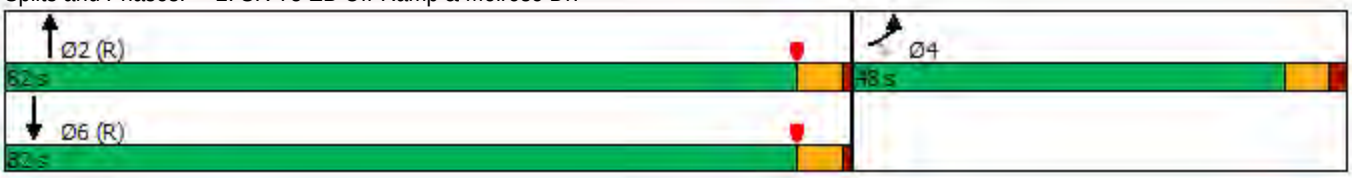
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	462	447	1922	1328
Future Volume (vph)	462	447	1922	1328
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	48.0	48.0	82.0	82.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	30.1	30.1	88.4	88.4
Actuated g/C Ratio	0.23	0.23	0.68	0.68
v/c Ratio	0.81	0.82	0.59	0.32
Control Delay	52.3	57.3	22.4	1.5
Queue Delay	0.4	0.9	48.2	0.1
Total Delay	52.7	58.2	70.6	1.6
LOS	D	E	E	A
Approach Delay	54.4		70.6	1.6
Approach LOS	D		E	A

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 25 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 45.0	Intersection LOS: D
Intersection Capacity Utilization 64.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	462	447	0	1922	1328	0
Future Volume (veh/h)	462	447	0	1922	1328	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	628	319	0	2023	1398	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	799	356	0	3509	4421	0
Arrive On Green	0.22	0.22	0.00	1.00	1.00	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	628	319	0	2023	1398	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	21.6	25.4	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	21.6	25.4	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	799	356	0	3509	4421	0
V/C Ratio(X)	0.79	0.90	0.00	0.58	0.32	0.00
Avail Cap(c_a), veh/h	1148	511	0	3509	4421	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.57	0.57	0.00
Uniform Delay (d), s/veh	47.5	49.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.4	11.0	0.0	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	11.1	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.8	60.0	0.0	0.4	0.1	0.0
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	947			2023	1398	
Approach Delay, s/veh	52.6			0.4	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		94.7		35.3		94.7
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		76.6		41.9		76.6
Max Q Clear Time (g_c+I1), s		2.0		27.4		2.0
Green Ext Time (p_c), s		18.9		1.8		9.4

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

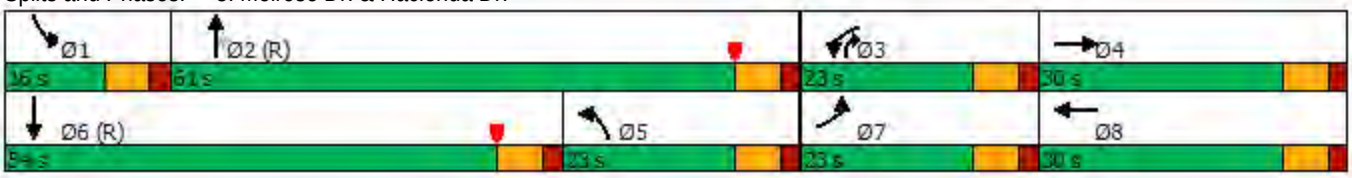
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	491	399	400	294	99	1295	471	444	1113
Future Volume (vph)	491	399	400	294	99	1295	471	444	1113
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	61.0	23.0	16.0	54.0
Total Split (%)	17.7%	23.1%	17.7%	23.1%	17.7%	46.9%	17.7%	12.3%	41.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	23.0	25.7	19.1	21.8	12.7	48.2	73.7	11.4	46.9
Actuated g/C Ratio	0.18	0.20	0.15	0.17	0.10	0.37	0.57	0.09	0.36
v/c Ratio	0.85	0.92	0.84	0.77	0.60	0.72	0.53	1.56	0.85
Control Delay	66.7	63.5	58.4	42.9	70.7	37.2	16.0	302.5	31.2
Queue Delay	50.9	0.0	0.0	1.0	0.0	49.1	0.0	0.0	47.8
Total Delay	117.6	63.5	58.4	43.9	70.7	86.3	16.0	302.5	79.0
LOS	F	E	E	D	E	F	B	F	E
Approach Delay		87.2		50.8		67.7			131.1
Approach LOS		F		D		E			F

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.56
Intersection Signal Delay: 90.0 — Intersection LOS: F
Intersection Capacity Utilization 88.9% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	491	399	231	400	294	156	99	1295	471	444	1113	347
Future Volume (veh/h)	491	399	231	400	294	156	99	1295	471	444	1113	347
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	517	420	238	421	309	142	104	1363	496	467	1172	343
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	398	223	441	433	194	288	2145	868	255	1303	381
Arrive On Green	0.13	0.18	0.18	0.04	0.06	0.06	0.16	0.42	0.42	0.10	0.44	0.44
Sat Flow, veh/h	3456	2195	1231	3456	2383	1071	1781	5106	1585	3456	3921	1147
Grp Volume(v), veh/h	517	339	319	421	229	222	104	1363	496	467	1018	497
Grp Sat Flow(s),veh/h/ln	1728	1777	1649	1728	1777	1678	1781	1702	1585	1728	1702	1664
Q Serve(g_s), s	16.6	23.6	23.6	15.8	16.4	16.9	6.8	27.5	26.8	9.6	36.0	36.0
Cycle Q Clear(g_c), s	16.6	23.6	23.6	15.8	16.4	16.9	6.8	27.5	26.8	9.6	36.0	36.0
Prop In Lane	1.00		0.75	1.00		0.64	1.00		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	441	323	299	441	323	305	288	2145	868	255	1131	553
V/C Ratio(X)	1.17	1.05	1.06	0.95	0.71	0.73	0.36	0.64	0.57	1.83	0.90	0.90
Avail Cap(c_a), veh/h	441	323	299	441	323	305	288	2145	868	255	1246	609
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	56.7	53.2	53.2	61.9	57.7	58.0	48.5	29.8	19.4	58.6	34.3	34.3
Incr Delay (d2), s/veh	99.0	64.3	70.2	29.4	5.6	7.0	0.3	1.5	2.7	387.3	10.6	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	16.3	15.6	9.2	8.4	8.3	3.0	11.5	10.4	17.8	15.4	16.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	155.7	117.5	123.4	91.3	63.3	65.0	48.8	31.3	22.1	445.9	44.9	53.2
LnGrp LOS	F	F	F	F	E	E	D	C	C	F	D	D
Approach Vol, veh/h		1175			872			1963			1982	
Approach Delay, s/veh		135.9			77.3			29.9			141.5	
Approach LOS		F			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	61.0	23.0	30.0	27.4	49.6	23.0	30.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	54.6	16.6	23.6	16.6	47.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	29.5	17.8	25.6	8.8	38.0	18.6	18.9
Green Ext Time (p_c), s	0.0	13.9	0.0	0.0	0.1	5.2	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	94.5
HCM 6th LOS	F

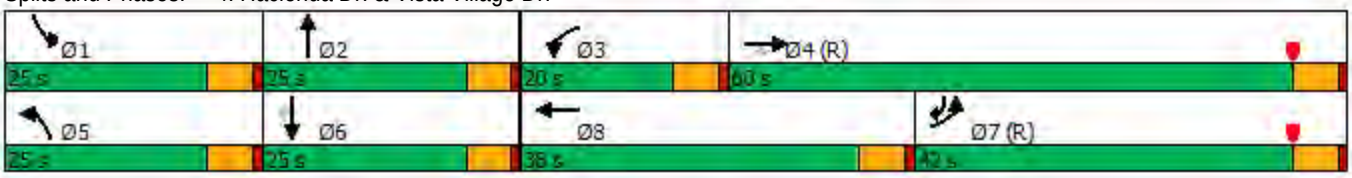
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1327	33	33	7	16	103	149	28	252	694
Future Volume (vph)	1327	33	33	7	16	103	149	28	252	694
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	42.0	60.0	60.0	20.0	38.0	25.0	25.0	25.0	25.0	42.0
Total Split (%)	32.3%	46.2%	46.2%	15.4%	29.2%	19.2%	19.2%	19.2%	19.2%	32.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	59.5	74.4	74.4	5.4	16.0	12.7	34.4	6.9	24.4	86.1
Actuated g/C Ratio	0.46	0.57	0.57	0.04	0.12	0.10	0.26	0.05	0.19	0.66
v/c Ratio	0.94	0.03	0.04	0.11	0.12	0.66	0.36	0.33	0.80	0.37
Control Delay	46.7	14.0	1.3	62.9	31.9	74.0	42.0	62.2	91.3	7.3
Queue Delay	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.4	0.1
Total Delay	48.5	14.0	1.3	62.9	31.9	74.0	42.0	62.2	118.8	7.3
LOS	D	B	A	E	C	E	D	E	F	A
Approach Delay		46.5			38.8		54.6		37.7	
Approach LOS		D			D		D		D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 64 (49%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 44.0	Intersection LOS: D
Intersection Capacity Utilization 77.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1327	33	33	7	16	9	103	149	9	28	252	694
Future Volume (veh/h)	1327	33	33	7	16	9	103	149	9	28	252	694
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1474	37	37	8	18	10	114	166	10	31	280	771
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	973	1114	944	17	366	203	139	354	21	46	282	1206
Arrive On Green	0.28	0.60	0.60	0.01	0.32	0.32	0.08	0.20	0.20	0.01	0.05	0.05
Sat Flow, veh/h	3456	1870	1585	1781	1130	628	1781	1746	105	1781	1870	2790
Grp Volume(v), veh/h	1474	37	37	8	0	28	114	0	176	31	280	771
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1757	1781	0	1851	1781	1870	1395
Q Serve(g_s), s	36.6	1.1	1.3	0.6	0.0	1.4	8.2	0.0	10.9	2.3	19.5	5.3
Cycle Q Clear(g_c), s	36.6	1.1	1.3	0.6	0.0	1.4	8.2	0.0	10.9	2.3	19.5	5.3
Prop In Lane	1.00		1.00	1.00		0.36	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	973	1114	944	17	0	569	139	0	375	46	282	1206
V/C Ratio(X)	1.52	0.03	0.04	0.47	0.00	0.05	0.82	0.00	0.47	0.67	0.99	0.64
Avail Cap(c_a), veh/h	973	1114	944	200	0	569	269	0	375	269	282	1206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.13	0.13	0.13	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	46.7	10.8	10.9	64.0	0.0	30.2	59.1	0.0	45.7	63.9	61.7	15.4
Incr Delay (d2), s/veh	232.5	0.0	0.0	7.1	0.0	0.0	4.6	0.0	0.3	5.6	48.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	47.0	0.4	0.4	0.3	0.0	0.6	3.9	0.0	5.1	1.1	13.6	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	279.2	10.9	10.9	71.1	0.0	30.2	63.6	0.0	46.0	69.5	110.5	16.2
LnGrp LOS	F	B	B	E	A	C	E	A	D	E	F	B
Approach Vol, veh/h		1548			36			290			1082	
Approach Delay, s/veh		266.3			39.3			52.9			42.1	
Approach LOS		F			D			D			D	

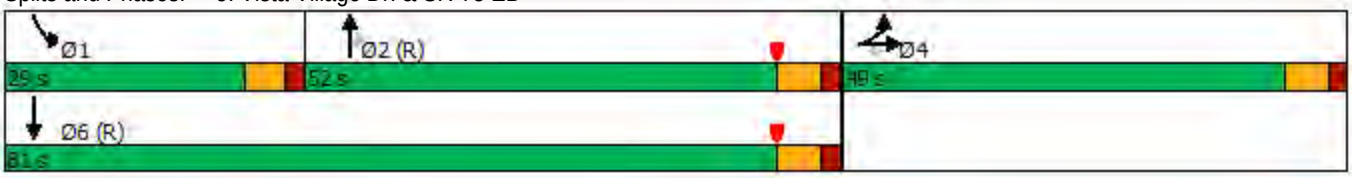
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	31.7	6.7	82.8	15.5	25.0	42.0	47.5
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	19.6	19.6	14.6	54.6	19.6	19.6	36.6	32.6
Max Q Clear Time (g_c+I1), s	4.3	12.9	2.6	3.3	10.2	21.5	38.6	3.4
Green Ext Time (p_c), s	0.0	0.3	0.0	0.2	0.1	0.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	160.6
HCM 6th LOS	F

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	997	1	63	539	978	636	896
Future Volume (vph)	997	1	63	539	978	636	896
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	49.0	49.0	49.0	52.0	52.0	29.0	81.0
Total Split (%)	37.7%	37.7%	37.7%	40.0%	40.0%	22.3%	62.3%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	42.3	42.3	42.3	43.8	43.8	25.7	75.2
Actuated g/C Ratio	0.33	0.33	0.33	0.34	0.34	0.20	0.58
v/c Ratio	0.96	0.96	0.12	0.91	0.62	0.99	0.46
Control Delay	72.7	72.9	5.6	27.3	11.3	77.2	18.1
Queue Delay	44.6	44.6	0.0	30.4	3.5	0.0	1.2
Total Delay	117.3	117.4	5.6	57.8	14.8	77.2	19.4
LOS	F	F	A	E	B	E	B
Approach Delay		110.8		43.9			43.4
Approach LOS		F		D			D

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 65 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 61.0	Intersection LOS: E
Intersection Capacity Utilization 160.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	997	1	63	0	0	0	0	539	978	636	896	0
Future Volume (veh/h)	997	1	63	0	0	0	0	539	978	636	896	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1050	0	66				0	567	1029	669	943	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1110	0	494				0	690	1170	619	2104	0
Arrive On Green	0.31	0.00	0.31				0.00	0.37	0.37	0.18	0.59	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	1050	0	66				0	567	1029	669	943	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	37.4	0.0	3.9				0.0	35.7	39.4	23.3	19.2	0.0
Cycle Q Clear(g_c), s	37.4	0.0	3.9				0.0	35.7	39.4	23.3	19.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1110	0	494				0	690	1170	619	2104	0
V/C Ratio(X)	0.95	0.00	0.13				0.00	0.82	0.88	1.08	0.45	0.00
Avail Cap(c_a), veh/h	1176	0	523				0	690	1170	619	2104	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.36	0.36	0.84	0.84	0.00
Uniform Delay (d), s/veh	43.7	0.0	32.1				0.0	37.1	38.3	53.3	14.7	0.0
Incr Delay (d2), s/veh	14.3	0.0	0.0				0.0	4.1	3.8	56.9	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.6	0.0	1.5				0.0	17.0	15.8	15.0	7.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	0.0	32.2				0.0	41.2	42.1	110.3	15.3	0.0
LnGrp LOS	E	A	C				A	D	D	F	B	A
Approach Vol, veh/h		1116						1596			1612	
Approach Delay, s/veh		56.4						41.8			54.7	
Approach LOS		E						D			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	29.0	54.4		46.6		83.4
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 23	45.6		42.9		74.6
Max Q Clear Time (g_c+I1), s	25.3	41.4		39.4		21.2
Green Ext Time (p_c), s	0.0	2.3		1.1		5.3

Intersection Summary	
HCM 6th Ctrl Delay	50.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	477	3	1303	73	1416	985	669
Future Volume (vph)	477	3	1303	73	1416	985	669
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	64.0	64.0	64.0	16.4	66.0	49.6	49.6
Total Split (%)	49.2%	49.2%	49.2%	12.6%	50.8%	38.2%	38.2%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	59.1	59.1	59.1	10.3	58.4	45.6	45.6
Actuated g/C Ratio	0.45	0.45	0.45	0.08	0.45	0.35	0.35
v/c Ratio	0.32	0.33	1.04	0.54	0.93	0.58	0.69
Control Delay	24.6	24.6	68.4	82.1	20.6	35.1	16.3
Queue Delay	0.0	0.0	14.5	0.0	39.2	0.1	0.8
Total Delay	24.6	24.6	82.9	82.1	59.8	35.2	17.1
LOS	C	C	F	F	E	D	B
Approach Delay		67.2			60.9	27.9	
Approach LOS		E			E	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 52.1	Intersection LOS: D
Intersection Capacity Utilization 160.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	477	3	1303	73	1416	0	0	985	669
Future Volume (veh/h)	0	0	0	477	3	1303	73	1416	0	0	985	669
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				499	0	1357	76	1475	0	0	1026	697
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1571	0	1398	128	1644	0	0	1771	550
Arrive On Green				0.44	0.00	0.44	0.11	0.69	0.00	0.00	0.52	0.52
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				499	0	1357	76	1475	0	0	1026	697
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				11.8	0.0	54.4	5.3	43.7	0.0	0.0	17.9	45.1
Cycle Q Clear(g_c), s				11.8	0.0	54.4	5.3	43.7	0.0	0.0	17.9	45.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1571	0	1398	128	1644	0	0	1771	550
V/C Ratio(X)				0.32	0.00	0.97	0.59	0.90	0.00	0.00	0.58	1.27
Avail Cap(c_a), veh/h				1587	0	1412	147	1644	0	0	1771	550
HCM Platoon Ratio				1.00	1.00	1.00	1.50	1.50	1.00	1.00	1.50	1.50
Upstream Filter(I)				1.00	0.00	1.00	0.26	0.26	0.00	0.00	0.93	0.93
Uniform Delay (d), s/veh				23.6	0.0	35.5	56.2	17.4	0.0	0.0	24.7	31.2
Incr Delay (d2), s/veh				0.0	0.0	17.1	0.6	2.4	0.0	0.0	1.3	133.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.0	0.0	23.9	2.4	13.7	0.0	0.0	6.6	35.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.7	0.0	52.6	56.8	19.7	0.0	0.0	26.0	164.6
LnGrp LOS				C	A	D	E	B	A	A	C	F
Approach Vol, veh/h					1856			1551			1723	
Approach Delay, s/veh					44.9			21.5			82.0	
Approach LOS					D			C			F	

Timer - Assigned Phs	2		5	6		8
Phs Duration (G+Y+Rc), s	66.6		15.1	51.5		63.4
Change Period (Y+Rc), s	6.4		* 5.7	6.4		6.1
Max Green Setting (Gmax), s	59.6		* 11	43.2		57.9
Max Q Clear Time (g_c+I1), s	45.7		7.3	47.1		56.4
Green Ext Time (p_c), s	6.8		0.0	0.0		1.0

Intersection Summary	
HCM 6th Ctrl Delay	50.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

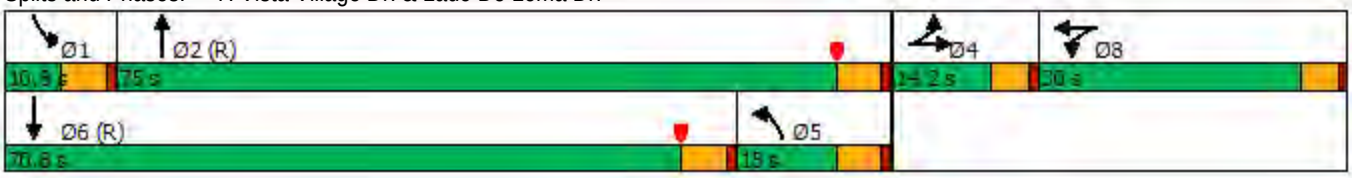
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	5	210	5	10	1900	110	1100
Future Volume (vph)	5	210	5	10	1900	110	1100
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	75.0	10.8	70.8
Total Split (%)	10.9%	23.1%	23.1%	11.5%	57.7%	8.3%	54.5%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	6.7	18.4	18.4	9.9	73.2	15.8	88.2
Actuated g/C Ratio	0.05	0.14	0.14	0.08	0.56	0.12	0.68
v/c Ratio	0.25	0.71	0.56	0.07	0.82	0.53	0.33
Control Delay	39.8	68.7	36.1	54.7	20.5	78.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	7.7	0.0	0.3
Total Delay	39.8	68.7	36.1	54.7	28.2	78.3	3.0
LOS	D	E	D	D	C	E	A
Approach Delay	39.8		53.0		28.3		9.7
Approach LOS	D		D		C		A

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 110 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 24.5 Intersection LOS: C
Intersection Capacity Utilization 79.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	15	210	5	100	10	1900	350	110	1100	10
Future Volume (veh/h)	5	5	15	210	5	100	10	1900	350	110	1100	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	15	162	81	103	10	1959	361	113	1134	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	8	23	231	97	123	757	2836	512	74	1404	12
Arrive On Green	0.02	0.02	0.02	0.13	0.13	0.13	0.85	1.00	1.00	0.08	0.54	0.54
Sat Flow, veh/h	335	335	1004	1781	748	951	1781	4348	785	1781	5220	46
Grp Volume(v), veh/h	25	0	0	162	0	184	10	1525	795	113	739	405
Grp Sat Flow(s),veh/h/ln	1673	0	0	1781	0	1699	1781	1702	1729	1781	1702	1862
Q Serve(g_s), s	1.9	0.0	0.0	11.3	0.0	13.7	0.1	0.0	0.0	5.4	23.1	23.1
Cycle Q Clear(g_c), s	1.9	0.0	0.0	11.3	0.0	13.7	0.1	0.0	0.0	5.4	23.1	23.1
Prop In Lane	0.20		0.60	1.00		0.56	1.00		0.45	1.00		0.02
Lane Grp Cap(c), veh/h	38	0	0	231	0	220	757	2220	1128	74	916	501
V/C Ratio(X)	0.65	0.00	0.00	0.70	0.00	0.84	0.01	0.69	0.71	1.53	0.81	0.81
Avail Cap(c_a), veh/h	124	0	0	348	0	332	757	2220	1128	74	1713	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.14	0.14	0.14	0.15	0.15	0.15
Uniform Delay (d), s/veh	63.0	0.0	0.0	54.2	0.0	55.2	5.6	0.0	0.0	59.6	27.3	27.3
Incr Delay (d2), s/veh	17.3	0.0	0.0	3.9	0.0	11.0	0.0	0.2	0.5	247.4	1.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	5.3	0.0	6.6	0.0	0.1	0.2	7.4	7.3	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.3	0.0	0.0	58.1	0.0	66.2	5.6	0.2	0.5	307.0	28.5	29.5
LnGrp LOS	F	A	A	E	A	E	A	A	A	F	C	C
Approach Vol, veh/h		25			346			2330			1257	
Approach Delay, s/veh		80.3			62.4			0.4			53.9	
Approach LOS		F			E			A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	90.2		7.6	60.6	40.4		21.4				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	69.6		9.6	9.6	65.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	2.0		3.9	2.1	25.1		15.7				
Green Ext Time (p_c), s	0.0	38.7		0.0	0.0	9.9		1.1				

Intersection Summary			
HCM 6th Ctrl Delay			23.3
HCM 6th LOS			C

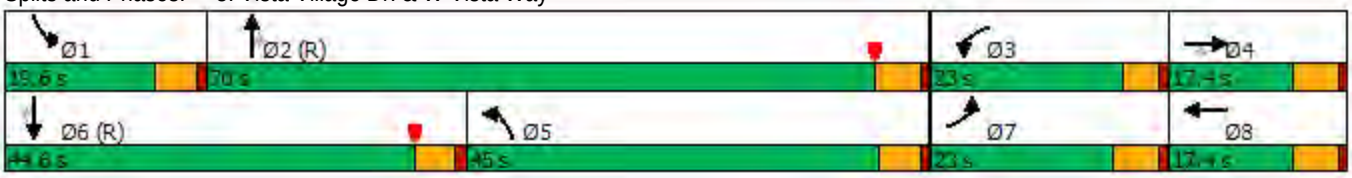
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	579	162	78	77	106	627	1771	131	119	1534	653
Future Volume (vph)	579	162	78	77	106	627	1771	131	119	1534	653
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	23.0	17.4	17.4	23.0	17.4	45.0	70.0	70.0	19.6	44.6	44.6
Total Split (%)	17.7%	13.4%	13.4%	17.7%	13.4%	34.6%	53.8%	53.8%	15.1%	34.3%	34.3%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	21.9	24.6	24.6	10.3	12.0	35.7	62.5	62.5	12.4	39.6	39.6
Actuated g/C Ratio	0.17	0.19	0.19	0.08	0.09	0.27	0.48	0.48	0.10	0.30	0.30
v/c Ratio	1.04	0.25	0.19	0.58	0.50	0.69	0.75	0.17	0.74	1.03	1.06
Control Delay	71.7	44.1	4.1	73.1	37.2	35.4	21.1	3.8	82.2	75.8	81.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.6	2.0	0.0	0.0	6.7	0.0
Total Delay	71.7	44.1	4.1	73.1	37.2	37.0	23.1	3.8	82.2	82.5	81.3
LOS	E	D	A	E	D	D	C	A	F	F	F
Approach Delay		59.8			47.8		25.6			82.1	
Approach LOS		E			D		C			F	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 70 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 53.3	Intersection LOS: D
Intersection Capacity Utilization 91.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	579	162	78	77	106	77	627	1771	131	119	1534	653
Future Volume (veh/h)	579	162	78	77	106	77	627	1771	131	119	1534	653
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	603	169	81	80	110	80	653	1845	136	124	1598	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	468	631	282	101	187	126	1053	2686	834	149	1555	
Arrive On Green	0.14	0.18	0.18	0.06	0.09	0.09	0.61	1.00	1.00	0.08	0.30	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2033	1368	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	603	169	81	80	95	95	653	1845	136	124	1598	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1624	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	17.6	5.3	3.0	5.8	6.7	7.3	15.4	0.0	0.0	8.9	39.6	0.0
Cycle Q Clear(g_c), s	17.6	5.3	3.0	5.8	6.7	7.3	15.4	0.0	0.0	8.9	39.6	0.0
Prop In Lane	1.00		1.00	1.00		0.84	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	468	631	282	101	164	150	1053	2686	834	149	1555	
V/C Ratio(X)	1.29	0.27	0.29	0.79	0.58	0.63	0.62	0.69	0.16	0.83	1.03	
Avail Cap(c_a), veh/h	468	631	282	253	164	150	1063	2686	834	200	1555	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.46	0.46	0.46	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.2	46.1	12.9	60.5	56.6	56.9	20.7	0.0	0.0	58.7	45.2	0.0
Incr Delay (d2), s/veh	131.5	0.0	0.0	5.1	4.4	7.7	0.4	0.7	0.2	15.3	30.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.2	2.4	2.2	2.8	3.2	3.3	4.6	0.2	0.0	4.7	20.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.7	46.2	13.0	65.6	60.9	64.5	21.0	0.7	0.2	74.0	75.3	0.0
LnGrp LOS	F	D	B	E	E	E	C	A	A	E	F	
Approach Vol, veh/h		853			270			2634			1722	A
Approach Delay, s/veh		143.1			63.6			5.7			75.2	
Approach LOS		F			E			A			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	73.8	11.9	28.5	45.0	44.6	23.0	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	14.6	64.6	18.5	12.0	40.0	* 40	17.6	12.0
Max Q Clear Time (g_c+I1), s	10.9	2.0	7.8	7.3	17.4	41.6	19.6	9.3
Green Ext Time (p_c), s	0.0	21.4	0.1	0.4	1.3	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	51.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

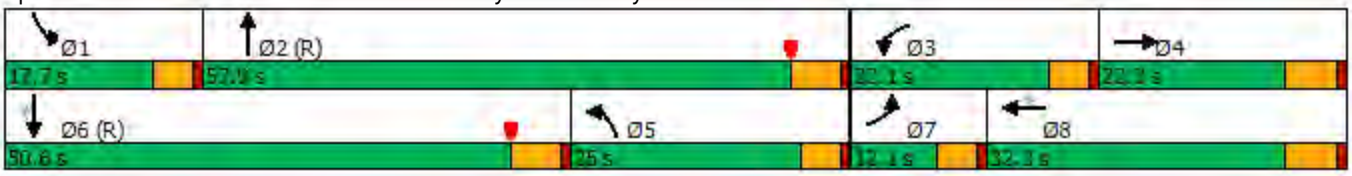
APPENDIX G

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – YEAR 2030 WITH PROJECT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	53	234	327	425	384	622	1003	271	1445	613
Future Volume (vph)	53	234	327	425	384	622	1003	271	1445	613
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	12.1	22.3	22.1	32.3	32.3	25.0	57.9	17.7	50.6	50.6
Total Split (%)	10.1%	18.6%	18.4%	26.9%	26.9%	20.8%	48.3%	14.8%	42.2%	42.2%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	6.9	17.3	15.6	27.8	27.8	20.5	52.5	14.5	46.5	46.5
Actuated g/C Ratio	0.06	0.14	0.13	0.23	0.23	0.17	0.44	0.12	0.39	0.39
v/c Ratio	0.55	0.90	0.77	0.54	0.69	1.12	0.56	1.34	0.77	0.88
Control Delay	75.2	45.9	62.7	43.8	20.2	114.5	21.2	222.3	35.8	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	75.2	45.9	62.7	43.8	20.2	114.5	21.7	222.3	35.8	37.9
LOS	E	D	E	D	C	F	C	F	D	D
Approach Delay		48.3		41.3			54.1		58.0	
Approach LOS		D		D			D		E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 7 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 52.5	Intersection LOS: D
Intersection Capacity Utilization 89.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	234	358	327	425	384	622	1003	160	271	1445	613
Future Volume (veh/h)	53	234	358	327	425	384	622	1003	160	271	1445	613
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	246	377	344	447	369	655	1056	148	285	1521	623
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	257	229	403	785	350	672	2084	292	196	1881	584
Arrive On Green	0.04	0.14	0.14	0.12	0.22	0.22	0.26	0.61	0.61	0.11	0.37	0.37
Sat Flow, veh/h	1781	1777	1585	3456	3554	1585	3456	4527	634	1781	5106	1585
Grp Volume(v), veh/h	56	246	377	344	447	369	655	794	410	285	1521	623
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1702	1756	1781	1702	1585
Q Serve(g_s), s	3.7	16.5	17.4	11.7	13.5	26.5	22.5	15.7	15.8	13.2	32.2	35.6
Cycle Q Clear(g_c), s	3.7	16.5	17.4	11.7	13.5	26.5	22.5	15.7	15.8	13.2	32.2	35.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	72	257	229	403	785	350	672	1567	809	196	1881	584
V/C Ratio(X)	0.78	0.96	1.64	0.85	0.57	1.05	0.97	0.51	0.51	1.45	0.81	1.07
Avail Cap(c_a), veh/h	113	257	229	507	785	350	672	1567	809	196	1923	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.38	0.38	0.38	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	51.0	51.3	52.0	41.7	46.8	44.2	15.6	15.6	53.4	34.1	24.6
Incr Delay (d2), s/veh	6.5	44.4	308.8	3.8	0.4	45.0	26.2	1.0	2.0	230.6	3.9	56.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	10.5	26.5	5.3	5.9	14.7	11.6	5.4	5.8	18.4	13.8	22.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	95.4	360.1	55.8	42.1	91.7	70.4	16.6	17.6	284.0	38.0	80.9
LnGrp LOS	E	F	F	E	D	F	E	B	B	F	D	F
Approach Vol, veh/h		679			1160			1859			2429	
Approach Delay, s/veh		239.8			61.9			35.8			77.8	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	60.6	18.5	23.2	28.7	49.6	9.4	32.3
Change Period (Y+Rc), s	4.5	5.4	4.5	5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	13.2	52.5	17.6	16.5	20.5	* 45	7.6	26.5
Max Q Clear Time (g_c+I1), s	15.2	17.8	13.7	19.4	24.5	37.6	5.7	28.5
Green Ext Time (p_c), s	0.0	12.6	0.3	0.0	0.0	6.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	80.0
HCM 6th LOS	F

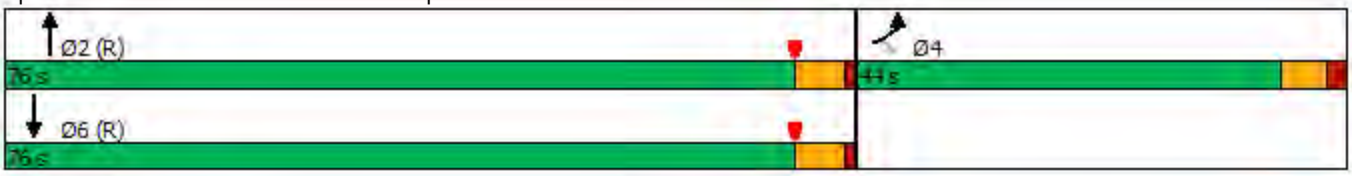
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	287	521	1236	1981
Future Volume (vph)	287	521	1236	1981
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	44.0	44.0	76.0	76.0
Total Split (%)	36.7%	36.7%	63.3%	63.3%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	26.6	26.6	81.9	81.9
Actuated g/C Ratio	0.22	0.22	0.68	0.68
v/c Ratio	0.76	0.81	0.36	0.46
Control Delay	49.5	61.2	10.3	11.0
Queue Delay	15.3	64.9	1.1	0.3
Total Delay	64.8	126.1	11.3	11.3
LOS	E	F	B	B
Approach Delay	84.6		11.3	11.3
Approach LOS	F		B	B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 59.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	287	521	0	1236	1981	0
Future Volume (veh/h)	287	521	0	1236	1981	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	275	551	0	1261	2021	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	354	630	0	3602	4539	0
Arrive On Green	0.20	0.20	0.00	1.00	1.00	0.00
Sat Flow, veh/h	1781	3170	0	5443	6958	0
Grp Volume(v), veh/h	275	551	0	1261	2021	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	17.6	20.2	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	17.6	20.2	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	354	630	0	3602	4539	0
V/C Ratio(X)	0.78	0.87	0.00	0.35	0.45	0.00
Avail Cap(c_a), veh/h	563	1001	0	3602	4539	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.66	0.54	0.00
Uniform Delay (d), s/veh	45.6	46.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.4	3.3	0.0	0.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	8.2	0.0	0.1	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.0	49.9	0.0	0.2	0.2	0.0
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	826			1261	2021	
Approach Delay, s/veh	48.9			0.2	0.2	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		90.1		29.9		90.1
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		70.6		37.9		70.6
Max Q Clear Time (g_c+I1), s		2.0		22.2		2.0
Green Ext Time (p_c), s		8.0		1.6		18.7

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Notes

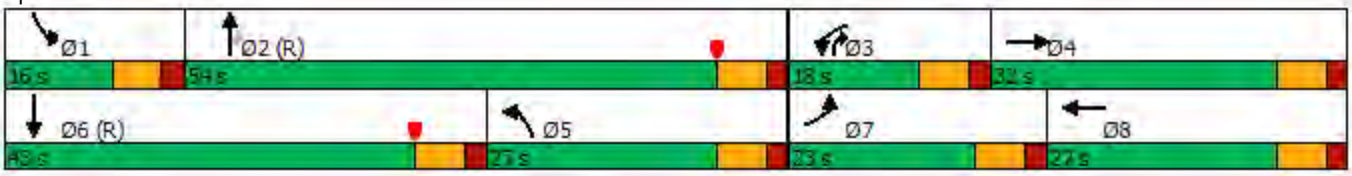
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	255	303	644	299	44	987	323	735	1631
Future Volume (vph)	255	303	644	299	44	987	323	735	1631
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	32.0	18.0	27.0	27.0	54.0	18.0	16.0	43.0
Total Split (%)	19.2%	26.7%	15.0%	22.5%	22.5%	45.0%	15.0%	13.3%	35.8%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	None	None	None	Min	C-Min	None	None	C-Min
Act Effct Green (s)	13.8	17.8	23.6	27.6	8.6	35.6	65.6	17.4	44.4
Actuated g/C Ratio	0.12	0.15	0.20	0.23	0.07	0.30	0.55	0.14	0.37
v/c Ratio	0.69	0.72	1.02	0.54	0.37	0.70	0.38	1.58	1.09
Control Delay	60.1	54.3	87.0	40.0	59.8	39.8	11.9	302.9	90.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.4	2.4
Total Delay	60.1	54.3	87.0	40.1	59.8	39.8	11.9	304.3	92.6
LOS	E	D	F	D	E	D	B	F	F
Approach Delay		56.7		68.7		33.8			151.5
Approach LOS		E		E		C			F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.58
Intersection Signal Delay: 97.7 — Intersection LOS: F
Intersection Capacity Utilization 91.7% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	303	55	644	299	115	44	987	323	735	1631	279
Future Volume (veh/h)	255	303	55	644	299	115	44	987	323	735	1631	279
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	271	322	53	685	318	118	47	1050	344	782	1735	252
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	445	72	334	373	136	427	2372	890	276	1375	198
Arrive On Green	0.10	0.15	0.15	0.10	0.15	0.15	0.24	0.46	0.46	0.16	0.61	0.61
Sat Flow, veh/h	3456	3059	498	3456	2551	929	1781	5106	1585	3456	4507	651
Grp Volume(v), veh/h	271	186	189	685	220	216	47	1050	344	782	1308	679
Grp Sat Flow(s),veh/h/ln	1728	1777	1781	1728	1777	1703	1781	1702	1585	1728	1702	1753
Q Serve(g_s), s	9.2	12.0	12.2	11.6	14.4	14.9	2.5	16.6	14.6	9.6	36.6	36.6
Cycle Q Clear(g_c), s	9.2	12.0	12.2	11.6	14.4	14.9	2.5	16.6	14.6	9.6	36.6	36.6
Prop In Lane	1.00		0.28	1.00		0.55	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	331	258	259	334	260	249	427	2372	890	276	1038	535
V/C Ratio(X)	0.82	0.72	0.73	2.05	0.84	0.87	0.11	0.44	0.39	2.83	1.26	1.27
Avail Cap(c_a), veh/h	478	379	380	334	305	292	427	2372	890	276	1038	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	53.2	48.9	49.0	54.2	49.9	50.1	35.6	21.7	14.8	50.4	23.4	23.4
Incr Delay (d2), s/veh	4.7	1.4	1.5	480.5	11.7	14.9	0.0	0.6	1.3	831.5	123.7	133.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	5.4	5.5	27.3	7.3	7.4	1.1	6.7	5.5	35.7	27.4	29.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	50.3	50.5	534.7	61.6	65.0	35.7	22.3	16.0	881.9	147.1	157.3
LnGrp LOS	E	D	D	F	E	E	D	C	B	F	F	F
Approach Vol, veh/h		646			1121			1441			2769	
Approach Delay, s/veh		53.6			351.4			21.2			357.1	
Approach LOS		D			F			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	62.1	18.0	23.9	35.1	43.0	17.9	24.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	47.6	11.6	25.6	20.6	36.6	16.6	20.6
Max Q Clear Time (g_c+I1), s	11.6	18.6	13.6	14.2	4.5	38.6	11.2	16.9
Green Ext Time (p_c), s	0.0	10.5	0.0	1.1	0.0	0.0	0.3	0.7

Intersection Summary	
HCM 6th Ctrl Delay	242.2
HCM 6th LOS	F

Notes

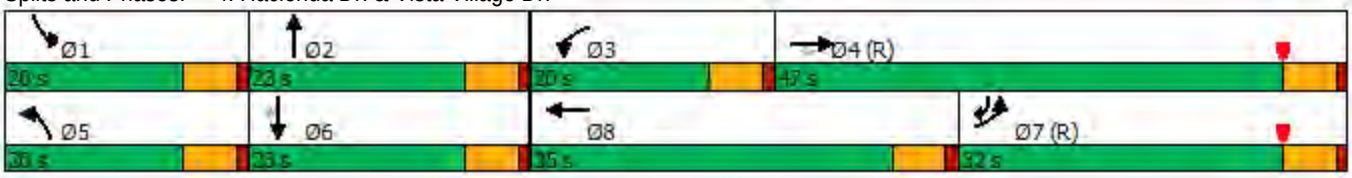
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1318	146	41	4	121	123	42	236	107	798
Future Volume (vph)	1318	146	41	4	121	123	42	236	107	798
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	23.4	10.4	10.4	15.4
Total Split (s)	32.0	47.0	47.0	20.0	35.0	20.0	23.0	20.0	23.0	32.0
Total Split (%)	29.1%	42.7%	42.7%	18.2%	31.8%	18.2%	20.9%	18.2%	20.9%	29.1%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	40.9	68.4	68.4	5.1	24.3	11.9	9.7	15.5	11.3	52.2
Actuated g/C Ratio	0.37	0.62	0.62	0.05	0.22	0.11	0.09	0.14	0.10	0.47
v/c Ratio	1.11	0.14	0.04	0.05	0.87	0.69	0.32	1.02	0.60	0.49
Control Delay	95.1	11.1	0.1	51.2	52.1	65.5	45.1	97.9	53.5	2.8
Queue Delay	0.6	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1
Total Delay	95.7	11.1	0.1	51.2	52.3	65.5	45.1	97.9	53.5	2.9
LOS	F	B	A	D	D	E	D	F	D	A
Approach Delay		84.9			52.3		59.6		27.3	
Approach LOS		F			D		E		C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 24 (22%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 59.2 — Intersection LOS: E
Intersection Capacity Utilization 91.6% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1318	146	41	4	121	235	123	42	7	236	107	798
Future Volume (veh/h)	1318	146	41	4	121	235	123	42	7	236	107	798
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1417	157	44	4	130	253	132	45	8	254	115	858
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	836	1143	969	9	213	414	160	84	15	236	182	946
Arrive On Green	0.24	0.61	0.61	0.01	0.37	0.37	0.09	0.05	0.05	0.04	0.03	0.03
Sat Flow, veh/h	3456	1870	1585	1781	567	1104	1781	1546	275	1781	1870	2790
Grp Volume(v), veh/h	1417	157	44	4	0	383	132	0	53	254	115	858
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1672	1781	0	1821	1781	1870	1395
Q Serve(g_s), s	26.6	3.9	1.2	0.2	0.0	20.4	8.0	0.0	3.1	14.6	6.7	5.6
Cycle Q Clear(g_c), s	26.6	3.9	1.2	0.2	0.0	20.4	8.0	0.0	3.1	14.6	6.7	5.6
Prop In Lane	1.00		1.00	1.00		0.66	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	836	1143	969	9	0	626	160	0	99	236	182	946
V/C Ratio(X)	1.70	0.14	0.05	0.43	0.00	0.61	0.82	0.00	0.53	1.07	0.63	0.91
Avail Cap(c_a), veh/h	836	1143	969	236	0	626	236	0	291	236	299	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	41.7	9.1	8.6	54.5	0.0	27.9	49.2	0.0	50.6	52.6	51.3	17.4
Incr Delay (d2), s/veh	313.5	0.0	0.0	11.2	0.0	1.3	8.8	0.0	1.7	76.0	1.2	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	47.6	1.5	0.4	0.1	0.0	8.3	3.9	0.0	1.5	12.0	3.3	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	355.2	9.1	8.6	65.7	0.0	29.2	58.0	0.0	52.3	128.6	52.5	25.2
LnGrp LOS	F	A	A	E	A	C	E	A	D	F	D	C
Approach Vol, veh/h		1618			387			185			1227	
Approach Delay, s/veh		312.2			29.6			56.4			49.2	
Approach LOS		F			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	11.4	6.0	72.6	15.3	16.1	32.0	46.6
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	14.6	17.6	14.6	41.6	14.6	17.6	26.6	29.6
Max Q Clear Time (g_c+I1), s	16.6	5.1	2.2	5.9	10.0	8.7	28.6	22.4
Green Ext Time (p_c), s	0.0	0.1	0.0	0.6	0.1	2.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	171.9
HCM 6th LOS	F

Notes

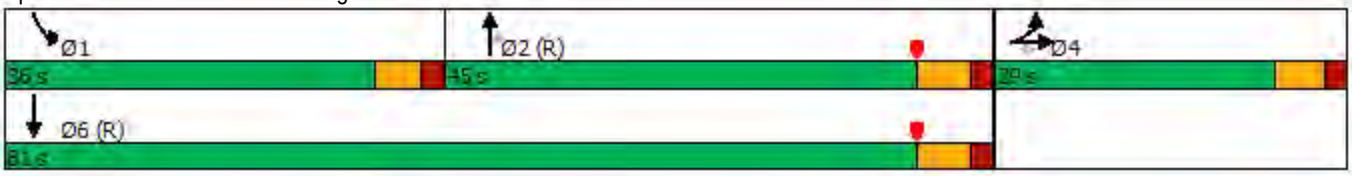
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	522	4	83	436	1074	817	1152
Future Volume (vph)	522	4	83	436	1074	817	1152
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	29.0	29.0	29.0	45.0	45.0	36.0	81.0
Total Split (%)	26.4%	26.4%	26.4%	40.9%	40.9%	32.7%	73.6%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	20.9	20.9	20.9	41.6	41.6	29.3	76.6
Actuated g/C Ratio	0.19	0.19	0.19	0.38	0.38	0.27	0.70
v/c Ratio	0.85	0.86	0.23	0.74	0.67	0.93	0.49
Control Delay	67.3	68.6	8.8	13.8	10.4	49.9	6.0
Queue Delay	0.0	0.0	0.0	48.5	17.1	5.1	0.8
Total Delay	67.3	68.6	8.8	62.4	27.5	55.0	6.8
LOS	E	E	A	E	C	E	A
Approach Delay		59.9		50.0			26.8
Approach LOS		E		D			C

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 55 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 40.3 — Intersection LOS: D
Intersection Capacity Utilization 144.9% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	522	4	83	0	0	0	0	436	1074	817	1152	0
Future Volume (veh/h)	522	4	83	0	0	0	0	436	1074	817	1152	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	547	0	86				0	454	1119	851	1200	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	620	0	276				0	743	1259	910	2531	0
Arrive On Green	0.17	0.00	0.17				0.00	0.40	0.40	0.26	0.71	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	547	0	86				0	454	1119	851	1200	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	16.5	0.0	5.2				0.0	21.3	36.2	26.5	16.1	0.0
Cycle Q Clear(g_c), s	16.5	0.0	5.2				0.0	21.3	36.2	26.5	16.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	620	0	276				0	743	1259	910	2531	0
V/C Ratio(X)	0.88	0.00	0.31				0.00	0.61	0.89	0.94	0.47	0.00
Avail Cap(c_a), veh/h	742	0	330				0	743	1259	952	2531	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.09	0.09	0.69	0.69	0.00
Uniform Delay (d), s/veh	44.3	0.0	39.7				0.0	26.4	30.9	39.6	6.9	0.0
Incr Delay (d2), s/veh	9.5	0.0	0.2				0.0	0.3	1.0	11.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	2.1				0.0	9.4	13.6	12.5	5.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	39.9				0.0	26.7	31.9	51.0	7.3	0.0
LnGrp LOS	D	A	D				A	C	C	D	A	A
Approach Vol, veh/h		633						1573			2051	
Approach Delay, s/veh		52.0						30.4			25.4	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	34.7	50.1		25.2		84.8
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 30	38.6		22.9		74.6
Max Q Clear Time (g_c+I1), s	28.5	38.2		18.5		18.1
Green Ext Time (p_c), s	0.5	0.3		0.7		7.6

Intersection Summary		
HCM 6th Ctrl Delay		31.2
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	708	0	881	124	856	1364	810
Future Volume (vph)	708	0	881	124	856	1364	810
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	42.0	42.0	42.0	18.0	68.0	50.0	50.0
Total Split (%)	38.2%	38.2%	38.2%	16.4%	61.8%	45.5%	45.5%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	33.9	33.9	33.9	11.5	63.6	46.4	46.4
Actuated g/C Ratio	0.31	0.31	0.31	0.10	0.58	0.42	0.42
v/c Ratio	0.70	0.70	0.88	0.70	0.43	0.66	0.73
Control Delay	41.5	41.5	37.6	69.3	7.5	32.9	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.1	2.7
Total Delay	41.5	41.5	37.6	69.3	7.9	33.0	17.1
LOS	D	D	D	E	A	C	B
Approach Delay		39.3			15.7	27.1	
Approach LOS		D			B	C	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 28.8 — Intersection LOS: C
Intersection Capacity Utilization 144.9% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 6: Vista Village Dr. & SR-78 WB

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	708	0	881	124	856	0	0	1364	810
Future Volume (veh/h)	0	0	0	708	0	881	124	856	0	0	1364	810
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				730	0	908	128	882	0	0	1406	835
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1105	0	984	159	2047	0	0	2222	690
Arrive On Green				0.31	0.00	0.31	0.18	1.00	0.00	0.00	0.58	0.58
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				730	0	908	128	882	0	0	1406	835
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				19.6	0.0	30.5	7.6	0.0	0.0	0.0	20.1	47.9
Cycle Q Clear(g_c), s				19.6	0.0	30.5	7.6	0.0	0.0	0.0	20.1	47.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1105	0	984	159	2047	0	0	2222	690
V/C Ratio(X)				0.66	0.00	0.92	0.81	0.43	0.00	0.00	0.63	1.21
Avail Cap(c_a), veh/h				1163	0	1035	199	2047	0	0	2222	690
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	0.00	1.00	0.56	0.56	0.00	0.00	0.67	0.67
Uniform Delay (d), s/veh				32.9	0.0	36.7	44.3	0.0	0.0	0.0	17.3	23.2
Incr Delay (d2), s/veh				1.0	0.0	12.5	8.3	0.4	0.0	0.0	0.9	103.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.5	0.0	13.3	3.4	0.1	0.0	0.0	6.9	34.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.9	0.0	49.2	52.6	0.4	0.0	0.0	18.3	127.1
LnGrp LOS				C	A	D	D	A	A	A	B	F
Approach Vol, veh/h					1638			1010			2241	
Approach Delay, s/veh					42.4			7.0			58.8	
Approach LOS					D			A			E	

Timer - Assigned Phs	2		5	6		8
Phs Duration (G+Y+Rc), s	69.8		15.5	54.3		40.2
Change Period (Y+Rc), s	6.4		* 5.7	6.4		6.1
Max Green Setting (Gmax), s	61.6		* 12	43.6		35.9
Max Q Clear Time (g_c+I1), s	2.0		9.6	49.9		32.5
Green Ext Time (p_c), s	4.9		0.0	0.0		1.7

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

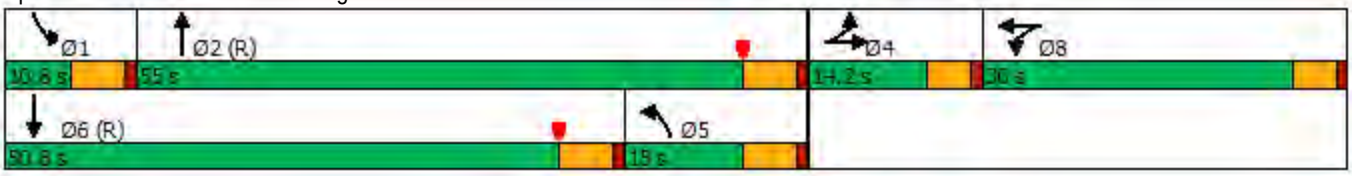
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	5	233	5	10	1318	130	1958
Future Volume (vph)	5	233	5	10	1318	130	1958
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	55.0	10.8	50.8
Total Split (%)	12.9%	27.3%	27.3%	13.6%	50.0%	9.8%	46.2%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	Max	C-Min	Max	C-Min
Act Effct Green (s)	5.7	16.1	16.1	9.6	49.6	24.5	64.5
Actuated g/C Ratio	0.05	0.15	0.15	0.09	0.45	0.22	0.59
v/c Ratio	0.16	0.67	0.59	0.06	0.67	0.34	0.69
Control Delay	34.2	57.3	41.2	55.5	29.7	60.6	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	0.2
Total Delay	34.2	57.3	41.2	55.5	30.1	60.6	9.6
LOS	C	E	D	E	C	E	A
Approach Delay	34.2		49.5		30.2		12.7
Approach LOS	C		D		C		B

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 15 (14%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 22.3 — Intersection LOS: C
Intersection Capacity Utilization 70.4% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	10	233	5	70	10	1318	142	130	1958	10
Future Volume (veh/h)	0	5	10	233	5	70	10	1318	142	130	1958	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	5	10	160	120	73	10	1373	148	135	2040	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	9	19	239	146	89	455	2892	312	87	2158	11
Arrive On Green	0.00	0.02	0.02	0.13	0.13	0.13	0.51	1.00	1.00	0.05	0.41	0.41
Sat Flow, veh/h	0	557	1113	1781	1089	662	1781	4679	504	1781	5244	26
Grp Volume(v), veh/h	0	0	15	160	0	193	10	999	522	135	1324	726
Grp Sat Flow(s),veh/h/ln	0	0	1670	1781	0	1751	1781	1702	1780	1781	1702	1866
Q Serve(g_s), s	0.0	0.0	1.0	9.4	0.0	11.8	0.3	0.0	0.0	5.4	41.2	41.2
Cycle Q Clear(g_c), s	0.0	0.0	1.0	9.4	0.0	11.8	0.3	0.0	0.0	5.4	41.2	41.2
Prop In Lane	0.00		0.67	1.00		0.38	1.00		0.28	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	28	239	0	235	455	2104	1100	87	1401	768
V/C Ratio(X)	0.00	0.00	0.54	0.67	0.00	0.82	0.02	0.47	0.47	1.54	0.95	0.95
Avail Cap(c_a), veh/h	0	0	146	411	0	404	455	2104	1100	87	1405	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.70	0.70	0.70	0.55	0.55	0.55
Uniform Delay (d), s/veh	0.0	0.0	53.7	45.3	0.0	46.3	20.1	0.0	0.0	52.3	31.2	31.2
Incr Delay (d2), s/veh	0.0	0.0	11.4	2.4	0.0	5.3	0.1	0.5	1.0	273.5	9.0	14.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.5	4.3	0.0	5.5	0.1	0.2	0.3	9.0	18.1	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	65.1	47.7	0.0	51.6	20.1	0.5	1.0	325.8	40.1	45.4
LnGrp LOS	A	A	E	D	A	D	C	A	A	F	D	D
Approach Vol, veh/h		15			353			1531			2185	
Approach Delay, s/veh		65.1			49.8			0.8			59.5	
Approach LOS		E			D			A			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.8	73.4		6.4	33.5	50.7		19.4
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6
Max Green Setting (Gmax), s	5.4	49.6		9.6	9.6	45.4		25.4
Max Q Clear Time (g_c+I1), s	7.4	2.0		3.0	2.3	43.2		13.8
Green Ext Time (p_c), s	0.0	19.6		0.0	0.0	2.0		1.0

Intersection Summary	
HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

Notes

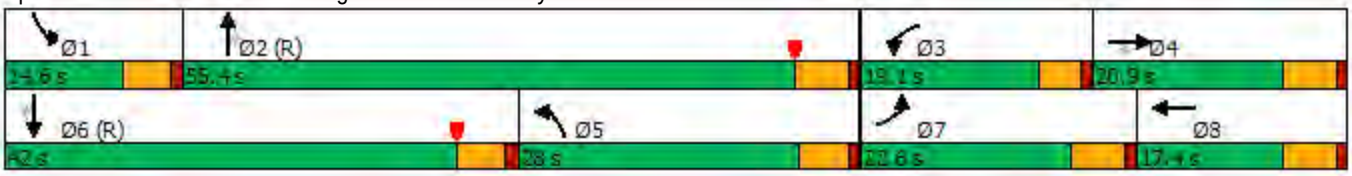
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	330	50	325	44	73	499	1077	26	18	1518	719
Future Volume (vph)	330	50	325	44	73	499	1077	26	18	1518	719
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	14.5	17.4	17.4	9.5	17.4	16.5	32.4	32.4	10.0	42.0	42.0
Total Split (s)	22.6	20.9	20.9	19.1	17.4	28.0	55.4	55.4	14.6	42.0	42.0
Total Split (%)	20.5%	19.0%	19.0%	17.4%	15.8%	25.5%	50.4%	50.4%	13.3%	38.2%	38.2%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	15.5	19.2	19.2	7.5	12.0	20.8	65.0	65.0	6.0	44.5	44.5
Actuated g/C Ratio	0.14	0.17	0.17	0.07	0.11	0.19	0.59	0.59	0.05	0.40	0.40
v/c Ratio	0.75	0.09	0.63	0.40	0.23	0.85	0.39	0.03	0.21	0.81	0.95
Control Delay	55.8	37.3	9.6	57.9	41.9	36.9	4.8	0.0	54.3	35.2	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	55.8	37.3	9.6	57.9	41.9	36.9	4.9	0.0	54.3	35.2	43.2
LOS	E	D	A	E	D	D	A	A	D	D	D
Approach Delay		33.2			47.5		14.8			37.9	
Approach LOS		C			D		B			D	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 29.6 — Intersection LOS: C
Intersection Capacity Utilization 81.6% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	50	325	44	73	8	499	1077	26	18	1518	719
Future Volume (veh/h)	330	50	325	44	73	8	499	1077	26	18	1518	719
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	363	55	357	48	80	9	548	1184	29	20	1668	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	710	317	62	329	36	845	2859	888	37	1718	
Arrive On Green	0.12	0.20	0.20	0.03	0.10	0.10	0.49	1.00	1.00	0.02	0.34	0.00
Sat Flow, veh/h	3456	3554	1585	1781	3226	357	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	363	55	357	48	43	46	548	1184	29	20	1668	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1806	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	11.3	1.4	12.6	2.9	2.5	2.6	13.1	0.0	0.0	1.2	35.4	0.0
Cycle Q Clear(g_c), s	11.3	1.4	12.6	2.9	2.5	2.6	13.1	0.0	0.0	1.2	35.4	0.0
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	430	710	317	62	181	184	845	2859	888	37	1718	
V/C Ratio(X)	0.84	0.08	1.13	0.77	0.24	0.25	0.65	0.41	0.03	0.54	0.97	
Avail Cap(c_a), veh/h	540	710	317	236	194	197	845	2859	888	155	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.69	0.69	0.69	1.00	1.00	0.00
Uniform Delay (d), s/veh	47.1	35.8	14.4	52.6	45.5	45.5	24.6	0.0	0.0	53.3	36.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	61.8	7.3	0.5	0.5	1.0	0.3	0.0	4.5	15.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.6	9.8	1.4	1.1	1.2	4.3	0.1	0.0	0.6	16.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	35.8	76.2	59.9	46.0	46.0	25.5	0.3	0.0	57.8	51.9	0.0
LnGrp LOS	D	D	F	E	D	D	C	A	A	E	D	
Approach Vol, veh/h		775			137			1761			1688	A
Approach Delay, s/veh		60.1			50.9			8.2			51.9	
Approach LOS		E			D			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	67.0	8.3	27.4	32.3	42.0	19.1	16.6
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	9.6	50.0	14.6	15.5	23.0	* 37	17.2	12.0
Max Q Clear Time (g_c+I1), s	3.2	2.0	4.9	14.6	15.1	37.4	13.3	4.6
Green Ext Time (p_c), s	0.0	9.4	0.0	0.1	0.8	0.0	0.4	0.2

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	302	86	60	3	3	300
Future Vol, veh/h	302	86	60	3	3	300
Conflicting Peds, #/hr	10	0	0	10	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	328	93	65	3	3	326

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	78	0	-	0	826	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	749	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1520	-	-	-	342	984
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	467	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1506	-	-	-	262	975
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	462	-

Approach	EB	WB	SB
HCM Control Delay, s	6.3	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1506	-	-	-	949
HCM Lane V/C Ratio	0.218	-	-	-	0.347
HCM Control Delay (s)	8.1	-	-	-	10.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.8	-	-	-	1.6

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	27	27	62	36	3
Future Vol, veh/h	3	27	27	62	36	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	29	29	67	39	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	166	41	42	0	-	0
Stage 1	41	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	824	1030	1567	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	808	1030	1567	-	-	-
Mov Cap-2 Maneuver	808	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	2.2	0
HCM LOS	A		

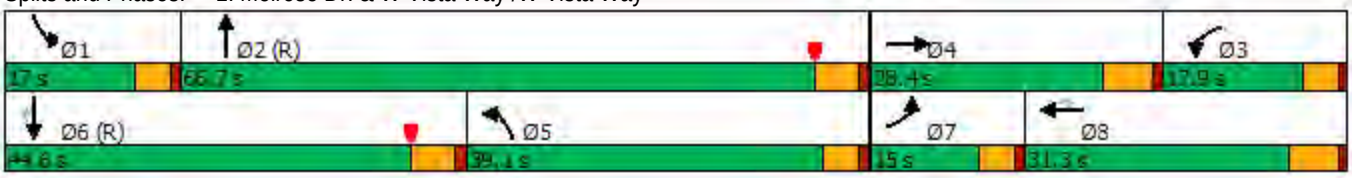
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1567	-	1002	-	-
HCM Lane V/C Ratio	0.019	-	0.033	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	115	347	199	428	667	506	1637	246	1200	413
Future Volume (vph)	115	347	199	428	667	506	1637	246	1200	413
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2	1	6	
Permitted Phases					8					6
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	10.8	9.5	31.8	31.8	9.5	37.4	9.5	26.4	26.4
Total Split (s)	15.0	28.4	17.9	31.3	31.3	39.1	66.7	17.0	44.6	44.6
Total Split (%)	11.5%	21.8%	13.8%	24.1%	24.1%	30.1%	51.3%	13.1%	34.3%	34.3%
Yellow Time (s)	3.5	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.4	5.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	10.2	21.8	14.2	25.8	25.8	34.7	61.3	12.5	39.1	39.1
Actuated g/C Ratio	0.08	0.17	0.11	0.20	0.20	0.27	0.47	0.10	0.30	0.30
v/c Ratio	0.86	0.87	0.55	0.63	1.45	0.57	0.84	1.49	0.81	0.66
Control Delay	105.5	62.6	67.6	58.4	242.9	48.3	38.4	290.3	46.9	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	14.8	0.0	0.0	0.0
Total Delay	105.5	62.6	67.6	58.4	242.9	48.3	53.2	290.3	46.9	22.4
LOS	F	E	E	E	F	D	D	F	D	C
Approach Delay		70.5		155.0			52.2		73.7	
Approach LOS		E		F			D		E	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.49
Intersection Signal Delay: 81.9 — Intersection LOS: F
Intersection Capacity Utilization 98.8% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Melrose Dr. & W Vista Way /W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	347	166	199	428	667	506	1637	289	246	1200	413
Future Volume (veh/h)	115	347	166	199	428	667	506	1637	289	246	1200	413
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	358	171	205	441	654	522	1688	278	254	1237	404
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	399	188	332	697	311	946	2087	342	171	1469	456
Arrive On Green	0.08	0.17	0.17	0.16	0.33	0.33	0.55	0.94	0.94	0.10	0.29	0.29
Sat Flow, veh/h	1781	2347	1102	3456	3554	1585	3456	4421	723	1781	5106	1585
Grp Volume(v), veh/h	119	270	259	205	441	654	522	1297	669	254	1237	404
Grp Sat Flow(s),veh/h/ln	1781	1777	1672	1728	1777	1585	1728	1702	1740	1781	1702	1585
Q Serve(g_s), s	8.6	19.3	19.8	7.2	13.7	25.5	12.7	11.6	12.0	12.5	29.6	24.7
Cycle Q Clear(g_c), s	8.6	19.3	19.8	7.2	13.7	25.5	12.7	11.6	12.0	12.5	29.6	24.7
Prop In Lane	1.00		0.66	1.00		1.00	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	143	302	284	332	697	311	946	1607	822	171	1469	456
V/C Ratio(X)	0.83	0.89	0.91	0.62	0.63	2.10	0.55	0.81	0.81	1.48	0.84	0.89
Avail Cap(c_a), veh/h	144	309	291	356	697	311	946	1607	822	171	1540	478
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.45	0.45	0.45	0.71	0.71	0.71	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.9	52.8	53.0	52.3	39.7	43.7	24.2	2.2	2.2	58.8	43.5	27.0
Incr Delay (d2), s/veh	30.6	26.0	30.9	0.9	0.9	501.5	0.5	3.2	6.3	245.9	6.0	21.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	10.8	10.8	3.0	5.5	52.3	4.3	1.9	2.6	17.3	13.3	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.5	78.7	83.9	53.2	40.6	545.2	24.7	5.4	8.6	304.6	49.6	48.6
LnGrp LOS	F	E	F	D	D	F	C	A	A	F	D	D
Approach Vol, veh/h		648			1300			2488			1895	
Approach Delay, s/veh		82.8			296.4			10.3			83.5	
Approach LOS		F			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	66.8	18.3	27.9	41.0	42.8	14.9	31.3
Change Period (Y+Rc), s	4.5	5.4	5.8	* 5.8	5.4	* 5.4	4.5	5.8
Max Green Setting (Gmax), s	12.5	61.3	13.4	* 23	34.6	* 39	10.5	25.5
Max Q Clear Time (g_c+I1), s	14.5	14.0	9.2	21.8	14.7	31.6	10.6	27.5
Green Ext Time (p_c), s	0.0	28.8	0.1	0.3	1.9	5.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	98.4
HCM 6th LOS	F

Notes

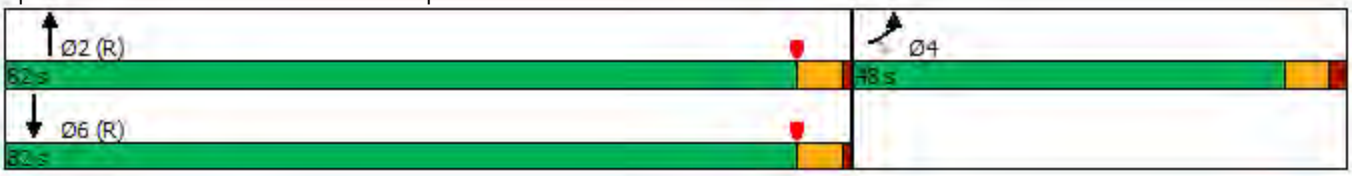
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	455	466	1952	1358
Future Volume (vph)	455	466	1952	1358
Turn Type	Prot	Perm	NA	NA
Protected Phases	4		2	6
Permitted Phases		4		
Detector Phase	4	4	2	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	6.0	5.0
Minimum Split (s)	11.1	11.1	11.4	23.4
Total Split (s)	48.0	48.0	82.0	82.0
Total Split (%)	36.9%	36.9%	63.1%	63.1%
Yellow Time (s)	4.1	4.1	4.4	4.4
All-Red Time (s)	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	5.4	5.4
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	C-Min	C-Min
Act Effct Green (s)	30.6	30.6	87.9	87.9
Actuated g/C Ratio	0.24	0.24	0.68	0.68
v/c Ratio	0.81	0.82	0.60	0.33
Control Delay	52.0	57.7	21.3	1.7
Queue Delay	1.4	3.5	48.1	0.1
Total Delay	53.4	61.2	69.4	1.8
LOS	D	E	E	A
Approach Delay	55.9		69.4	1.8
Approach LOS	E		E	A

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 25 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 44.7	Intersection LOS: D
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: SR-78 EB Off-Ramp & Melrose Dr.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	455	466	0	1952	1358	0
Future Volume (veh/h)	455	466	0	1952	1358	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	0
Adj Flow Rate, veh/h	635	323	0	2055	1429	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	2	2	0
Cap, veh/h	808	360	0	3496	4405	0
Arrive On Green	0.23	0.23	0.00	1.00	1.00	0.00
Sat Flow, veh/h	3563	1585	0	5443	6958	0
Grp Volume(v), veh/h	635	323	0	2055	1429	0
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1702	1609	0
Q Serve(g_s), s	21.8	25.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	21.8	25.7	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	808	360	0	3496	4405	0
V/C Ratio(X)	0.79	0.90	0.00	0.59	0.32	0.00
Avail Cap(c_a), veh/h	1148	511	0	3496	4405	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.57	0.55	0.00
Uniform Delay (d), s/veh	47.3	48.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.4	11.4	0.0	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	11.3	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.7	60.2	0.0	0.4	0.1	0.0
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	958			2055	1429	
Approach Delay, s/veh	52.6			0.4	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		94.4		35.6		94.4
Change Period (Y+Rc), s		5.4		6.1		5.4
Max Green Setting (Gmax), s		76.6		41.9		76.6
Max Q Clear Time (g_c+I1), s		2.0		27.7		2.0
Green Ext Time (p_c), s		19.6		1.8		9.7

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

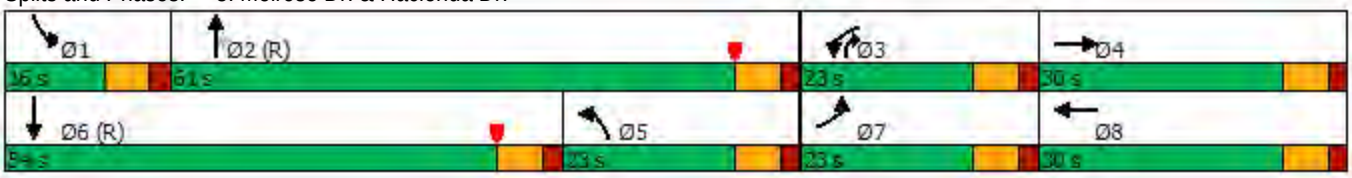
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	491	418	437	313	99	1282	507	505	1099
Future Volume (vph)	491	418	437	313	99	1282	507	505	1099
Turn Type	Prot	NA	Prot	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	7	4	3	8	5	2	3	1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	3	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	11.4	33.4	11.4	11.4	11.4	28.4	11.4	11.4	28.4
Total Split (s)	23.0	30.0	23.0	30.0	23.0	61.0	23.0	16.0	54.0
Total Split (%)	17.7%	23.1%	17.7%	23.1%	17.7%	46.9%	17.7%	12.3%	41.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	23.1	25.4	21.3	23.5	12.2	48.1	75.8	9.7	45.6
Actuated g/C Ratio	0.18	0.20	0.16	0.18	0.09	0.37	0.58	0.07	0.35
v/c Ratio	0.85	0.96	0.82	0.79	0.63	0.72	0.56	2.09	0.86
Control Delay	66.2	72.0	54.7	39.3	72.8	37.1	16.2	531.1	32.6
Queue Delay	51.1	0.0	0.0	3.0	0.0	49.0	0.0	0.0	47.9
Total Delay	117.3	72.0	54.7	42.3	72.8	86.1	16.2	531.1	80.5
LOS	F	E	D	D	E	F	B	F	F
Approach Delay		91.5		48.0		66.6			197.2
Approach LOS		F		D		E			F

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.09
Intersection Signal Delay: 111.4 — Intersection LOS: F
Intersection Capacity Utilization 91.9% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	491	418	231	437	313	199	99	1282	507	505	1099	347
Future Volume (veh/h)	491	418	231	437	313	199	99	1282	507	505	1099	347
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	517	440	238	460	329	187	104	1349	534	532	1157	343
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	405	217	441	400	222	292	2145	868	255	1290	382
Arrive On Green	0.13	0.18	0.18	0.04	0.06	0.06	0.16	0.42	0.42	0.10	0.44	0.44
Sat Flow, veh/h	3456	2234	1198	3456	2202	1225	1781	5106	1585	3456	3908	1158
Grp Volume(v), veh/h	517	349	329	460	264	252	104	1349	534	532	1008	492
Grp Sat Flow(s),veh/h/ln	1728	1777	1655	1728	1777	1650	1781	1702	1585	1728	1702	1662
Q Serve(g_s), s	16.6	23.6	23.6	16.6	19.1	19.6	6.7	27.1	29.9	9.6	35.6	35.6
Cycle Q Clear(g_c), s	16.6	23.6	23.6	16.6	19.1	19.6	6.7	27.1	29.9	9.6	35.6	35.6
Prop In Lane	1.00		0.72	1.00		0.74	1.00		1.00	1.00		0.70
Lane Grp Cap(c), veh/h	441	323	300	441	323	300	292	2145	868	255	1123	548
V/C Ratio(X)	1.17	1.08	1.09	1.04	0.82	0.84	0.36	0.63	0.62	2.08	0.90	0.90
Avail Cap(c_a), veh/h	441	323	300	441	323	300	292	2145	868	255	1246	608
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	56.7	53.2	53.2	62.3	59.0	59.2	48.3	29.7	20.1	58.6	34.4	34.4
Incr Delay (d2), s/veh	99.0	74.0	79.6	48.6	11.1	14.1	0.3	1.4	3.3	500.2	10.4	18.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	17.1	16.4	10.7	10.2	9.9	3.0	11.3	11.6	21.8	15.3	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	155.7	127.2	132.8	110.9	70.1	73.3	48.5	31.1	23.3	558.8	44.8	53.0
LnGrp LOS	F	F	F	F	E	E	D	C	C	F	D	D
Approach Vol, veh/h		1195			976			1987			2032	
Approach Delay, s/veh		141.0			90.2			29.9			181.4	
Approach LOS		F			F			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	61.0	23.0	30.0	27.7	49.3	23.0	30.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	9.6	54.6	16.6	23.6	16.6	47.6	16.6	23.6
Max Q Clear Time (g_c+I1), s	11.6	31.9	18.6	25.6	8.7	37.6	18.6	21.6
Green Ext Time (p_c), s	0.0	13.2	0.0	0.0	0.1	5.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	110.6
HCM 6th LOS	F

Notes

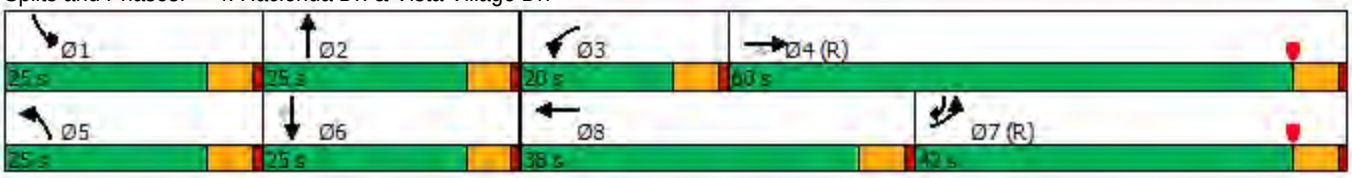
User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1301	175	33	7	139	103	149	245	252	668
Future Volume (vph)	1301	175	33	7	139	103	149	245	252	668
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2	1	6	7
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	7
Switch Phase										
Minimum Initial (s)	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0
Minimum Split (s)	15.4	25.4	25.4	10.4	37.4	10.4	17.4	10.4	10.4	15.4
Total Split (s)	42.0	60.0	60.0	20.0	38.0	25.0	25.0	25.0	25.0	42.0
Total Split (%)	32.3%	46.2%	46.2%	15.4%	29.2%	19.2%	19.2%	19.2%	19.2%	32.3%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None	None	None	C-Min
Act Effct Green (s)	40.5	74.4	74.4	5.4	30.8	12.7	17.5	19.6	24.4	64.9
Actuated g/C Ratio	0.31	0.57	0.57	0.04	0.24	0.10	0.13	0.15	0.19	0.50
v/c Ratio	1.35	0.18	0.04	0.11	0.95	0.66	0.70	1.02	0.80	0.42
Control Delay	199.1	15.0	1.3	62.9	72.6	74.0	68.4	113.7	87.0	10.5
Queue Delay	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4	0.1
Total Delay	199.2	15.0	1.3	62.9	72.6	74.0	68.4	113.7	113.4	10.6
LOS	F	B	A	E	E	E	E	F	F	B
Approach Delay		173.5			72.4		70.6		54.5	
Approach LOS		F			E		E		D	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 64 (49%), Referenced to phase 4:EBT and 7:EBL, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.35
Intersection Signal Delay: 111.9 — Intersection LOS: F
Intersection Capacity Utilization 99.4% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 4: Hacienda Dr. & Vista Village Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1301	175	33	7	139	244	103	149	9	245	252	668
Future Volume (veh/h)	1301	175	33	7	139	244	103	149	9	245	252	668
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1446	194	37	8	154	271	114	166	10	272	280	742
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	973	1053	892	17	177	311	139	193	12	269	343	1298
Arrive On Green	0.37	0.75	0.75	0.01	0.29	0.29	0.08	0.11	0.11	0.05	0.06	0.06
Sat Flow, veh/h	3456	1870	1585	1781	608	1070	1781	1746	105	1781	1870	2790
Grp Volume(v), veh/h	1446	194	37	8	0	425	114	0	176	272	280	742
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	0	1678	1781	0	1851	1781	1870	1395
Q Serve(g_s), s	36.6	3.9	0.8	0.6	0.0	31.3	8.2	0.0	12.1	19.6	19.2	5.2
Cycle Q Clear(g_c), s	36.6	3.9	0.8	0.6	0.0	31.3	8.2	0.0	12.1	19.6	19.2	5.2
Prop In Lane	1.00		1.00	1.00		0.64	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	973	1053	892	17	0	488	139	0	205	269	343	1298
V/C Ratio(X)	1.49	0.18	0.04	0.47	0.00	0.87	0.82	0.00	0.86	1.01	0.82	0.57
Avail Cap(c_a), veh/h	973	1053	892	200	0	488	269	0	279	269	343	1298
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	40.7	7.6	7.2	64.0	0.0	43.8	59.1	0.0	56.8	61.8	58.9	13.3
Incr Delay (d2), s/veh	219.3	0.0	0.0	7.1	0.0	15.0	4.6	0.0	14.1	54.2	11.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	44.2	1.5	0.3	0.3	0.0	15.0	3.9	0.0	6.5	13.5	10.8	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	260.0	7.7	7.3	71.1	0.0	58.8	63.6	0.0	70.9	116.0	70.4	13.7
LnGrp LOS	F	A	A	E	A	E	E	A	E	F	E	B
Approach Vol, veh/h		1677			433			290			1294	
Approach Delay, s/veh		225.2			59.0			68.0			47.5	
Approach LOS		F			E			E			D	

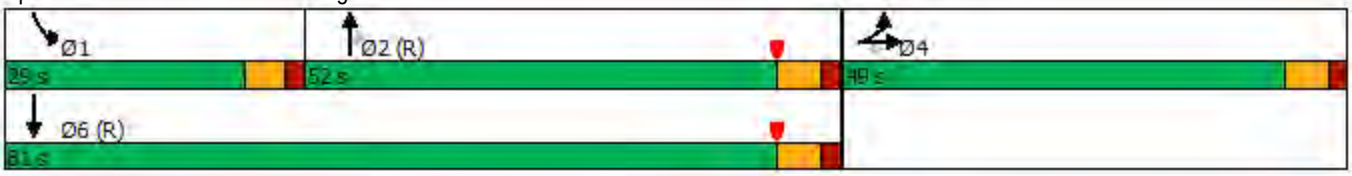
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	19.8	6.7	78.6	15.5	29.3	42.0	43.2
Change Period (Y+Rc), s	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max Green Setting (Gmax), s	19.6	19.6	14.6	54.6	19.6	19.6	36.6	32.6
Max Q Clear Time (g_c+I1), s	21.6	14.1	2.6	5.9	10.2	21.2	38.6	33.3
Green Ext Time (p_c), s	0.0	0.3	0.0	0.8	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	131.1
HCM 6th LOS	F

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	990	1	111	654	1074	629	1039
Future Volume (vph)	990	1	111	654	1074	629	1039
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	6.0	6.0	10.0	6.0
Minimum Split (s)	11.1	11.1	11.1	23.4	23.4	15.7	29.4
Total Split (s)	49.0	49.0	49.0	52.0	52.0	29.0	81.0
Total Split (%)	37.7%	37.7%	37.7%	40.0%	40.0%	22.3%	62.3%
Yellow Time (s)	4.1	4.1	4.1	4.4	4.4	3.7	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.4	6.4	5.7	6.4
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)	42.0	42.0	42.0	45.6	45.6	24.2	75.5
Actuated g/C Ratio	0.32	0.32	0.32	0.35	0.35	0.19	0.58
v/c Ratio	0.96	0.96	0.21	1.02	0.66	1.03	0.53
Control Delay	73.6	73.2	13.4	30.9	5.9	90.1	17.3
Queue Delay	45.6	45.7	0.1	31.6	7.9	0.0	1.3
Total Delay	119.2	118.9	13.4	62.5	13.8	90.1	18.6
LOS	F	F	B	E	B	F	B
Approach Delay		108.4		47.1			45.5
Approach LOS		F		D			D

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 65 (50%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 61.5	Intersection LOS: E
Intersection Capacity Utilization 163.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Vista Village Dr. & SR-78 EB



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	990	1	111	0	0	0	0	654	1074	629	1039	0
Future Volume (veh/h)	990	1	111	0	0	0	0	654	1074	629	1039	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	1043	0	117				0	688	1131	662	1094	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1106	0	492				0	693	1174	619	2109	0
Arrive On Green	0.31	0.00	0.31				0.00	0.37	0.37	0.18	0.59	0.00
Sat Flow, veh/h	3563	0	1585				0	1870	3170	3456	3647	0
Grp Volume(v), veh/h	1043	0	117				0	688	1131	662	1094	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1870	1585	1728	1777	0
Q Serve(g_s), s	37.1	0.0	7.1				0.0	47.6	45.4	23.3	23.5	0.0
Cycle Q Clear(g_c), s	37.1	0.0	7.1				0.0	47.6	45.4	23.3	23.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1106	0	492				0	693	1174	619	2109	0
V/C Ratio(X)	0.94	0.00	0.24				0.00	0.99	0.96	1.07	0.52	0.00
Avail Cap(c_a), veh/h	1176	0	523				0	693	1174	619	2109	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.09	0.09	0.78	0.78	0.00
Uniform Delay (d), s/veh	43.7	0.0	33.4				0.0	40.8	40.1	53.3	15.5	0.0
Incr Delay (d2), s/veh	13.9	0.0	0.1				0.0	8.8	3.0	52.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.4	0.0	2.8				0.0	23.3	17.9	14.6	9.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	0.0	33.5				0.0	49.5	43.1	105.3	16.2	0.0
LnGrp LOS	E	A	C				A	D	D	F	B	A
Approach Vol, veh/h		1160						1819			1756	
Approach Delay, s/veh		55.2						45.5			49.8	
Approach LOS		E						D			D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	29.0	54.6		46.4		83.6
Change Period (Y+Rc), s	* 5.7	6.4		6.1		6.4
Max Green Setting (Gmax), s	* 23	45.6		42.9		74.6
Max Q Clear Time (g_c+I1), s	25.3	49.6		39.1		25.5
Green Ext Time (p_c), s	0.0	0.0		1.2		6.5

Intersection Summary	
HCM 6th Ctrl Delay	49.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	572	3	1296	140	1458	1027	662
Future Volume (vph)	572	3	1296	140	1458	1027	662
Turn Type	Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases	8	8		5	2	6	
Permitted Phases			8				6
Detector Phase	8	8	8	5	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	10.0	8.0	6.0	6.0
Minimum Split (s)	11.1	11.1	11.1	15.7	31.4	23.4	23.4
Total Split (s)	64.0	64.0	64.0	16.4	66.0	49.6	49.6
Total Split (%)	49.2%	49.2%	49.2%	12.6%	50.8%	38.2%	38.2%
Yellow Time (s)	4.1	4.1	4.1	3.7	4.4	4.4	4.4
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.7	6.4	6.4	6.4
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	58.5	58.5	58.5	10.7	59.0	42.6	42.6
Actuated g/C Ratio	0.45	0.45	0.45	0.08	0.45	0.33	0.33
v/c Ratio	0.39	0.40	1.04	1.01	0.95	0.64	0.70
Control Delay	26.0	26.1	70.0	113.1	22.2	38.5	17.1
Queue Delay	0.0	0.0	16.3	0.0	44.8	0.2	0.9
Total Delay	26.1	26.1	86.3	113.1	67.0	38.7	18.0
LOS	C	C	F	F	E	D	B
Approach Delay		67.8			71.0	30.6	
Approach LOS		E			E	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 56.6	Intersection LOS: E
Intersection Capacity Utilization 163.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Vista Village Dr. & SR-78 WB

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	572	3	1296	140	1458	0	0	1027	662
Future Volume (veh/h)	0	0	0	572	3	1296	140	1458	0	0	1027	662
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				598	0	1350	146	1519	0	0	1070	690
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1568	0	1395	147	1648	0	0	1724	535
Arrive On Green				0.44	0.00	0.44	0.12	0.70	0.00	0.00	0.51	0.51
Sat Flow, veh/h				3563	0	3170	1781	3647	0	0	5274	1585
Grp Volume(v), veh/h				598	0	1350	146	1519	0	0	1070	690
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1702	1585
Q Serve(g_s), s				14.7	0.0	54.0	10.6	47.1	0.0	0.0	19.6	43.9
Cycle Q Clear(g_c), s				14.7	0.0	54.0	10.6	47.1	0.0	0.0	19.6	43.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1568	0	1395	147	1648	0	0	1724	535
V/C Ratio(X)				0.38	0.00	0.97	1.00	0.92	0.00	0.00	0.62	1.29
Avail Cap(c_a), veh/h				1587	0	1412	147	1648	0	0	1724	535
HCM Platoon Ratio				1.00	1.00	1.00	1.50	1.50	1.00	1.00	1.50	1.50
Upstream Filter(I)				1.00	0.00	1.00	0.09	0.09	0.00	0.00	0.93	0.93
Uniform Delay (d), s/veh				24.5	0.0	35.5	57.0	17.8	0.0	0.0	26.1	32.1
Incr Delay (d2), s/veh				0.1	0.0	16.6	21.2	1.1	0.0	0.0	1.6	142.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.2	0.0	23.6	5.4	14.4	0.0	0.0	7.3	35.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.5	0.0	52.1	78.2	18.9	0.0	0.0	27.7	175.0
LnGrp LOS				C	A	D	E	B	A	A	C	F
Approach Vol, veh/h					1948			1665			1760	
Approach Delay, s/veh					43.6			24.1			85.4	
Approach LOS					D			C			F	

Timer - Assigned Phs	2		5	6		8
Phs Duration (G+Y+Rc), s	66.7		16.4	50.3		63.3
Change Period (Y+Rc), s	6.4		* 5.7	6.4		6.1
Max Green Setting (Gmax), s	59.6		* 11	43.2		57.9
Max Q Clear Time (g_c+I1), s	49.1		12.6	45.9		56.0
Green Ext Time (p_c), s	5.9		0.0	0.0		1.2

Intersection Summary	
HCM 6th Ctrl Delay	51.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

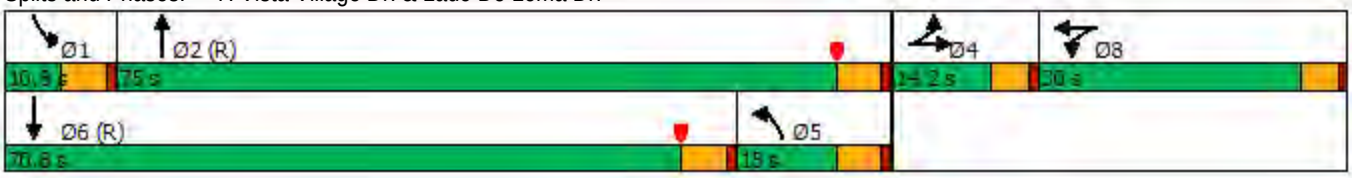
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	5	212	5	10	1932	110	1133
Future Volume (vph)	5	212	5	10	1932	110	1133
Turn Type	NA	Split	NA	Prot	NA	Prot	NA
Protected Phases	4	8	8	5	2	1	6
Permitted Phases							
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	9.6	28.6	28.6	10.4	21.4	10.4	21.4
Total Split (s)	14.2	30.0	30.0	15.0	75.0	10.8	70.8
Total Split (%)	10.9%	23.1%	23.1%	11.5%	57.7%	8.3%	54.5%
Yellow Time (s)	3.6	3.6	3.6	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	5.4	5.4	5.4	5.4
Lead/Lag				Lag	Lag	Lead	Lead
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	6.7	18.4	18.4	9.7	73.2	15.8	88.3
Actuated g/C Ratio	0.05	0.14	0.14	0.07	0.56	0.12	0.68
v/c Ratio	0.25	0.71	0.57	0.08	0.84	0.53	0.34
Control Delay	39.8	68.8	37.8	54.2	21.1	77.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	11.1	0.0	0.3
Total Delay	39.8	68.8	37.8	54.2	32.2	77.5	3.1
LOS	D	E	D	D	C	E	A
Approach Delay	39.8		53.8		32.3		9.6
Approach LOS	D		D		C		A

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 110 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 26.8 — Intersection LOS: C
Intersection Capacity Utilization 79.9% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Vista Village Dr. & Lado De Loma Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	15	212	5	100	10	1932	353	110	1133	10
Future Volume (veh/h)	5	5	15	212	5	100	10	1932	353	110	1133	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	5	15	164	83	103	10	1992	364	113	1168	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	8	23	233	99	123	733	2836	507	74	1467	13
Arrive On Green	0.02	0.02	0.02	0.13	0.13	0.13	0.82	1.00	1.00	0.07	0.49	0.49
Sat Flow, veh/h	335	335	1004	1781	759	942	1781	4356	778	1781	5222	45
Grp Volume(v), veh/h	25	0	0	164	0	186	10	1547	809	113	761	417
Grp Sat Flow(s),veh/h/ln	1673	0	0	1781	0	1701	1781	1702	1730	1781	1702	1862
Q Serve(g_s), s	1.9	0.0	0.0	11.5	0.0	13.9	0.1	0.0	0.0	5.4	24.3	24.3
Cycle Q Clear(g_c), s	1.9	0.0	0.0	11.5	0.0	13.9	0.1	0.0	0.0	5.4	24.3	24.3
Prop In Lane	0.20		0.60	1.00		0.55	1.00		0.45	1.00		0.02
Lane Grp Cap(c), veh/h	38	0	0	233	0	222	733	2217	1127	74	957	523
V/C Ratio(X)	0.65	0.00	0.00	0.71	0.00	0.84	0.01	0.70	0.72	1.53	0.80	0.80
Avail Cap(c_a), veh/h	124	0	0	348	0	332	733	2217	1127	74	1713	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.75	1.75	1.75
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.11	0.11	0.11	0.10	0.10	0.10
Uniform Delay (d), s/veh	63.0	0.0	0.0	54.1	0.0	55.2	6.8	0.0	0.0	60.3	29.9	29.9
Incr Delay (d2), s/veh	17.3	0.0	0.0	3.9	0.0	11.2	0.0	0.2	0.4	244.1	0.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	5.4	0.0	6.6	0.1	0.1	0.1	7.4	8.4	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.3	0.0	0.0	58.0	0.0	66.4	6.8	0.2	0.4	304.4	30.6	31.2
LnGrp LOS	F	A	A	E	A	E	A	A	A	F	C	C
Approach Vol, veh/h		25			350			2366			1291	
Approach Delay, s/veh		80.3			62.5			0.3			54.8	
Approach LOS		F			E			A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	90.1		7.6	58.9	41.9		21.6				
Change Period (Y+Rc), s	5.4	5.4		4.6	5.4	5.4		4.6				
Max Green Setting (Gmax), s	5.4	69.6		9.6	9.6	65.4		25.4				
Max Q Clear Time (g_c+I1), s	7.4	2.0		3.9	2.1	26.3		15.9				
Green Ext Time (p_c), s	0.0	39.7		0.0	0.0	10.2		1.1				

Intersection Summary			
HCM 6th Ctrl Delay			23.7
HCM 6th LOS			C

Notes

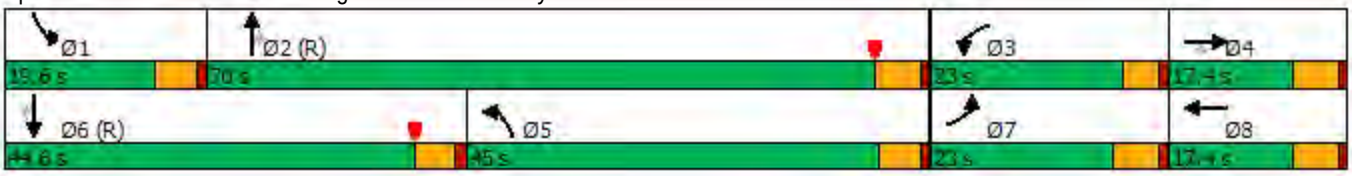
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	579	162	78	77	106	627	1803	131	119	1567	653
Future Volume (vph)	579	162	78	77	106	627	1803	131	119	1567	653
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.4	17.4	17.4	9.5	17.4	10.0	32.4	32.4	10.0	42.0	42.0
Total Split (s)	23.0	17.4	17.4	23.0	17.4	45.0	70.0	70.0	19.6	44.6	44.6
Total Split (%)	17.7%	13.4%	13.4%	17.7%	13.4%	34.6%	53.8%	53.8%	15.1%	34.3%	34.3%
Yellow Time (s)	4.4	4.4	4.4	3.5	4.4	4.0	4.4	4.4	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.5	5.4	5.0	5.4	5.4	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	21.3	23.9	23.9	10.3	12.0	36.3	63.1	63.1	12.4	39.6	39.6
Actuated g/C Ratio	0.16	0.18	0.18	0.08	0.09	0.28	0.49	0.49	0.10	0.30	0.30
v/c Ratio	1.07	0.26	0.20	0.58	0.50	0.68	0.76	0.17	0.74	1.05	1.06
Control Delay	83.0	44.6	4.1	73.1	37.2	34.7	20.9	4.0	82.2	82.2	83.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.8	2.5	0.0	0.0	11.0	0.0
Total Delay	83.0	44.6	4.1	73.1	37.2	36.5	23.4	4.0	82.2	93.2	83.2
LOS	F	D	A	E	D	D	C	A	F	F	F
Approach Delay		67.9			47.8		25.6			89.8	
Approach LOS		E			D		C			F	

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 70 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 57.5 — Intersection LOS: E
Intersection Capacity Utilization 92.0% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 8: Vista Village Dr. & W Vista Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	579	162	78	77	106	77	627	1803	131	119	1567	653
Future Volume (veh/h)	579	162	78	77	106	77	627	1803	131	119	1567	653
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	603	169	81	80	110	80	653	1878	136	124	1632	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	468	631	282	101	187	126	1053	2686	834	149	1555	
Arrive On Green	0.14	0.18	0.18	0.06	0.09	0.09	0.61	1.00	1.00	0.08	0.30	0.00
Sat Flow, veh/h	3456	3554	1585	1781	2033	1368	3456	5106	1585	1781	5106	1585
Grp Volume(v), veh/h	603	169	81	80	95	95	653	1878	136	124	1632	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1624	1728	1702	1585	1781	1702	1585
Q Serve(g_s), s	17.6	5.3	3.0	5.8	6.7	7.3	15.4	0.0	0.0	8.9	39.6	0.0
Cycle Q Clear(g_c), s	17.6	5.3	3.0	5.8	6.7	7.3	15.4	0.0	0.0	8.9	39.6	0.0
Prop In Lane	1.00		1.00	1.00		0.84	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	468	631	282	101	164	150	1053	2686	834	149	1555	
V/C Ratio(X)	1.29	0.27	0.29	0.79	0.58	0.63	0.62	0.70	0.16	0.83	1.05	
Avail Cap(c_a), veh/h	468	631	282	253	164	150	1063	2686	834	200	1555	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.43	0.43	0.43	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.2	46.1	12.9	60.5	56.6	56.9	20.7	0.0	0.0	58.7	45.2	0.0
Incr Delay (d2), s/veh	131.5	0.0	0.0	5.1	4.4	7.7	0.3	0.7	0.2	15.3	37.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.2	2.4	2.2	2.8	3.2	3.3	4.6	0.2	0.0	4.7	21.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.7	46.2	13.0	65.6	60.9	64.5	21.0	0.7	0.2	74.0	82.2	0.0
LnGrp LOS	F	D	B	E	E	E	C	A	A	E	F	
Approach Vol, veh/h		853			270			2667			1756	A
Approach Delay, s/veh		143.1			63.6			5.6			81.6	
Approach LOS		F			E			A			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	73.8	11.9	28.5	45.0	44.6	23.0	17.4
Change Period (Y+Rc), s	5.0	5.4	4.5	5.4	5.4	* 5	5.4	5.4
Max Green Setting (Gmax), s	14.6	64.6	18.5	12.0	40.0	* 40	17.6	12.0
Max Q Clear Time (g_c+I1), s	10.9	2.0	7.8	7.3	17.4	41.6	19.6	9.3
Green Ext Time (p_c), s	0.0	22.1	0.1	0.4	1.3	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	336	93	55	2	2	335
Future Vol, veh/h	336	93	55	2	2	335
Conflicting Peds, #/hr	10	0	0	10	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	365	101	60	2	2	364

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	72	0	-	0	902	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	831	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1528	-	-	-	308	991
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1513	-	-	-	229	982
Mov Cap-2 Maneuver	-	-	-	-	229	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	424	-

Approach	EB	WB	SB
HCM Control Delay, s	6.4	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1513	-	-	-	963
HCM Lane V/C Ratio	0.241	-	-	-	0.38
HCM Control Delay (s)	8.1	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.9	-	-	-	1.8

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	23	23	72	34	2
Future Vol, veh/h	2	23	23	72	34	2
Conflicting Peds, #/hr	0	10	10	0	0	10
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	25	25	78	37	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	176	58	49	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	814	1008	1558	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	784	989	1543	-	-	-
Mov Cap-2 Maneuver	784	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	889	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1543	-	969	-	-
HCM Lane V/C Ratio	0.016	-	0.028	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

APPENDIX H

STARBUCKS DRIVE-THROUGH STUDY, *LAKE MURRAY VILLAGE TRAFFIC STUDY*, CHICK-FIL-A DRIVE-THROUGH WINDOW COUNTS

7 DRIVE THRU QUEUING

It is anticipated that a coffee retailer will be the tenant for the building with the drive-thru lane. To address the concerns of the potential for long queues during the morning rush and validate the proposed storage length design of the drive-thru lane, vehicle queues were recorded at three existing Starbucks with a drive-thru lane in the City of El Cajon. The three locations included the following:

1. Chase Avenue & Avocado Avenue
2. Ballantyne Avenue & Broadway
3. Jamacha Road & Main Street

Since the highest demand for a coffee shop land use is typically during the morning, data collection was limited to the morning peak period between 7:00 and 9:00 AM. The number of vehicles in the drive-thru lane and spillback into the parking lot were recorded every minute. Table 7-1 summarizes the frequency of vehicles queued in the drive-thru lane and the calculated probability associated with each respective queued vehicle.

Table 7-1
Probability of Queued Vehicles in Drive Thru Lane

Queued Vehicles	Frequency	Cumulative Frequency	Probability	Cumulative Probability
0	5	5	1.4%	1.4%
1	14	19	3.9%	5.2%
2	18	37	5.0%	10.2%
3	22	59	6.1%	16.3%
4	36	95	9.9%	26.2%
5	40	135	11.0%	37.2%
6	47	182	12.9%	50.1%
7	59	241	16.3%	66.4%
8	50	291	13.8%	80.2%
9	33	324	9.1%	89.3%
10	22	346	6.1%	95.3%
11	14	360	3.9%	99.2%
12	3	363	0.8%	100.0%

Notes:
The probabilities shown in the table are listed to the nearest 0.1%. Actual values are used for calculating the cumulative probability.
The data shown in the table was obtained on July 14, 2016 at three existing Starbucks stores with a drive-thru window in El Cajon during the AM Peak (7:00 to 9:00).

As shown in the table, of the 363 observations made at the three Starbucks locations, seven queued vehicles (16.3 percent) was the most common occurrence during the AM peak period. The number of queued vehicles ranged between 0 and 12 vehicles. The maximum observed queue at the Ballantyne/Broadway location was 9 vehicles. The maximum observed queue at the other two locations was 12 vehicles.

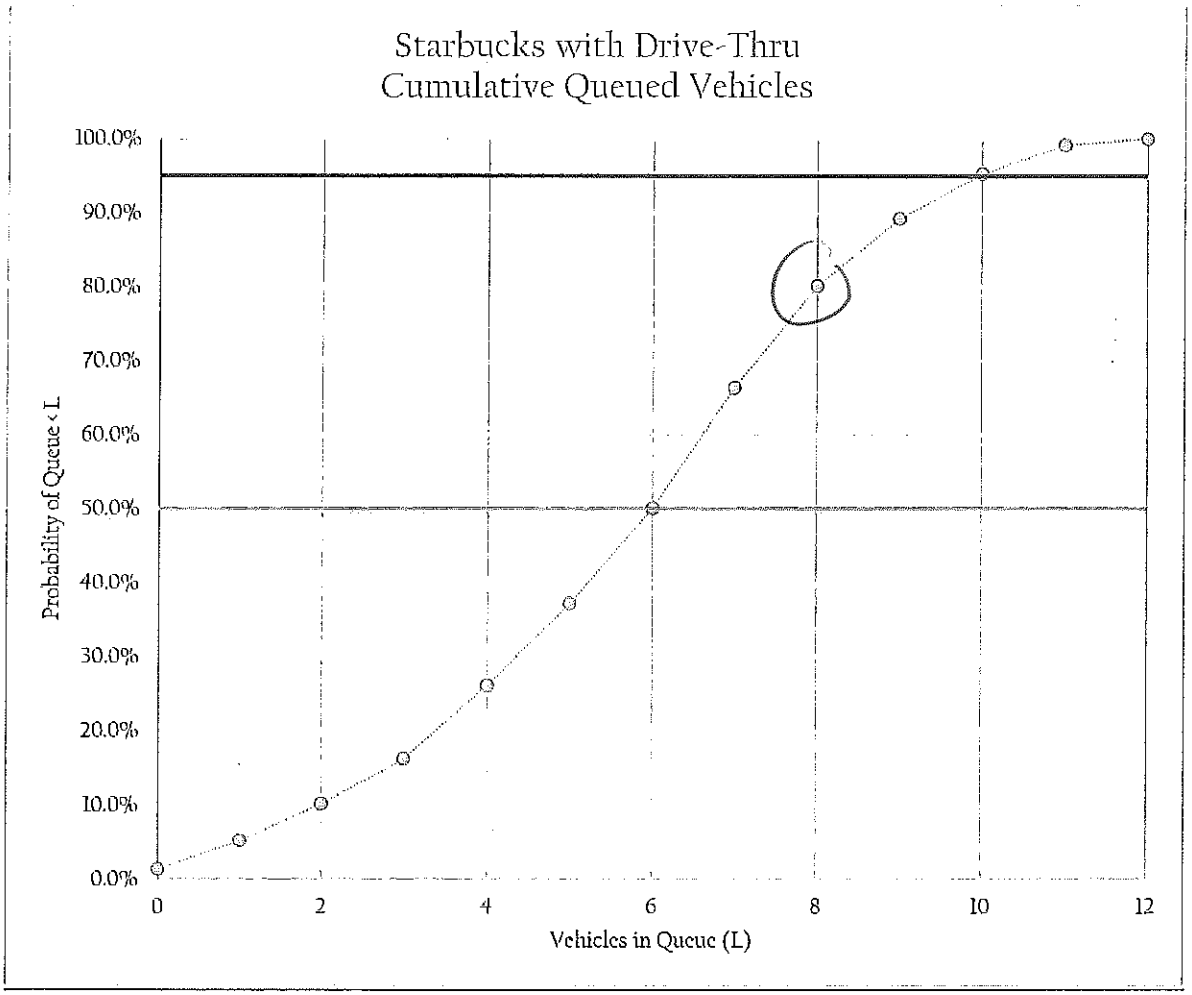
Figure 7-1 graphically depicts the probability of a queue in the Starbucks drive-thru lane. As shown in the figure, there is a 100 percent probability that a queue would be less than 12 vehicles. From a

statistical standpoint, there is a 95 percent probability that a queue would be less than 10 vehicles as shown by the red line. Six vehicles in queue would represent the average that could be expected in a drive-thru lane as shown by the green line.

Appendix C contains the raw data and the probability graph of a queued vehicle at each Starbucks location.

80 4 : 8

Figure 7-1
Probability of Queued Vehicles in Drive Thru Lane



The project's drive-thru lane is configured with vehicles entering near the driveway off of Lake Park Way. The pick-up window is located near Lake Murray Boulevard. Approximately seven to eight vehicles could be accommodated in the drive-thru lane. Eight additional vehicles could be added to the drive-thru queue along the north side of the parking lot before spilling back onto Lake Park Way. Figure 7-2 illustrates the vehicle storage in the drive-thru lane and within the project's parking lot.

Chick-fil-A Driveway Queue Count

Loc #1 2089 Olympic Parkway, San Diego

Time AM	Thursday 26-Jul-18	Friday 27-Jul-18	Saturday 28-Jul-18
11:30	3	3	14
11:40	3	2	7
11:50	5	25	16
12:00	6	5	12
12:10	6	10	9
12:20	10	13	8
12:30	12	16	10
12:40	8	13	5
12:50	5	9	7
13:00	1	11	13
13:10	3	11	9
13:20	3	8	11

Time PM	Thursday 26-Jul-18	Friday 27-Jul-18	Saturday 28-Jul-18
16:30	12	13	9
16:40	15	13	7
16:50	7	14	5
17:00	13	16	6
17:10	12	18	8
17:20	15	18	8
17:30	13	16	5
17:40	7	10	10
17:50	16	17	4
18:00	18	19	6
18:10	18	22	3
18:20	19	20	7

Chick-fil-A Driveway Queue Count

Loc #2 Camino Del Sur & Garretson Street, Del Sur, Ca

Time AM	Thursday 26-Jul-18	Friday 27-Jul-18	Saturday 28-Jul-18
11:30	3	8	2
11:40	5	6	6
11:50	1	6	2
12:00	7	5	3
12:10	7	6	7
12:20	9	9	6
12:30	10	10	1
12:40	9	11	7
12:50	9	7	6
13:00	8	5	3
13:10	4	3	4
13:20	6	6	13

Time PM	Thursday 26-Jul-18	Friday 27-Jul-18	Saturday 28-Jul-18
16:30	2	5	2
16:40	3	0	2
16:50	2	4	2
17:00	2	1	1
17:10	6	4	3
17:20	5	5	3
17:30	3	4	2
17:40	2	5	2
17:50	6	7	6
18:00	3	4	6
18:10	2	3	4
18:20	4	5	4

Chick-fil-A Driveway Queue Count

Loc #3 3570 Sports Arena Blvd, San Diego, CA

Time AM	Thursday 26-Jul-18	Friday 27-Jul-18	Saturday 28-Jul-18
11:30	13	12	11
11:40	14	12	12
11:50	9	10	14
12:00	14	10	15
12:10	7	15	14
12:20	9	21	12
12:30	8	17	8
12:40	12	12	14
12:50	12	13	17
13:00	10	11	15
13:10	11	10	14
13:20	11	14	9

Time PM	Thursday 26-Jul-18	Friday 27-Jul-18	Saturday 28-Jul-18
16:30	4	5	10
16:40	4	4	7
16:50	6	3	10
17:00	8	4	20
17:10	9	9	16
17:20	8	8	14
17:30	6	7	17
17:40	11	13	17
17:50	18	19	15
18:00	14	17	20
18:10	14	11	10
18:20	16	15	12

Chick-fil-A Chula Vista Center Parking - Friday July 27, 2018

Loc #04 Broadway & H Street Chula Vista

AM	Area #01	Area #02	Area #03	Area #04
11:30	353	214	159	390
12:00	378	228	202	431
12:30	371	229	202	511
13:00	357	217	227	538

Chick-fil-A Chula Vista Center Parking - Friday July 27, 2018

Loc #04 Broadway & H Street Chula Vista

PM	Area #01	Area #02	Area #03	Area #04
16:30	358	183	169	553
17:00	392	179	182	577
17:30	377	157	179	650
18:00	432	162	203	670

14425 W. Mc Dowell Rd., Suite F-108, Goodyear, Arizona 85395 623-536-5956 Office 623-535-9146 Fax

August 22, 2018

City of Vista
Planning Department
200 Civic Center Drive
Vista, CA 92084
Ms. Patsy Chow
Deputy Director/City Planner

Subject/Response: **P18-0117 – Second Review of an Application for a Special Use Permit/Site Development Plan, (Planning Section #12 comment)**

Ms. Chow,

We project this location to wash 130 cars per hour at its maximum peak hour. However, we have designed and will equip this location with an equipment package that has the capability to wash 180 cars per hour.

This site will have 3 XPT (Xpress Pay Terminals), each terminal capable of processing 80 cars per hour. (Please see attachment) The car wash tunnel will be equipped with Sonny's Car Wash equipment that is capable of processing up to 180 cars per hour. (Please see attachment)

Do to these facts, we do not anticipate having an issue with our driveway being blocked back to the street entrance at any time. However, in the rare occasion that the car wash volume reaches maximum capacity and stacking presents a problem, the Car Wash Manager will post a movable sign in front of the carwash that says, "Wash Full", and only remove said sign when the stack dissipates.

Respectfully,

Reza Amirrezvani
President, Super Star Car Wash

Drive-Through Queue Observations

733 Fletcher Parkway, El Cajon

2-Oct-18

Time	Cars
11:45	5
11:50	5
11:55	7
12:00	6
12:05	8
12:10	8
12:15	7
12:20	9
12:25	8
12:30	7
12:45	7
12:50	8
12:55	7
1:00	6
1:05	5
1:10	5
1:15	4

Max Queue (Cars)
9

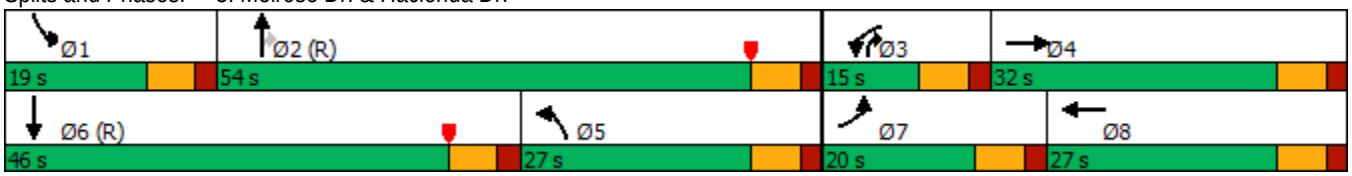
APPENDIX I

POST MITIGATION PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	263	42	508	247	90	19	816	252	593	1463	120
Future Volume (vph)	187	263	42	508	247	90	19	816	252	593	1463	120
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	20.0	32.0		15.0	27.0		27.0	54.0	15.0	19.0	46.0	
Total Split (%)	16.7%	26.7%		12.5%	22.5%		22.5%	45.0%	12.5%	15.8%	38.3%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	None		None	None		Min	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	263	42	508	247	90	19	816	252	593	1463	120
Future Volume (veh/h)	187	263	42	508	247	90	19	816	252	593	1463	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	280	39	540	263	92	20	868	268	631	1556	102
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	399	55	360	323	110	464	2466	879	363	1602	105
Arrive On Green	0.07	0.13	0.13	0.07	0.12	0.12	0.26	0.48	0.48	0.21	0.65	0.65
Sat Flow, veh/h	3456	3137	432	5023	2599	888	1781	5106	1585	3456	4896	321
Grp Volume(v), veh/h	199	157	162	540	178	177	20	868	268	631	1082	576
Grp Sat Flow(s),veh/h/ln	1728	1777	1793	1674	1777	1711	1781	1702	1585	1728	1702	1813
Q Serve(g_s), s	6.8	10.2	10.4	8.6	11.7	12.1	1.0	12.7	10.9	12.6	36.2	36.2
Cycle Q Clear(g_c), s	6.8	10.2	10.4	8.6	11.7	12.1	1.0	12.7	10.9	12.6	36.2	36.2
Prop In Lane	1.00		0.24	1.00		0.52	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	257	226	228	360	221	213	464	2466	879	363	1114	593
V/C Ratio(X)	0.77	0.70	0.71	1.50	0.81	0.83	0.04	0.35	0.30	1.74	0.97	0.97
Avail Cap(c_a), veh/h	392	379	382	360	305	294	464	2466	879	363	1123	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	54.5	50.2	50.3	55.7	51.1	51.3	33.2	19.3	14.3	47.4	20.2	20.2
Incr Delay (d2), s/veh	2.2	1.5	1.5	236.6	5.9	8.4	0.0	0.4	0.9	343.0	19.8	29.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	4.6	4.8	11.5	5.6	5.7	0.4	5.1	4.1	22.0	11.6	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	51.6	51.8	292.3	57.1	59.7	33.2	19.7	15.2	390.4	40.0	49.4
LnGrp LOS	E	D	D	F	E	E	C	B	B	F	D	D
Approach Vol, veh/h		518			895			1156			2289	
Approach Delay, s/veh		53.6			199.5			18.9			138.9	
Approach LOS		D			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	64.4	15.0	21.6	37.7	45.7	15.3	21.3
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	47.6	8.6	25.6	20.6	39.6	13.6	20.6
Max Q Clear Time (g_c+I1), s	14.6	14.7	10.6	12.4	3.0	38.2	8.8	14.1
Green Ext Time (p_c), s	0.0	8.4	0.0	1.0	0.0	1.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	112.4
HCM 6th LOS	F

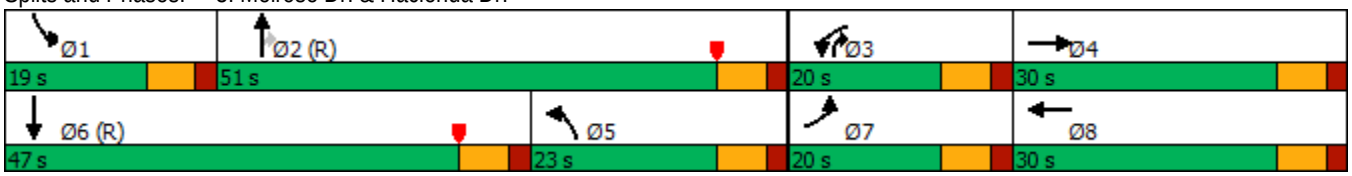
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	283	64	369	229	124	99	669	365	406	630	175
Future Volume (vph)	185	283	64	369	229	124	99	669	365	406	630	175
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	20.0	30.0		20.0	30.0		23.0	51.0	20.0	19.0	47.0	
Total Split (%)	16.7%	25.0%		16.7%	25.0%		19.2%	42.5%	16.7%	15.8%	39.2%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	None		None	None		Min	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	283	64	369	229	124	99	669	365	406	630	175
Future Volume (veh/h)	185	283	64	369	229	124	99	669	365	406	630	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	304	63	397	246	129	106	719	392	437	677	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	374	76	483	340	172	649	2340	879	363	820	193
Arrive On Green	0.07	0.13	0.13	0.10	0.15	0.15	0.36	0.46	0.46	0.21	0.40	0.40
Sat Flow, veh/h	3456	2938	601	5023	2282	1157	1781	5106	1585	3456	4126	973
Grp Volume(v), veh/h	199	182	185	397	190	185	106	719	392	437	557	282
Grp Sat Flow(s),veh/h/ln	1728	1777	1762	1674	1777	1662	1781	1702	1585	1728	1702	1695
Q Serve(g_s), s	6.8	12.0	12.3	9.3	12.2	12.8	4.8	10.7	17.6	12.6	17.6	18.0
Cycle Q Clear(g_c), s	6.8	12.0	12.3	9.3	12.2	12.8	4.8	10.7	17.6	12.6	17.6	18.0
Prop In Lane	1.00		0.34	1.00		0.70	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	257	226	224	483	264	247	649	2340	879	363	676	337
V/C Ratio(X)	0.77	0.81	0.83	0.82	0.72	0.75	0.16	0.31	0.45	1.20	0.82	0.84
Avail Cap(c_a), veh/h	392	349	347	569	349	327	649	2340	879	363	1152	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	54.5	50.9	51.1	53.2	48.7	48.9	25.8	20.5	15.8	47.4	34.3	34.4
Incr Delay (d2), s/veh	2.2	3.8	5.0	5.3	2.0	3.2	0.0	0.3	1.6	114.9	10.7	21.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.6	5.7	4.2	5.6	5.5	2.1	4.3	6.6	10.5	6.9	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	54.7	56.1	58.6	50.7	52.1	25.8	20.8	17.5	162.3	45.0	55.4
LnGrp LOS	E	D	E	E	D	D	C	C	B	F	D	E
Approach Vol, veh/h		566			772			1217			1276	
Approach Delay, s/veh		55.9			55.1			20.2			87.4	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	61.4	17.9	21.7	50.2	30.2	15.3	24.3
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	44.6	13.6	23.6	16.6	40.6	13.6	23.6
Max Q Clear Time (g_c+I1), s	14.6	19.6	11.3	14.3	6.8	20.0	8.8	14.8
Green Ext Time (p_c), s	0.0	7.1	0.2	1.0	0.1	3.8	0.2	1.0

Intersection Summary	
HCM 6th Ctrl Delay	54.9
HCM 6th LOS	D

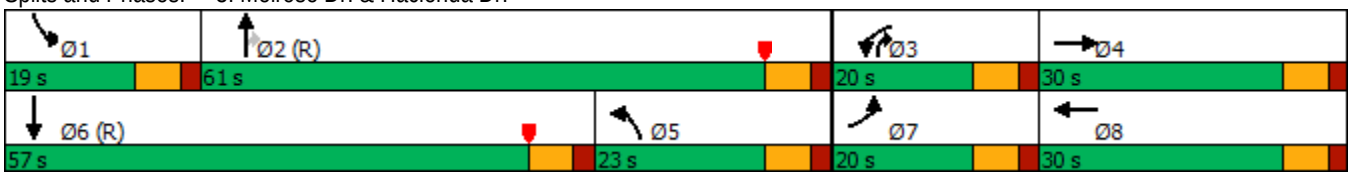
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	371	44	319	270	231	52	1330	365	392	689	188
Future Volume (vph)	320	371	44	319	270	231	52	1330	365	392	689	188
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	20.0	30.0		20.0	30.0		23.0	61.0	20.0	19.0	57.0	
Total Split (%)	15.4%	23.1%		15.4%	23.1%		17.7%	46.9%	15.4%	14.6%	43.8%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	371	44	319	270	231	52	1330	365	392	689	188
Future Volume (veh/h)	320	371	44	319	270	231	52	1330	365	392	689	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	391	41	336	284	221	55	1400	384	413	725	176
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	362	619	65	420	328	247	557	2204	817	335	888	213
Arrive On Green	0.10	0.19	0.19	0.03	0.06	0.06	0.31	0.43	0.43	0.13	0.29	0.29
Sat Flow, veh/h	3456	3248	339	5023	1929	1456	1781	5106	1585	3456	4110	986
Grp Volume(v), veh/h	337	213	219	336	261	244	55	1400	384	413	599	302
Grp Sat Flow(s),veh/h/ln	1728	1777	1809	1674	1777	1608	1781	1702	1585	1728	1702	1693
Q Serve(g_s), s	12.6	14.3	14.5	8.6	18.9	19.6	2.8	27.9	20.1	12.6	21.3	21.7
Cycle Q Clear(g_c), s	12.6	14.3	14.5	8.6	18.9	19.6	2.8	27.9	20.1	12.6	21.3	21.7
Prop In Lane	1.00		0.19	1.00		0.91	1.00		1.00	1.00		0.58
Lane Grp Cap(c), veh/h	362	339	345	420	302	273	557	2204	817	335	735	366
V/C Ratio(X)	0.93	0.63	0.63	0.80	0.86	0.89	0.10	0.64	0.47	1.23	0.81	0.83
Avail Cap(c_a), veh/h	362	339	345	526	323	292	557	2204	817	335	1325	659
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.7	48.4	48.4	62.1	59.9	60.2	31.7	28.9	20.1	56.6	43.9	44.1
Incr Delay (d2), s/veh	30.1	2.8	2.9	4.3	15.4	21.0	0.0	1.4	1.9	127.2	9.2	18.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	6.6	6.8	4.0	10.4	10.1	1.2	11.6	7.8	11.2	9.5	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.9	51.2	51.3	66.4	75.3	81.1	31.7	30.3	22.1	183.8	53.1	62.1
LnGrp LOS	F	D	D	E	E	F	C	C	C	F	D	E
Approach Vol, veh/h		769			841			1839			1314	
Approach Delay, s/veh		67.3			73.4			28.7			96.3	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	62.5	17.3	31.2	47.1	34.5	20.0	28.5
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	54.6	13.6	23.6	16.6	50.6	13.6	23.6
Max Q Clear Time (g_c+I1), s	14.6	29.9	10.6	16.5	4.8	23.7	14.6	21.6
Green Ext Time (p_c), s	0.0	13.5	0.2	1.0	0.0	4.4	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	61.5
HCM 6th LOS	E

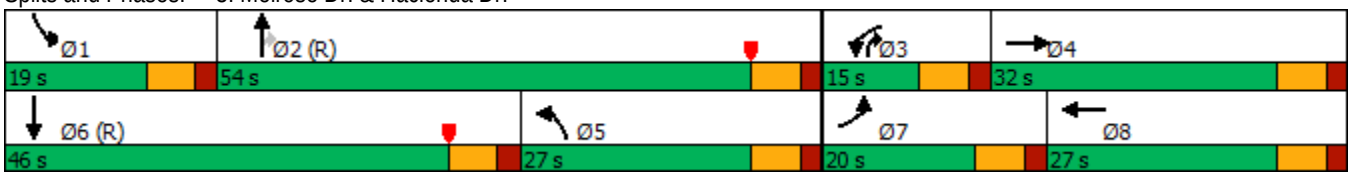
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	263	42	512	247	90	19	852	262	593	1497	120
Future Volume (vph)	187	263	42	512	247	90	19	852	262	593	1497	120
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	20.0	32.0		15.0	27.0		27.0	54.0	15.0	19.0	46.0	
Total Split (%)	16.7%	26.7%		12.5%	22.5%		22.5%	45.0%	12.5%	15.8%	38.3%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	None		None	None		Min	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	263	42	512	247	90	19	852	262	593	1497	120
Future Volume (veh/h)	187	263	42	512	247	90	19	852	262	593	1497	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	280	39	545	263	92	20	906	279	631	1593	102
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	399	55	360	323	110	459	2466	879	363	1618	104
Arrive On Green	0.07	0.13	0.13	0.07	0.12	0.12	0.26	0.48	0.48	0.21	0.66	0.66
Sat Flow, veh/h	3456	3137	432	5023	2599	888	1781	5106	1585	3456	4904	314
Grp Volume(v), veh/h	199	157	162	545	178	177	20	906	279	631	1105	590
Grp Sat Flow(s),veh/h/ln	1728	1777	1793	1674	1777	1711	1781	1702	1585	1728	1702	1814
Q Serve(g_s), s	6.8	10.2	10.4	8.6	11.7	12.1	1.0	13.4	11.4	12.6	37.8	37.9
Cycle Q Clear(g_c), s	6.8	10.2	10.4	8.6	11.7	12.1	1.0	13.4	11.4	12.6	37.8	37.9
Prop In Lane	1.00		0.24	1.00		0.52	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	257	226	228	360	221	213	459	2466	879	363	1123	599
V/C Ratio(X)	0.77	0.70	0.71	1.51	0.81	0.83	0.04	0.37	0.32	1.74	0.98	0.98
Avail Cap(c_a), veh/h	392	379	382	360	305	294	459	2466	879	363	1123	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	54.5	50.2	50.3	55.7	51.1	51.3	33.4	19.5	14.4	47.4	20.1	20.1
Incr Delay (d2), s/veh	2.2	1.5	1.5	242.6	5.9	8.4	0.0	0.4	0.9	343.0	22.2	31.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	4.6	4.8	11.7	5.6	5.7	0.4	5.4	4.3	22.0	12.2	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	51.6	51.8	298.3	57.1	59.7	33.4	19.9	15.4	390.4	42.3	51.9
LnGrp LOS	E	D	D	F	E	E	C	B	B	F	D	D
Approach Vol, veh/h		518			900			1205			2326	
Approach Delay, s/veh		53.6			203.7			19.1			139.2	
Approach LOS		D			F			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	64.4	15.0	21.6	37.4	46.0	15.3	21.3
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	47.6	8.6	25.6	20.6	39.6	13.6	20.6
Max Q Clear Time (g_c+I1), s	14.6	15.4	10.6	12.4	3.0	39.9	8.8	14.1
Green Ext Time (p_c), s	0.0	8.9	0.0	1.0	0.0	0.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	112.7
HCM 6th LOS	F

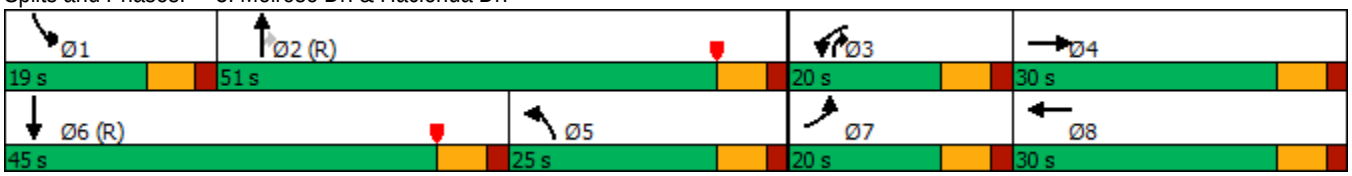
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	283	64	375	229	124	99	704	368	406	666	175
Future Volume (vph)	185	283	64	375	229	124	99	704	368	406	666	175
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	20.0	30.0		20.0	30.0		25.0	51.0	20.0	19.0	45.0	
Total Split (%)	16.7%	25.0%		16.7%	25.0%		20.8%	42.5%	16.7%	15.8%	37.5%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	None		None	None		Min	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	283	64	375	229	124	99	704	368	406	666	175
Future Volume (veh/h)	185	283	64	375	229	124	99	704	368	406	666	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	304	63	403	246	129	106	757	396	437	716	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	374	76	489	342	174	636	2335	879	363	857	192
Arrive On Green	0.07	0.13	0.13	0.10	0.15	0.15	0.36	0.46	0.46	0.21	0.41	0.41
Sat Flow, veh/h	3456	2938	601	5023	2282	1157	1781	5106	1585	3456	4173	933
Grp Volume(v), veh/h	199	182	185	403	190	185	106	757	396	437	582	296
Grp Sat Flow(s),veh/h/ln	1728	1777	1762	1674	1777	1662	1781	1702	1585	1728	1702	1702
Q Serve(g_s), s	6.8	12.0	12.3	9.4	12.2	12.8	4.9	11.3	17.8	12.6	18.4	18.8
Cycle Q Clear(g_c), s	6.8	12.0	12.3	9.4	12.2	12.8	4.9	11.3	17.8	12.6	18.4	18.8
Prop In Lane	1.00		0.34	1.00		0.70	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	257	226	224	489	266	249	636	2335	879	363	699	350
V/C Ratio(X)	0.77	0.81	0.83	0.82	0.71	0.74	0.17	0.32	0.45	1.20	0.83	0.84
Avail Cap(c_a), veh/h	392	349	347	569	349	327	636	2335	879	363	1095	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	54.5	50.9	51.1	53.2	48.5	48.8	26.4	20.8	15.9	47.4	33.5	33.6
Incr Delay (d2), s/veh	2.2	3.8	5.0	5.6	2.0	3.1	0.0	0.4	1.7	114.9	11.0	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	5.6	5.7	4.2	5.6	5.5	2.1	4.6	6.7	10.5	7.2	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	54.7	56.1	58.7	50.5	51.9	26.4	21.1	17.5	162.3	44.5	54.7
LnGrp LOS	E	D	E	E	D	D	C	C	B	F	D	D
Approach Vol, veh/h		566			778			1259			1315	
Approach Delay, s/veh		55.9			55.1			20.4			85.9	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	61.3	18.1	21.7	49.2	31.1	15.3	24.4
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	44.6	13.6	23.6	18.6	38.6	13.6	23.6
Max Q Clear Time (g_c+I1), s	14.6	19.8	11.4	14.3	6.9	20.8	8.8	14.8
Green Ext Time (p_c), s	0.0	7.4	0.2	1.0	0.1	3.9	0.2	1.0

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

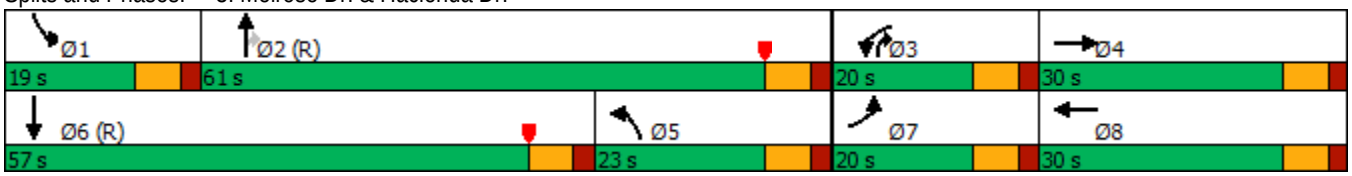
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	371	44	330	270	231	52	1399	370	392	761	188
Future Volume (vph)	320	371	44	330	270	231	52	1399	370	392	761	188
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	20.0	30.0		20.0	30.0		23.0	61.0	20.0	19.0	57.0	
Total Split (%)	15.4%	23.1%		15.4%	23.1%		17.7%	46.9%	15.4%	14.6%	43.8%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	371	44	330	270	231	52	1399	370	392	761	188
Future Volume (veh/h)	320	371	44	330	270	231	52	1399	370	392	761	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	391	41	347	284	221	55	1473	389	413	801	176
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	362	613	64	431	328	247	541	2204	820	335	943	205
Arrive On Green	0.10	0.19	0.19	0.03	0.06	0.06	0.30	0.43	0.43	0.19	0.45	0.45
Sat Flow, veh/h	3456	3248	339	5023	1929	1456	1781	5106	1585	3456	4195	915
Grp Volume(v), veh/h	337	213	219	347	261	244	55	1473	389	413	649	328
Grp Sat Flow(s),veh/h/ln	1728	1777	1809	1674	1777	1608	1781	1702	1585	1728	1702	1706
Q Serve(g_s), s	12.6	14.4	14.5	8.9	18.9	19.6	2.9	30.0	20.4	12.6	22.0	22.4
Cycle Q Clear(g_c), s	12.6	14.4	14.5	8.9	18.9	19.6	2.9	30.0	20.4	12.6	22.0	22.4
Prop In Lane	1.00		0.19	1.00		0.91	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	362	335	341	431	302	273	541	2204	820	335	765	383
V/C Ratio(X)	0.93	0.64	0.64	0.80	0.86	0.89	0.10	0.67	0.47	1.23	0.85	0.86
Avail Cap(c_a), veh/h	362	335	341	526	323	292	541	2204	820	335	1325	664
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	57.7	48.6	48.7	62.1	59.9	60.2	32.5	29.5	20.1	52.4	33.8	33.9
Incr Delay (d2), s/veh	30.1	3.0	3.2	4.8	15.4	21.0	0.0	1.6	2.0	127.2	10.8	20.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	6.7	6.9	4.2	10.4	10.1	1.3	12.5	7.9	10.8	8.5	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.9	51.6	51.8	66.9	75.3	81.1	32.5	31.1	22.0	179.6	44.6	54.2
LnGrp LOS	F	D	D	E	E	F	C	C	C	F	D	D
Approach Vol, veh/h		769			852			1917			1390	
Approach Delay, s/veh		67.6			73.5			29.3			87.0	
Approach LOS		E			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	62.5	17.6	30.9	45.9	35.6	20.0	28.5
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	54.6	13.6	23.6	16.6	50.6	13.6	23.6
Max Q Clear Time (g_c+I1), s	14.6	32.0	10.9	16.5	4.9	24.4	14.6	21.6
Green Ext Time (p_c), s	0.0	13.5	0.2	1.0	0.0	4.8	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	59.2
HCM 6th LOS	E

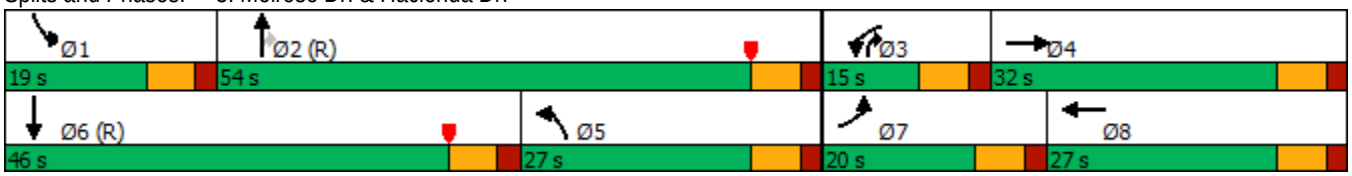
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	303	55	644	299	115	44	987	323	735	1631	279
Future Volume (vph)	255	303	55	644	299	115	44	987	323	735	1631	279
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	20.0	32.0		15.0	27.0		27.0	54.0	15.0	19.0	46.0	
Total Split (%)	16.7%	26.7%		12.5%	22.5%		22.5%	45.0%	12.5%	15.8%	38.3%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	None		None	None		Min	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 107 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	303	55	644	299	115	44	987	323	735	1631	279
Future Volume (veh/h)	255	303	55	644	299	115	44	987	323	735	1631	279
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	271	322	53	685	318	118	47	1050	344	782	1735	252
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	519	84	360	373	136	384	2249	812	363	1487	215
Arrive On Green	0.09	0.17	0.17	0.07	0.15	0.15	0.22	0.44	0.44	0.21	0.66	0.66
Sat Flow, veh/h	3456	3059	498	5023	2551	929	1781	5106	1585	3456	4507	651
Grp Volume(v), veh/h	271	186	189	685	220	216	47	1050	344	782	1308	679
Grp Sat Flow(s),veh/h/ln	1728	1777	1781	1674	1777	1703	1781	1702	1585	1728	1702	1753
Q Serve(g_s), s	9.2	11.6	11.9	8.6	14.4	14.9	2.6	17.4	16.2	12.6	39.6	39.6
Cycle Q Clear(g_c), s	9.2	11.6	11.9	8.6	14.4	14.9	2.6	17.4	16.2	12.6	39.6	39.6
Prop In Lane	1.00		0.28	1.00		0.55	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	328	301	302	360	260	249	384	2249	812	363	1123	579
V/C Ratio(X)	0.83	0.62	0.63	1.90	0.84	0.87	0.12	0.47	0.42	2.16	1.16	1.17
Avail Cap(c_a), veh/h	392	379	380	360	305	292	384	2249	812	363	1123	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	53.3	46.2	46.3	55.7	49.9	50.1	37.9	23.6	18.2	47.4	20.4	20.4
Incr Delay (d2), s/veh	10.1	0.8	0.8	414.0	11.7	14.9	0.1	0.7	1.6	527.7	82.6	93.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	5.2	5.3	17.4	7.3	7.4	1.1	7.1	6.2	31.3	22.1	24.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.4	47.0	47.1	469.7	61.6	65.0	38.0	24.3	19.9	575.1	103.0	113.8
LnGrp LOS	E	D	D	F	E	E	D	C	B	F	F	F
Approach Vol, veh/h		646			1121			1441			2769	
Approach Delay, s/veh		53.9			311.6			23.7			239.0	
Approach LOS		D			F			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	59.3	15.0	26.7	32.3	46.0	17.8	24.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	47.6	8.6	25.6	20.6	39.6	13.6	20.6
Max Q Clear Time (g_c+I1), s	14.6	19.4	10.6	13.9	4.6	41.6	11.2	16.9
Green Ext Time (p_c), s	0.0	10.4	0.0	1.1	0.0	0.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	180.7
HCM 6th LOS	F

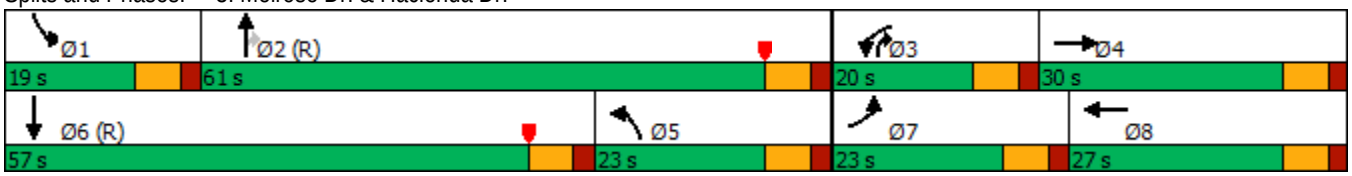
Notes

User approved pedestrian interval to be less than phase max green.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	418	231	437	313	199	99	1282	507	505	1099	347
Future Volume (vph)	491	418	231	437	313	199	99	1282	507	505	1099	347
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA		Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases									2			
Detector Phase	7	4		3	8		5	2	3	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	5.0	5.0	10.0	
Minimum Split (s)	11.4	33.4		11.4	11.4		11.4	28.4	11.4	11.4	28.4	
Total Split (s)	23.0	30.0		20.0	27.0		23.0	61.0	20.0	19.0	57.0	
Total Split (%)	17.7%	23.1%		15.4%	20.8%		17.7%	46.9%	15.4%	14.6%	43.8%	
Yellow Time (s)	4.4	4.4		4.4	4.4		4.4	4.4	4.4	4.4	4.4	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.4	6.4	6.4	6.4	6.4	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Min	None	None	C-Min	

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 3: Melrose Dr. & Hacienda Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	491	418	231	437	313	199	99	1282	507	505	1099	347
Future Volume (veh/h)	491	418	231	437	313	199	99	1282	507	505	1099	347
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	517	440	238	460	329	187	104	1349	534	532	1157	343
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	405	217	526	349	194	344	2145	832	335	1265	375
Arrive On Green	0.13	0.18	0.18	0.03	0.05	0.05	0.19	0.42	0.42	0.19	0.65	0.65
Sat Flow, veh/h	3456	2234	1198	5023	2202	1225	1781	5106	1585	3456	3908	1158
Grp Volume(v), veh/h	517	349	329	460	264	252	104	1349	534	532	1008	492
Grp Sat Flow(s),veh/h/ln	1728	1777	1655	1674	1777	1650	1781	1702	1585	1728	1702	1662
Q Serve(g_s), s	16.6	23.6	23.6	11.9	19.3	19.8	6.5	27.1	31.4	12.6	33.3	33.3
Cycle Q Clear(g_c), s	16.6	23.6	23.6	11.9	19.3	19.8	6.5	27.1	31.4	12.6	33.3	33.3
Prop In Lane	1.00		0.72	1.00		0.74	1.00		1.00	1.00		0.70
Lane Grp Cap(c), veh/h	441	323	300	526	282	261	344	2145	832	335	1102	538
V/C Ratio(X)	1.17	1.08	1.09	0.88	0.94	0.96	0.30	0.63	0.64	1.59	0.91	0.91
Avail Cap(c_a), veh/h	441	323	300	526	282	261	344	2145	832	335	1325	647
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	56.7	53.2	53.2	61.9	61.0	61.2	44.9	29.7	22.2	52.4	21.4	21.4
Incr Delay (d2), s/veh	99.0	74.0	79.6	11.5	30.7	38.2	0.2	1.4	3.8	277.4	12.1	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	17.1	16.4	5.9	11.6	11.6	2.9	11.3	12.4	17.8	10.4	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	155.7	127.2	132.8	73.4	91.6	99.4	45.1	31.1	25.9	329.8	33.4	42.4
LnGrp LOS	F	F	F	E	F	F	D	C	C	F	C	D
Approach Vol, veh/h		1195			976			1987			2032	
Approach Delay, s/veh		141.0			85.1			30.5			113.2	
Approach LOS		F			F			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	61.0	20.0	30.0	31.5	48.5	23.0	27.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	12.6	54.6	13.6	23.6	16.6	50.6	16.6	20.6
Max Q Clear Time (g_c+I1), s	14.6	33.4	13.9	25.6	8.5	35.3	18.6	21.8
Green Ext Time (p_c), s	0.0	12.6	0.0	0.0	0.1	6.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	87.6
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.