

### LETTER OF TRANSMITTAL

TO: PACIFIC DEVELOPMENT PARTNERS, LLC. DATE: August 28, 2014  
 30220 Rancho Viejo Road, Suite B JOB NO.: 0293-2013-01  
 San Juan Capistrano, CA 92675 SUBJECT: Centerpointe 78 Traffic Impact Analysis,  
 City of Escondido (Revised 8.28.14)

ATTN: Mr. Lars Anderson

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REMARKS:

Attached is the REVISED Centerpointe 78 Traffic Impact Analysis, City of Escondido (8.8.14)

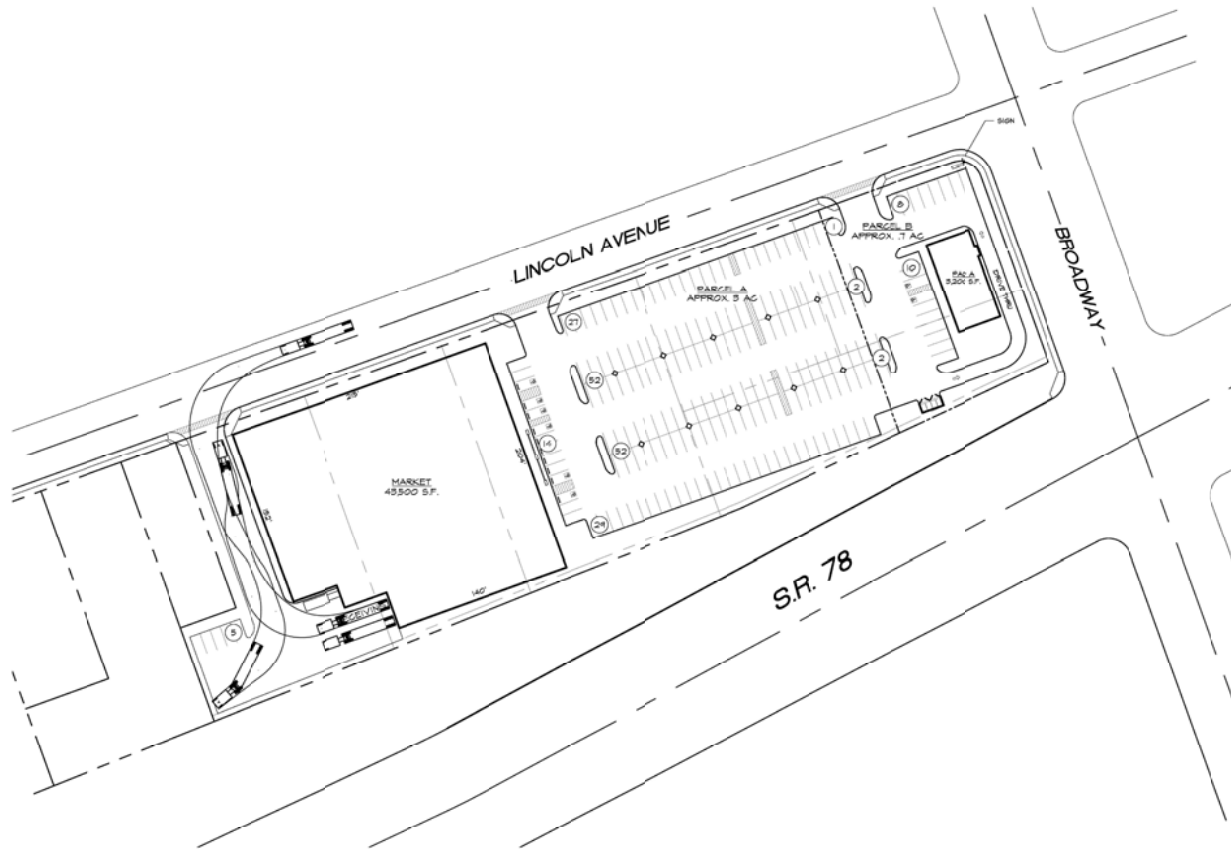
Please call me at (949) 474-0809 extension 202 if you have any questions.

BY:   
 Bryan Estrada, PTP  
 Senior Transportation Planner

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# CENTERPOINTE 78 TRAFFIC IMPACT ANALYSIS (Revised 08/28/14) City of Escondido, California



August 28, 2014

Mr. Lars Anderson  
PACIFIC DEVELOPMENT PARTNERS, LLC.  
30220 Rancho Viejo Road, Suite B  
San Juan Capistrano, CA 92675

**Subject: Centerpointe 78 Traffic Impact Analysis (Revised 8/28/14), City of Escondido**

Dear Mr. Anderson:

RK ENGINEERING GROUP, INC. (RK) is pleased to submit this traffic impact analysis for the proposed Centerpointe 78 commercial development. The project is located at 990 North Broadway, on the northwest corner of North Broadway and Lincoln Parkway, in the City of Escondido. The project would consist of a 43,500 square feet Supermarket and a 3,200 square foot fast food restaurant.

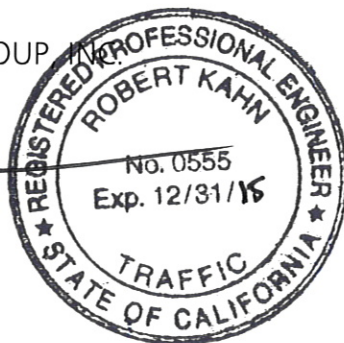
This report provides a summary of the findings, analysis procedures, and evaluation of the proposed project, with respect to on-site and off-site traffic impacts, pursuant to the City of Escondido and Caltrans requirements. The Findings and Recommendations are provided in Section 10.0 of this report.

RK Engineering Group, Inc. is pleased to assist Pacific Development Partners, LLC. on the Centerpointe 78 development and looks forward to working with you again in the future. If you have any questions regarding this study, or would like further review, please do not hesitate to call us at (949) 474-0809.

Sincerely,  
RK ENGINEERING GROUP

*Robert Kahn*

Robert Kahn, P.E.  
Principal



*Bryan Estrada*

Bryan Estrada, PTP  
Senior Transportation Planner

Attachments

**CENTERPOINTE 78  
TRAFFIC IMPACT ANALYSIS (REVISED 8/28/14)  
City of Escondido, California**

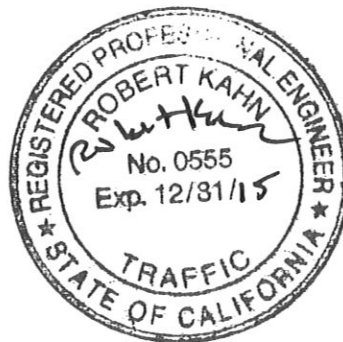
**Prepared for:**

PACIFIC DEVELOPMENT PARTNERS  
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**Robert Kahn, P.E.  
Bryan Estrada, PTP**



**August 28, 2014**

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# **1.0 Introduction**

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## **A. Purpose of Report and Study Objectives**

The purpose of this traffic impact analysis is to evaluate the Centerpointe 78 commercial development from a traffic circulation standpoint. The proposed development is located within the City of Escondido.

Study objectives include:

1. Evaluate Existing traffic conditions in the vicinity of the site, without and with project traffic.
2. Evaluate Project Opening Year (2016) traffic conditions, without and with project traffic.
3. Evaluate Horizon Year (2035) traffic conditions, without and with project traffic.
4. Review project access, on-site circulation, and queuing.
5. Determine on-site and off-site improvements, and system management actions, needed to achieve City of Escondido level of service requirements.
6. Identify any significant impacts as required under the California Environmental Quality Act (CEQA).

Prior to initiating this study, a Scoping Agreement was created in collaboration with the City of Escondido. A copy of the Scoping Agreement is included in Appendix P.

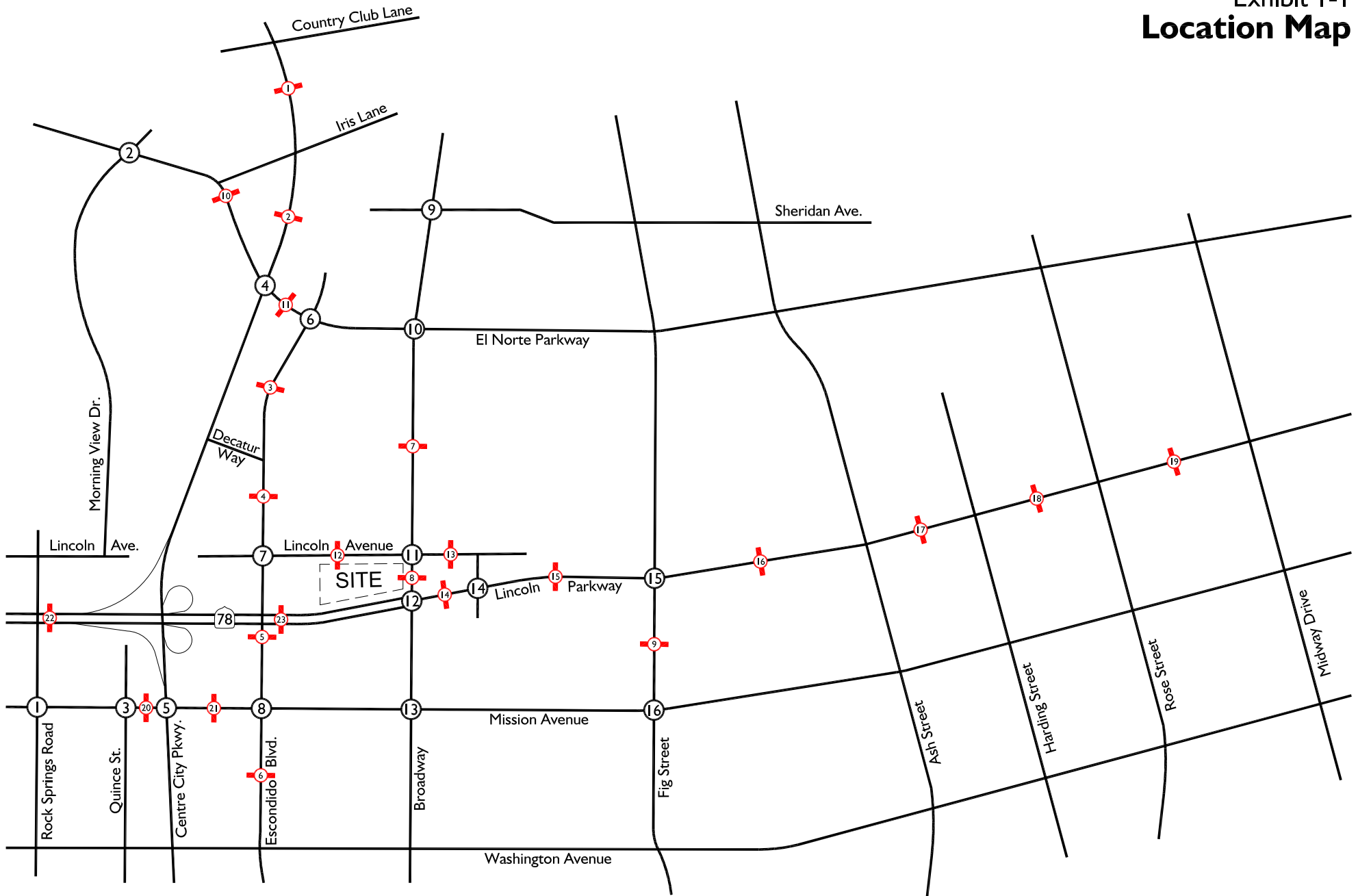
## **B. Site Location**

The project is located on the northwest corner of North Broadway and Lincoln Parkway in the City of Escondido. Exhibit 1-1 illustrates the site location and traffic analysis study area. The site is currently vacant and was previously occupied by a car dealership. According to the City of Escondido General Plan, the site is currently designated for general commercial use and the proposed project would conform to the current general plan land use designation.

## **C. Development Project Description**

The proposed Centerpointe 78 development would consist of a 43,500 square foot supermarket and a 3,200 square foot fast-food restaurant with a drive-thru. The project would have three (3) full access driveways on Lincoln Avenue: two (2) easterly driveways would serve the main commercial portion of the site and one (1) westerly driveway would primarily serve access for delivery trucks to the loading docks. The project is estimated for completion by Year 2016, and has been analyzed in one (1) complete phase. A copy of the project site plan is provided in Exhibit 1-2.

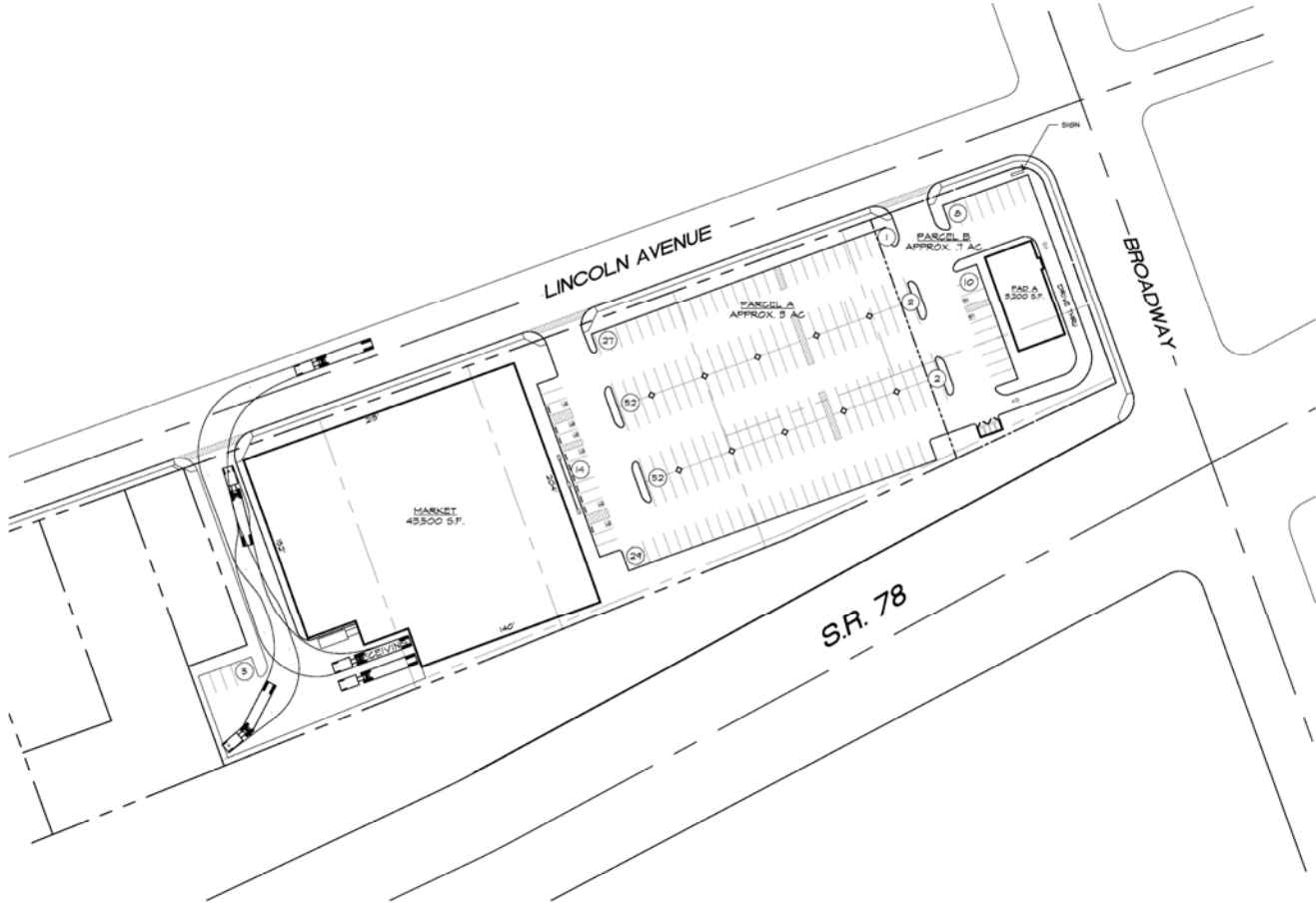
# Exhibit I-1 Location Map



### Legend:

- ① = Study Area Intersection
- ① = Study Area Roadway Segment

Exhibit I-2  
**Site Plan**



## **2.0 Study Area and Analysis Methodology**

The extent of the study area, and the operational analysis methodologies, comply with the City of Escondido, San Diego Association of Governments (SANDAG), and California Department of Transportation (Caltrans) requirements. The traffic analysis study area includes intersections, street segments, freeway ramp meters, and freeway mainlines.

### **A. Study Area Intersections**

The following table lists the sixteen (16) off-site intersections that have been included for analysis within the study area. All project driveways are also included in the intersection operational analysis.

<b>Study Area Intersections</b>	
Rock Springs Road (NS) at	North Broadway (NS) at
1. Mission Avenue (EW)	9. Sheridan Avenue (EW)
Morning View Drive (NS) at	10. El Norte Parkway (EW)
2. El Norte Parkway (EW)	11. Lincoln Avenue (EW)
Quince Street (NS) at	12. SR 78/Lincoln Parkway (EW)
3. Mission Avenue (EW)	13. Mission Avenue (EW)
Centre City Parkway (NS) at	Garrick Way (NS) at
4. El Norte Parkway (EW)	14. Lincoln Parkway (EW)
5. Mission Avenue (EW)	Fig Street (NS) at
Escondido Boulevard (NS) at	15. Lincoln Parkway (EW)
6. El Norte Parkway (EW)	16. Mission Avenue (EW)
7. Lincoln Avenue (EW)	
8. Mission Avenue (EW)	



The methodology used to assess the operations of intersections is Highway Capacity Manual 2010 (HCM 2010). The HCM 2010 methodology expresses the level of service (LOS) at an intersection in terms of delay time for the various intersection approaches. HCM 2010 uses different procedures depending on the type of intersection control (signalized or unsignalized).

## **1. Signalized Intersection Analysis Methodology**

For signalized intersections, the average control delay per vehicle is used to determine the level of service. The LOS analysis for signalized intersections has been performed using optimized signal timing, except for the intersections of Centre City Parkway at El Norte Parkway, North Broadway at El Norte, and North Broadway at SR-78/Lincoln Parkway, where actual timing has been used. HCM 2010 default saturation flow rates have been used for lane capacity. "De facto" right turn lanes are assumed if the distance from the edge of the outside thru-lane is at least 20 feet and parking is prohibited during the peak period. For intersections where pedestrian crossing phases are provided, the minimum green times are typically dependent on pedestrian walk times. Pedestrian walk times have been calculated using the following formula: pedestrian walk time (green walk + red flash don't walk) = (crosswalk distance, in feet) x (walk speed, 3.5 feet per second). For intersections where pedestrian counts were conducted, pedestrian calls are based on total pedestrian crossings.

The level of service for signalized intersections is defined as follows:

LOS	Average Control Delay Per Vehicle (Seconds)
	Signalized
A	0.00 - 10.00
B	10.01 - 20.00
C	20.01 - 35.00
D	35.01 - 55.00
E	55.01 - 80.00
F	>80.01

## 2. Unsignalized Intersections

For unsignalized intersections, the calculation of level of service is dependent on the occurrence of gaps in the traffic flow of the main street. The worst individual movement delay, or movements sharing a single lane, is the controlling factor in determining the intersection level of service. The relationship between the level of service and delay is different than for signalized intersections.

The level of service for unsignalized intersections is defined as follows:

LOS	Average Control Delay Per Vehicle (Seconds)
	Unsignalized
A	0.00 - 10.00
B	10.01 - 15.00
C	15.01 - 25.00
D	25.01 - 35.00
E	35.01 - 50.00
F	>50.01

**B. Study Area Street Segments**

The following table lists the twenty-one (21) street segments that have been included for analysis within the study area:

<b>Study Area Street Segments</b>	
Centre City Pkwy.	El Norte Pkwy.
1. Country Club Lane to Iris Lane	11. Centre City Pkwy. to Escondido Blvd.
2. Iris Lane to El Norte Pkwy.	Lincoln Ave.
Escondido Blvd.	12. Escondido Blvd. to North Broadway
3. El Norte Pkwy. to Decatur Way	13. North Broadway to Garrick Way
4. Decatur Way to Lincoln Ave.	Lincoln Pkwy./ Lincoln Ave.
5. Lincoln Ave. to Mission Ave.	14. North Broadway to Garrick Way
6. Mission Ave. to Washington Ave.	15. Garrick Way to Fig Street
North Broadway	16. Fig Street to Ash Street
7. El Norte Pkwy. to Lincoln Ave.	17. Ash Street to Harding Street
8. Lincoln Ave. to SR-78/Lincoln Pkwy.	18. Harding Street to Rose Street
Fig Street	19. Rose Street to Midway Dr.
9. Lincoln Ave. to Mission Ave.	Mission Ave.
El Norte Pkwy.	20. Quince Street to Centre City Pkwy.
10. Morning View Dr. to Centre City Pkwy.	21. Centre City Pkwy. to Escondido Blvd.

The City of Escondido has designated performance standards for the evaluation of LOS of street segments. The methodology used to assess the operation of street segments is based on the volume to capacity (V/C) of the roadway. The following table shows the LOS standards for street segments based on average daily trip (ADT) thresholds. The daily capacity values are for calculating roadway volume to capacity (V/C) ratios.

<Table shown on following page>

City of Escondido Level of Service Standards Street Segment ADT Thresholds							
Street Classification	Lanes	Cross Sections <sup>1</sup>	Level of Service				
			A	B	C	D	E
Prime Arterial	(8 Lanes)	116/136 (NP)	23,800	37,800	51,800	62,300	70,000
	(6 Lanes)	106/126 (NP)	20,400	32,400	44,400	53,400	60,000
Major Road	(6 Lanes)	90/110 (NP)	17,000	2,700	37,000	44,500	50,000
	(4 Lanes)	82/102 (NP)	12,600	20,000	27,400	32,900	37,000
Collector	(4 Lanes)	64/84 (NP)	11,600	18,500	25,300	30,400	34,200
	(4 Lanes)	(WP)	6,800	10,800	14,800	17,800	20,000
Local Collector	(2 Lanes)	42/66 (NP)	5,100	8,100	11,100	13,400	15,000
		(WP)	3,400	5,400	7,400	8,900	10,000

<sup>1</sup> NP = No Parking, WP = With Parking

The following V/C Ratios are utilized by the City of Escondido for determining Existing and Future Level of Service:

Level of Service	V/C Ratio
A – Less than or equal to	0.00 to 0.34
B – Less than or equal to	0.35 to 0.54
C – Less than or equal to	0.55 to 0.74
D – Less than or equal to	0.75 to 0.89
E – Less than or equal to	0.90 to 1.00
F – Greater than	1.00

### C. Study Area Freeway Ramp Meters

The following table lists the one (1) ramp meter location that has been included for analysis within the study area:

Freeway Ramp Meter	
1.	SR-78 Freeway On-Ramp (From N. Broadway/Lincoln Parkway)

The methodology used to evaluate the operations of freeway ramp meters within the study area is based on Caltrans District 11 Ramp Meter Analysis. Estimated vehicle delay and queue is based on peak hour demand and the meter rate capacity. Ramp meter operational times and service rates are obtained from Caltrans.

The following disclaimer regarding freeway ramp meter analysis, as stated by SANDAG, should be noted: “The ramp metering analysis may lead to grossly understated results for delay and queue length, since important aspects of queue growth are ignored. Also, the draft guidelines method derives average values instead of maximum values for delay and queue length. Utilizing average values instead of maximum values can lead to obscuring important effects, particularly in regard to queue length. Predicting ramp meter delays and queues requires a storage-discharge type of analysis, where a pattern of arriving traffic at the meter is estimated by the analyst, and the discharge, or meter rate, is a somewhat fixed value set by Caltrans for each individual metered ramp.”

**D. Study Area Freeway Mainline Segments**

The following table lists the two (2) freeway mainline segments that have been included for analysis within the study area:

Freeway Mainline Segments	
1.	SR-78 Freeway (I-15 Freeway to Centre City Parkway)
2.	SR-78 Freeway (Centre City Parkway to North Broadway)

The methodology used to assess the operation of freeway mainline segments is based on the HCM 2010 methodology. Basic measures of effectiveness (MOE) for freeway mainline segments are based on density, typically expressed as passenger cars per mile per lane (pc/mi/ln), and volume to capacity (V/C) ratio.

The following table shows LOS criteria for basic freeway segments.

LOS	Maximum Density (pc/mi/ln)	Minimum Speed (mph)	Maximum V/C	Maximum Service Flow Rate (pc/hr/ln)
A	11	65.0	0.30	710
B	18	65.0	0.50	1,170
C	26	64.6	0.71	1,680
D	35	59.7	0.89	2,090
E	45	52.2	1.00	2,350

### E. Acceptable Level of Service and Significant Impacts

Per the City of Escondido, SANDAG, and San Diego Regional Traffic Engineers' Council (SANTEC) requirements, the following table indicates when a project's impact is considered significant and mitigation measures are to be identified. That is, if a project's traffic impact causes the values in this table to be exceeded, it is determined to be a significant project impact. (Mitigation for all identified significant impacts should be provided for any project requiring CEQA analysis.)

Measure of Significant Project Traffic Impacts						
Level of Service With Project	Allowable Change Due to Project Impact					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (Min)
D, E, and F (or ramp meter delays above 15 mins.)	0.01	1	0.02	1	2	2

\* Mitigation measures should also be considered for any segment or intersection operating at LOS F subject to less than significant impacts.

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## **3.0 Existing Conditions**

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### **A. Existing Traffic Controls and Intersection Geometrics**

Exhibit 3-1 identifies the existing roadway conditions for the study area roadways. The number of through traffic lanes for existing roadways and the existing intersection controls are identified.

### **B. General Plan Mobility Plan**

The proposed project is located within Highway 78 / Broadway Target Area, as described in the General Plan. Exhibit 3-2 shows roadway classifications and location of the project within the General Plan Circulation Diagram. Exhibit 3-3 shows the roadway classification profiles for the City of Escondido.

The project is located adjacent to the following roadways:

North Broadway:	Major Road (four-Lane)
Lincoln Avenue:	Local Collector (two-Lane)

### **C. City of Escondido Bikeways System**

As stated in the City's General Plan, the City of Escondido is committed to supporting bicycling as a form of mobility and recreation. The Citywide Bicycle Master Plan serves as a policy document to guide development and maintenance of bicycle facilities throughout the community. The following street in the immediate vicinity of this project is designated as a bikeway in the City's 2010 Bicycle Plan:

North Broadway:	Proposed Class II Lanes
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The City of Escondido General Plan Existing and Planned Bikeways map is provided in Exhibit 3-4.

#### **D. Public Transit Service**

The North County Transit District operates an extensive bus and rail network throughout northern San Diego County and within the City of Escondido. The following bus routes provide regular service within the vicinity of this project:

1. North Broadway: Routes 355, 357, 358, & 359
2. Lincoln Avenue: Route 354
3. Mission Avenue: Route 354

Exhibit 3-5 shows the existing and proposed transit routes in the City of Escondido.

#### **E. Existing Traffic Volumes**

Existing AM, Mid-Day, and PM peak hour traffic volumes for the study area intersections are shown on Exhibit 3-6. These volumes are based upon manual peak hour turning movement counts compiled for RK in 2013. Due to the close proximity of local schools to the project site, special care was taken to ensure that the traffic count times coincided with peak arrival and dismissal times at the schools.

Twenty-four hour two-way average daily traffic (ADT) counts were taken along all study area street segments and mainline segments. The existing ADT counts on the study area roadways are also shown on Exhibit 3-6.

The traffic count worksheets are included in Appendix A. The existing traffic count data is used to establish a baseline condition for the traffic analysis. Several different count dates and times were conducted for this study, in order to capture the peak hours of traffic, particularly near schools. A detailed list of count times and locations has been provided in Appendix A.

## **F. Existing Pedestrian Volumes**

Existing AM, Mid-Day, and PM peak period pedestrian volumes for the study area intersections are shown on Exhibit 3-7. The pedestrian count worksheets are provided in Appendix A. Pedestrian volume is now factored into the level of service analysis for intersections, per the HCM 2010 methodology.

## **G. Existing Level of Service**

### **1. Existing Intersection Level of Service**

Existing intersection level of service calculations are shown in Table 3-1 and are based upon manual AM, Mid-Day and PM peak hour turning movement counts compiled for RK in 2013.

For existing traffic conditions, all study area intersections are currently operating at acceptable levels of service during peak hours, with the exception of the following intersections:

Intersection #4: Centre City Parkway at El Norte Parkway – LOS E (PM)

Intersection #6: Escondido Boulevard at El Norte Parkway – LOS F (AM & PM)

Intersection #11: North Broadway at Lincoln Avenue – LOS F (AM, MID, & PM)

The HCM 2010 calculation worksheets for Existing conditions are provided in Appendix B.

### **2. Existing Street Segment Level of Service**

The street segment level of service calculations for Existing Conditions are shown in Table 3-2 and are based upon measured ADT counts compiled by RK in 2013.

For existing traffic conditions, all study area roadway segments are currently operating at acceptable levels of service, with the exception of the following segments:

Segment #9: Fig Street, Lincoln Avenue to Mission Avenue (LOS E)<sup>1</sup>

Segment #17: Lincoln Avenue, Ash Street to Harding Street (LOS F)<sup>1</sup>

Segment #18: Lincoln Avenue, Harding Street to Rose Street (LOS F)<sup>1</sup>

Segment #19: Lincoln Avenue, Rose Street to Midway Drive (LOS E)

<sup>1</sup>Street segment is not built-out to General Plan Classification. A lesser capacity has been assumed in the analysis to reflect existing conditions.

Due to the generalized nature of ADT capacities, the roadway capacity values are typically viewed as general rather than absolute guides for estimating levels of service and sizing the future roadway system. A more detailed intersection evaluation (using peak hour data) is carried out for this project and represents a more accurate indication of actual traffic operations.

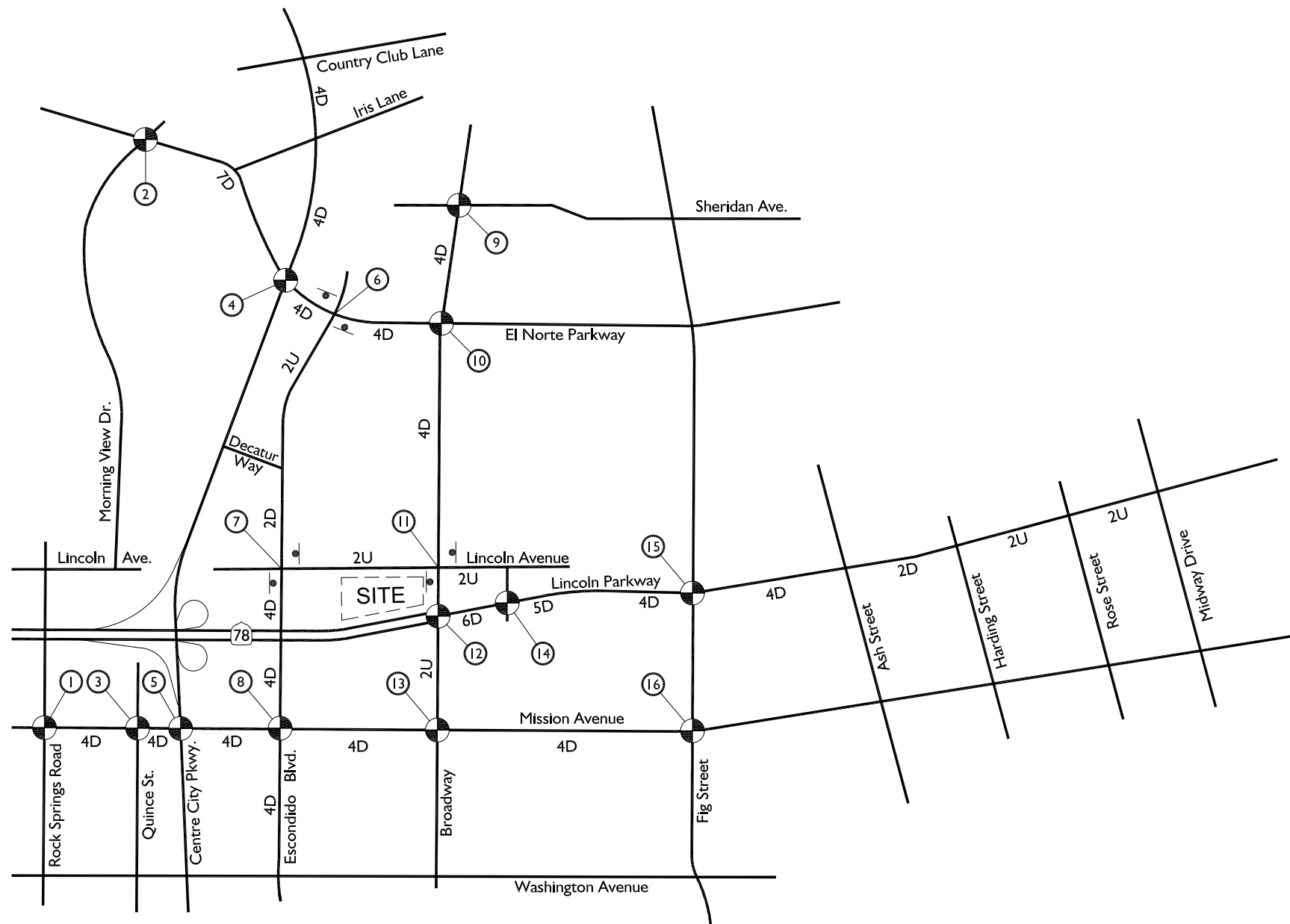
### **3. Existing Ramp Meter Analysis**

The ramp meter analysis for existing conditions is shown in Table 3-3 and is based upon existing traffic volumes measured by RK in 2013. Ramp meter rates have been provided by Caltrans. The westbound on ramp meter to the SR-78 from Lincoln Parkway only operates during the hours of 6:30 AM to 9:30 AM, and therefore only the AM peak hour is analyzed. Based upon the existing ramp meter analysis, the study area ramp meter is currently has a less than 15 minute delay and is considered to be operating acceptably.

### **4. Existing Freeway Mainline Analysis**

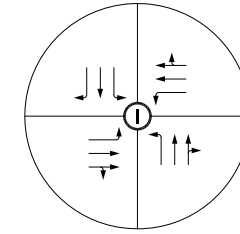
The freeway mainline analysis for existing conditions is shown in Table 3-4 and is based upon existing traffic volumes measured by RK in 2013. Levels of service thresholds are based upon Caltrans Traffic Impact Study Guidelines Basic Freeway Segment Level of Service Definitions. As shown in Table 3-4, all freeway mainlines are currently operating at acceptable levels of service.

# Existing Lane Geometry and Traffic Controls

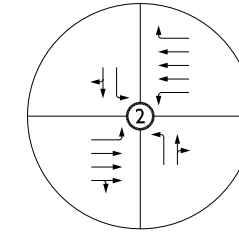


**Legend:**

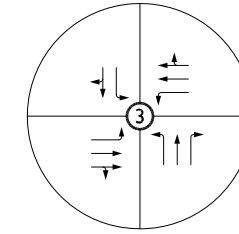
- = Traffic Signal
- = Stop Sign
- 4 = Number of Lanes
- D = Divided
- U = Undivided
- = RTO = Right Turn Overlap
- = Free Right Turn
- = Defacto Right Turn



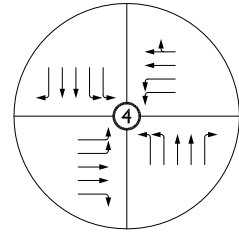
Rock Springs Road (NS) at Mission Avenue (EW)



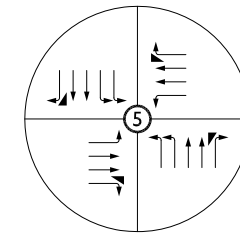
Morning View Drive (NS) at El Norte Parkway (EW)



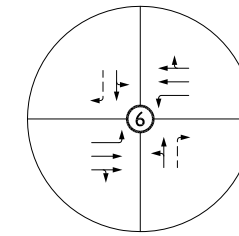
Quince Street (NS) at Mission Avenue (EW)



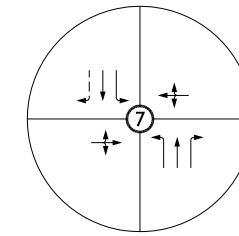
Centre City Parkway (NS) at El Norte Parkway (EW)



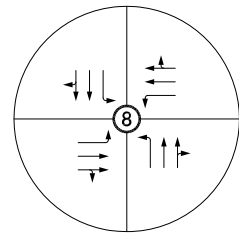
Centre City Parkway (NS) at Mission Avenue (EW)



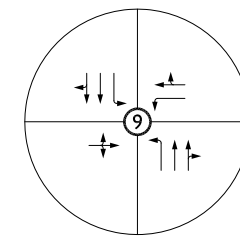
Escondido Boulevard (NS) at El Norte Parkway (EW)



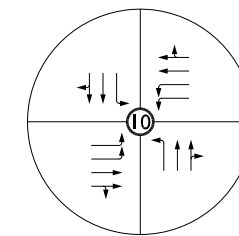
Escondido Boulevard (NS) at Lincoln Avenue (EW)



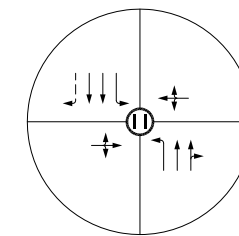
Escondido Boulevard (NS) at Mission Avenue (EW)



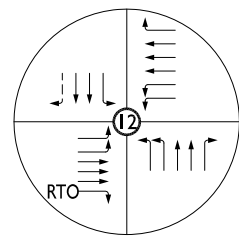
North Broadway (NS) at Sheridan Avenue (EW)



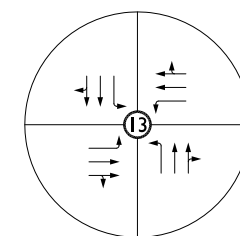
North Broadway (NS) at El Norte Parkway (EW)



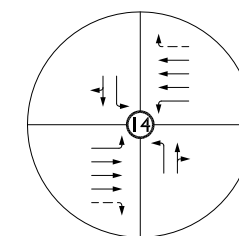
North Broadway (NS) at Lincoln Avenue (EW)



North Broadway (NS) at SR 78/Lincoln Parkway (EW)



North Broadway (NS) at Mission Avenue (EW)



Garrick Way (NS) at Lincoln Parkway (EW)

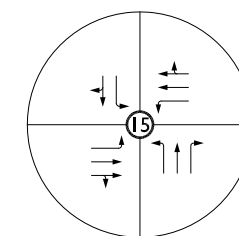


Fig Street (NS) at Lincoln Parkway (EW)

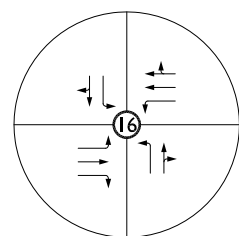
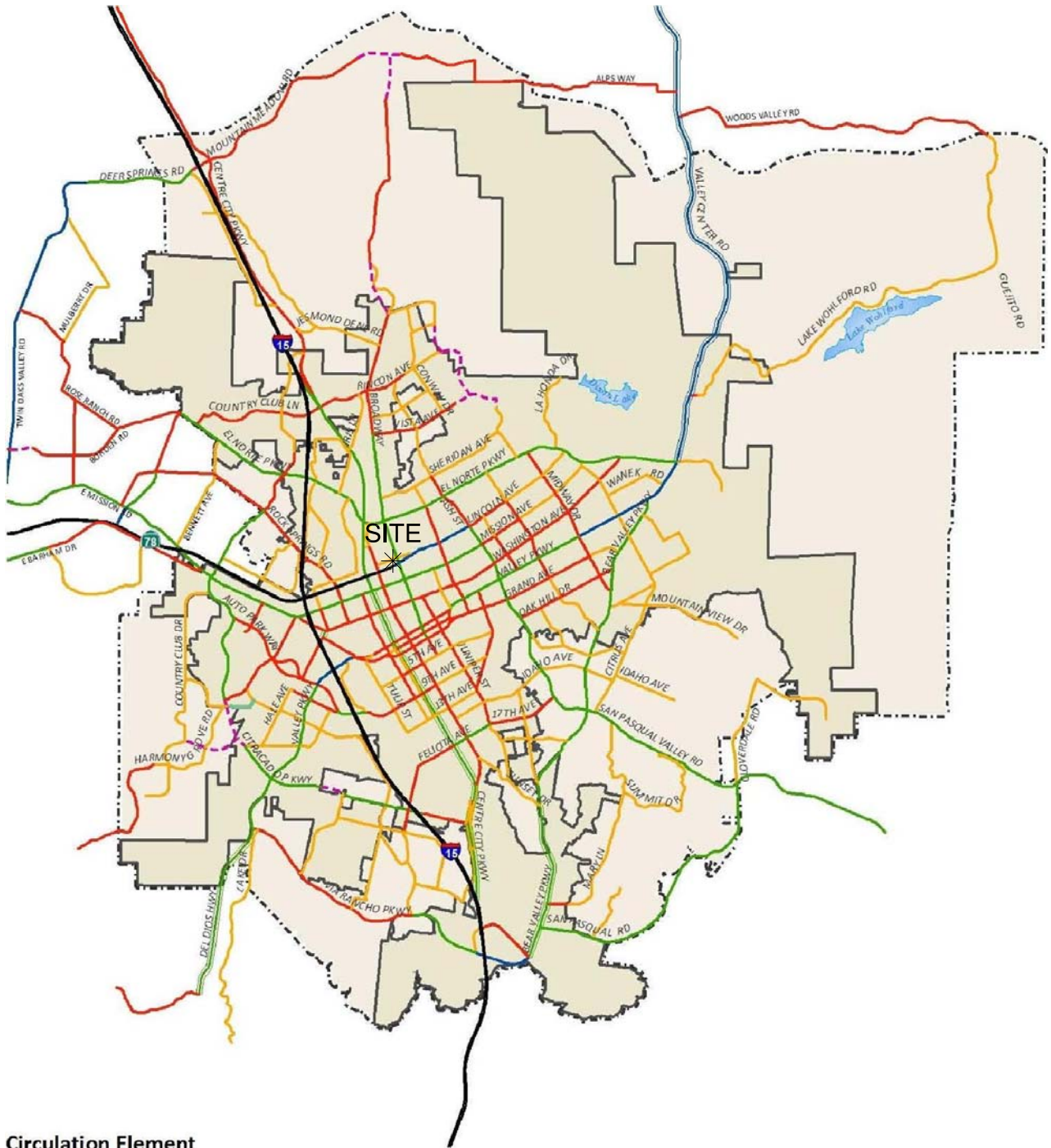


Fig Street (NS) at Mission Avenue (EW)

# Exhibit 3-2 City of Escondido General Plan Circulation Diagram



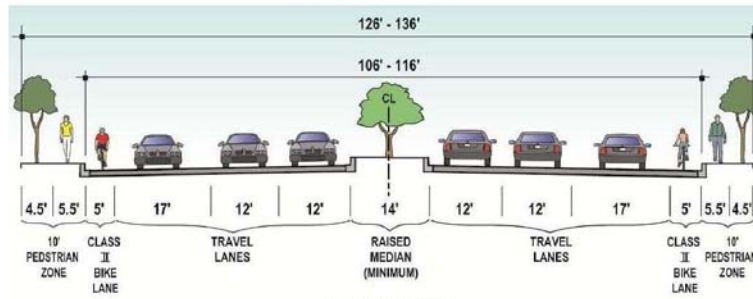
**Circulation Element**

- |  |  |
|--|--|
|  Freeway              |  Major Road       |
|  Super Prime Arterial |  Collector        |
|  Prime Arterial       |  Local Collector  |
|  Super Major Road     |  Future Alignment |

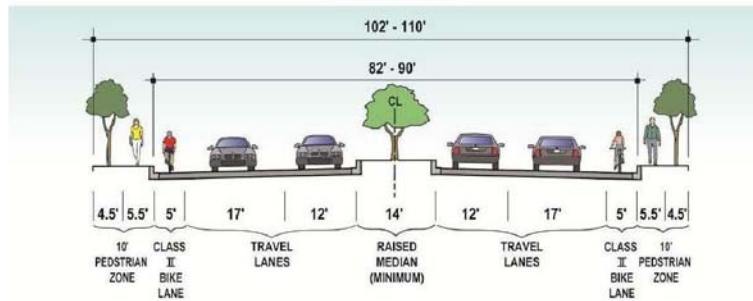


# Exhibit 3-3 City of Escondido General Plan Roadway Profiles

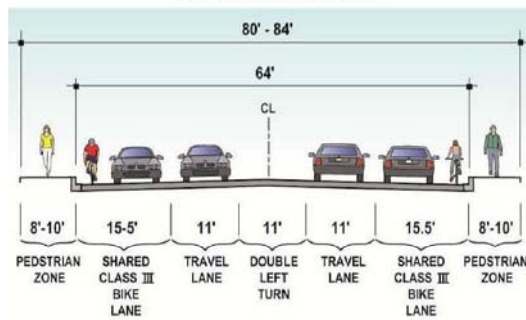
## PRIME ARTERIAL



## MAJOR ROAD

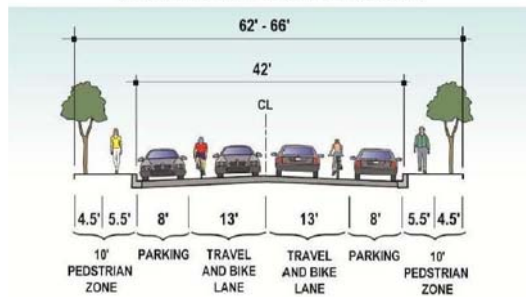


## COLLECTOR STREET



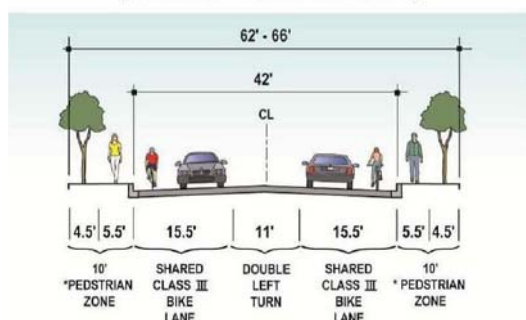
## LOCAL COLLECTOR

(PARKING, NO LEFT TURN LANE PROVIDED)

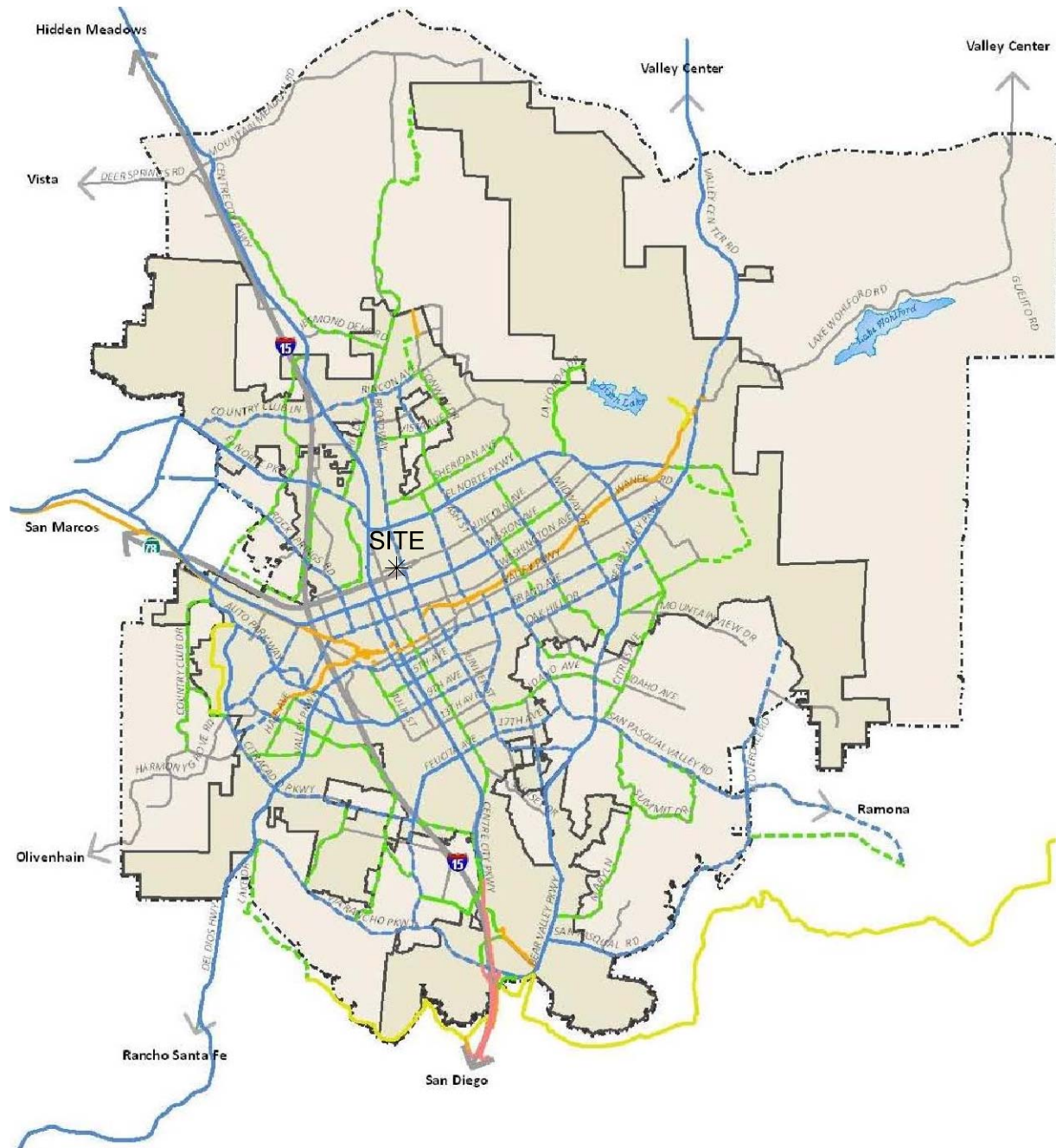


## LOCAL COLLECTOR

(NO PARKING LEFT TURN LANE PROVIDED)



# Exhibit 3-4 City of Escondido General Plan Existing and Planned Bikeways

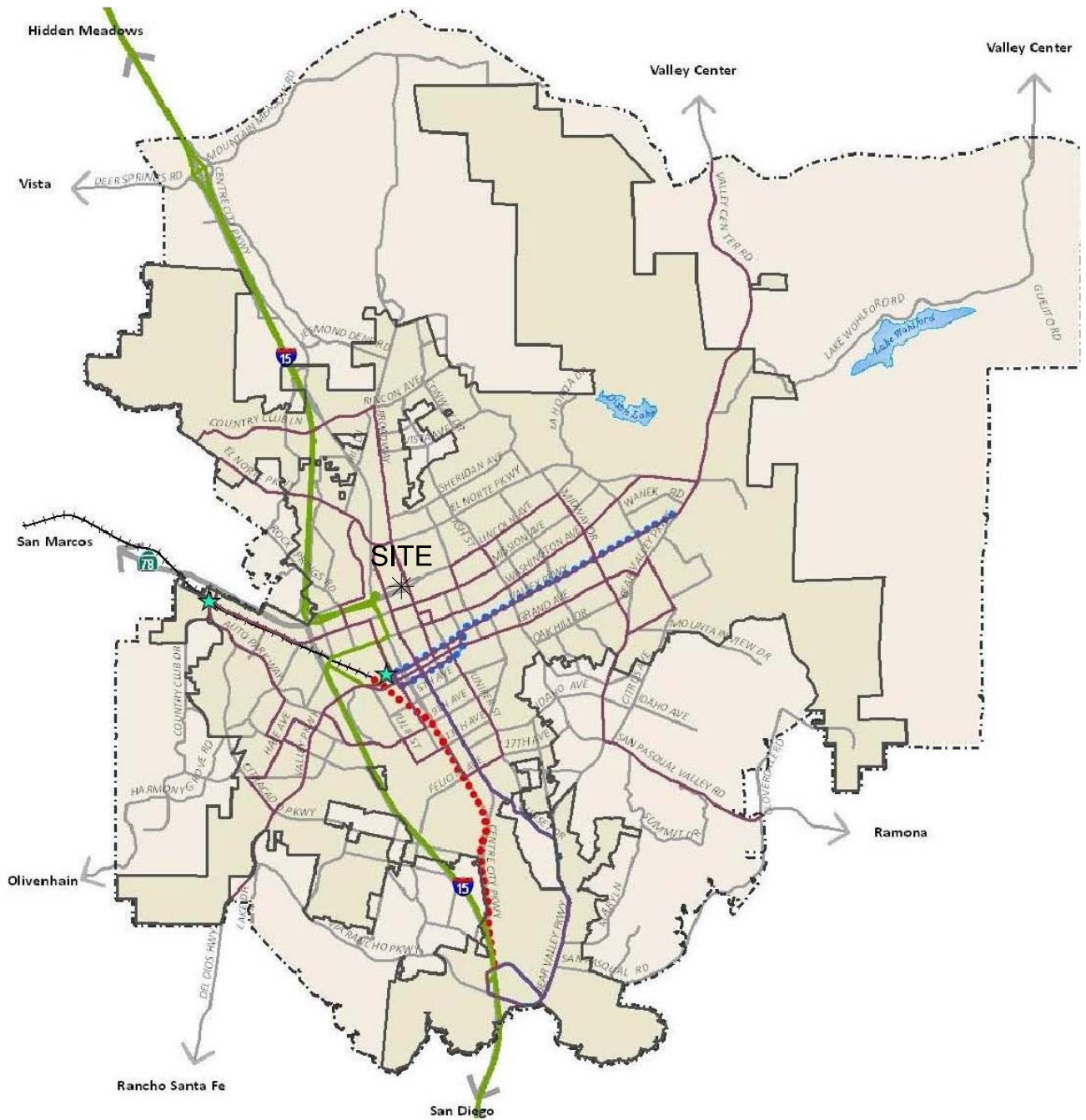


**Bikeway Class**

- |                            |                           |
|----------------------------|---------------------------|
| Existing Class I Multi-use | Existing Class III Routes |
| Proposed Class I Multi-Use | Proposed Class III Routes |
| Existing Class II Lanes    | Freeway Route             |
| Proposed Class II Lanes    | Unpaved Multi-use Trail   |



# Exhibit 3-5 City of Escondido General Plan Existing and Proposed Transit Routes



### North County Transit District Bus/Rail Routes\*

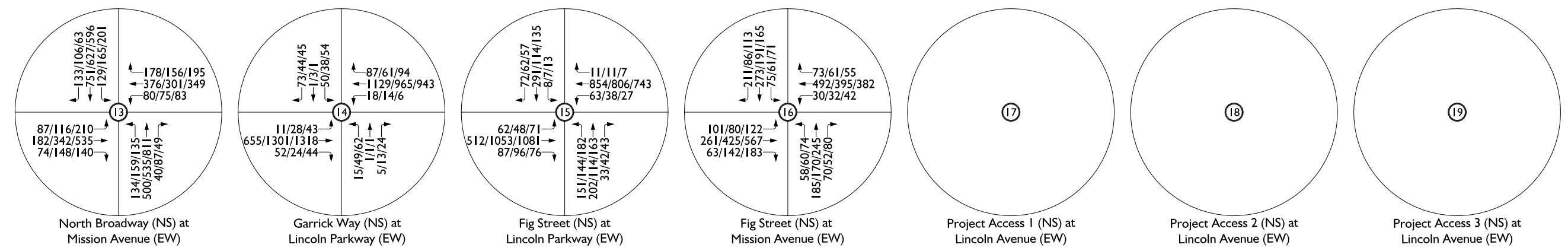
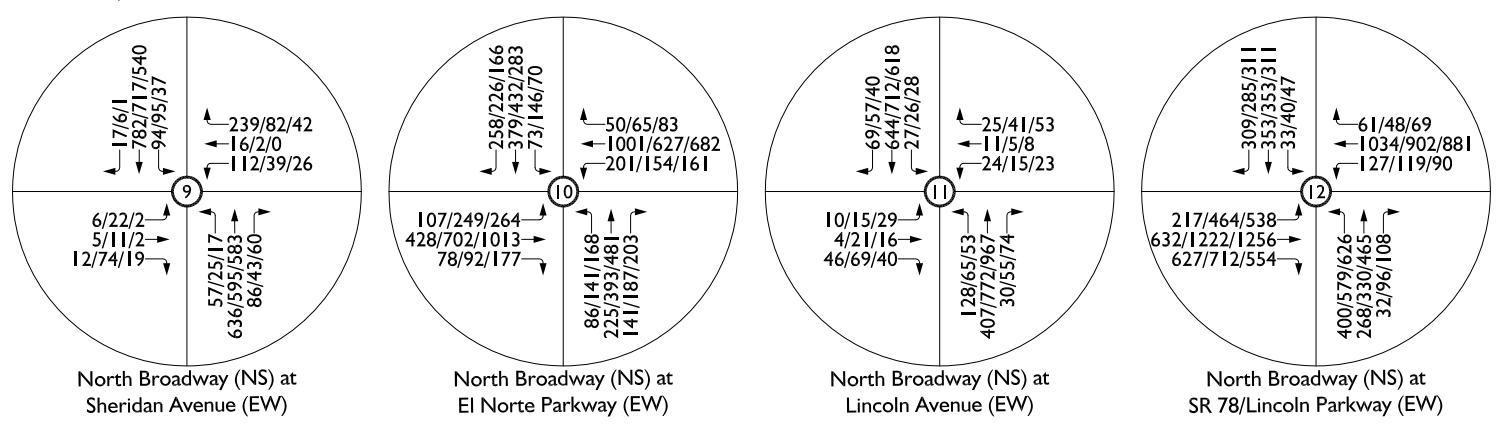
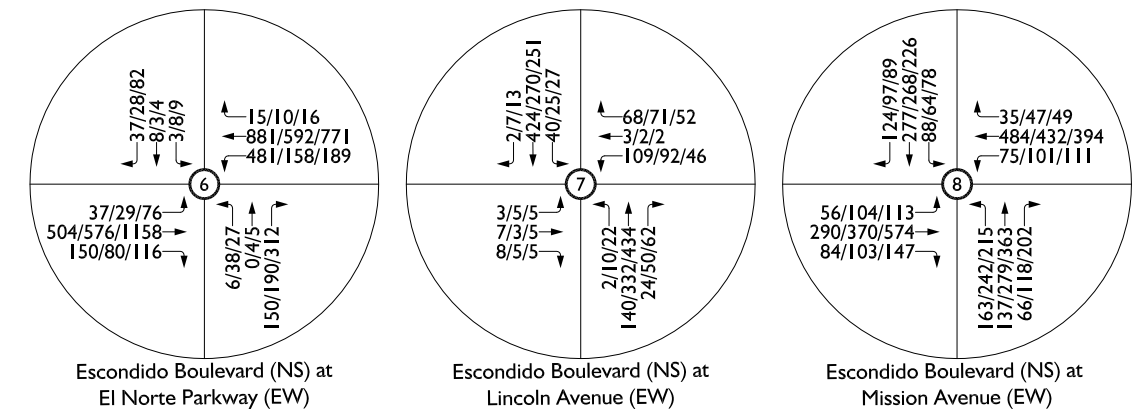
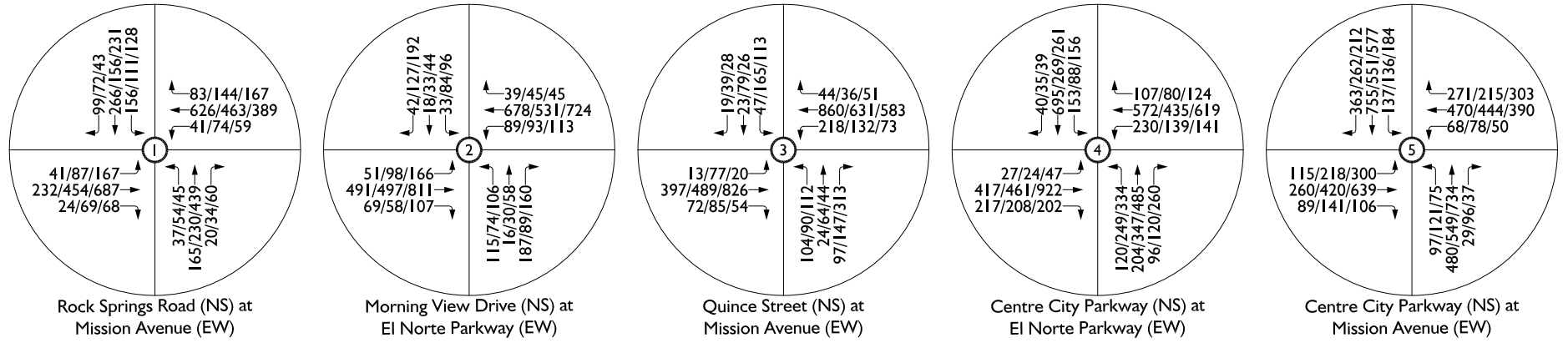
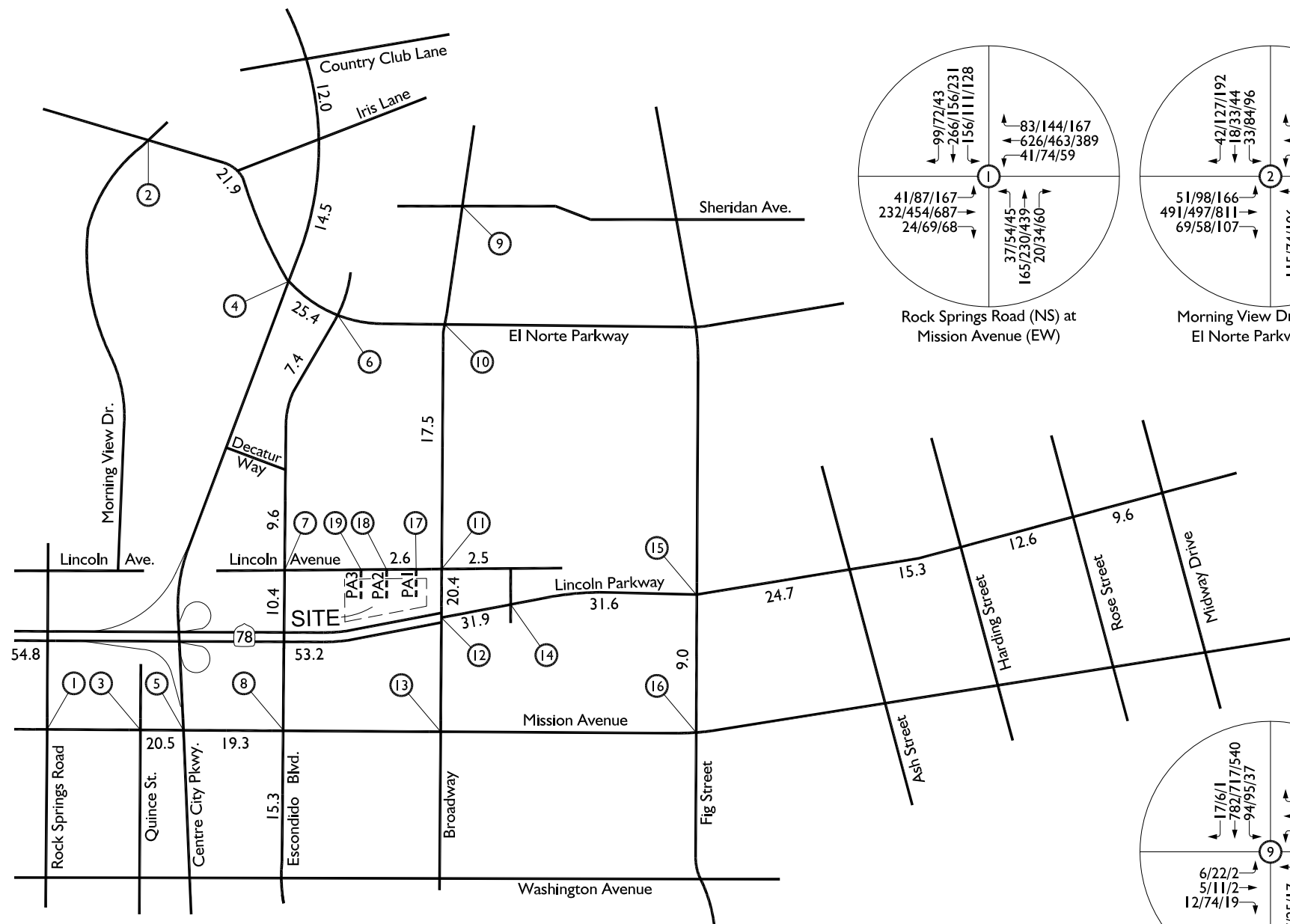
- Existing SPURTER Rail Line
  Existing NCTD Rapid Bus
 ★ Transit Station
- Projected NCTD Rail Line
  Projected Future NCTD Rapid Bus
- Local Bus
  BRT (Bus Rapid Transit) Routes

\*Note: Additional NCTD bus transit servicing the community is not depicted. Projected NCTD rail service from the existing transit center to Westfield Shoppingtown requires additional evaluation and approval.





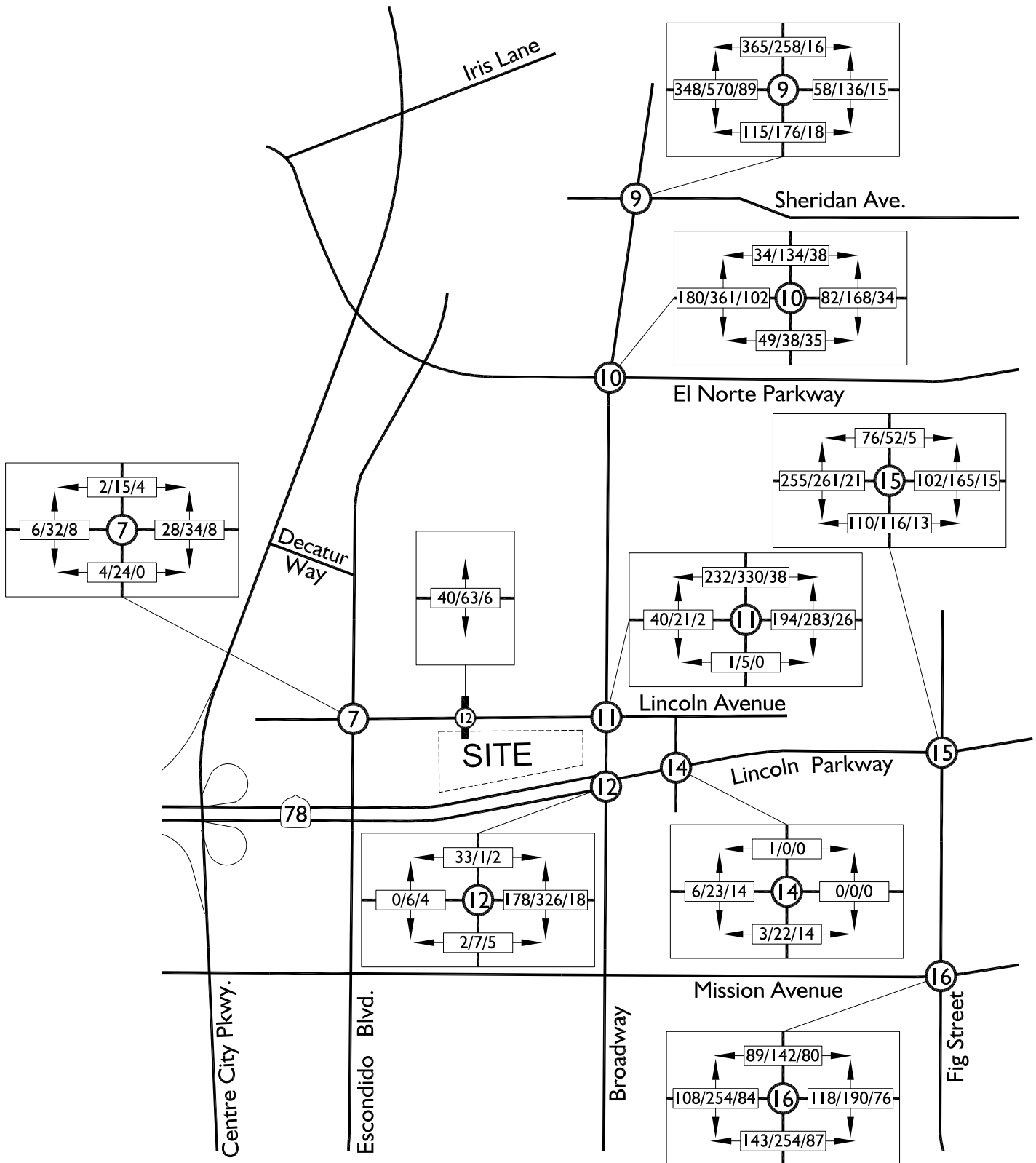
# Existing Traffic Volumes



**Legend:**  
 10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic (1000s)



# Exhibit 3-7 Existing Pedestrian Volumes



**Legend:**

- = AM/MID/PM Peak Period Pedestrian Crossing Volumes  
 AM: 7-9AM  
 MID: 2-4 PM (Except for Lincoln Avenue between Broadway and Escondido; MID: 12:30-2:30PM)  
 PM: 4-6PM



**TABLE 3-1**  
**Existing Conditions Intersection Analysis**

Intersection	Traffic Control <sup>3</sup>	Intersection Approach Lane(s) <sup>1</sup>												Delay (seconds) <sup>2</sup>			Level of Service		
		Northbound			Southbound			Eastbound			Westbound			AM	MID	PM	AM	MID	PM
		L	T	R	L	T	R	L	T	R	L	T	R	L	T	R			
Rock Springs Road (NS) at 1. Mission Avenue (EW)	TS	1.0	1.5	0.5	1.0	1.0	1.0	1.0	1.5	0.5	1.0	1.5	0.5	15.1	15.9	21.0	B	B	C
Morning View Drive (NS) at 2. El Norte Parkway (EW)	TS	1.0	0.5	0.5	1.0	0.5	0.5	1.0	2.5	0.5	1.0	3.0	1.0	14.9	13.3	21.2	B	B	C
Quince Street (NS) at 3. Mission Avenue (EW)	TS	1.0	1.0	1.0	1.0	0.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	19.5	25.1	30.0	B	C	C
Centre City Parkway (NS) at 4. El Norte Parkway (EW)	TS	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	1.5	0.5	42.3	44.9	53.2	D	D	D
5. Mission Avenue (EW)	TS	2.0	2.0	1>>	2.0	2.0	1>>	1.0	2.0	1>>	1.0	2.0	1>>	24.1	32.9	38.3	C	C	D
Escondido Boulevard (NS) at 6. El Norte Parkway (EW)	CSS	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1.5	0.5	1.0	1.5	0.5	178.1	33.4	181.6	F	D	F
7. Lincoln Avenue (EW)	CSS	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1!	0.0	0.0	1!	0.0	26.5	31.0	21.7	D	D	C
8. Mission Avenue (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	28.5	29.6	32.1	C	C	C
North Broadway (NS) at 9. Sheridan Avenue (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	0.0	1!	0.0	1.0	0.5	0.5	25.2	21.3	8.8	C	C	A
10. El Norte Parkway (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	2.0	1.5	0.5	2.0	1.5	0.5	50.9	39.5	48.7	D	D	D
11. Lincoln Avenue (EW)	CSS	1.0	1.5	0.5	1.0	2.0	1.0	0.0	1!	0.0	0.0	1!	0.0	77.6	155.5	130.4	F	F	F
12. SR 78/Lincoln Parkway (EW)	TS	2.0	2.0	1.0	1.0	2.0	1.0	2.0	3.0	1>	2.0	3.0	1.0	52.8	56.5	63.2	D	E	E
13. Mission Avenue (EW)	TS	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	38.2	29.1	43.1	D	C	D
Garrick Way (NS) at 14. Lincoln Parkway (EW)	TS	1.0	0.5	0.5	1.0	0.5	0.5	1.0	3.0	1.0	1.0	3.0	1.0	9.5	12.2	12.0	A	B	B
Fig Street (NS) at 15. Lincoln Parkway (EW)	TS	1.0	1.0	1.0	1.0	0.5	0.5	1.0	1.5	0.5	1.0	1.5	0.5	37.7	31.9	32.5	D	C	C
16. Mission Avenue (EW)	TS	1.0	0.5	0.5	1.0	0.5	0.5	1.0	1.0	1.0	1.0	1.5	0.5	13.9	12.5	13.3	B	B	B

<sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. Where "1" is indicated for the through movement and "0"s are indicated for R/L movements, the R and/or L turns are shared with the through movement.

L = Left; T = Through; R = Right; > = Right Turn Overlap; >> = Free Right Turn; **Bold** = Improvement

<sup>2</sup> Analysis Software: Synchro, Version 8.0. Per the Highway Capacity Manual (HCM) 2010 Signalized methodology, overall average intersection delay and levels of service are shown for intersections controlled by traffic signals. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>3</sup> TS = Traffic Signal  
CSS = Cross Street Stop

**TABLE 3-2  
Study Area Roadway Segments  
(Existing Conditions)**

Study Area Roadway Segment	Existing Roadway Characteristics					City of Escondido General Plan Roadway Classification <sup>4</sup>	Built-Out <sup>5</sup>	Existing ADT <sup>6</sup>	Existing LOS <sup>7</sup>
	Number of Lanes	Type of Median <sup>1</sup>	Cross-Section Width <sup>2</sup>	Bicycle Lane	On-Street Parking <sup>3</sup>				
<b>North/South Roadways</b>									
<b>Centre City Parkway</b>									
1. Country Club Lane to Iris Lane	4	Raised	102 ft.	Yes	NP	Major Road	Yes	11,964	A
2. Iris Lane to El Norte Parkway	4	Raised	102 ft.	Yes	NP	Major Road	Yes	14,464	B
<b>Escondido Boulevard</b>									
3. El Norte Parkway to Decatur Way	2	Undivided	42 ft.	No	WP	Local Collector	Yes	7,400	C
4. Decatur Way to Lincoln Avenue <sup>8</sup>	2	TWLT	64 ft.	No	WP	Collector	No	9,618	C
5. Lincoln Avenue to Mission Avenue	4	TWLT	64 ft.	No	NP	Collector	Yes	10,424	A
6. Mission Avenue to Washington Avenue	4	TWLT	64 ft.	No	WP	Collector	Yes	15,302	D
<b>North Broadway</b>									
7. El Norte Parkway to Lincoln Avenue	4	Undivided / TWLT	64 - 76 ft.	No	WP	Major Road	Yes	17,534	B
8. Lincoln Avenue to SR-78/Lincoln Parkway	4	Undivided	82 ft.	Yes	NP	Major Road	Yes	20,384	C
<b>Fig Street</b>									
9. Lincoln Avenue to Mission Avenue <sup>9</sup>	2	Undivided	42 - 64 ft.	No	WP	Collector	No	8,980	E
<b>East/West Roadways</b>									
<b>El Norte Parkway</b>									
10. Morning View Drive to Centre City Parkway	7	Raised	94	No	NP	Major Road	Yes	21,929	B
11. Centre City Parkway to Escondido Boulevard	4	Raised	82	Yes	NP	Major Road	Yes	25,420	C
<b>Lincoln Avenue</b>									
12. Escondido Boulevard to North Broadway	2	Undivided	42	No	WP	Local Collector	Yes	2,556	A
13. North Broadway to Garrick Way	2	Undivided	42	No	WP	Local Collector	Yes	2,476	A
<b>Lincoln Parkway/ Lincoln Avenue</b>									
14. North Broadway to Garrick Way	6	Raised	106 - 130 ft.	Yes	NP	Prime Arterial	Yes	31,930	B
15. Garrick Way to Fig Street <sup>10</sup>	5/4	Raised / Undivided	50 - 106 ft.	No	NP	Prime Arterial	No	31,589	D
16. Fig Street to Ash Street <sup>10</sup>	4	Undivided	50	No	NP	Prime Arterial	No	24,699	C
17. Ash Street to Harding Street <sup>9</sup>	2	Undivided	42 - 64 ft.	No	WP	Collector	No	15,314	F
18. Harding Street to Rose Street <sup>9</sup>	2	Undivided	42	No	WP	Collector	No	12,591	F
19. Rose Street to Midway Drive	2	Undivided	42	No	WP	Local Collector	Yes	9,568	E
<b>Mission Avenue</b>									
20. Quince Street to Centre City Parkway	4	TWLT	64	Yes	NP	Major Road	Yes	20,512	C
21. Centre City Parkway to Escondido Boulevard	4	Raised	64	Yes	NP	Major Road	Yes	19,333	B

<sup>1</sup> TWLT = Two Way Left Turn painted median

<sup>2</sup> Roadway width measured mid-block; distances are considered approximate

<sup>3</sup> WP = With Parking; NP = No Parking.

<sup>4</sup> Classifications are based on the City of Escondido's Circulation Diagram from the May 2012 General Plan Update

<sup>5</sup> General Plan Buildout Classification may not be feasible due to right-of-way restrictions

<sup>6</sup> As measured during field review on December 26, 2013

<sup>7</sup> Per City of Escondido Traffic Impact Analysis Requirement Guidelines, October 10, 2013

<sup>8</sup> Capacity based on Local Collector classification, with 66 foot cross-section (NP)

<sup>9</sup> Capacity based on Local Collector classification, with 42 foot cross-section (WP)

<sup>10</sup> Capacity based on Major Road classification, 4 lane (NP)

**TABLE 3-3**  
**Existing Conditions Ramp Meter Analysis<sup>1</sup>**

Location	Peak Hour <sup>2</sup>	Existing Lanes	Meter Rate (veh/hr) <sup>3</sup>	Existing Demand (veh/hr) <sup>4</sup>	Excess Demand (veh/hr) <sup>5</sup>	Delay (Min) <sup>6</sup>	Queue (feet) <sup>7</sup>
1. <b>SR-78 Freeway On-Ramp</b> (WB From N. Broadway/Lincoln Parkway)	AM	2 + 1 HOV	1,394	1,539	145	6.241	2,103

---

<sup>1</sup> Ramp meter analysis based on SANDAG guidelines. As stated in the SANDAG TIS Guidelines, caution should be used when interpreting the ramp meter analysis as, "The ramp metering analysis may lead to grossly understated results for delay and queue length, since important aspects of queue growth are ignored. Also, the draft guidelines method derives average values instead of maximum values for delay and queue length. Utilizing average values instead of maximum values can lead to obscuring important effects, particularly in regard to queue length.

<sup>2</sup> Ramp meter is only operatable from 6:30 AM to 9:30 AM.

<sup>3</sup> Meter rate provided by Caltrans. Meter rate is fixed at 697 vehicles per hour per lane. To be conservative, the HOV lane is not counted as part of the analysis.

<sup>4</sup> Existing Demand counted on June 6, 2013. A 10% reduction in demand has been assumed for HOV.

<sup>5</sup> Excess Demand = (Demand) - (Meter Rate) or zero, which ever is greater.

<sup>6</sup> Delay = Excess Demand / Meter Rate x 60 minutes/hour

<sup>7</sup> Queue = Excess Demand x 29 feet/vehicle

**TABLE 3-4  
Existing Conditions  
Freeway Mainline Analysis**

Mainline Segment	Direction	Existing Number of Lanes	Existing Directional ADT <sup>1</sup>	Existing Combined ADT <sup>1</sup>	Capacity (v/h) <sup>2</sup>	Existing Conditions					
						Volume <sup>1</sup>		V/C <sup>3</sup>		LOS <sup>4</sup>	
						AM	PM	AM	PM	AM	PM
1. SR-78 Freeway (I-15 Freeway to Centre City Parkway)	Eastbound	2	28,805	54,823	4,700	1,563	2,491	0.333	0.530	B	C
	Westbound	2	26,018			4,700	1,743	1,916	0.371	0.408	B
2. SR-78 Freeway (Centre City Parkway to North Broadway)	Eastbound	2	27,794	53,241	4,700	1,502	2,401	0.320	0.511	B	C
	Westbound	2	25,447			4,700	1,710	1,843	0.364	0.392	B

<sup>1</sup> Existing traffic volumes measured on June 6, 2013.

<sup>2</sup> Capacity = 2,350 vehicles per hour per lane

<sup>3</sup> V/C = Volume to Capacity Ratio

<sup>4</sup> LOS = Level of Service; based on Caltrans TIS Guidelines Basic Freeway Segment Level of Service Definitions

LOS	Max V/C
A	0.30
B	0.50
C	0.71
D	0.89
E	1.00

## **4.0 Project Traffic**

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### **A. Project Traffic Conditions**

#### **1. Trip Generation**

Trip generation represents the amount of traffic that is attracted to and produced by a development. The trip generation for the project is based upon the specific land uses that have been planned for the development. The traffic impacts analyzed in this report are based on a 43,500 square foot supermarket and a 3,200 square foot fast food restaurant with drive-thru, as shown on the site plan in Exhibit 1-2.

Trip generation rates for the proposed development are shown in Table 4-1 and are based on SANDAG's (not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002. This publication provides a comprehensive evaluation of trip generation rates for a variety of land uses.

#### **a. Pass-By Trips**

For developments such as the one proposed, a substantial portion of the site-generated vehicle trips are already present in the adjacent passing stream of traffic. These types of trips are known as pass-by trips. Pass-by trips are made by traffic already using the adjacent roadway and enter the site as an intermediate stop on the way from another destination. The trip may not necessarily be "generated" by the land use under study, and thus, no new trips are added to the roadway system.

For this project the following suggested pass-by credits were applied, per SANDAG specifications:

- i. 40% pass-by trip credit for supermarket (PM peak hour only)
- ii. 40% pass-by trip credit for fast food restaurant (PM Peak hour only)

For all analysis scenarios with project traffic, the full project trip generation is shown at the intersection immediately adjacent to the project site and at the project driveways. No trip credit was taken for internal capture or modal splits. All pass-by trip reduction credits are consistent with SANDAG standards.

Both daily and peak-hour trip generation for the proposed development are shown in Table 4-2. The proposed development is projected to generate approximately 8,605 net trip-ends per day, with 407 net vehicles per hour during the AM peak hour and 479 net vehicles per hour during the PM peak hour. SANDAG does not provide a mid-day trip generation rates for the proposed land uses. The PM peak hour trip generation has been assumed for the mid-day analysis, as it represents a worst case scenario.

## **2. Trip Distribution and Select Zone Assignment**

Trip distribution represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of residential, employment, and recreational opportunities, and the proximity to the regional freeway system. The directional orientation of traffic was determined by the SANDAG's Series 12 Select Zone Assignment (SZA) model.

As referenced by SANDAG, The SZA is an enhanced four-step transportation model, consisting of trip generation, trip distribution, mode choice, and network assignment. The SZA model allocates and balances trip productions and attractions through a gravity approach based on trip-end density and location. The model considers the distance between a trip ends that is based on the assumed highway and public transportation networks that are input for any given future year. The model is designed to modify trip patterns in response to new land use developments and transportation facility changes. For example, the opening of a new shopping center would shift trips from other nearby shopping areas to the new development.



Exhibit 4-1 depicts the trip distribution pattern based on the SANDAG Series 12 SZA model. The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, select zone assignment, and proposed arterial highway and local street systems that would be in place by the time of initial occupancy of the site. A visual printout of the SANDAG Series 12 Select Zone Assignment Model is provided in Appendix C.

### **3. Modal Split**

Modal split denotes the proportion of traffic generated by a project that would use any of the transportation modes, namely buses, cars, bicycles, motorcycles, trains, carpools, etc. The traffic reducing potential of public transit and other modes is significant. However, the traffic projections in this study are "conservative" in that public transit and alternative transportation may be able to further reduce traffic impacts. Thus no modal split reduction is applied to the projections. With the implementation of transit service and provision of alternative transportation ideas and incentives, the automobile traffic demand can be reduced significantly. Additional recommendations to promote alternative modes of travel are discussed in the *Recommendations* Sections of this report.

### **4. Project Traffic Volumes**

Project AM, Mid-Day, and PM peak hour intersection turning movement volumes and average daily traffic are shown on Exhibit 4-2.

The full project trip generation, without pass-by reduction, is shown at the intersections of Escondido Boulevard at Lincoln Avenue, North Broadway at Lincoln Avenue, North Broadway at Lincoln Parkway / SR-78, and the project access driveways.

## **B. Cumulative Projects Traffic**

The City of Escondido has provided a list of other developments that have been approved, or are currently being processed for approval, to be included as cumulative project traffic in this study. Appendix D provides additional information related to the other development traffic added to the study area, including a location map, description, trip generation, trip distribution, and cumulative project traffic volumes. Cumulative projects AM, Mid-Day, and PM peak hour intersection turning movement volumes and average daily traffic are shown on Exhibit 4-3.

The cumulative projects have not been added to the Horizon Year (2035) traffic volumes, as it is assumed that the land uses would have been built out in accordance with their General Plan designation, and therefore included in future projections.

**TABLE 4-1  
Trip Generation Rates<sup>1</sup>**

Currently Proposed Land Use					
Land Use	Quantity	Units <sup>2</sup>	Driveway Vehicle Trip Rate	Peak Hour Ratios	
				AM (in:out)	PM (in:out)
Supermarket	43.500	TSF	150 Trips/TSF	4% (7:3)	10% (5:5)
Fast Food Restaurant (With Drive-Thru)	3.200	TSF	650 Trips/TSF	7% (5:5)	7% (5:5)

Pass-By Reductions <sup>3</sup>	
Supermarket	40%
Fast Food Restaurant	40%

<sup>1</sup> Source: San Diego Association of Governments (SANDAG) Vehicular Trip Generation Rates, 2002

<sup>2</sup> TSF = Thousand Square Feet

<sup>3</sup> Suggested pass-by percentages for trip rate reductions only during PM peak hour, per SANDAG

**TABLE 4-2  
Project Trip Generation**

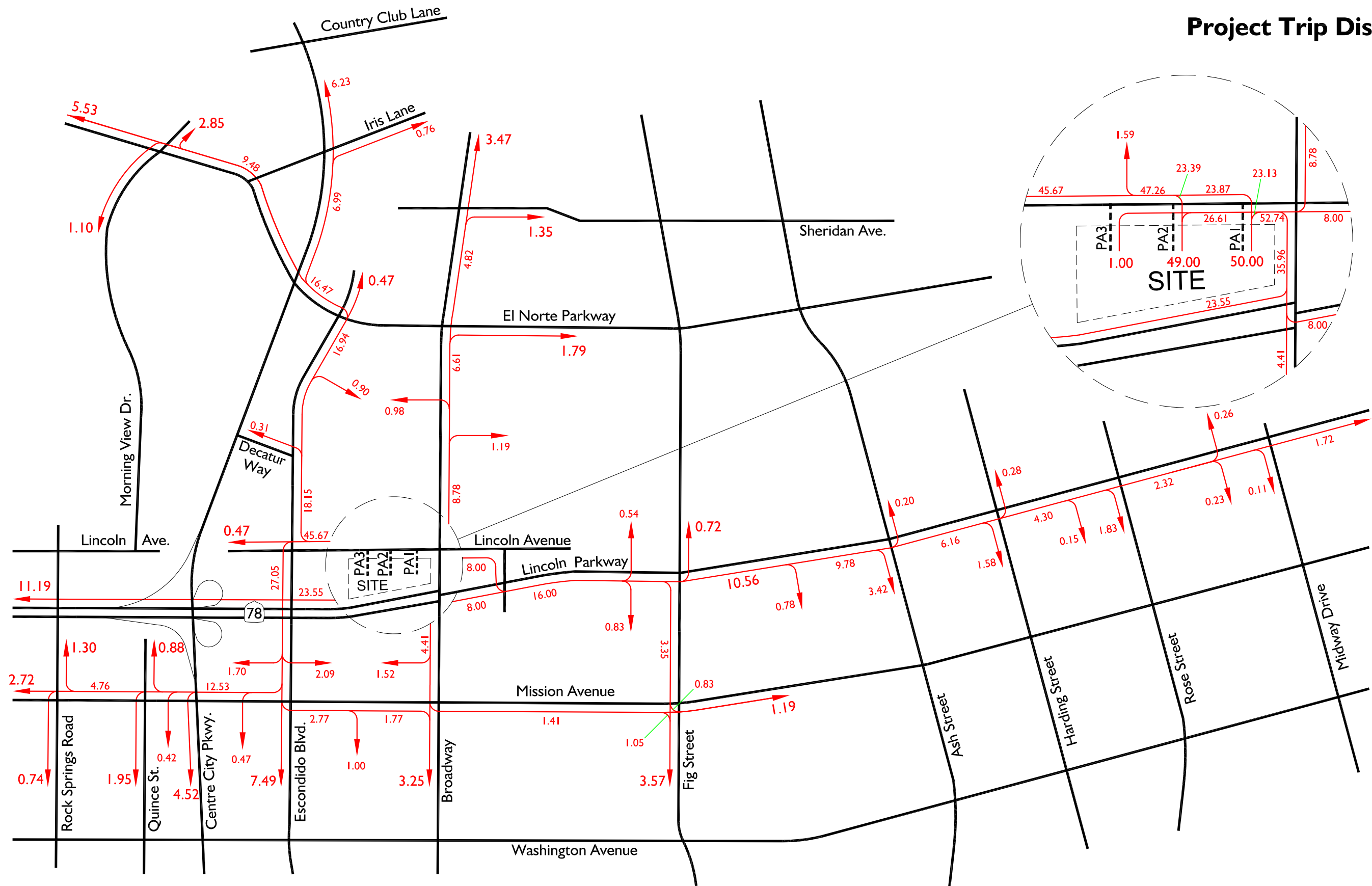
**Currently Proposed Land Use**

	Land Use	Quantity	Units <sup>1</sup>	Peak Hour						Daily
				AM			PM			
				In	Out	Total	In	Out	Total	
1	Supermarket	43.500	TSF	183	78	261	326	327	653	6,525
	40% Pass-By Trip Reduction <sup>2</sup>			n/a	n/a	n/a	-130	-131	-261	n/a
	Net Total Supermarket			183	78	261	196	196	392	6,525
2	Fast Food Restaurant (With Drive-Thru)	3.200	TSF	73	73	146	73	73	146	2,080
	40% Pass-By Trip Reduction <sup>2</sup>			n/a	n/a	n/a	-29	-29	-58	n/a
	Net Total Fast Food			73	73	146	44	44	88	2,080
<b>Full Project Trip Generation</b>				<b>256</b>	<b>151</b>	<b>407</b>	<b>399</b>	<b>400</b>	<b>799</b>	<b>8,605</b>
<b>Net Total (With Pass-By Trip Reduction)</b>				<b>256</b>	<b>151</b>	<b>407</b>	<b>239</b>	<b>240</b>	<b>479</b>	<b>8,605</b>

<sup>1</sup> TSF = Thousand Square Feet

<sup>2</sup> Suggested pass-by percentages per SANDAG Vehicular Traffic Generation Rates For San Diego Region. SANDAG only provides pass-by data for the PM Peak hour

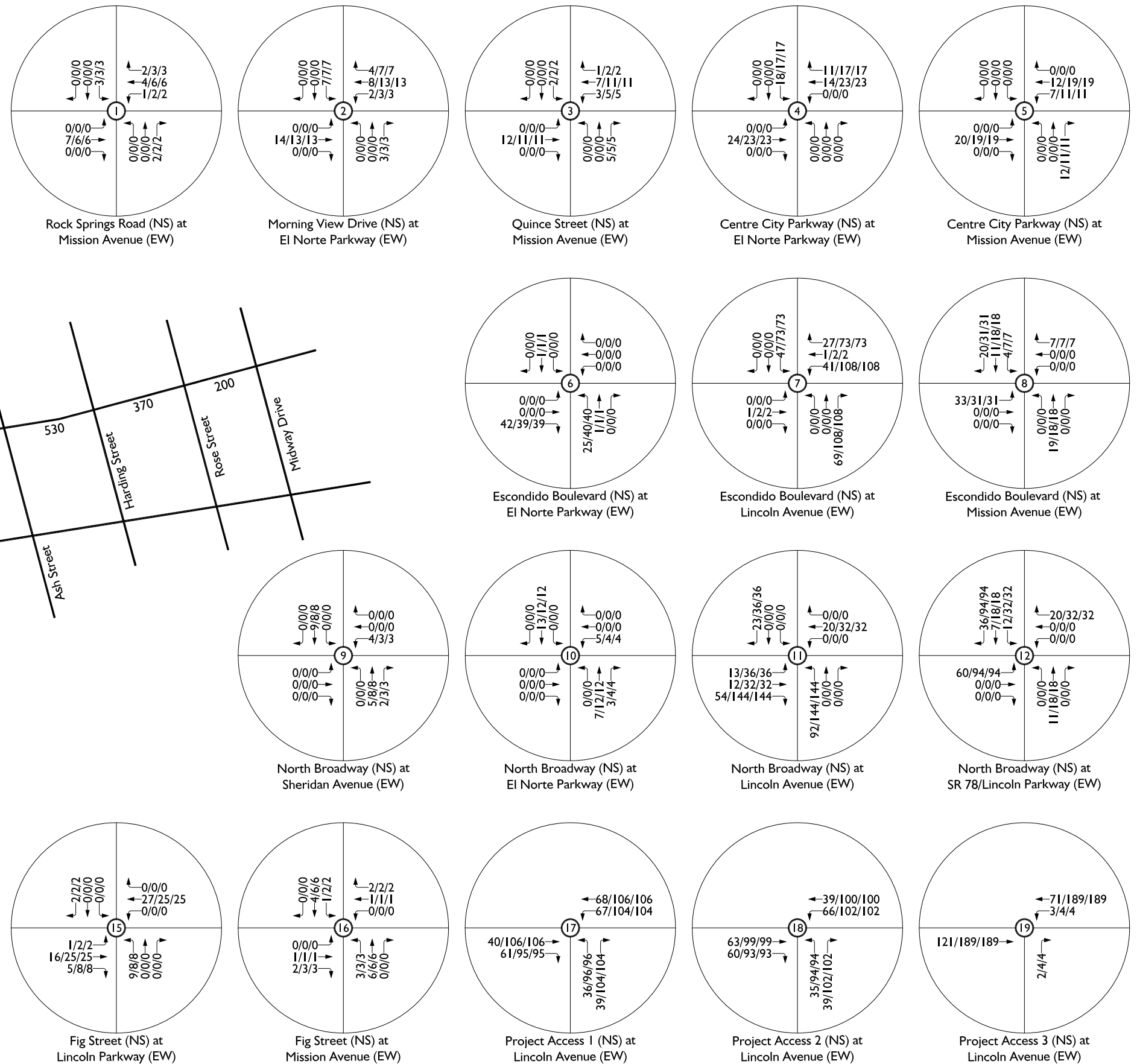
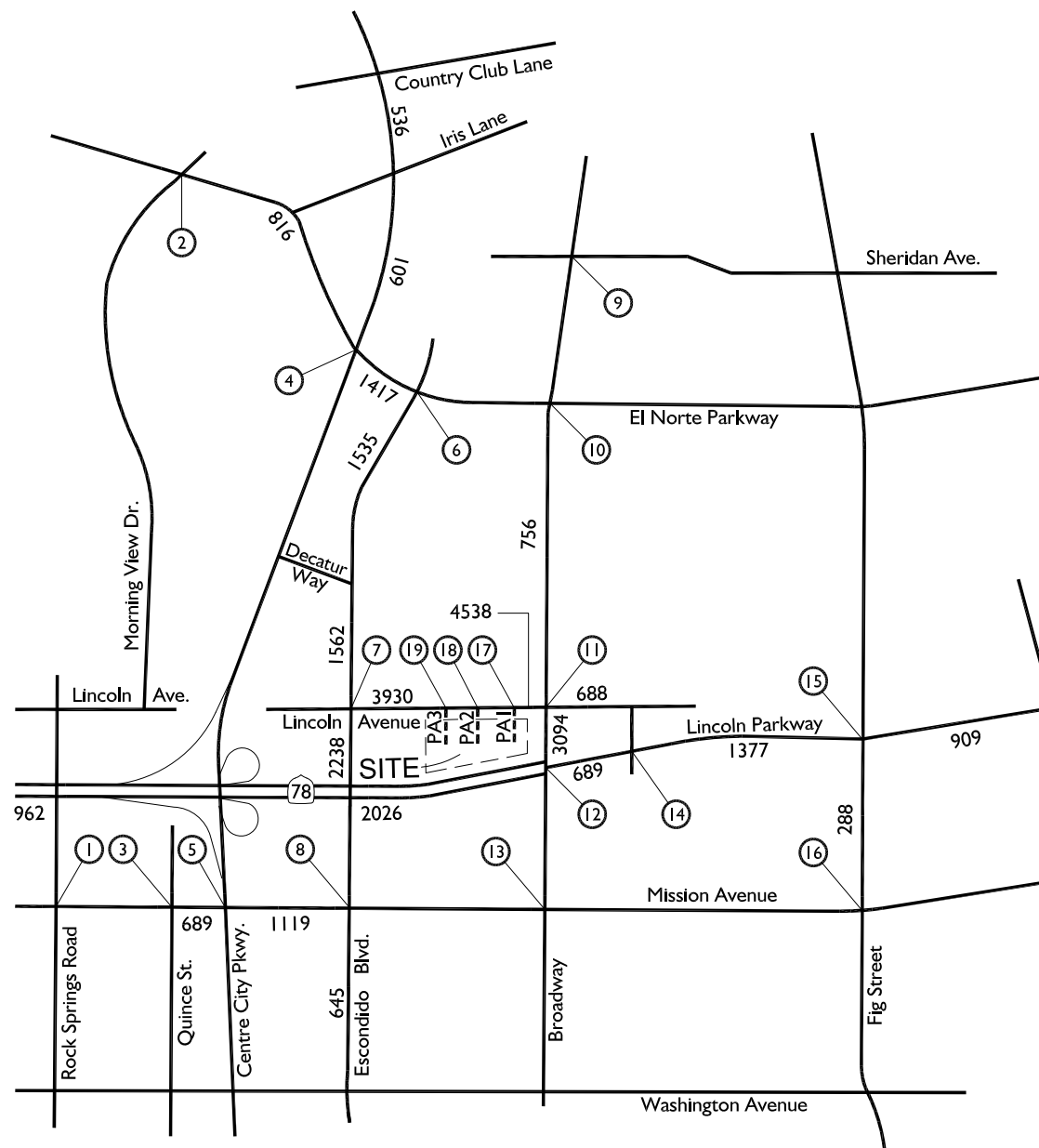
# Project Trip Distribution



**Legend:**  
 10 = Percent to/from Project

**Note:**  
 Project Trip Distribution is based on SANDAG Series 12 Select Zone Assignment for Subarea TAZ 4683, provided in Appendix C.

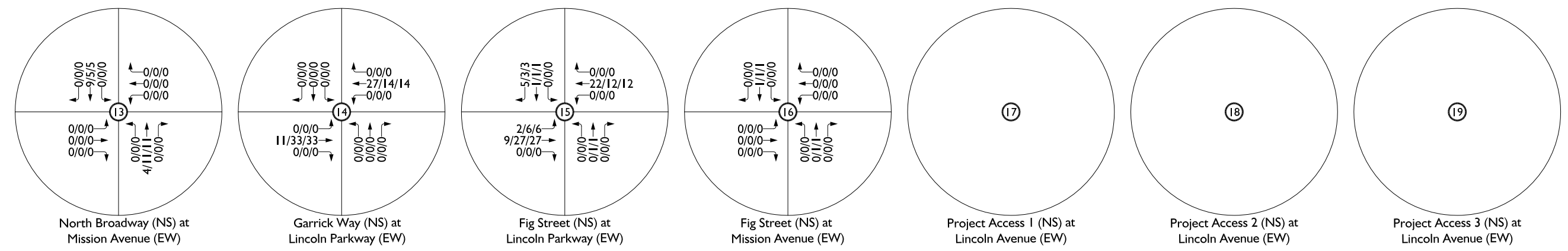
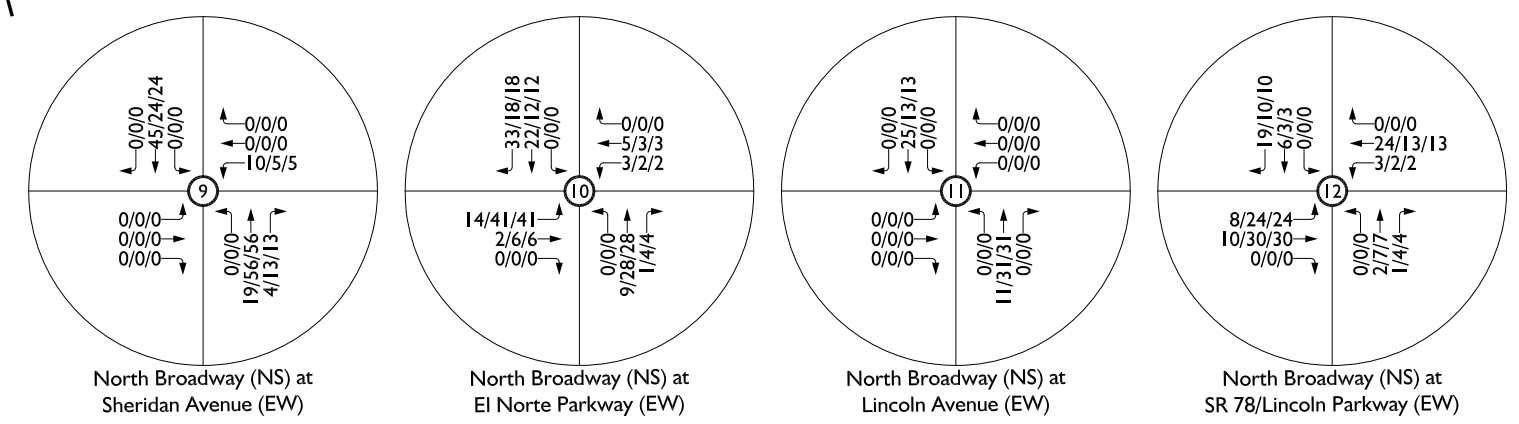
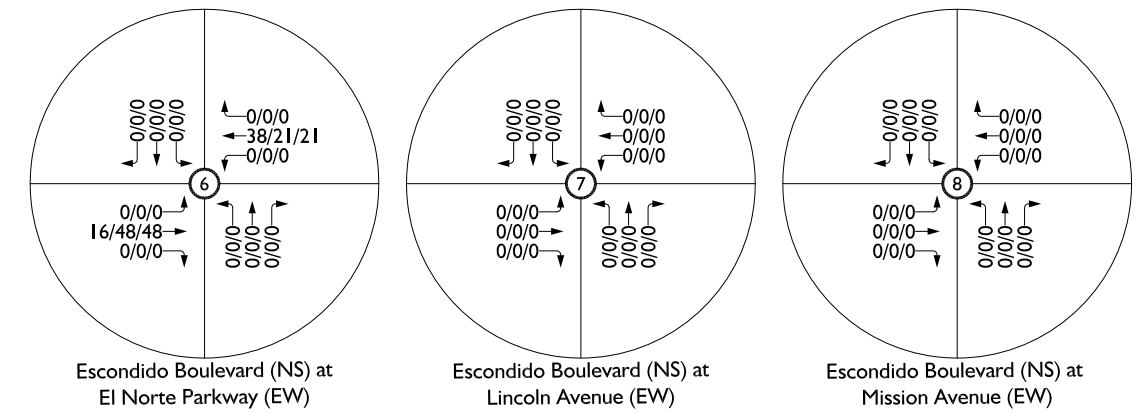
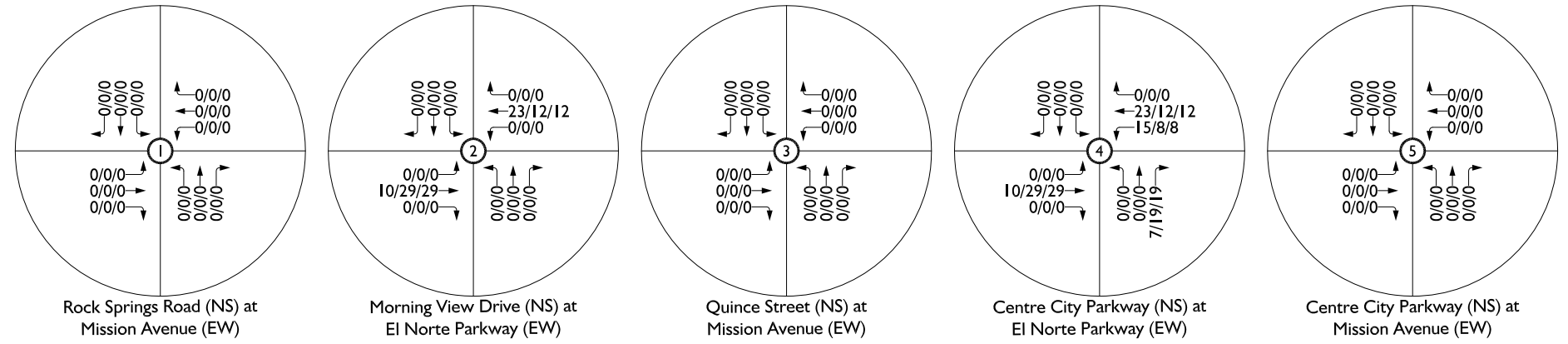
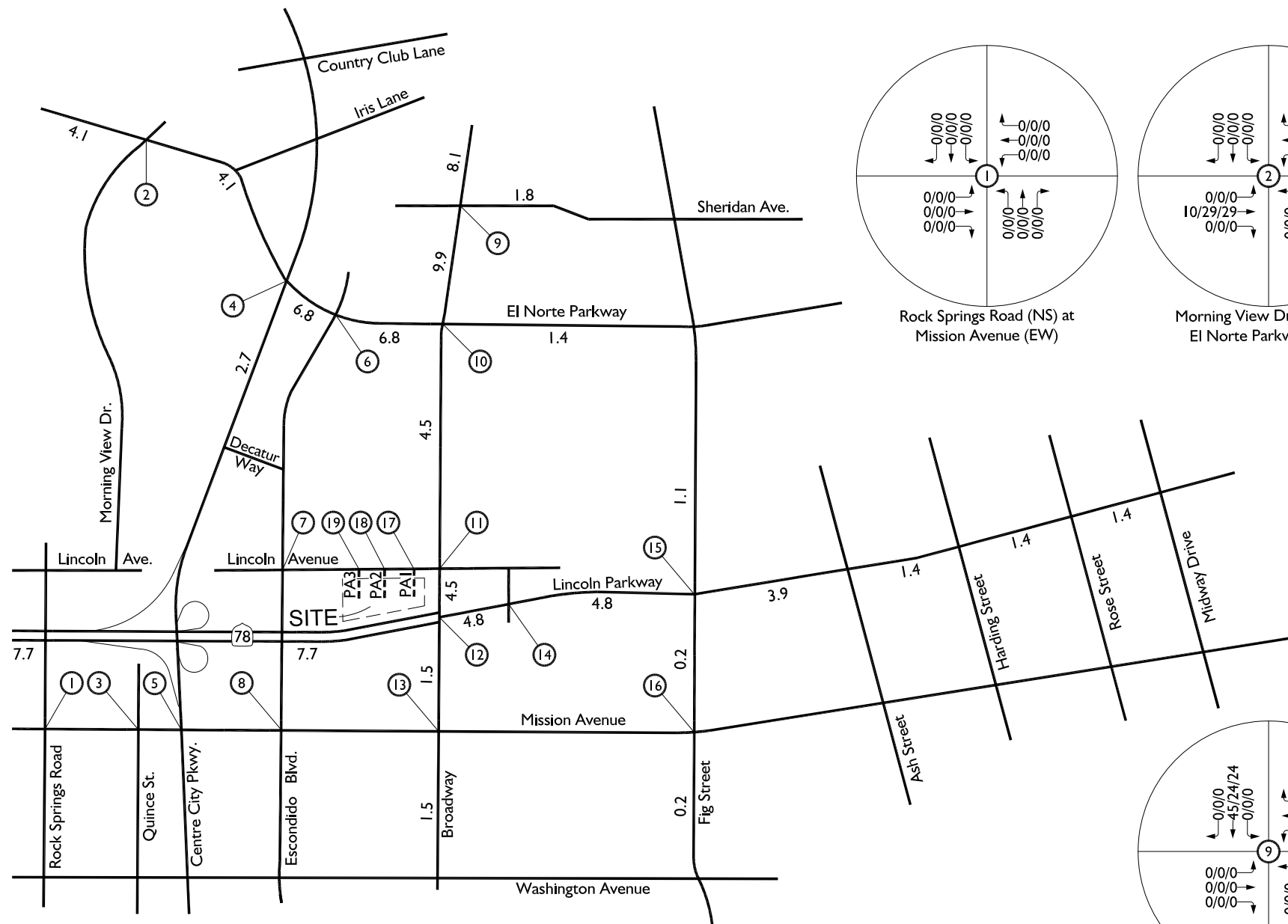




**Legend:**  
 10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic



# Cumulative Projects Traffic Volumes



**Legend:**  
 10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic (100s)



## **5.0 Existing Plus Project Conditions**

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### **A. Existing Plus Project Traffic Analysis**

#### **1. Existing Plus Project Traffic Volumes**

Project traffic has been combined with existing traffic volumes within the study area to determine existing plus project related impacts. AM, Mid-Day, and PM peak hour intersection turning movement volumes and average daily traffic for Existing Plus Project conditions are shown on Exhibit 5-1.

The full project trip generation, without pass-by reduction, is shown at the intersections of Escondido Boulevard at Lincoln Avenue, North Broadway at Lincoln Avenue, North Broadway at Lincoln Parkway / SR-78, and the project access driveways.

#### **2. Existing Plus Project Intersection Analysis**

Intersection levels of service for the existing network with the proposed project are shown on Table 5-1. As shown on Table 5-1, HCM calculations are based on the existing intersection geometrics.

For Existing Plus Project conditions, the project is expected to have a less than significant impact at all study area intersections during the peak hours, with the exception of the following intersections where a direct significant impact is expected:

Intersection #6: Escondido Boulevard at El Norte Parkway

Intersection #7: Escondido Boulevard at Lincoln Avenue

Intersection #11: North Broadway at Lincoln Avenue

Intersection #12: North Broadway at Lincoln Parkway / SR-78



These intersections are expected to operate at LOS D or worse and the project is expected to increase delay by more than two (2) seconds; thereby, triggering a significant impact. Mitigation recommendations have been made that would reduce the project's impact to less than significant. All recommended mitigation measures are discussed in Section 10.0.

The HCM 2010 intersection level of service calculation worksheets for Existing Plus Project Conditions are provided in Appendix E.

### **3. Existing Plus Project Street Segment Analysis**

The street segment level of service calculations for Existing Plus Project Conditions are shown in Table 5-2. As shown on Table 5-2, LOS calculations are based on the existing roadway geometrics.

For Existing Plus Project conditions, the project is expected to have a less than significant impact at all study area street segments, with the exception of the following segments where a direct significant impact is expected:

Segment #3: Escondido Boulevard, El Norte Parkway to Decatur Way

Segment #6: Escondido Boulevard, Mission Avenue to Washington Avenue

Segment #9: Fig Street, Lincoln Avenue to Mission Avenue<sup>1</sup>

Segment #15: Lincoln Parkway, Garrick Street to Fig Street<sup>1</sup>

Segment #17: Lincoln Avenue, Ash Street to Harding Street<sup>1</sup>

Segment #18: Lincoln Avenue, Harding Street to Rose Street<sup>1</sup>

<sup>1</sup>Street segment is not built-out to General Plan Classification. A lesser capacity has been assumed in this analysis to reflect existing conditions.

The capacity for roadway improvements within the study area is limited due to the built-out environment of the area. Several of the roadways listed above are

currently designated in the City's General Plan for a higher capacity classification; however, obtaining ultimate right-of-way for these segments may be impractical.

To effectively mitigate project impacts, roadway widening, and/or restricting on-street parking, may be required. Mitigation recommendations that include roadway widening are only shown for segments that are not currently built-out to General Plan Classification, and the recommended widening would result in meeting ultimate buildout capacity. The improvements should be further reviewed to determine whether the widening is feasible. Should the roadway improvements be considered not feasible, then the project may be required to contribute additional impact fees to offset project impacts.

It should be noted that due to the generalized nature of ADT capacities, the roadway capacity values are typically viewed as general rather than absolute guides for estimating levels of service and sizing the future roadway system. A more detailed intersection evaluation (using peak hour data) is carried out for this project and represents a more accurate indication of actual traffic operations. Of the six (6) street segments identified to have significant project impacts under Existing Plus Project conditions, five (5) of the segments are currently operating at unacceptable levels of service in Existing conditions.

#### **4. Existing Plus Project Ramp Meter Analysis**

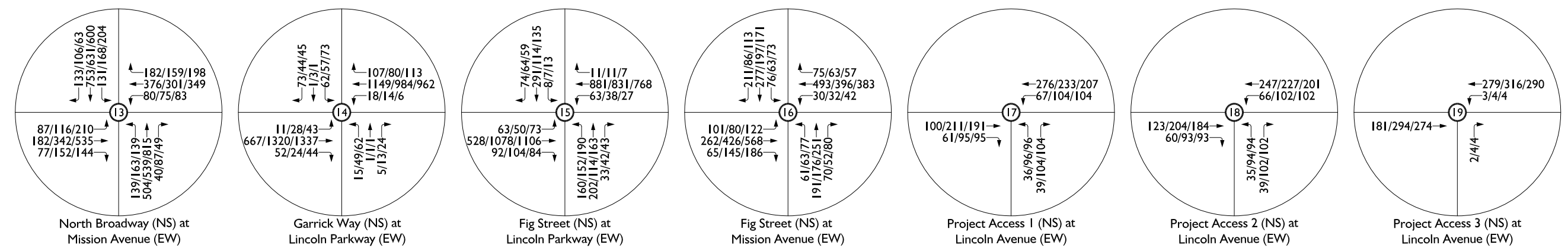
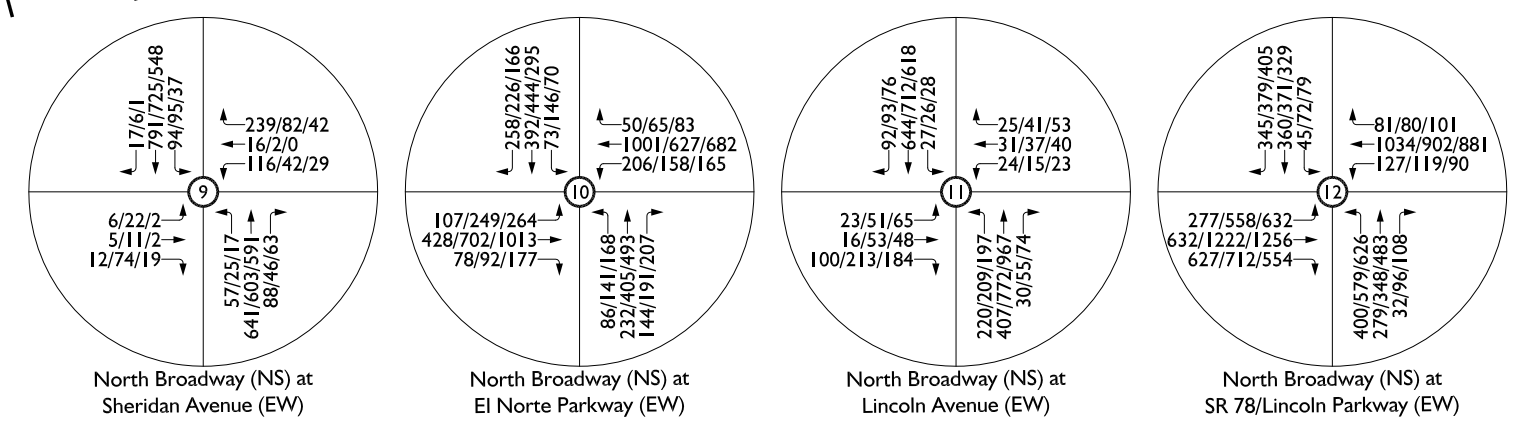
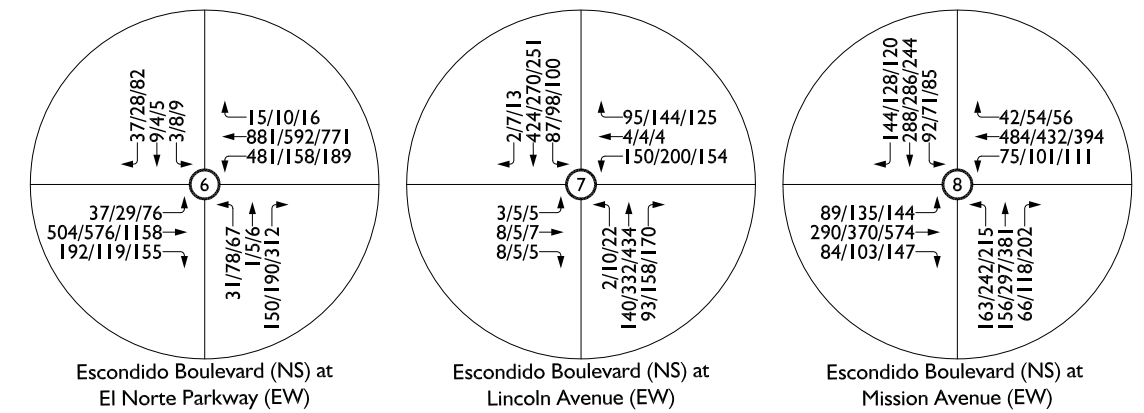
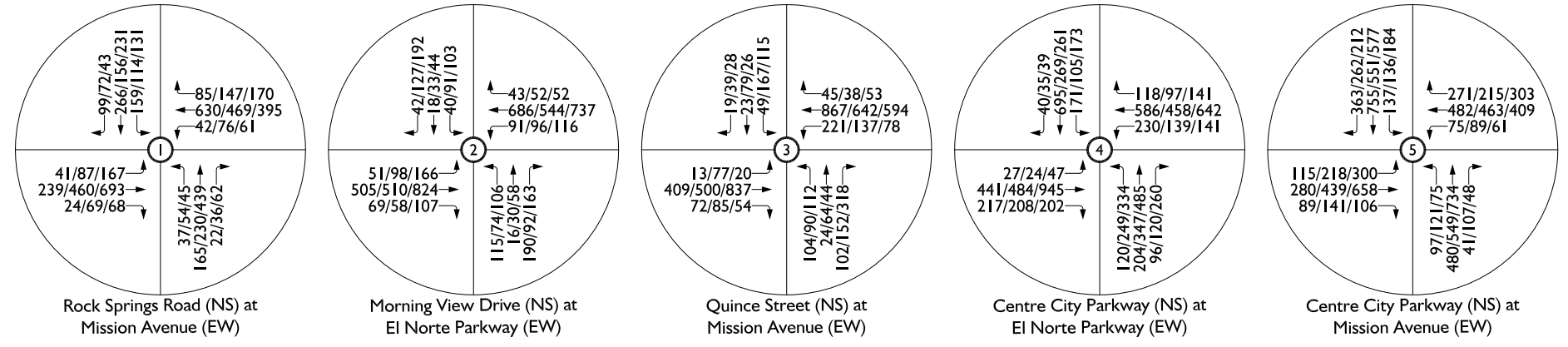
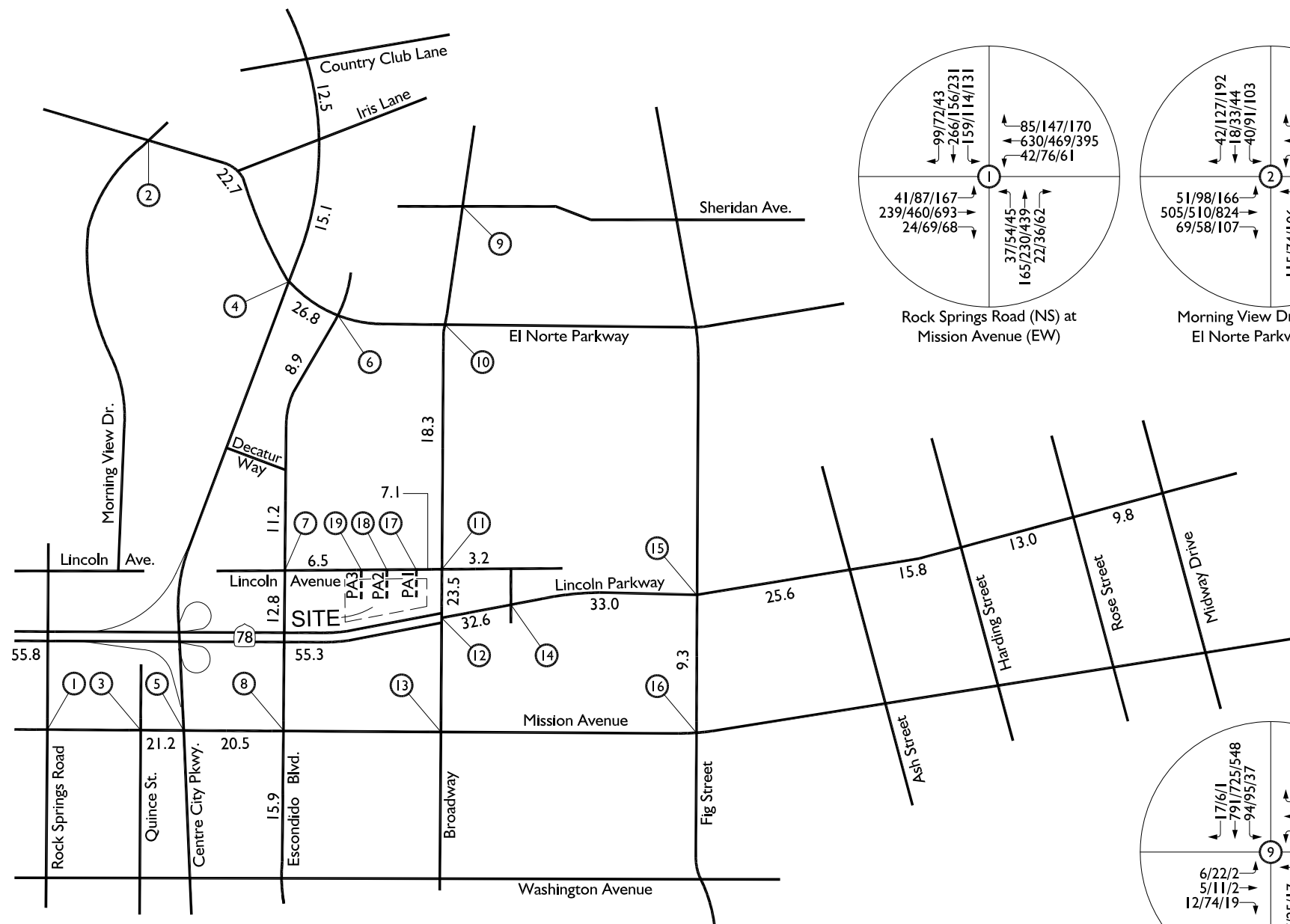
The ramp meter analysis for Existing Plus Project conditions is shown in Table 5-3 and is based upon existing traffic volumes measured by RK in 2013 with the addition of the project traffic. Ramp meter rates have been provided by Caltrans. The westbound on-ramp meter to the SR-78 from Lincoln Parkway only operates during the hours of 6:30 AM to 9:30 AM; therefore, only the AM peak hour is analyzed.

For Existing Plus Project conditions, the study area ramp meter is expected to have a delay of less than fifteen (15) minutes and the project is expected to increase the delay by less than two (2) minutes. Therefore, the project impact at the ramp meter is considered to be less than significant. No mitigation is required for this location.

## **5. Existing Plus Project Freeway Mainline Analysis**

The freeway mainline analysis for Existing Plus Project conditions is shown in Table 5-4 and is based upon existing traffic volumes measured by RK in 2013. Levels of service thresholds are based upon Caltrans Traffic Impact Study Guidelines Basic Freeway Segment Level of Service Definitions. As shown in Table 5-4, all freeway mainlines are currently operating at acceptable levels of service and the project is expected to have a less than significant impact for Existing Plus Project conditions.

# Existing Plus Project Traffic Volumes



**Legend:**  
 10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic (1000s)



**TABLE 5-1  
Existing Plus Project Intersection Analysis<sup>6</sup>**

Intersection	Traffic Control <sup>2</sup>	Existing						Existing Plus Project						Change in Delay (seconds) <sup>1</sup>			Significant Impact		
		Delay (seconds) <sup>1</sup>			Level of Service			Delay (seconds) <sup>1</sup>			Level of Service			AM	MID	PM	AM	MID	PM
		AM	MID	PM	AM	MID	PM	AM	MID	PM	AM	MID	PM	AM	MID	PM	AM	MID	PM
Rock Springs Road (NS) at 1. Mission Avenue (EW)	TS	15.1	15.9	21.0	B	B	C	15.3	16.0	21.2	B	B	C	0.2	0.1	0.2	NO	NO	NO
Morning View Drive (NS) at 2. El Norte Parkway (EW)	TS	14.9	13.3	21.2	B	B	C	15.1	13.4	21.2	B	B	C	0.2	0.1	0.0	NO	NO	NO
Quince Street (NS) at 3. Mission Avenue (EW)	TS	19.5	25.1	30.0	B	C	C	19.7	25.8	31.0	B	C	C	0.2	0.7	1.0	NO	NO	NO
Centre City Parkway (NS) at 4. El Norte Parkway (EW)	TS	42.3	44.9	53.2	D	D	D	42.4	45.1	53.9	D	D	D	0.1	0.2	0.7	NO	NO	NO
5. Mission Avenue (EW)	TS	24.1	32.9	38.3	C	C	D	24.4	33.4	38.3	C	C	D	0.3	0.5	0.0	NO	NO	NO
Escondido Boulevard (NS) at 6. El Norte Parkway (EW)	CSS	178.1	33.4	181.6	F	D	F	213.8	44.4	530.7	F	E	F	35.7	11.0	349.1	YES	YES	YES
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	22.3	9.5	26.8	C	A	C	-155.8	-23.9	-154.8	NO	NO	NO
7. Lincoln Avenue (EW)	CSS	26.5	31.0	21.7	D	D	C	78.3	443.2	248.2	F	F	F	51.8	412.2	226.5	YES	YES	YES
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	7.3	11.3	7.6	A	B	A	-19.2	-19.7	-14.1	NO	NO	NO
8. Mission Avenue (EW)	TS	28.5	29.6	32.1	C	C	C	29.6	32.9	32.3	C	C	C	1.1	3.3	0.2	NO	NO	NO
North Broadway (NS) at 9. Sheridan Avenue (EW)	TS	25.2	21.3	8.8	C	C	A	25.5	21.6	8.8	C	C	A	0.3	0.3	0.0	NO	NO	NO
10. El Norte Parkway (EW)	TS	50.9	39.5	48.7	D	D	D	52.1	40.2	49.9	D	D	D	1.2	0.7	1.2	NO	NO	NO
11. Lincoln Avenue (EW)	CSS	77.6	155.5	130.4	F	F	F	910.0	-- <sup>3</sup>	-- <sup>3</sup>	F	F	F	832.4	-- <sup>3</sup>	-- <sup>3</sup>	YES	YES	YES
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	19.5	30.8	15.1	B	C	B	-58.1	-124.7	-115.3	NO	NO	NO
12. SR 78/Lincoln Parkway (EW)	TS	52.8	56.5	63.2	D	E	E	57.7	67.5	76.4	D	E	E	4.9	11.0	13.2	YES	YES	YES
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	51.9	51.5	55.4	D	D	E	-0.9	-5.0	-7.8	NO	NO	NO
13. Mission Avenue (EW)	TS	38.2	29.1	43.1	D	C	D	39.3	29.5	43.9	D	C	D	1.1	0.4	0.8	NO	NO	NO
Garrick Way (NS) at 14. Lincoln Parkway (EW)	TS	9.5	12.2	12.0	A	B	B	9.8	12.5	12.3	A	B	B	0.3	0.3	0.3	NO	NO	NO
Fig Street (NS) at 15. Lincoln Parkway (EW)	TS	37.7	31.9	32.5	D	C	C	39.5	33.6	34.3	D	C	C	1.8	1.7	1.8	NO	NO	NO
16. Mission Avenue (EW)	TS	13.9	12.5	13.3	B	B	B	14.4	12.6	13.4	B	B	B	0.5	0.1	0.1	NO	NO	NO
Project Access 1 (NS) at 17. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	N/A	N/A	11.9	19.0	17.7	B	C	C	N/A	N/A	N/A	NO	NO	NO
Project Access 2 (NS) at 18. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	N/A	N/A	11.9	18.3	17.0	B	C	C	N/A	N/A	N/A	NO	NO	NO
Project Access 3 (NS) at 19. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	N/A	N/A	9.3	10.0	9.9	A	B	A	N/A	N/A	N/A	NO	NO	NO

<sup>1</sup> Analysis Software: Synchro, Version 8.0. Per the Highway Capacity Manual (HCM) 2010 Signalized methodology, overall average intersection delay and levels of service are shown for intersections controlled by traffic signals. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>2</sup> TS = Traffic Signal  
CSS = Cross Street Stop

<sup>3</sup> Delay cannot be calculated due to high volume of conflicting movements.

<sup>4</sup> LOS F results from westbound left turn movement delay.

<sup>5</sup> Recommended improvements would satisfy City of Escondido requirements to restore intersection Level of Service to "without project" conditions.

<sup>6</sup> Existing Plus Project impacts would be considered direct project impacts, per CEQA guidelines.

**TABLE 5-2  
Existing Plus Project Conditions  
Roadway Segment Analysis<sup>12</sup>**

Study Area Roadway Segment	City of Escondido General Plan Roadway Classification <sup>1</sup>	Existing Number of Lanes <sup>2</sup>	Existing Roadway Cross Section Width <sup>2,3</sup>	Existing On-Street Parking <sup>4</sup>	Built-Out to General Plan Classification <sup>5</sup>	LOS E Capacity <sup>6</sup>	Existing Conditions			Existing Plus Project Conditions			Change in V/C as Result of Project	Project Significant Impact <sup>6</sup>
							ADT	V/C <sup>7</sup>	LOS <sup>6</sup>	ADT	V/C <sup>7</sup>	LOS <sup>6</sup>		
<b>North/South Roadways</b>														
<b>Centre City Parkway</b>														
1. Country Club Lane to Iris Lane	Major Road	4	102 ft.	NP	Yes	37,000	11,964	0.323	A	12,500	0.338	A	0.014	NO
2. Iris Lane to El Norte Parkway	Major Road	4	102 ft.	NP	Yes	37,000	14,464	0.391	A	15,065	0.407	B	0.016	NO
<b>Escondido Boulevard</b>														
3. El Norte Parkway to Decatur Way	Local Collector	2	42 ft.	WP	Yes	10,000	7,400	0.740	C	8,935	0.894	E	0.154	YES
-With Mitigation <sup>11</sup>	Local Collector	2	42 ft.	<b>NP</b>	Yes	<b>15,000</b>	7,400	0.493	B	8,935	0.596	C	0.102	<b>NO</b>
4. Decatur Way to Lincoln Avenue <sup>8</sup>	Collector	2	64 ft.	WP	No	15,000	9,618	0.641	C	11,180	0.745	C	0.104	NO
5. Lincoln Avenue to Mission Avenue	Collector	4	64 ft.	NP	Yes	34,200	10,424	0.305	A	12,752	0.373	B	0.068	NO
6. Mission Avenue to Washington Ave	Collector	4	64 ft.	WP	Yes	20,000	15,302	0.765	D	15,947	0.797	D	0.032	YES
-With Mitigation <sup>11</sup>	Collector	4	64 ft.	<b>NP</b>	Yes	<b>34,200</b>	15,302	0.447	B	15,947	0.466	B	0.019	<b>NO</b>
<b>North Broadway</b>														
7. El Norte Parkway to Lincoln Avenue	Major Road	4	64 - 76 ft.	WP	Yes	37,000	17,534	0.474	B	18,290	0.494	B	0.020	NO
8. Lincoln Ave to SR-78 / Lincoln Pkwy	Major Road	4	82 ft.	NP	Yes	37,000	20,384	0.551	C	23,478	0.635	C	0.084	NO
<b>Fig Street</b>														
9. Lincoln Avenue to Mission Avenue <sup>9</sup>	Collector	2	42 - 64 ft.	WP	No	10,000	8,980	0.898	E	9,268	0.927	E	0.029	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	<b>64 ft.</b>	WP	<b>Yes</b>	<b>20,000</b>	8,980	0.449	B	9,268	0.463	B	0.014	<b>NO</b>
<b>East/West Roadways</b>														
<b>El Norte Parkway</b>														
10. Morning View Dr to Centre City Pkwy <sup>2</sup>	Major Road	7	94 ft.	NP	Yes	50,000	21,929	0.439	B	22,745	0.455	B	0.016	NO
11. Centre City Pkwy to Escondido Blvd <sup>2</sup>	Major Road	4	82 ft.	NP	Yes	37,000	25,420	0.687	C	26,837	0.725	C	0.038	NO
<b>Lincoln Avenue</b>														
12. Escondido Blvd to North Broadway	Local Collector	2	42 ft.	WP	Yes	10,000	2,556	0.256	A	7,094	0.709	C	0.454	NO
13. North Broadway to Garrick Way	Local Collector	2	42 ft.	WP	Yes	10,000	2,476	0.248	A	3,164	0.316	A	0.069	NO
<b>Lincoln Parkway/ Lincoln Avenue</b>														
14. North Broadway to Garrick Way	Prime Arterial	6	106 - 130 ft.	NP	Yes	60,000	31,930	0.532	B	32,619	0.544	C	0.011	NO
15. Garrick Way to Fig Street <sup>10</sup>	Prime Arterial	4 to 5	50 - 106 ft.	NP	No	37,000	31,589	0.854	D	32,966	0.891	E	0.037	YES
-With Mitigation <sup>11</sup>	Prime Arterial	<b>6</b>	<b>106 ft.</b>	NP	<b>Yes</b>	<b>60,000</b>	31,589	0.526	B	32,966	0.549	C	0.023	<b>NO</b>
16. Fig Street to Ash Street <sup>10</sup>	Prime Arterial	4	50 ft.	NP	No	37,000	24,699	0.668	C	25,608	0.692	C	0.025	NO
17. Ash Street to Harding Street <sup>9</sup>	Collector	2	42 - 64 ft.	WP	No	10,000	15,314	1.531	F	15,844	1.584	F	0.053	YES
-With Mitigation	Collector	<b>4</b>	<b>64 ft.</b>	<b>NP</b>	<b>Yes</b>	<b>34,200</b>	15,314	0.448	B	15,844	0.463	B	0.015	<b>NO</b>
18. Harding Street to Rose Street <sup>9</sup>	Collector	2	42 ft.	WP	No	10,000	12,591	1.259	F	12,961	1.296	F	0.037	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	<b>64 ft.</b>	WP	<b>Yes</b>	<b>20,000</b>	12,591	0.630	D	12,961	0.648	D	0.019	<b>NO</b>
19. Rose Street to Midway Drive	Local Collector	2	42 ft.	WP	Yes	10,000	9,568	0.957	E	9,768	0.977	E	0.020	NO
<b>Mission Avenue</b>														
20. Quince Street to Centre City Parkway	Major Road	4	64 ft.	NP	Yes	37,000	20,512	0.554	C	21,201	0.573	C	0.019	NO
21. Centre City Pkwy to Escondido Blvd	Major Road	4	64 ft.	NP	Yes	37,000	19,333	0.523	B	20,452	0.553	C	0.030	NO

<sup>1</sup> Classifications are based on the City of Escondido's Circulation Diagram from the May 2012 General Plan Update

<sup>2</sup> As measured during field review on December 26, 2013

<sup>3</sup> Roadway width measured mid-block; distances are considered approximate

<sup>4</sup> WP = With Parking; NP = No Parking.

<sup>5</sup> General Plan Buildout Classification may not be feasible due to right-of-way restrictions

<sup>6</sup> Per City of Escondido Traffic Impact Analysis Requirement Guidelines, October 10, 2013

<sup>7</sup> V/C = Volume to Capacity

<sup>8</sup> Capacity based on Local Collector classification, with 66 foot cross-section (NP)

<sup>9</sup> Capacity based on Local Collector classification, with 42 foot cross-section (WP)

<sup>10</sup> Capacity based on Major Road classification, 4 lane (NP)

<sup>11</sup> **BOLD** = Recommended mitigation improvement. Roadway widening is only shown for segments that are not currently built out to General Plan Classification, and widening would result in ultimate buildout capacity. The feasibility of improvements will need to be reviewed prior to determining whether the impact is mitigatable.

**TABLE 5-3**  
**Existing Plus Project Conditions Ramp Meter Analysis<sup>1,9</sup>**

Location		Peak Hour <sup>2</sup>	Existing Lanes	Meter Rate (veh/hr) <sup>3</sup>	Existing Demand (veh/hr) <sup>4</sup>	Excess Demand (veh/hr) <sup>5</sup>	Delay (Min) <sup>6</sup>	Queue (feet) <sup>7</sup>
1.	SR-78 Freeway On-Ramp (WB From N. Broadway/Lincoln Parkway)	<b>Existing Conditions</b>						
		AM	2 + 1 HOV	1,394	1,539	145	6.241	2,103
		<b>Existing Plus Project Conditions</b>						
		AM	2 + 1 HOV	1,394	1,571	177	7.636	2,572
						<b>Change in Delay (min)</b>	<b>Significant Impact<sup>8</sup></b>	
						1.395	No	

<sup>1</sup> Ramp meter analysis based on SANDAG guidelines. As stated in the SANDAG TIS Guidelines, caution should be used when interpreting the ramp meter analysis as, "The ramp metering analysis may lead to grossly understated results for delay and queue length, since important aspects of queue growth are ignored. Also, the draft guidelines method derives average values instead of maximum values for delay and queue length. Utilizing average values instead of maximum values can lead to obscuring important effects, particularly in regard to queue length.

<sup>2</sup> Ramp meter is only operatable from 6:30 AM to 9:30 AM.

<sup>3</sup> Meter rate provided by Caltrans. Meter rate is fixed at 697 vehicles per hour per lane. To be conservative, the HOV lane is not counted as part of the analysis.

<sup>4</sup> Existing Demand counted on June 6, 2013. A 10% reduction in demand has been assumed for HOV.

<sup>5</sup> Excess Demand = (Demand) - (Meter Rate) or zero, which ever is greater.

<sup>6</sup> Delay = Excess Demand / Meter Rate x 60 minutes/hour

<sup>7</sup> Queue = Excess Demand x 29 feet/vehicle

<sup>8</sup> Based on SANDAG criteria, a project is considered to have a significant impact if delay is above 15 minutes and increases by 2 minutes or more.

<sup>9</sup> Existing Plus Project impacts would be considered direct project impacts, per CEQA guidelines.

**TABLE 5-4  
Existing Plus Project Conditions  
Freeway Mainline Analysis<sup>5</sup>**

Mainline Segment	Direction	Existing Number of Lanes	Capacity (v/h/L) <sup>2</sup>	Existing Conditions						Existing Plus Conditions						Change in V/C as Result of Project		Significant Impact	
				Volume <sup>1</sup>		V/C <sup>3</sup>		LOS <sup>4</sup>		Volume <sup>1</sup>		V/C <sup>3</sup>		LOS <sup>4</sup>					
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1. SR-78 Freeway (I-15 Freeway to Centre City Parkway)	Eastbound	2	4,700	1,563	2,491	0.333	0.530	B	C	1,592	2,518	0.339	0.536	B	C	0.006	0.006	NO	NO
	Westbound	2	4,700	1,743	1,916	0.371	0.408	B	B	1,760	1,943	0.374	0.413	B	B	0.004	0.006	NO	NO
2. SR-78 Freeway (Centre City Parkway to North Broadway)	Eastbound	2	4,700	1,502	2,401	0.320	0.511	B	C	1,562	2,457	0.332	0.523	B	C	0.013	0.012	NO	NO
	Westbound	2	4,700	1,710	1,843	0.364	0.392	B	B	1,746	1,900	0.371	0.404	B	B	0.008	0.012	NO	NO

<sup>1</sup> Existing traffic volumes measured on June 6, 2013.

<sup>2</sup> Capacity shown in Vehicles Per Hour Per Lane (LOS E Threshold = 2,350 v/h/l)

<sup>3</sup> V/C = Volume to Capacity Ratio

<sup>4</sup> LOS = Level of Service; based on Caltrans District s

LOS	Max V/C
A	0.30
B	0.50
C	0.71
D	0.89
E	1.00

<sup>5</sup> Existing Plus Project impacts would be considered direct project impacts, per CEQA guidelines.



## **6.0 Project Opening Year (2016) Conditions**

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### **A. Method of Projection**

The proposed development is expected to be operational by Year 2016. To assess Project Opening Year (2016) traffic conditions, the build-up method of projection has been used. Future traffic is determined by adding cumulative projects traffic with existing traffic and area wide growth. RK has assumed a background traffic growth rate of 1% per year compounded annually for three (3) years for Project Opening Year (2016) conditions, resulting in a total growth of 3.03% for background traffic. Due to the general built-out environment in the study area, the build-up methodology used considers the Project Opening Year (2016) conditions as conservative.

### **B. Project Opening Year (2016) Without Project Traffic Analysis**

#### **1. Project Opening Year (2016) Without Project Traffic Volumes**

In order to assess Project Opening Year (2016) Without Project traffic conditions, the background growth was added to the existing peak hour intersection traffic counts plus cumulative project traffic. Project Opening Year (2016) Without Project AM, Mid-Day, and PM peak hour intersection turning movement volumes and average daily traffic are shown on Exhibit 6-1.

#### **2. Project Opening Year (2016) Without Project Intersection Analysis**

Intersection levels of service for the Project Opening Year (2016) Without Project conditions are shown on Table 6-1. As shown on Table 6-1, HCM calculations are based on the existing intersection geometrics.

For Project Opening Year (2016) Without Project conditions, all study area intersections are projected to operate at an acceptable level of service, with the exception of the following intersections:

Intersection #4: Centre City Parkway at El Norte Parkway: LOS E (PM)

Intersection #6: Escondido Boulevard at El Norte Parkway: LOS F/E (AM,PM/MID)

Intersection #7: Escondido Boulevard at Lincoln Avenue: LOS E (MID)

Intersection #11: North Broadway at Lincoln Avenue: LOS F (AM, MID & PM)

The HCM 2010 intersection level of service calculation worksheets for Project Opening Year (2016) Without Project Conditions are provided in Appendix F.

### **3. Project Opening Year (2016) Without Project Roadway Segment Analysis**

The street segment level of service calculations for Project Opening Year (2016) Without Project Conditions are shown in Table 6-2. As shown on Table 6-2, LOS calculations are based on the existing roadway geometrics.

For Project Opening Year (2016) Without Project conditions, all study area roadway segments are expected to operate at an acceptable level of service, with the exception of the following roadway segments:

Segment #9: Fig Street, Lincoln Avenue to Mission Avenue<sup>1</sup> (LOS E)

Segment #15: Lincoln Parkway, Garrick Street to Fig Street<sup>1</sup> (LOS E)

Segment #17: Lincoln Avenue, Ash Street to Harding Street<sup>1</sup> (LOS F)

Segment #18: Lincoln Avenue, Harding Street to Rose Street<sup>1</sup> (LOS F)

Segment #19: Lincoln Avenue, Rose Street to Midway Drive (LOS F)

<sup>1</sup>Street segment is not built-out to General Plan Classification. A lesser capacity has been assumed in the analysis to reflect existing conditions.

The capacity for roadway improvements within the study area is limited due to the built-out environment of the area. Several of the roadways listed above are currently designated in the City's General Plan for a higher capacity classification; however, obtaining ultimate right-of-way for these segments may be impractical.

It should be noted that due to the generalized nature of ADT capacities, the roadway capacity values are typically viewed as general rather than absolute guides for estimating levels of service and sizing the future roadway system. A more detailed intersection evaluation (using peak hour data) is carried out for this project and represents a more accurate indication of actual traffic operations.

#### **4. Project Opening Year (2016) Without Project Ramp Meter Analysis**

The ramp meter analysis for Project Opening Year (2016) Without Project conditions is shown in Table 6-3.

For Project Opening Year (2016) Without Project conditions, the study area ramp meter is expected to have a delay of less than fifteen (15) minutes and, therefore, the ramp meter is considered to be operating acceptably.

#### **5. Project Opening Year (2016) Without Project Freeway Mainline Analysis**

The freeway mainline analysis for Project Opening Year (2016) Without Project conditions is shown in Table 6-4. As shown in Table 6-4, all freeway mainlines are projected to continue to operate at an acceptable level of service for Project Opening Year (2016) Without Project conditions.

## **C. Project Opening Year (2016) With Project Traffic Analysis**

### **1. Project Opening Year (2016) With Project Traffic Volumes**

In order to assess Project Opening Year (2016) With Project traffic conditions, the project traffic, cumulative project traffic, and the background growth was added to the existing peak hour intersection traffic counts. Project Opening Year (2016) With Project AM, Mid-Day, and PM peak hour intersection turning movement volumes and average daily traffic are shown on Exhibit 6-2.

The full project trip generation, without pass-by reduction, is shown at the intersections of Escondido Boulevard at Lincoln Avenue, North Broadway at Lincoln Avenue, North Broadway at Lincoln Parkway / SR-78, and the project access driveways.

### **2. Project Opening Year (2016) With Project Intersection Analysis**

Intersection levels of service for Project Opening Year (2016) With Project conditions are shown on Table 6-1. As shown on Table 6-1, HCM calculations are based on the existing intersection geometrics.

For Project Opening Year (2016) With Project conditions, the project is expected to have a less than significant impact at all study area intersections during the peak hours, with the exception of the following intersections where a cumulatively significant impact is expected:

- Intersection #6: Escondido Boulevard at El Norte Parkway
- Intersection #7: Escondido Boulevard at Lincoln Avenue
- Intersection #11: North Broadway at Lincoln Avenue
- Intersection #12: North Broadway at Lincoln Parkway / SR-78

These intersections are expected to operate at LOS D or worse and the project is expected to increase delay by more than two (2) seconds, thereby triggering a significant impact. Mitigation recommendations have been made that would reduce the project's impact to less than significant. All recommended mitigation measures are discussed in Section 10.0.

The HCM 2010 intersection level of service calculation worksheets for Project Opening Year (2016) With Project conditions are provided in Appendix G.

### **3. Project Opening Year (2016) With Project Roadway Segment Analysis**

The roadway segment level of service calculations for Project Opening Year (2016) With Project conditions are shown in Table 6-2. As shown on Table 6-2, LOS calculations are based on the existing roadway geometrics.

For Project Opening Year (2016) With Project conditions, the project is expected to have a less than significant impact at all study area street segments, with the exception of the following segments where a cumulatively significant impact is expected:

- Segment #3: Escondido Boulevard, El Norte Parkway to Decatur Way
- Segment #4: Escondido Boulevard, Decatur Way to Lincoln Avenue<sup>1</sup>
- Segment #6: Escondido Boulevard, Mission Avenue to Washington Avenue
- Segment #9: Fig Street, Lincoln Avenue to Mission Avenue<sup>1</sup>
- Segment #11: El Norte Parkway, Centre City Parkway to Escondido Boulevard
- Segment #15: Lincoln Parkway, Garrick Street to Fig Street<sup>1</sup>
- Segment #17: Lincoln Avenue, Ash Street to Harding Street<sup>1</sup>
- Segment #18: Lincoln Avenue, Harding Street to Rose Street<sup>1</sup>

<sup>1</sup>Street segment is not built-out to General Plan Classification. A lesser capacity has been assumed in the analysis to reflect existing conditions.

The capacity for roadway improvements within the study area is limited due to the built-out environment of the area. Several of the roadways listed above are currently designated in the City's General Plan for a higher capacity classification; however, obtaining ultimate right of way for these segments may be impractical.

To effectively mitigate project impacts, roadway widening and/or restricting on-street parking may be required. Mitigation recommendations that include roadway widening are only shown for segments that are not currently built-out to General Plan Classification, and the recommended widening would result in meeting ultimate buildout capacity. The improvements should be further reviewed to determining whether the widening is feasible. Should the roadway improvements be considered not feasible, then the project may be required to contribute additional impact fees to offset project impacts.

It should be noted that due to the generalized nature of ADT capacities, the roadway capacity values are typically viewed as general rather than absolute guides for estimating levels of service and sizing the future roadway system. A more detailed intersection evaluation (using peak hour data) is carried out for this project and represents a more accurate indication of actual traffic operations.

#### **4. Project Opening Year (2016) With Project Ramp Meter Analysis**

The ramp meter analysis for Project Opening Year (2016) With Project conditions is shown in Table 6-3.

For Project Opening Year (2016) With Project conditions, the study area ramp meter is expected to have a delay of less than fifteen (15) minutes and the project is expected to increase the delay by less than two (2) minutes. Therefore, the project impact at the ramp meter is considered to be less than significant. No mitigation is required for this location.

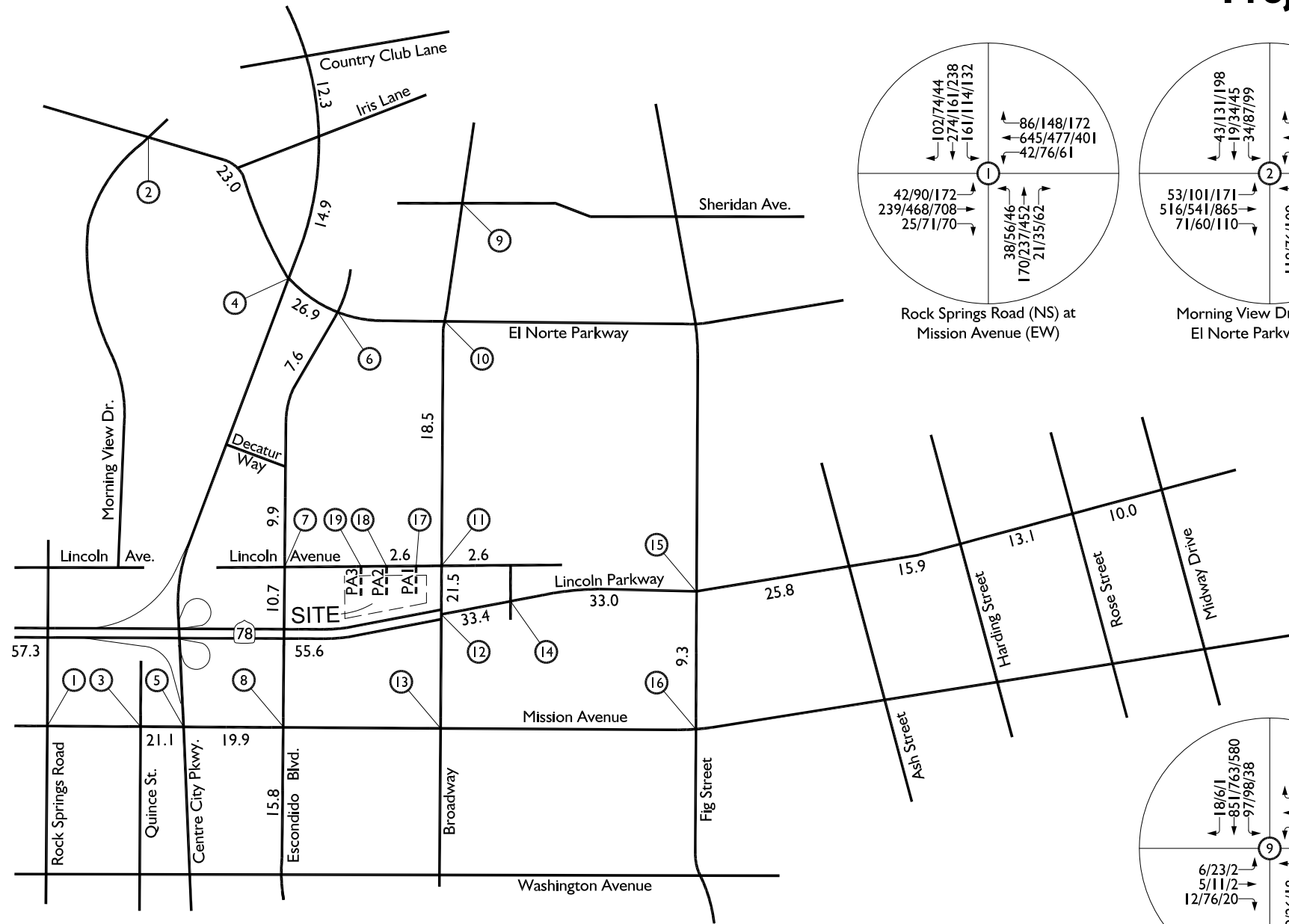
## **5. Project Opening Year (2016) With Project Freeway Mainline Analysis**

The freeway mainline analysis for Project Opening Year (2016) With Project conditions is shown in Table 6-4. Level of service thresholds are based upon Caltrans Traffic Impact Study Guidelines Basic Freeway Segment Level of Service Definitions, and significant impacts are defined by SANDAG/SANTEC guidelines. As shown in Table 6-4, all freeway mainlines are currently operating at an acceptable level of service, and the project is expected to have a less than significant impact for Project Opening Year (2016) With Project conditions.

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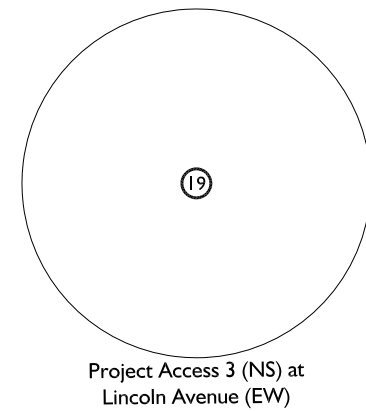
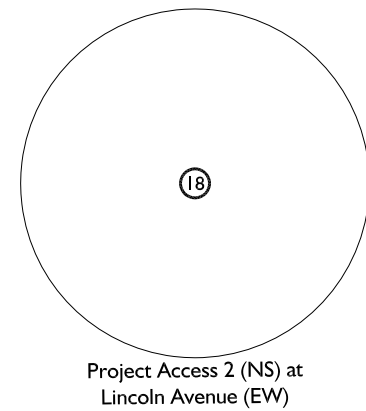
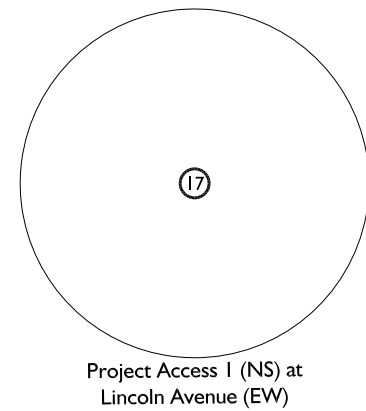
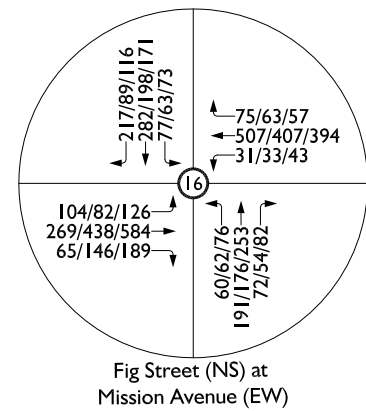
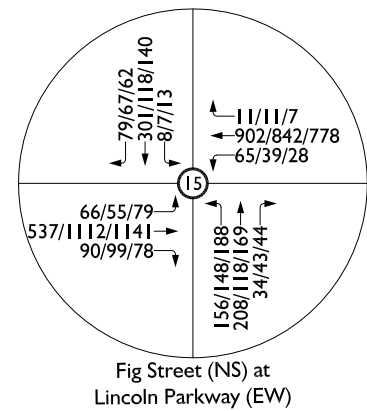
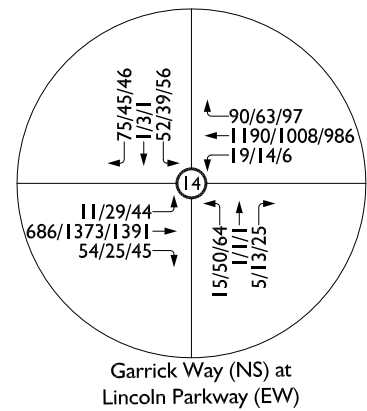
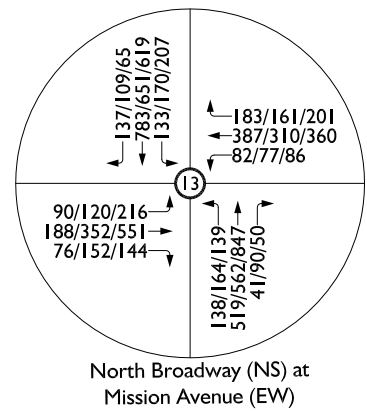
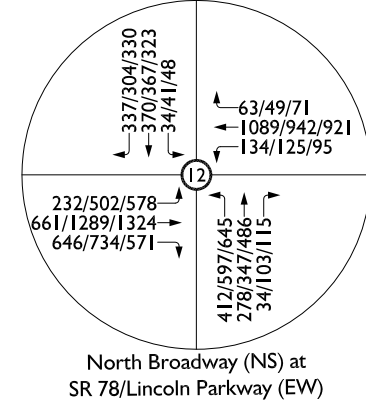
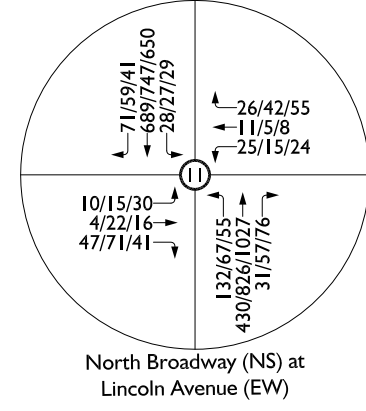
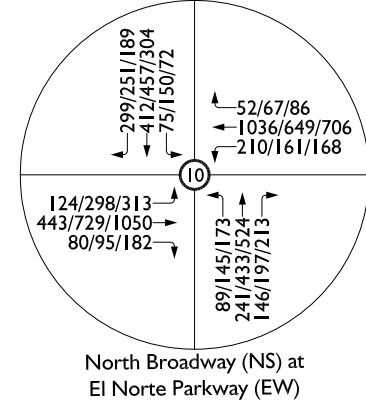
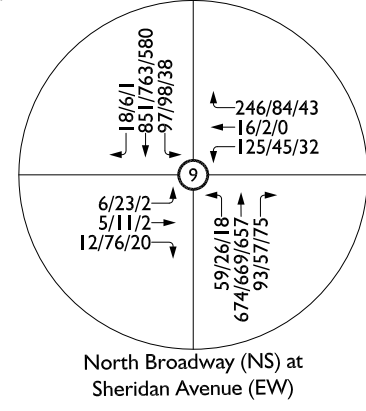
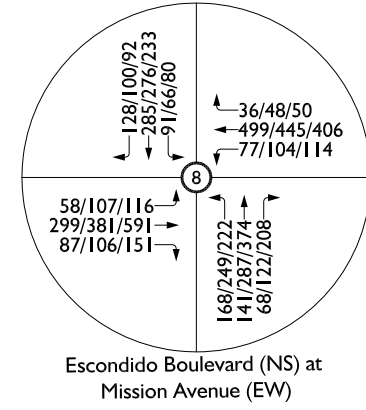
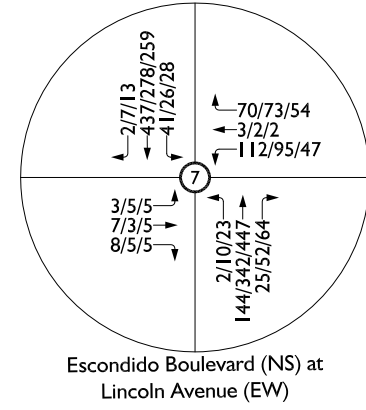
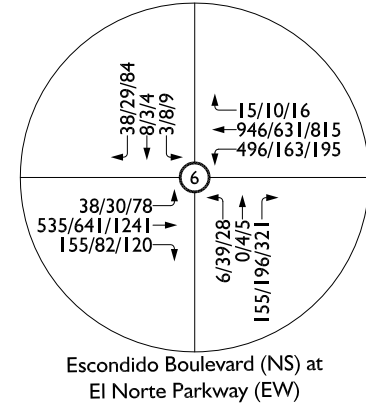
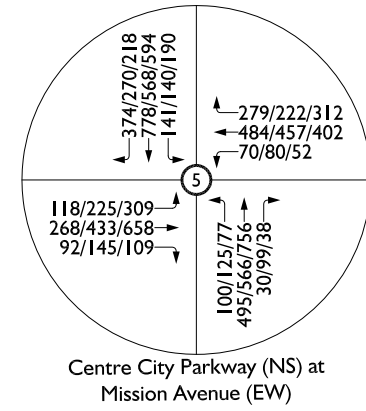
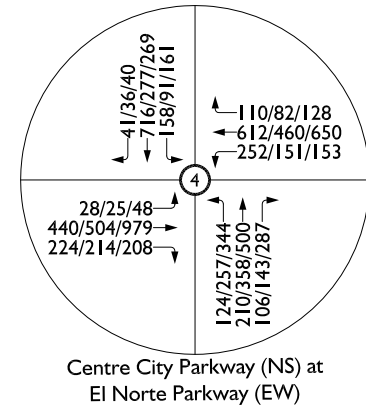
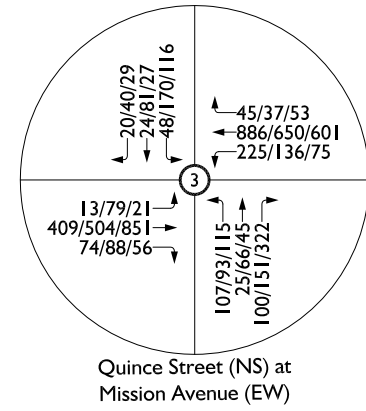
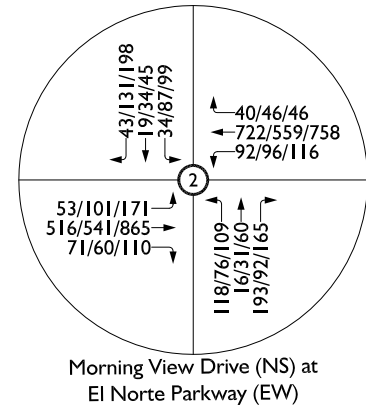
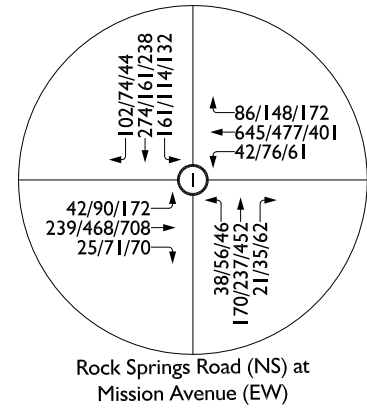


# Project Opening Year (2016) Without Project Traffic Volumes



**Legend:**

10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic (1000s)



**TABLE 6-1  
Project Opening Year (2016) Intersection Analysis<sup>6</sup>**

Intersection	Traffic Control <sup>2</sup>	Project Opening Year (2016) Without Project						Project Opening Year (2016) With Project						Change in Delay (seconds) <sup>1</sup>			Significant Impact			
		Delay (seconds) <sup>1</sup>			Level of Service			Delay (seconds) <sup>1</sup>			Level of Service			AM	MID	PM	AM	MID	PM	
		AM	MID	PM	AM	MID	PM	AM	MID	PM	AM	MID	PM							
Rock Springs Road (NS) at																				
1. Mission Avenue (EW)	TS	15.4	16.1	21.6	B	B	C	15.6	16.2	21.8	B	B	C	0.2	0.1	0.2	NO	NO	NO	
Morning View Drive (NS) at																				
2. El Norte Parkway (EW)	TS	15.1	13.5	22.1	B	B	C	15.3	13.6	22.2	B	B	C	0.2	0.1	0.1	NO	NO	NO	
Quince Street (NS) at																				
3. Mission Avenue (EW)	TS	20.0	26.1	31.8	C	C	C	20.2	26.8	33.1	C	C	C	0.2	0.7	1.3	NO	NO	NO	
Centre City Parkway (NS) at																				
4. El Norte Parkway (EW)	TS	44.7	46.7	53.5	D	D	D	45.3	48.0	55.2	D	D	E	0.6	1.3	1.7	NO	NO	NO	
5. Mission Avenue (EW)	TS	24.3	34.6	39.2	C	C	D	25.0	35.1	39.3	C	D	D	0.7	0.5	0.1	NO	NO	NO	
Escondido Boulevard (NS) at																				
6. El Norte Parkway (EW)	CSS	275.5	38.7	319.6	F	E	F	351.2	55.2	884.5	F	F	F	75.7	16.5	564.9	YES	YES	YES	
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	31.9	9.4	29.2	C	A	C	-243.6	-29.3	-290.4	NO	NO	NO	
7. Lincoln Avenue (EW)	CSS	29.0	35.1	22.9	D	E	C	92.7	484.3	284.8	F	F	F	63.7	449.2	261.9	YES	YES	YES	
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	7.4	11.5	7.7	A	B	A	-21.6	-23.6	-15.2	NO	NO	NO	
8. Mission Avenue (EW)	TS	29.0	31.1	32.5	C	C	C	30.2	34.5	32.9	C	C	C	1.2	3.4	0.4	NO	NO	NO	
North Broadway (NS) at																				
9. Sheridan Avenue (EW)	TS	27.9	23.6	9.2	C	C	A	28.3	24.0	9.3	C	C	A	0.4	0.4	0.1	NO	NO	NO	
10. El Norte Parkway (EW)	TS	69.0	44.8	55.1	E	D	E	69.3	45.5	56.1	E	D	E	0.3	0.7	1.0	NO	NO	NO	
11. Lincoln Avenue (EW)	CSS	108.3	237.1	193.2	F	F	F	1442.1	- <sup>3</sup>	- <sup>3</sup>	F	F	F	1333.8	- <sup>3</sup>	- <sup>3</sup>	YES	YES	YES	
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	20.6	32.7	15.4	C	C	B	-87.7	-204.4	-177.8	NO	NO	NO	
12. SR 78/Lincoln Parkway (EW)	TS	58.0	61.4	67.0	E	E	E	63.6	73.8	82.7	E	E	E	5.6	12.4	15.7	YES	YES	YES	
- With Mitigation <sup>5</sup>	TS	N/A	N/A	N/A	N/A	N/A	N/A	54.0	58.0	65.3	D	E	E	-4.0	-3.4	-1.7	NO	NO	NO	
13. Mission Avenue (EW)	TS	40.1	30.2	45.9	D	C	D	41.5	30.2	46.6	D	C	D	1.4	0.0	0.7	NO	NO	NO	
Garrick Way (NS) at																				
14. Lincoln Parkway (EW)	TS	9.7	12.5	12.4	A	B	B	9.9	12.8	12.6	A	B	B	0.2	0.3	0.2	NO	NO	NO	
Fig Street (NS) at																				
15. Lincoln Parkway (EW)	TS	42.3	32.5	34.9	D	C	C	43.9	33.9	36.7	D	C	D	1.6	1.4	1.8	NO	NO	NO	
16. Mission Avenue (EW)	TS	14.8	12.7	13.6	B	B	B	15.0	12.8	13.7	B	B	B	0.2	0.1	0.1	NO	NO	NO	
Project Access 1 (NS) at																				
17. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	N/A	N/A	12.0	19.2	17.8	B	C	C	N/A	N/A	N/A	NO	NO	NO	
Project Access 2 (NS) at																				
18. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	N/A	N/A	11.9	18.5	17.1	B	C	C	N/A	N/A	N/A	NO	NO	NO	
Project Access 3 (NS) at																				
19. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	N/A	N/A	9.3	10.0	9.9	A	B	A	N/A	N/A	N/A	NO	NO	NO	

<sup>1</sup> Analysis Software: Synchro, Version 8.0. Per the Highway Capacity Manual (HCM) 2010 Signalized methodology, overall average intersection delay and levels of service are shown for intersections controlled by traffic signals. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>2</sup> TS = Traffic Signal  
CSS = Cross Street Stop

<sup>3</sup> Delay cannot be calculated due to high volume of conflicting movements.

<sup>4</sup> LOS F results from westbound left turn movement delay.

<sup>5</sup> Recommended improvements would satisfy City of Escondido requirements to restore intersection Level of Service to "without project" conditions.

<sup>6</sup> Project Opening Year impacts would be considered cumulative project impacts, per CEQA guidelines.

**TABLE 6-2  
Project Opening Year (2016) Conditions  
Roadway Segment Analysis<sup>14</sup>**

Study Area Roadway Segment	City of Escondido General Plan Roadway Classification <sup>1</sup>	Existing Number of Lanes <sup>2</sup>	Existing Roadway Cross-Section Width <sup>2,3</sup>	Existing On-Street Parking <sup>4</sup>	Built-Out to General Plan Classification <sup>5</sup>	LOS E Capacity <sup>6</sup>	Project Opening Year (2016) Without Project Conditions			Project Opening Year (2016) With Project Conditions			Change in V/C as Result of Project	Project Significant Impact <sup>6</sup>
							ADT	V/C <sup>7</sup>	LOS <sup>6</sup>	ADT	V/C <sup>7</sup>	LOS <sup>6</sup>		
<b>North/South Roadways</b>														
<b>Centre City Parkway</b>														
1. Country Club Lane to Iris Lane	Major Road	4	102 ft.	NP	Yes	37,000	12,327	0.333	A	12,863	0.348	B	0.014	NO
2. Iris Lane to El Norte Parkway	Major Road	4	102 ft.	NP	Yes	37,000	14,902	0.403	B	15,503	0.419	B	0.016	NO
<b>Escondido Boulevard</b>														
3. El Norte Parkway to Decatur Way	Local Collector	2	42 ft.	WP	Yes	10,000	7,624	0.762	D	9,159	0.916	E	0.154	YES
-With Mitigation <sup>11</sup>	Local Collector	2	42 ft.	<b>NP</b>	Yes	<b>15,000</b>	7,624	0.508	B	9,159	0.611	C	0.102	<b>NO</b>
4. Decatur Way to Lincoln Avenue <sup>8</sup>	Collector	2	64 ft.	WP	No	15,000	9,909	0.661	C	11,471	0.765	D	0.104	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	64 ft.	WP	<b>Yes</b>	<b>20,000</b>	9,909	0.495	B	11,471	0.574	C	0.078	<b>NO</b>
5. Lincoln Avenue to Mission Avenue	Collector	4	64 ft.	NP	Yes	34,200	10,740	0.314	A	13,068	0.382	B	0.068	NO
6. Mission Avenue to Washington Ave	Collector	4	64 ft.	WP	Yes	20,000	15,766	0.788	D	16,411	0.821	D	0.032	YES
-With Mitigation <sup>11</sup>	Collector	4	64 ft.	<b>NP</b>	Yes	<b>34,200</b>	15,766	0.461	B	16,411	0.480	B	0.019	<b>NO</b>
<b>North Broadway</b>														
7. El Norte Parkway to Lincoln Avenue	Major Road	4	64 - 76 ft.	WP	Yes	37,000	18,513	0.500	B	19,269	0.521	B	0.020	NO
8. Lincoln Ave to SR-78 / Lincoln Pkwy	Major Road	4	82 ft.	NP	Yes	37,000	21,450	0.580	C	24,544	0.663	C	0.084	NO
<b>Fig Street</b>														
9. Lincoln Avenue to Mission Avenue <sup>9</sup>	Collector	2	42 - 64 ft.	WP	No	10,000	9,270	0.927	E	9,558	0.956	E	0.029	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	<b>64 ft.</b>	WP	<b>Yes</b>	<b>20,000</b>	9,270	0.464	B	9,558	0.478	B	0.014	<b>NO</b>
<b>East/West Roadways</b>														
<b>El Norte Parkway</b>														
10. Morning View Dr to Centre City Pkwy	Major Road	7	94 ft.	NP	Yes	50,000	23,001	0.460	B	23,817	0.476	B	0.016	NO
11. Centre City Pkwy to Escondido Blvd <sup>12</sup>	Major Road	4	82 ft.	NP	Yes	37,000	26,870	0.726	C	28,287	0.765	D	0.038	YES
<b>Lincoln Avenue</b>														
12. Escondido Blvd to North Broadway	Local Collector	2	42 ft.	WP	Yes	10,000	2,633	0.263	A	7,171	0.717	C	0.454	NO
13. North Broadway to Garrick Way	Local Collector	2	42 ft.	WP	Yes	10,000	2,551	0.255	A	3,239	0.324	A	0.069	NO
<b>Lincoln Parkway/ Lincoln Avenue</b>														
14. North Broadway to Garrick Way	Prime Arterial	6	106 - 130 ft.	NP	Yes	60,000	33,377	0.556	C	34,066	0.568	C	0.011	NO
15. Garrick Way to Fig Street <sup>10</sup>	Prime Arterial	4 to 5	50 - 106 ft.	NP	No	37,000	33,026	0.893	E	34,403	0.930	E	0.037	YES
-With Mitigation <sup>11</sup>	Prime Arterial	<b>6</b>	<b>106 ft.</b>	NP	<b>Yes</b>	<b>60,000</b>	33,026	0.550	C	34,403	0.573	C	0.023	<b>NO</b>
16. Fig Street to Ash Street <sup>10</sup>	Prime Arterial	4	50 ft.	NP	No	37,000	25,837	0.698	C	26,746	0.723	C	0.025	NO
17. Ash Street to Harding Street <sup>9</sup>	Collector	2	42 - 64 ft.	WP	No	10,000	15,914	1.591	F	16,444	1.644	F	0.053	YES
-With Mitigation	Collector	<b>4</b>	<b>64 ft.</b>	<b>NP</b>	<b>Yes</b>	<b>34,200</b>	15,914	0.465	B	16,444	0.481	B	0.015	<b>NO</b>
18. Harding Street to Rose Street <sup>9</sup>	Collector	2	42 ft.	WP	No	10,000	13,109	1.311	F	13,479	1.348	F	0.037	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	<b>64 ft.</b>	WP	<b>Yes</b>	<b>20,000</b>	13,109	0.655	D	13,479	0.674	D	0.019	<b>NO</b>
19. Rose Street to Midway Drive	Local Collector	2	42 ft.	WP	Yes	10,000	9,994	0.999	E	10,194	1.019	F	0.020	NO
-With Mitigation <sup>13</sup>	Local Collector	2	42 ft.	<b>NP</b>	Yes	<b>15,000</b>	9,994	0.666	C	10,194	0.680	C	0.013	NO
<b>Mission Avenue</b>														
20. Quince Street to Centre City Parkway	Major Road	4	64 ft.	NP	Yes	37,000	21,134	0.571	C	21,823	0.590	C	0.019	NO
21. Centre City Pkwy to Escondido Blvd	Major Road	4	64 ft.	NP	Yes	37,000	19,919	0.538	B	21,038	0.569	C	0.030	NO

<sup>1</sup> Classifications are based on the City of Escondido's Circulation Diagram from the May 2012 General Plan Update

<sup>2</sup> As measured during field review on December 26, 2013

<sup>3</sup> Roadway width measured mid-block; distances are considered approximate

<sup>4</sup> WP = With Parking; NP = No Parking.

<sup>5</sup> General Plan Buildout Classification may not be feasible due to right-of-way restrictions

<sup>6</sup> Per City of Escondido Traffic Impact Analysis Requirement Guidelines, October 10, 2013

<sup>7</sup> V/C = Volume to Capacity

<sup>8</sup> Capacity based on Local Collector classification, with 66 foot cross-section (NP)

<sup>9</sup> Capacity based on Local Collector classification, with 42 foot cross-section (WP)

<sup>10</sup> Capacity based on Major Road classification, 4 lane (NP)

<sup>11</sup> **BOLD** = With recommended mitigation improvement. Roadway widening is only shown for segments that are not currently built out to General Plan Classification, and widening would result in ultimate buildout capacity. The feasibility of improvements will need to be reviewed prior to determining whether the impact is mitigatable.

<sup>12</sup> Street segment is currently built out to General Plan classification. Additional roadway improvements may not be feasible. Project impact may be considered significant and unmitigatable.

<sup>13</sup> Although the project would have a less than significant impact at this location, mitigation has been shown to improve level of service, per City of Escondido guidelines. Mitigation may not be feasible.

<sup>14</sup> Project Opening Year impacts would be considered cumulative project impacts, per CEQA guidelines.

**TABLE 6-3**  
**Project Opening Year (2016) Conditions Ramp Meter Analysis<sup>1,9</sup>**

Location		Peak Hour <sup>2</sup>	Existing Lanes	Meter Rate (veh/hr) <sup>3</sup>	Existing Demand (veh/hr) <sup>4</sup>	Excess Demand (veh/hr) <sup>5</sup>	Delay (Min) <sup>6</sup>	Queue (feet) <sup>7</sup>
1.	SR-78 Freeway On-Ramp (WB From N. Broadway/Lincoln Parkway)	Project Opening Year (2016) Without Project Conditions						
		AM	2 + 1 HOV	1,394	1,620	226	9.727	3,277
		Project Opening Year (2016) With Project Conditions						
		AM	2 + 1 HOV	1,394	1,652	258	11.122	3,747
						<b>Change in Delay (min)</b>	<b>Significant Impact<sup>8</sup></b>	
						1.395	No	

<sup>1</sup> Ramp meter analysis based on SANDAG guidelines. As stated in the SANDAG TIS Guidelines, caution should be used when interpreting the ramp meter analysis as, "The ramp metering analysis may lead to grossly understated results for delay and queue length, since important aspects of queue growth are ignored. Also, the draft guidelines method derives average values instead of maximum values for delay and queue length. Utilizing average values instead of maximum values can lead to obscuring important effects, particularly in regard to queue length.

<sup>2</sup> Ramp meter is only operatable from 6:30 AM to 9:30 AM.

<sup>3</sup> Meter rate provided by Caltrans. Meter rate is fixed at 697 vehicles per hour per lane. To be conservative, the HOV lane is not counted as part of the analysis.

<sup>4</sup> Existing Demand counted on June 6, 2013. A 10% reduction in demand has been assumed for HOV.

<sup>5</sup> Excess Demand = (Demand) - (Meter Rate) or zero, which ever is greater.

<sup>6</sup> Delay = Excess Demand / Meter Rate x 60 minutes/hour

<sup>7</sup> Queue = Excess Demand x 29 feet/vehicle

<sup>8</sup> Based on SANDAG criteria, a project is considered to have a significant impact if delay is above 15 minutes and increases by 2 minutes or more.

<sup>9</sup> Project Opening Year impacts would be considered cumulative project impacts, per CEQA guidelines.

**TABLE 6-4  
Project Opening Year (2016) Conditions  
Freeway Mainline Analysis<sup>5</sup>**

Mainline Segment	Direction	Existing Number of Lanes	Capacity (v/h/L) <sup>2</sup>	Project Opening Year (2016) Without Project Conditions						Project Opening Year (2016) With Project Conditions						Change in V/C as Result of Project		Significant Impact	
				Volume <sup>1</sup>		V/C <sup>3</sup>		LOS <sup>4</sup>		Volume <sup>1</sup>		V/C <sup>3</sup>		LOS <sup>4</sup>		AM	PM	AM	PM
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM				
1. SR-78 Freeway (I-15 Freeway to Centre City Pkwy)	Eastbound	2	4,700	1,633	2,633	0.348	0.560	B	C	1,662	2,660	0.354	0.566	B	C	0.006	0.006	NO	NO
	Westbound	2	4,700	1,849	2,003	0.393	0.426	B	B	1,866	2,030	0.397	0.432	B	B	0.004	0.006	NO	NO
2. SR-78 Freeway (Centre City Parkway to North Broadway)	Eastbound	2	4,700	1,564	2,512	0.333	0.534	B	C	1,624	2,568	0.345	0.546	B	C	0.013	0.012	NO	NO
	Westbound	2	4,700	1,800	1,920	0.383	0.408	B	B	1,836	1,977	0.391	0.421	B	B	0.008	0.012	NO	NO

<sup>1</sup> Volume based on existing traffic counts measured on June 6, 2013, with growth for Year 2016. Refer to Section 6.A for more information on method of projection

<sup>2</sup> Capacity shown in Vehicles Per Hour Per Lane (LOS E Threshold = 2,350 v/h/l)

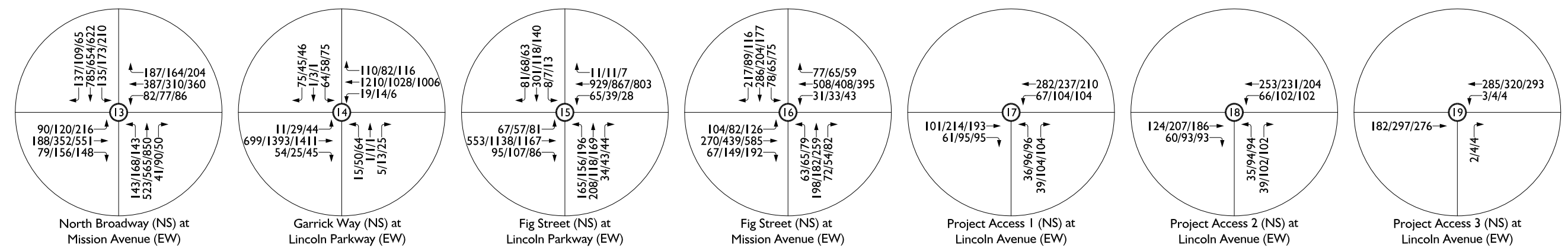
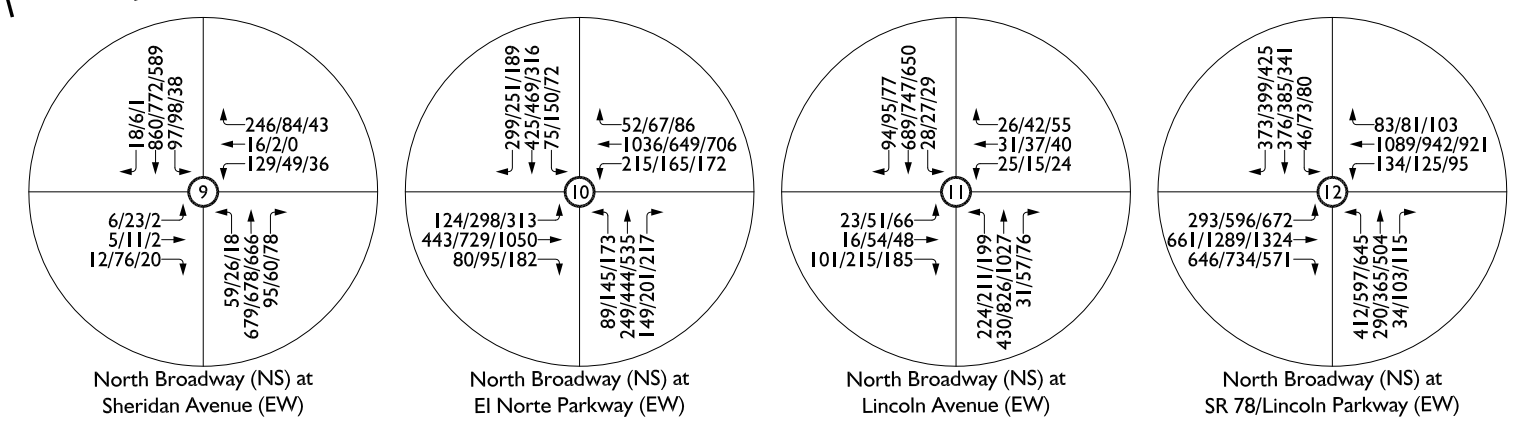
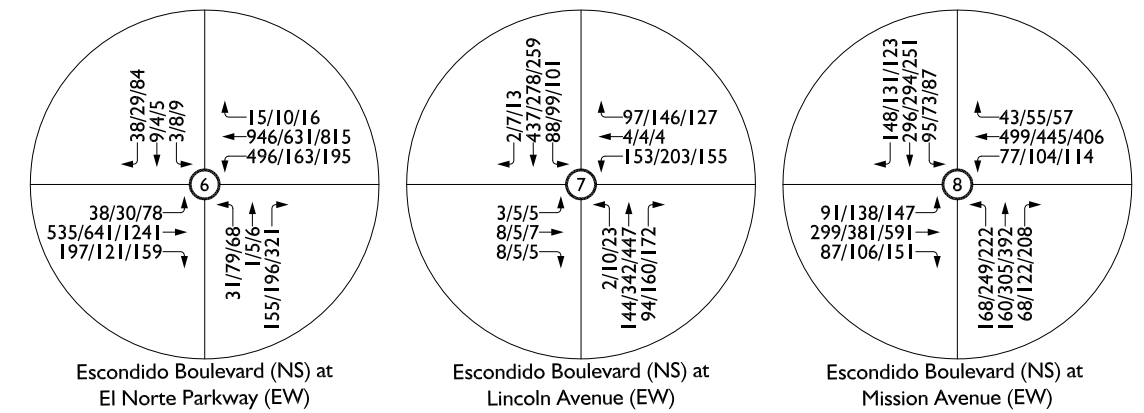
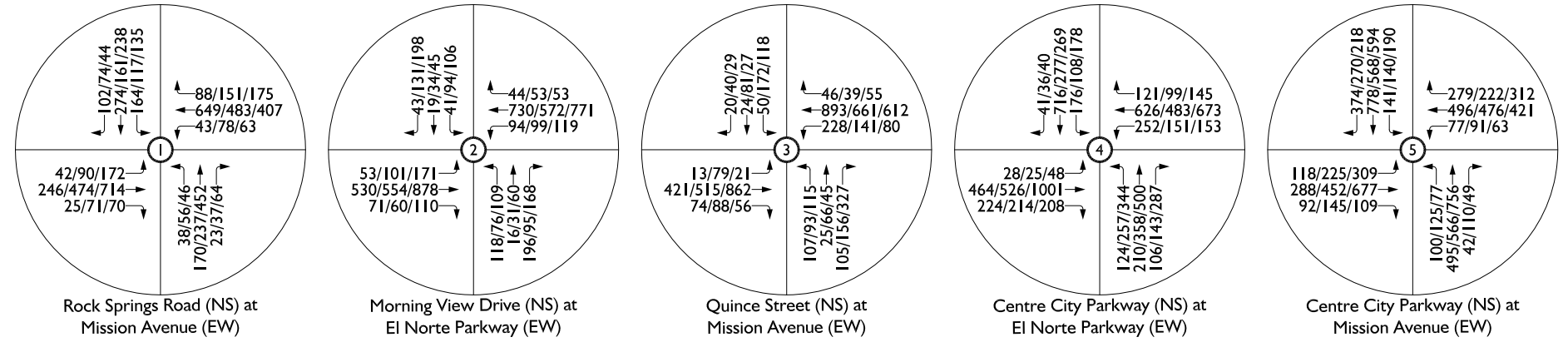
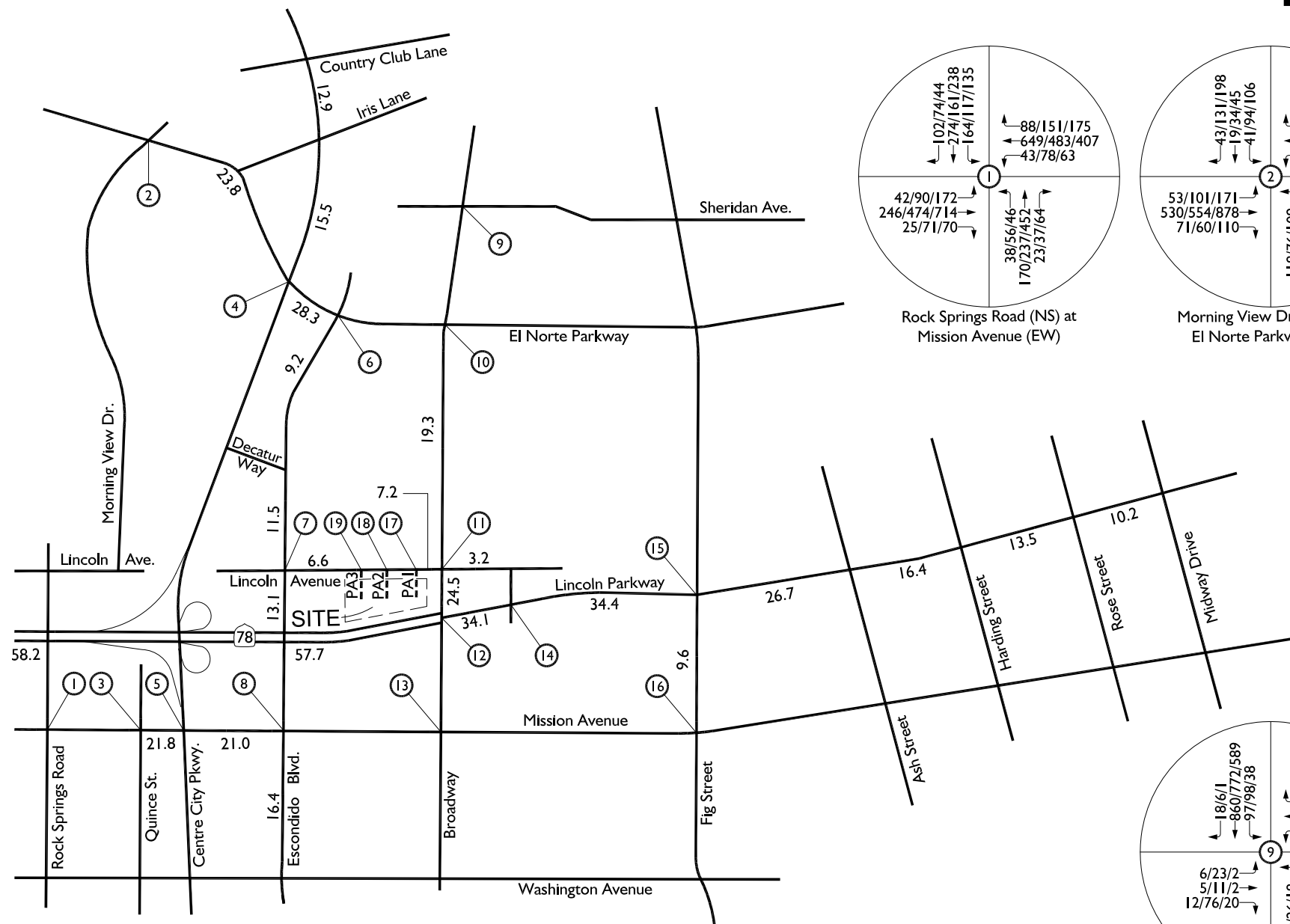
<sup>3</sup> V/C = Volume to Capacity Ratio

<sup>4</sup> LOS = Level of Service; based on Caltrans District 11 Freeway Segment Level of Service Definitions

LOS	Max V/C
A	0.30
B	0.50
C	0.71
D	0.89
E	1.00

<sup>5</sup> Project Opening Year impacts would be considered cumulative project impacts, per CEQA guidelines.

# Project Opening Year (2016) With Project Traffic Volumes



**Legend:**  
 10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic (1000s)



## **7.0 Horizon Year (2035) Conditions**

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### **A. Method of Projection**

Horizon Year 2035 Traffic Conditions have been modeled to evaluate future traffic impacts for long-term General Plan Buildout conditions. To assess Horizon Year (2035) traffic conditions, forecast traffic volumes have been obtained from the SANDAG Series 12 2035 Highway Network Select Zone Assignment (SZA) model. The SZA model uses a four-step method for projecting future traffic volumes within the analysis area. The SZA model assumes land uses and roadway improvements listed in the City's General Plan have been completed for Future Year 2035 conditions. The Base Year for the Series 12 model is 2008.

The forecasted traffic volumes are compared to the existing traffic counts taken in 2013 and reviewed for inconsistencies in travel patterns and growth. In order to maintain a conservative analysis, adjustments are made for locations where Year 2035 traffic volumes are less than Year 2013 volumes and where no alternative corridor or change in land use has been introduced, to justify a reduction. The peak hour turning movement volumes have been extrapolated from peak hour approach volumes and the calculation worksheets are provided in Appendix H.

Mid-day peak hour analysis was not performed for Year 2035 conditions because the SZA model does not produce mid-day peak hour projections. It can be generally assumed that the AM and PM peak hour analysis will represent the worst case conditions for the long-term scenarios.

## **B. Horizon Year (2035) Without Project Traffic Analysis**

### **1. Horizon Year (2035) Without Project Traffic Volumes**

In order to assess Horizon Year (2035) Without Project traffic conditions, traffic volumes were obtained from the SANDAG Series 12 SZA model. Project traffic was then subtracted, as the model included the proposed development. Horizon Year (2035) Without Project AM and PM peak hour intersection turning movement volumes and average daily traffic are shown on Exhibit 7-1.

### **2. Horizon Year (2035) Without Project Intersection Analysis**

Intersection levels of service for the Horizon Year (2035) Without Project conditions are shown on Table 7-1. As shown on Table 7-1, HCM calculations are based on the existing intersection geometrics.

For Horizon Year (2035) Without Project conditions, all study area intersections are projected to operate at acceptable levels of service, with the exception of the following intersections:

Intersection #4:	Centre City Parkway at El Norte Parkway: LOS E (AM & PM)
Intersection #5:	Centre City Parkway at Mission Avenue: LOS E (PM)
Intersection #6:	Escondido Boulevard at El Norte Parkway: LOS F (AM & PM)
Intersection #7:	Escondido Boulevard at Lincoln Avenue: LOS F (AM)
Intersection #11:	North Broadway at Lincoln Avenue: LOS F (AM & PM)
Intersection #12:	North Broadway at Lincoln Parkway / SR-78: LOS F (AM & PM)
Intersection #13:	North Broadway at Mission Avenue: LOS E (AM & PM)
Intersection #15:	Fig Street at Lincoln Avenue: LOS F (AM)



The HCM 2010 intersection level of service calculation worksheets for Horizon Year (2035) Without Project Conditions are provided in Appendix I.

### **3. Horizon Year (2035) Without Project Roadway Segment Analysis**

The roadway segment level of service calculations for Horizon Year (2035) Without Project Conditions are shown in Table 7-2. As shown on Table 7-2, LOS calculations are based on the existing roadway geometrics.

For Horizon Year (2035) Without Project conditions, all study area roadway segments are expected to operate at an acceptable level of service, with the exception of the following segments:

- Segment #3: Escondido Boulevard, El Norte Parkway to Decatur Way (LOS F)
- Segment #9: Fig Street, Lincoln Avenue to Mission Avenue<sup>1</sup> (LOS E)
- Segment #15: Lincoln Parkway, Garrick Street to Fig Street<sup>1</sup> (LOS F)
- Segment #16: Lincoln Avenue, Fig Street to Ash Street<sup>1</sup> (LOS F)
- Segment #17: Lincoln Avenue, Ash Street to Harding Street<sup>1</sup> (LOS F)
- Segment #18: Lincoln Avenue, Harding Street to Rose Street<sup>1</sup> (LOS F)
- Segment #19: Lincoln Avenue, Rose Street to Midway Drive<sup>1</sup> (LOS F)

<sup>1</sup>Street segment is not built-out to General Plan Classification. A lesser capacity has been assumed in the analysis to reflect existing conditions.

The capacity for roadway improvements within the study area is limited due to the built-out environment of the area. Several of the roadways listed above are currently designated in the City's General Plan for a higher capacity classification; however, obtaining ultimate right-of-way for these segments may be impractical.

It should be noted that due to the generalized nature of ADT capacities, the roadway capacity values are typically viewed as general rather than absolute guides for estimating levels of service and sizing the future roadway system. A more

detailed intersection evaluation (using peak hour data) is carried out for this project and represents a more accurate indication of actual traffic operations.

#### **4. Horizon Year (2035) Without Project Ramp Meter Analysis**

The ramp meter analysis for Horizon Year (2035) Without Project conditions is shown in Table 7-3.

For Horizon Year (2035) Without Project conditions, the study area ramp meter is expected to have a delay of more than fifteen (15) minutes and, therefore, the ramp meter is considered to be operating unacceptably.

#### **5. Horizon Year (2035) Without Project Freeway Mainline Analysis**

The freeway mainline analysis for Horizon Year (2035) Without Project conditions is shown in Table 7-4. As shown in Table 7-4, all freeway mainlines are projected to continue to operate at acceptable levels of service for Horizon Year (2035) Without Project conditions.

### **C. Horizon Year (2035) With Project Traffic Analysis**

#### **1. Horizon Year (2035) With Project Traffic Volumes**

In order to assess Horizon Year (2035) With Project traffic conditions, traffic volumes were obtained from the SANDAG Series 12 SZA model. Project traffic is included within the SZA model. Horizon Year (2035) With Project AM and PM peak hour intersection turning movement volumes and average daily traffic are shown on Exhibit 7-2.

## **2. Horizon Year (2035) With Project Intersection Analysis**

Intersection levels of service for Horizon Year (2035) With Project conditions are shown on Table 7-1. As shown on Table 7-1, HCM calculations are based on the existing intersection geometrics.

For Horizon Year (2035) With Project conditions, the project is expected to have a less than significant impact at all study area intersections during the peak hours, with the exception of the following intersections where a cumulatively significant impact is expected:

- Intersection #6: Escondido Boulevard at El Norte Parkway
- Intersection #7: Escondido Boulevard at Lincoln Avenue
- Intersection #11: North Broadway at Lincoln Avenue
- Intersection #12: North Broadway at Lincoln Parkway / SR-78
- Intersection #15: Fig Street at Lincoln Avenue

These intersections are expected to operate at LOS D or worse and the project is expected to increase delay by more than two (2) seconds, thereby triggering a significant impact. Mitigation recommendations have been made that would reduce the project's impact to less than significant. All recommended mitigation measures are discussed in Section 10.0.

The HCM 2010 intersection level of service calculation worksheets for Horizon Year (2035) With Project conditions are provided in Appendix J.

### 3. Horizon Year (2035) With Project Roadway Segment Analysis

The roadway segment level of service calculations for Horizon Year (2035) With Project conditions are shown in Table 7-2. As shown on Table 7-2, LOS calculations are based on the existing roadway geometrics.

For Horizon Year (2035) With Project conditions, the project is expected to have a less than significant impact at all study area street segments, with the exception of the following segments where a cumulatively significant impact is expected:

- Segment #3: Escondido Boulevard, El Norte Parkway to Decatur Way
- Segment #4: Escondido Boulevard, Decatur Way to Lincoln Avenue<sup>1</sup>
- Segment #6: Escondido Boulevard, Mission Avenue to Washington Avenue
- Segment #9: Fig Street, Lincoln Avenue to Mission Avenue<sup>1</sup>
- Segment #12: Lincoln Avenue, Escondido Boulevard to North Broadway
- Segment #15: Lincoln Parkway, Garrick Street to Fig Street<sup>1</sup>
- Segment #16: Lincoln Avenue, Fig Street to Ash Street
- Segment #17: Lincoln Avenue, Ash Street to Harding Street<sup>1</sup>
- Segment #18: Lincoln Avenue, Harding Street to Rose Street<sup>1</sup>
- Segment #21: Mission Avenue, Centre City Parkway to Escondido Boulevard

<sup>1</sup>Street segment is not built-out to General Plan Classification. A lesser capacity has been assumed in the analysis to reflect existing conditions.

The capacity for roadway improvements within the study area is limited due to the built-out environment of the area. Several of the roadways listed above are currently designated in the City's General Plan for a higher capacity classification; however, obtaining ultimate right-of-way for these segments may be impractical.

To effectively mitigate project impacts, roadway widening and/or restricting on-street parking may be required. Mitigation recommendations, that include roadway widening, are only shown for segments that are not currently built-out to General Plan

Classification and the recommended widening would result in meeting ultimate buildout capacity. The improvements should be further reviewed to determining whether the widening is feasible. Should the roadway improvements be considered not feasible, then the project may be required to contribute additional impact fees to offset project impacts.

It should be noted that due to the generalized nature of ADT capacities, the roadway capacity values are typically viewed as general rather than absolute guides for estimating levels of service and sizing the future roadway system. A more detailed intersection evaluation (using peak hour data) is carried out for this project and represents a more accurate indication of actual traffic operations.

#### **4. Horizon Year (2035) With Project Ramp Meter Analysis**

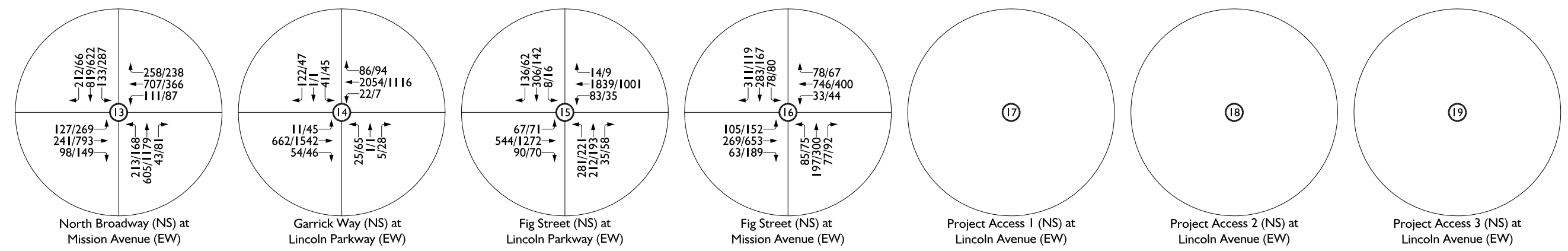
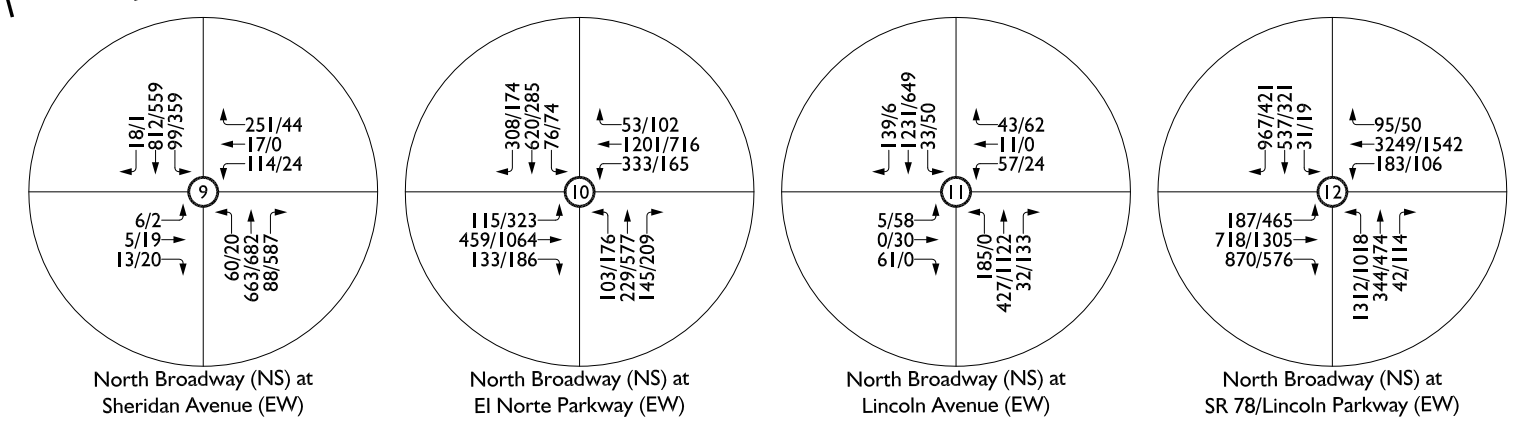
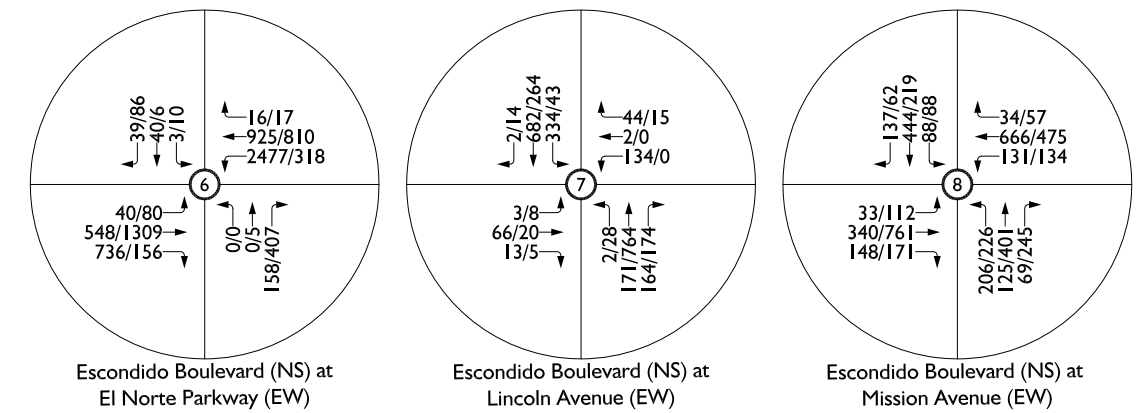
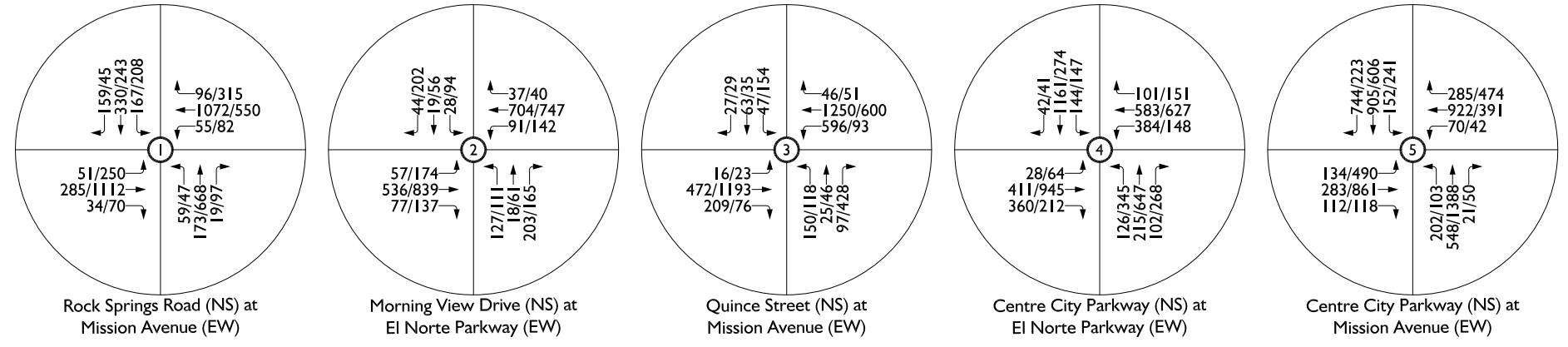
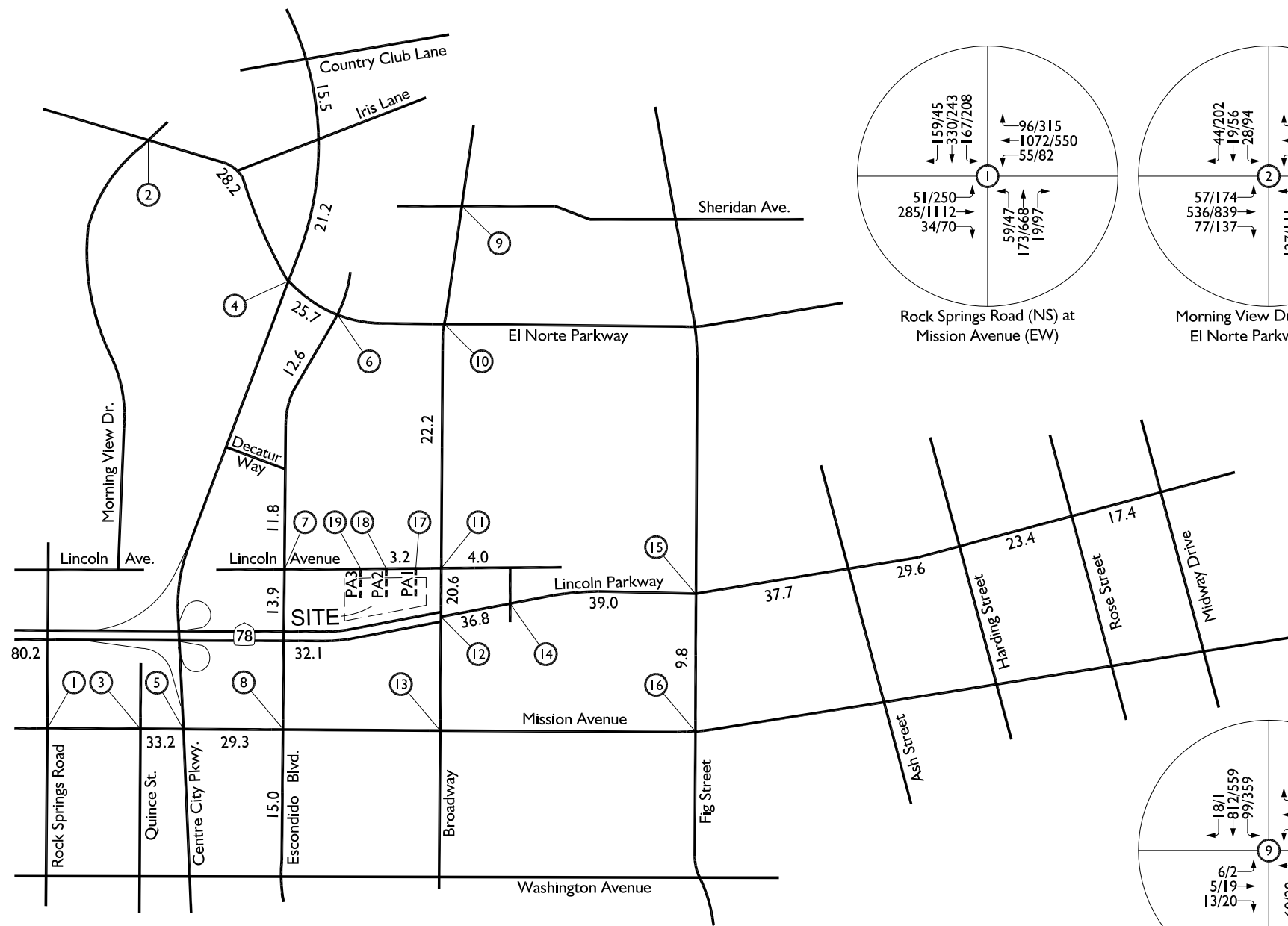
The ramp meter analysis for Horizon Year (2035) With Project conditions is shown in Table 7-3. For Horizon Year (2035) With Project conditions, the study area ramp meter is expected to have a delay of more than fifteen (15) minutes, but the project is expected to increase the delay by less than two (2) minutes. Therefore, the project impact at the ramp meter is considered to be less than significant. No mitigation is required for this location.

#### **5. Horizon Year (2035) With Project Freeway Mainline Analysis**

The freeway mainline analysis for Horizon Year (2035) With Project conditions is shown in Table 7-4. Level of service thresholds are based upon Caltrans Traffic Impact Study Guidelines Basic Freeway Segment Level of Service Definitions, and significant impacts are defined by SANDAG / SANTEC guidelines. As shown in Table 7-4, all freeway mainlines are currently operating at an acceptable level of service, and the project is expected to have a less than significant impact for Horizon Year (2035) With Project conditions.

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# Horizon Year (2035) Without Project Traffic Volumes



**Legend:**  
 10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic (1000s)



**TABLE 7-1**  
**Horizon Year (2035) Intersection Analysis<sup>5</sup>**

Intersection	Traffic Control <sup>2</sup>	Horizon Year (2035) Without Project				Horizon Year (2035) With Project				Change in Delay (seconds) <sup>1</sup>		Significant Impact	
		Delay (seconds) <sup>1</sup>		Level of Service		Delay (seconds) <sup>1</sup>		Level of Service		AM	PM	AM	PM
		AM	PM	AM	PM	AM	PM	AM	PM				
Rock Springs Road (NS) at 1. Mission Avenue (EW)	TS	18.3	47.4	B	D	18.4	48.3	B	D	0.1	0.9	NO	NO
Morning View Drive (NS) at 2. El Norte Parkway (EW)	TS	14.0	21.6	B	C	14.2	21.6	B	C	0.2	0.0	NO	NO
Quince Street (NS) at 3. Mission Avenue (EW)	TS	31.5	45.1	C	D	31.9	46.7	C	D	0.4	1.6	NO	NO
Centre City Parkway (NS) at 4. El Norte Parkway (EW)	TS	57.9	52.9	E	D	58.4	53.5	E	D	0.5	0.6	NO	NO
5. Mission Avenue (EW)	TS	33.8	71.9	C	E	33.8	73.2	C	E	0.0	1.3	NO	NO
Escondido Boulevard (NS) at 6. El Norte Parkway (EW)	CSS	1894.3	166.6	F	F	1985.7	184.0	F	F	91.4	17.4	YES	YES
- With Mitigation <sup>4</sup>	TS	N/A	N/A	N/A	N/A	446.9	43.8	F	E	-1,447	-122.8	NO	NO
7. Lincoln Avenue (EW)	CSS	4189.8	30.2	F	D	- <sup>3</sup>	110.0	F	F	- <sup>3</sup>	79.8	YES	YES
- With Mitigation <sup>4</sup>	TS	N/A	N/A	N/A	N/A	10.0	6.6	A	A	-4,180	-23.6	NO	NO
8. Mission Avenue (EW)	TS	32.4	37.5	C	D	33.2	38.1	C	D	0.8	0.6	NO	NO
North Broadway (NS) at 9. Sheridan Avenue (EW)	TS	23.8	38.4	C	D	24.0	38.8	C	D	0.2	0.4	NO	NO
10. El Norte Parkway (EW)	TS	64.4	59.3	E	E	64.5	60.6	E	D	0.1	1.3	NO	NO
11. Lincoln Avenue (EW)	CSS	679.2	389.3	F	F	5857.6	1523.4	F	F	5,178	1,134	YES	YES
- With Mitigation <sup>4</sup>	TS	N/A	N/A	N/A	N/A	23.7	13.5	C	B	-655.5	-375.8	NO	NO
12. SR 78/Lincoln Parkway (EW)	TS	425.0	135.1	F	F	430.1	152.1	F	F	5.1	17.0	YES	YES
- With Mitigation <sup>4</sup>	TS	N/A	N/A	N/A	N/A	322.4	114.7	F	F	-102.6	-20.4	NO	NO
13. Mission Avenue (EW)	TS	60.5	73.6	E	E	61.6	74.5	E	E	1.1	0.9	NO	NO
Garrick Way (NS) at 14. Lincoln Parkway (EW)	TS	12.0	10.3	B	B	12.2	10.6	B	B	0.2	0.3	NO	NO
Fig Street (NS) at 15. Lincoln Parkway (EW)	TS	104.9	32.6	F	C	109.1	34.4	F	D	4.2	1.8	YES	NO
- With Mitigation <sup>4</sup>	TS	N/A	N/A	N/A	N/A	84.7	27.2	F	C	-20.2	-5.4	NO	NO
16. Mission Avenue (EW)	TS	17.2	15.0	B	B	17.3	15.2	B	B	0.1	0.2	NO	NO
Project Access 1 (NS) at 17. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	12.8	18.9	B	C	N/A	N/A	NO	NO
Project Access 2 (NS) at 18. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	12.8	18.1	B	C	N/A	N/A	NO	NO
Project Access 3 (NS) at 19. Lincoln Avenue (EW)	CSS	N/A	N/A	N/A	N/A	9.3	10.1	A	B	N/A	N/A	NO	NO

<sup>1</sup> Analysis Software: Synchro, Version 8.0. Per the Highway Capacity Manual (HCM) 2010 Signalized methodology, overall average intersection delay and levels of service are shown for intersections controlled by traffic signals. For intersections with cross-street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>2</sup> TS = Traffic Signal  
CSS = Cross Street Stop

<sup>3</sup> Excessive delay, volume exceeds capacity for movement(s); LOS F

<sup>4</sup> Recommended improvements would satisfy City of Escondido requirements to restore intersection Level of Service to 'without project' conditions.

<sup>5</sup> Horizon Year (2035) impacts would be considered cumulative project impacts, per CEQA guidelines.



**TABLE 7-2  
Horizon Year (2035) Conditions  
Roadway Segment Analysis<sup>15</sup>**

Study Area Roadway Segment	City of Escondido General Plan Roadway Classification <sup>1</sup>	Existing Number of Lanes <sup>2</sup>	Existing Roadway Cross Section Width <sup>2,3</sup>	Existing On-Street Parking <sup>4</sup>	Built-Out to General Plan Classification <sup>5</sup>	LOS E Capacity <sup>6</sup>	Horizon Year (2035) Without Project Conditions			Horizon Year (2035) With Project Conditions			Change in V/C as Result of Project	Project Significant Impact <sup>6</sup>
							ADT	V/C <sup>7</sup>	LOS <sup>6</sup>	ADT	V/C <sup>7</sup>	LOS <sup>6</sup>		
<b>North/South Roadways</b>														
<b>Centre City Parkway</b>														
1. Country Club Lane to Iris Lane	Major Road	4	102 ft.	NP	Yes	37,000	15,464	0.418	B	16,000	0.432	B	0.014	NO
2. Iris Lane to El Norte Parkway	Major Road	4	102 ft.	NP	Yes	37,000	21,199	0.573	C	21,800	0.589	C	0.016	NO
<b>Escondido Boulevard</b>														
3. El Norte Parkway to Decatur Way <sup>12</sup>	Local Collector	2	42 ft.	WP	Yes	10,000	12,565	1.257	F	14,100	1.410	F	0.154	YES
-With Mitigation <sup>11,12</sup>	Local Collector	2	42 ft.	<b>NP</b>	Yes	<b>15,000</b>	12,565	0.838	D	14,100	0.940	E	0.102	YES
4. Decatur Way to Lincoln Avenue <sup>8</sup>	Collector	2	64 ft.	WP	No	15,000	11,838	0.789	D	13,400	0.893	D	0.104	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	64 ft.	WP	<b>Yes</b>	<b>20,000</b>	11,838	0.592	C	13,400	0.670	C	0.078	<b>NO</b>
5. Lincoln Avenue to Mission Avenue	Collector	4	64 ft.	NP	Yes	34,200	13,872	0.406	B	16,200	0.474	B	0.068	NO
6. Mission Ave to Washington Ave <sup>13</sup>	Collector	4	64 ft.	WP	Yes	20,000	16,832	0.842	D	17,477	0.874	D	0.032	YES
-With Mitigation <sup>11</sup>	Collector	4	64 ft.	<b>NP</b>	Yes	<b>34,200</b>	16,832	0.492	B	17,477	0.511	B	0.019	<b>NO</b>
<b>North Broadway</b>														
7. El Norte Parkway to Lincoln Avenue	Major Road	4	64 - 76 ft.	WP	Yes	37,000	22,244	0.601	C	23,000	0.622	C	0.020	NO
8. Lincoln Ave to SR-78 / Lincoln Pkwy	Major Road	4	82 ft.	NP	Yes	37,000	20,606	0.557	C	23,700	0.641	C	0.084	NO
<b>Fig Street</b>														
9. Lincoln Avenue to Mission Avenue <sup>9</sup>	Collector	2	42 - 64 ft.	WP	No	10,000	9,812	0.981	E	10,100	1.010	F	0.029	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	<b>64 ft.</b>	WP	<b>Yes</b>	<b>20,000</b>	9,812	0.491	B	10,100	0.505	B	0.014	<b>NO</b>
<b>East/West Roadways</b>														
<b>El Norte Parkway</b>														
10. Morning View Dr to Centre City Pkwy	Major Road	7	94 ft.	NP	Yes	50,000	28,184	0.564	C	29,000	0.580	C	0.016	NO
11. Centre City Pkwy to Escondido Blvd	Major Road	4	82 ft.	NP	Yes	37,000	25,683	0.694	C	27,100	0.732	C	0.038	NO
<b>Lincoln Avenue</b>														
12. Escondido Blvd to North Broadway	Local Collector	2	42 ft.	WP	Yes	10,000	3,262	0.326	A	7,800	0.780	D	0.454	YES
-With Mitigation <sup>11</sup>	Local Collector	2	42 ft.	<b>NP</b>	Yes	15,000	3,262	0.217	A	7,800	0.520	B	0.303	<b>NO</b>
13. North Broadway to Garrick Way	Local Collector	2	42 ft.	WP	Yes	10,000	4,012	0.401	B	4,700	0.470	B	0.069	NO
<b>Lincoln Parkway/ Lincoln Avenue</b>														
14. North Broadway to Garrick Way	Prime Arterial	6	106 - 130 ft.	NP	Yes	60,000	36,811	0.614	C	37,500	0.625	C	0.011	NO
15. Garrick Way to Fig Street <sup>10</sup>	Prime Arterial	4 to 5	50 - 106 ft.	NP	No	37,000	39,023	1.055	F	40,400	1.092	F	0.037	YES
-With Mitigation <sup>11</sup>	Prime Arterial	<b>6</b>	<b>106 ft.</b>	NP	<b>Yes</b>	<b>60,000</b>	39,023	0.650	C	40,400	0.673	C	0.023	<b>NO</b>
16. Fig Street to Ash Street <sup>10</sup>	Prime Arterial	4	50 ft.	NP	No	37,000	37,691	1.019	F	38,600	1.043	F	0.025	YES
-With Mitigation <sup>11</sup>	Prime Arterial	<b>6</b>	<b>106 ft.</b>	NP	<b>Yes</b>	<b>60,000</b>	37,691	0.628	C	38,600	0.643	C	0.015	<b>NO</b>
17. Ash Street to Harding Street <sup>9</sup>	Collector	2	42 - 64 ft.	WP	No	10,000	29,570	2.957	F	30,100	3.010	F	0.053	YES
-With Mitigation	Collector	<b>4</b>	<b>64 ft.</b>	<b>NP</b>	<b>Yes</b>	<b>34,200</b>	29,570	0.865	D	30,100	0.880	D	0.015	<b>NO</b>
18. Harding Street to Rose Street <sup>9</sup>	Collector	2	42 ft.	WP	No	10,000	23,430	2.343	F	23,800	2.380	F	0.037	YES
-With Mitigation <sup>11</sup>	Collector	<b>4</b>	<b>64 ft.</b>	<b>NP</b>	<b>Yes</b>	<b>34,200</b>	23,430	0.685	C	23,800	0.696	C	0.011	<b>NO</b>
19. Rose Street to Midway Drive <sup>11</sup>	Local Collector	2	42 ft.	WP	Yes	10,000	17,400	1.740	F	17,600	1.760	F	0.020	NO
-With Mitigation <sup>11,14</sup>	Local Collector	2	42 ft.	<b>NP</b>	Yes	<b>15,000</b>	17,400	1.160	F	17,600	1.173	F	0.013	NO
<b>Mission Avenue</b>														
20. Quince Street to Centre City Parkway	Major Road	4	64 ft.	NP	Yes	37,000	33,211	0.898	D	33,900	0.916	E	0.019	NO
21. Centre City Pkwy to Escondido Blvd <sup>12</sup>	Major Road	4	64 ft.	NP	Yes	37,000	29,281	0.791	D	30,400	0.822	D	0.030	YES

<sup>1</sup> Classifications are based on the City of Escondido's Circulation Diagram from the May 2012 General Plan Update

<sup>2</sup> As measured during field review on December 26, 2013

<sup>3</sup> Roadway width measured mid-block; distances are considered approximate

<sup>4</sup> WP = With Parking; NP = No Parking.

<sup>5</sup> General Plan Buildout Classification may not be feasible due to right-of-way restrictions

<sup>6</sup> Per City of Escondido Traffic Impact Analysis Requirement Guidelines, October 10, 2013

<sup>7</sup> V/C = Volume to Capacity

<sup>8</sup> Capacity based on Local Collector classification, with 66 foot cross-section (NP)

<sup>9</sup> Capacity based on Local Collector classification, with 42 foot cross-section (WP)

<sup>10</sup> Capacity based on Major Road classification, 4 lane (NP)

<sup>11</sup> **BOLD** = With recommended mitigation improvement. Roadway widening is only shown for segments that are not currently built out to General Plan Classification, and widening would result in ultimate buildout capacity. The feasibility of improvements will need to be reviewed prior to determining whether the impact is mitigatable.

<sup>12</sup> Street segment is currently built out to General Plan classification. Additional roadway improvements may not be feasible. Project may need to contribute additional fees to offset impacts.

<sup>13</sup> Series 12 2035 ADT projection is less than existing traffic volume. To be conservative, existing volume has been increased by 10% for this segment.

<sup>14</sup> Although the project would have a less than significant impact at this location, mitigation has been shown to improve level of service, per City of Escondido guidelines. Improvement may be infeasible.

<sup>15</sup> Horizon Year (2035) impacts would be considered cumulative project impacts, per CEQA guidelines.

**TABLE 7-3**  
**Horizon Year (2035) Conditions Ramp Meter Analysis<sup>1,9</sup>**

Location		Peak Hour <sup>2</sup>	Existing Lanes	Meter Rate (veh/hr) <sup>3</sup>	Existing Demand (veh/hr) <sup>4</sup>	Excess Demand (veh/hr) <sup>5</sup>	Delay (Min) <sup>6</sup>	Queue (ft/ln) <sup>7</sup>
1.	SR-78 Freeway On-Ramp (WB From N. Broadway / Lincoln Parkway)	Horizon Year (2035) Without Project Conditions						
		AM	2 + 1 HOV	1,394	1,859	465	20.032	6,748
		Horizon Year (2035) With Project Conditions						
		AM	2 + 1 HOV	1,394	1,892	498	21.426	7,218
					<b>Change in Delay (min)</b>		<b>Significant Impact<sup>8</sup></b>	
					1.394		No	

<sup>1</sup> Ramp meter analysis based on SANDAG guidelines. As stated in the SANDAG TIS Guidelines, caution should be used when interpreting the ramp meter analysis as, "The ramp metering analysis may lead to grossly understated results for delay and queue length, since important aspects of queue growth are ignored. Also, the draft guidelines method derives average values instead of maximum values for delay and queue length. Utilizing average values instead of maximum values can lead to obscuring important effects, particularly in regard to queue length.

<sup>2</sup> Ramp meter is only operatable from 6:30 AM to 9:30 AM.

<sup>3</sup> Meter rate provided by Caltrans. Meter rate is fixed at 697 vehicles per hour per lane. To be conservative, the HOV lane is not counted as part of the analysis.

<sup>4</sup> Existing Demand counted on June 6, 2013. A 10% reduction in demand has been assumed for HOV.

<sup>5</sup> Excess Demand = (Demand) - (Meter Rate) or zero, which ever is greater.

<sup>6</sup> Delay = Excess Demand / Meter Rate x 60 minutes/hour

<sup>7</sup> Queue = Excess Demand x 29 feet/vehicle; shown in feet per lane

<sup>8</sup> Based on SANDAG criteria, a project is considered to have a significant impact if delay is above 15 minutes and increases by 2 minutes or more.

<sup>9</sup> Horizon Year (2035) impacts would be considered cumulative project impacts, per CEQA guidelines.

**TABLE 7-4  
Horizon Year (2035) Conditions  
Freeway Mainline Analysis<sup>5</sup>**

Mainline Segment	Direction	Existing Number of Lanes	Capacity (v/h/L) <sup>2</sup>	Horizon Year (2035) Without Project Conditions						Horizon Year (2035) With Project Conditions						Change in V/C as Result of Project		Significant Impact	
				Volume <sup>1</sup>		V/C <sup>3</sup>		LOS <sup>4</sup>		Volume <sup>1</sup>		V/C <sup>3</sup>		LOS <sup>4</sup>		AM	PM	AM	PM
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM				
1. SR-78 Freeway (I-15 Freeway to Centre City Parkway)	Eastbound	2	4,700	1,888	3,009	0.402	0.640	B	C	1,917	3,036	0.408	0.646	B	C	0.006	0.006	NO	NO
	Westbound	2	4,700	2,106	2,315	0.448	0.492	B	B	2,123	2,342	0.452	0.498	B	B	0.004	0.006	NO	NO
2. SR-78 Freeway (Centre City Parkway to North Broadway)	Eastbound	2	4,700	1,815	2,901	0.386	0.617	B	C	1,875	2,957	0.399	0.629	B	C	0.013	0.012	NO	NO
	Westbound	2	4,700	2,066	2,227	0.440	0.474	B	B	2,102	2,284	0.447	0.486	B	B	0.008	0.012	NO	NO

<sup>1</sup> Volume based on existing traffic counts measured on June 6, 2013, with growth for Year 2035. Refer to Section 7.A for more information on method of projection

<sup>2</sup> Capacity shown in Vehicles Per Hour Per Lane (LOS E Threshold = 2,350 v/h/l)

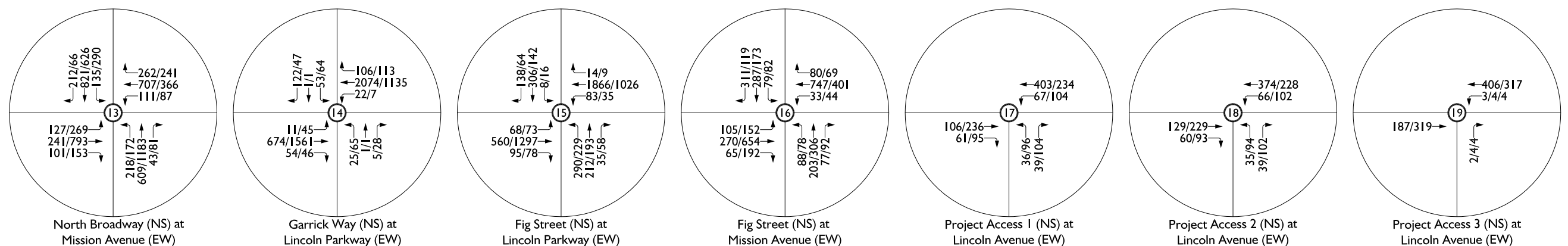
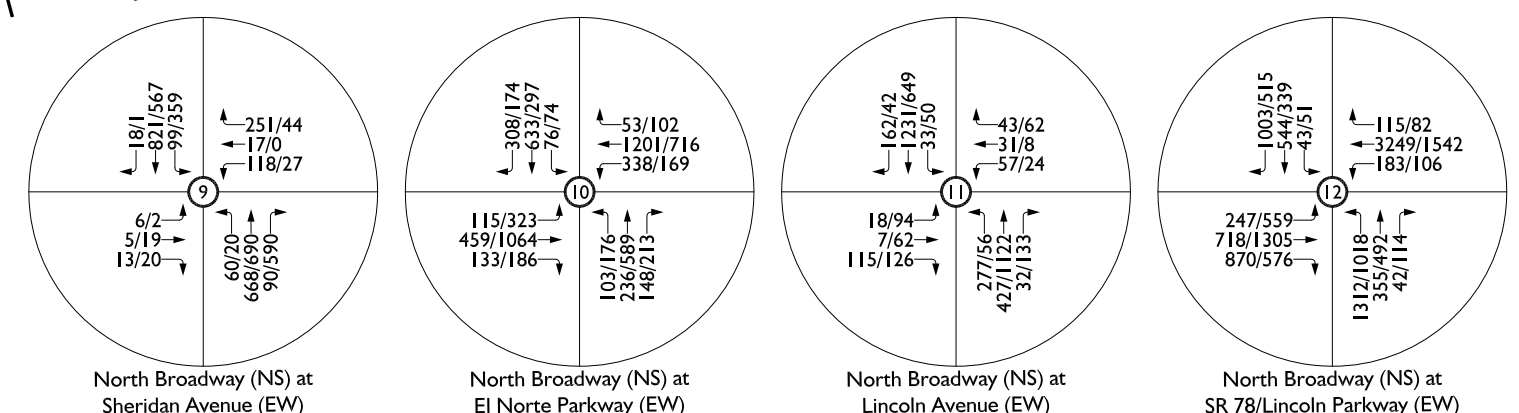
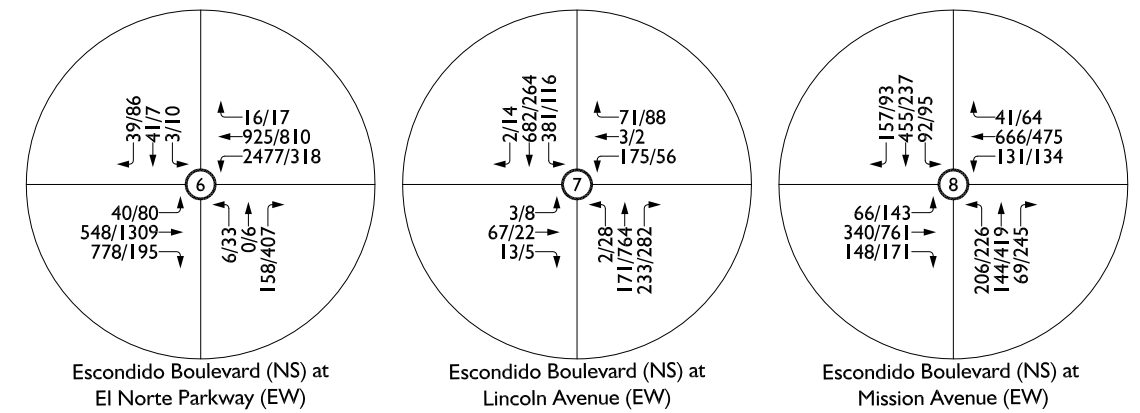
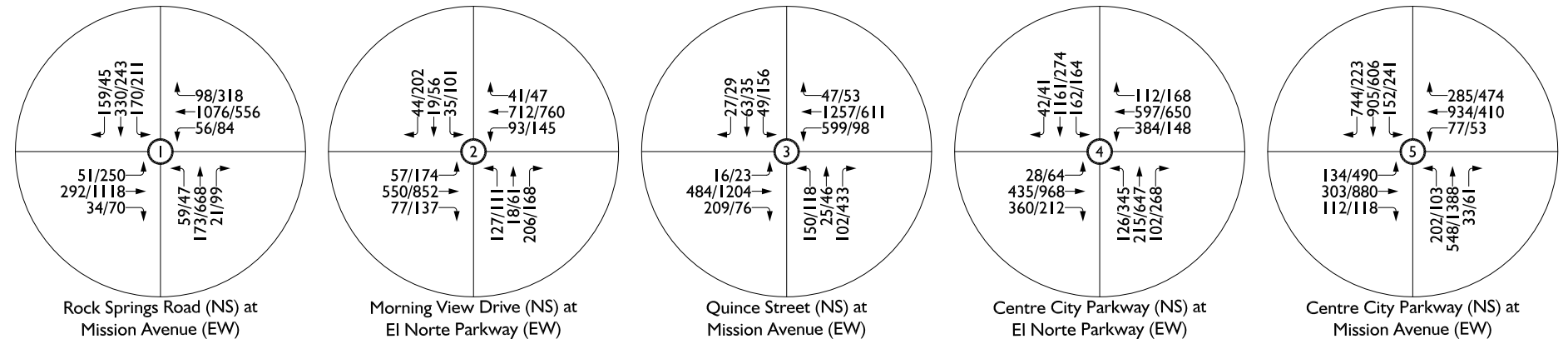
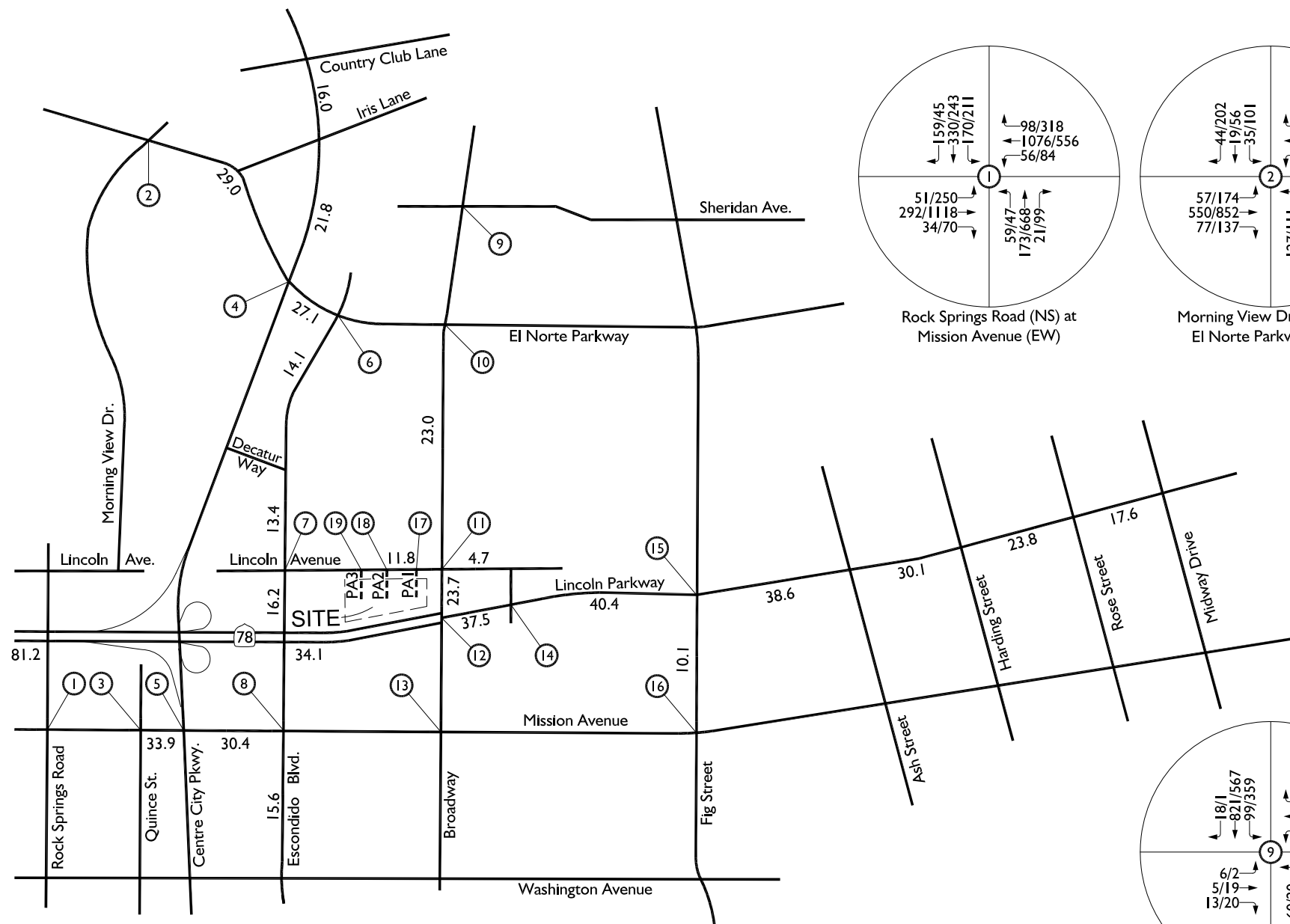
<sup>3</sup> V/C = Volume to Capacity Ratio

<sup>4</sup> LOS = Level of Service; based on Caltrans District 11 Freeway Segment Level of Service Definitions

LOS	Max V/C
A	0.30
B	0.50
C	0.71
D	0.89
E	1.00

<sup>5</sup> Horizon Year (2035) impacts would be considered cumulative project impacts, per CEQA guidelines.

# Horizon Year (2035) With Project Traffic Volumes



**Legend:**  
 10/20/30 = AM/MID/PM Peak Hour Volumes  
 10.0 = Average Daily Traffic (1000s)



## **8.0 Project Access Review**

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The Centerpointe 78 development would have three (3) full access driveways on Lincoln Avenue. Please see the proposed site plan in Exhibit 1-2 for visual reference. The existing site is currently served by four (4) access driveways on Lincoln Avenue. The project relocate the existing driveway locations, however the project would not further decrease the number of on-street parking space, as the old driveways would be replaced with new curb allowing on-street parking.

### **A. Project Access #1 on Lincoln Avenue**

Project Access 1 (PA 1) is considered the easterly most driveway on Lincoln Avenue, closest to North Broadway. This driveway would serve a main entrance to the site for both the supermarket and fast food restaurant uses. The driveway is approximately 30 feet wide and would provide one (1) inbound lane and one (1) outbound lane. The minimum driveway width is 24 feet per the City of Escondido Design Standards of parking space facilities.

The project access driveway has been analyzed using the HCM 2010 unsignalized intersection level of service methodology. The HCM 2010 unsignalized analysis shows that, under existing and future conditions, all project access driveways would be operating at acceptable levels of service. See Tables 5-1, 6-1 and 7-1 for level of service analysis and Appendices E, G, and J for HCM calculation worksheets.

PA 1 is located approximately 100 feet west of North Broadway and 290 feet east of project access 2. Based on the HCM queuing analysis, the 95<sup>th</sup> percentile queue for vehicles turning left into the site at this location would be less than 1 car during the peak hour of the day. Based on the expected delay and queue, a left turn pocket is not recommended to be provided at this access location. A left turn pocket would require further loss of on-street parking.

## **B. Project Access #2 on Lincoln Avenue**

Project Access 2 (PA 2) is considered the middle driveway on the site. This driveway would serve a main entrance to the site for both the supermarket and fast food restaurant uses. The driveway is approximately 30 feet wide and would provide one (1) inbound lane and one (1) outbound lane. The minimum driveway width is 24 feet per the City of Escondido Design Standards of parking space facilities.

The project access driveway has been analyzed using the HCM 2010 unsignalized intersection level of service methodology. The HCM 2010 unsignalized analysis shows that, under existing and future conditions, all project access driveways would be operating at acceptable levels of service. See Tables 5-1, 6-1, and 7-1 for level of service analysis and Appendices E, G, and J for HCM calculation worksheets.

PA 2 is located approximately 290 feet west of PA 1 and 320 feet east of project access 3. Based on the HCM queuing analysis, the 95<sup>th</sup> percentile queue for vehicles turning left into the site at this location would be less than 1 car during the peak hour of the day. Based on the expected delay and queue, a left turn pocket is not recommended to be provided at this access location. A left turn pocket would require further loss of on-street parking.

## **C. Project Access #3 on Lincoln Avenue**

Project Access 3 (PA 3) is considered the westerly most driveway on the site. This driveway would serve as a delivery and trash truck access with limited employee access. The driveway is approximately 30 feet wide and would serve one (1) inbound lane and one (1) outbound lane. The minimum driveway width is 24 feet per the City of Escondido Design Standards of parking space facilities.

The project access driveway has been analyzed using the HCM 2010 unsignalized intersection level of service methodology. The HCM 2010 unsignalized analysis shows that,

under existing and future conditions, all project access driveways would be operating at acceptable levels of service. See Tables 5-1, 6-1, and 7-1 for level of service analysis and Appendices E, G, and J for HCM calculation worksheets.

PA 3 is located approximately 320 feet west of PA 2. Based on the HCM queuing analysis, the 95<sup>th</sup> percentile queue for vehicles turning left into the site at this location would be less than 1 car during the peak hour of the day. Based on the expected delay and queue, a left turn pocket is not recommended to be provided at this access location. A left turn pocket would require further loss of on-street parking.

#### **D. Sight Distance**

One of the most important issues to consider in the design and construction of new development is the safety and efficiency of vehicles entering and exiting the site. Based on the City of Escondido Design Standards, sight distance analysis applies to intersections without traffic signals or without four-way stop signs. This project will have two (3) unsignalized full access points onto Lincoln Avenue. The presence and maintenance of adequate sight distance is crucial in ensuring the satisfactory operation of these intersections.

The following information is referenced from the City of Escondido Design Standards 'Sight Distance Detail' (Figure 14) and the Caltrans Highway Design Manual 2012, which describes the sight distance standards and design requirements for highways and intersections. There are two (2) types of sight distance (stopping and corner) that are applicable in the design and construction of the proposed project driveways. Additional information is provided in Appendix K.

##### **1. Stopping Sight Distance**

Stopping sight distance is the minimum distance required by a highway user traveling at a given speed, to bring a vehicle or bicycle to a stop after an object

1/2 –foot high (or higher) on the road becomes visible. Stopping sight distance is the sum of two (2) distances: the distance travelled by a vehicle from the instant the driver sights an object necessitating a stop to the instant the brakes are applied (brake reaction distance), and the distance needed to stop the vehicle from the instant brake application begins (braking distance).

Stopping sight distance requirements are based on the design speed of the highway, not the actual posted speed limit. Lincoln Avenue is designated as a Local Collector in the City of Escondido General Plan Circulation Diagram, and as shown on the City of Escondido Street Design Standards (Appendix K); the minimum design speed is 35 MPH. Based on Table 201.1 of the Caltrans Highway Design Manual 2012, **the minimum required stopping sight distance to be provided for all project access driveways is 250 feet.**

## **2. Corner Sight Distance**

At unsignalized intersections a substantially clear line of sight (corner sight distance) should be maintained between the driver of a vehicle, bicyclist, or pedestrian waiting at the crossroad and the driver of an approaching vehicle (along the main highway). Line of sight for all users should be included in right-of-way. The area between the right-of-way and the line of sight is known as the limited use area. The limited use area shall be kept free of walls, signs, slopes, or any other obstruction that could restrict a driver's view within the limited use area. In addition, adequate time must be provided for the waiting user to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed. Corner sight distance requirements provide 7 ½ seconds for the driver on the crossroad to complete the necessary maneuver while the approaching vehicle travels at the assumed design speed of the main highway.



Corner sight distance requirements are based on the design speed of the main highway, not the actual posted speed limit. Lincoln Avenue is designated as a Local Collector in the City of Escondido General Plan Circulation Diagram and, as shown on the City of Escondido Street Design Standards (Appendix K), the minimum design speed is 35 MPH. Based on Figure 4 of the City of Escondido Design Standards, **the minimum required corner sight distance to be provided for all project access driveways is 330 feet.**

### **3. Sight Distance Summary**

Exhibit 8-1 shows the sight distance diagrams for all project access driveways. Based on preliminary review of the site plan, and the surroundings, adequate sight distance would be obtainable at all project driveways. In order to accommodate these requirements, the project should maintain a limited use area, to be kept clear of all obstructions over 24 inches high, including vegetation. The existing vegetation, along the northerly of the property line may need to be trimmed back, or removed, in order to provide sufficient sight distance. Sight distance should be reviewed upon final grading and construction plans.

### **4. Lincoln Avenue On-Street Parking Restrictions**

Existing on-street parking may hinder sight distance at project driveways. In order to improve sight distance, red curb should be painted on both sides of all project driveways for a minimum of 25 feet in each direction. This would require eliminating space for approximately five (5) vehicles to park on Lincoln Avenue. No parking should be allowed between PA1 and North Broadway Street.

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## **9.0 On-Site Circulation and Drive-Thru Queuing**

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RK has reviewed the proposed site plan, shown on Exhibit 1-2, with regards to on-site circulation, drive-thru queuing, and truck access. The project would have three (3) access driveways located on Lincoln Avenue.

### **A. On-Site Circulation**

The currently proposed site plan provides two (2) access driveways into the main parking lot along Lincoln Avenue. The easterly driveway (#1) provides the most direct access to the fast food restaurant, while the middle driveway (#2) provide the most direct access to the front drive aisle of the supermarket. Both driveways feed into three (3) two-way drive isles that allow drivers to access to both commercial uses. The main parking lot would provide a total of 196 parking stalls. On-site circulation is graphically shown on Exhibit 9-1.

### **B. Drive-Thru Queuing**

The proposed development includes a fast food restaurant with drive-thru that would share the same parking area as the supermarket. In order to ensure the proposed site plan can accommodate both uses, without having queues disrupt the internal circulation, RK has performed additional review of the drive-thru operations.

RK used data from observed queuing surveys at four (4) drive-thru restaurants taken on Thursday June 20, 2013. Based on the results of the queuing surveys, the average queue length during the peak lunch hour was five (5) vehicles, with a 95<sup>th</sup> percentile queue of 12 vehicles. The 95<sup>th</sup> percentile queue represents the expected amount of vehicles in which the queue would not exceed 95% the time or less. The 95<sup>th</sup> percentile queue is typically considered the worst case design queue. The observed queuing data is provided in Appendix L.

The proposed fast food restaurant drive-thru provides approximately 160 feet of storage. Assuming average spacing of 20 feet per vehicle, the drive-thru could accommodate approximately eight (8) vehicles without queuing back into the drive aisle. Drive-thru queues typically have slower speeds, shorter headways, and less truck use. Therefore, 20 feet per vehicle is generally used for drive-thru queuing studies. The drive-thru would adequately accommodate the average observed queue during peak times, as seen at other similar locations.

Exhibit 9-1 shows the stacking of vehicles with an expected worst case queue of 12 vehicles. Should the proposed drive-thru experience a queue of more than eight (8) vehicles, the queue would overflow back into the drive aisle and could temporarily block some parking stalls and hinder internal circulation. There is an additional 70-foot clearance area (trash enclosure) extending past the drive-thru, along the southern property line, where an additional three (3) vehicles can queue without blocking parking. Therefore, if a queue of 12 vehicles would to occur, only one (1) vehicle could block parking stalls extending past the drive-thru. Although the overflow of vehicles into the drive-aisle may cause a temporary blockage of parking stalls, the queue would not be expected to block main entry/exit drive aisles and the overall circulation of the site would not be significantly impacted.

The following recommendations have been made to limit the amount of conflict of vehicles queued in the drive-thru:

1. Should the drive-thru experiences peak queues of more than eight (8) vehicles during peak times, it would be recommended that employees be utilized to take orders from vehicles in line, prior to the order microphone. This would help to reduce the service time of the drive-thru.
2. Use employees, signage, or cones to direct vehicles to enter drive-thru from southerly drive aisle during peak times.

3. If regular overflow occurs, consider designating parking stalls along the southern drive aisle, nearest to the drive-thru, to be employee parking only with signage or pavement markings.
4. Consider relocating the drive-thru pick-up window to the north side of the site to increase drive-thru storage length.

### **C. Truck Turning Templates**

RK has received truck turning templates based on the type of trucks anticipated to serve the western project access point (prepared by Robert Kubicek Architects and Associates Inc.). As shown on Exhibit 1-2, the proposed site plan would adequately accommodate truck turning movements in and out of Project Access #3 to the loading/delivery area. In addition, the main parking lot should be designed in order to accommodate box trucks for deliveries, garbage trucks, and emergency vehicles, specifically large fire trucks. Truck turning templates, showing the truck type with the longest wheel base and greatest turning radius (40 foot fire trucks) are shown on Exhibit 9-2. As shown on Exhibit 9-2, the proposed site plan would adequately accommodate truck turning movements within the planned circulation system.

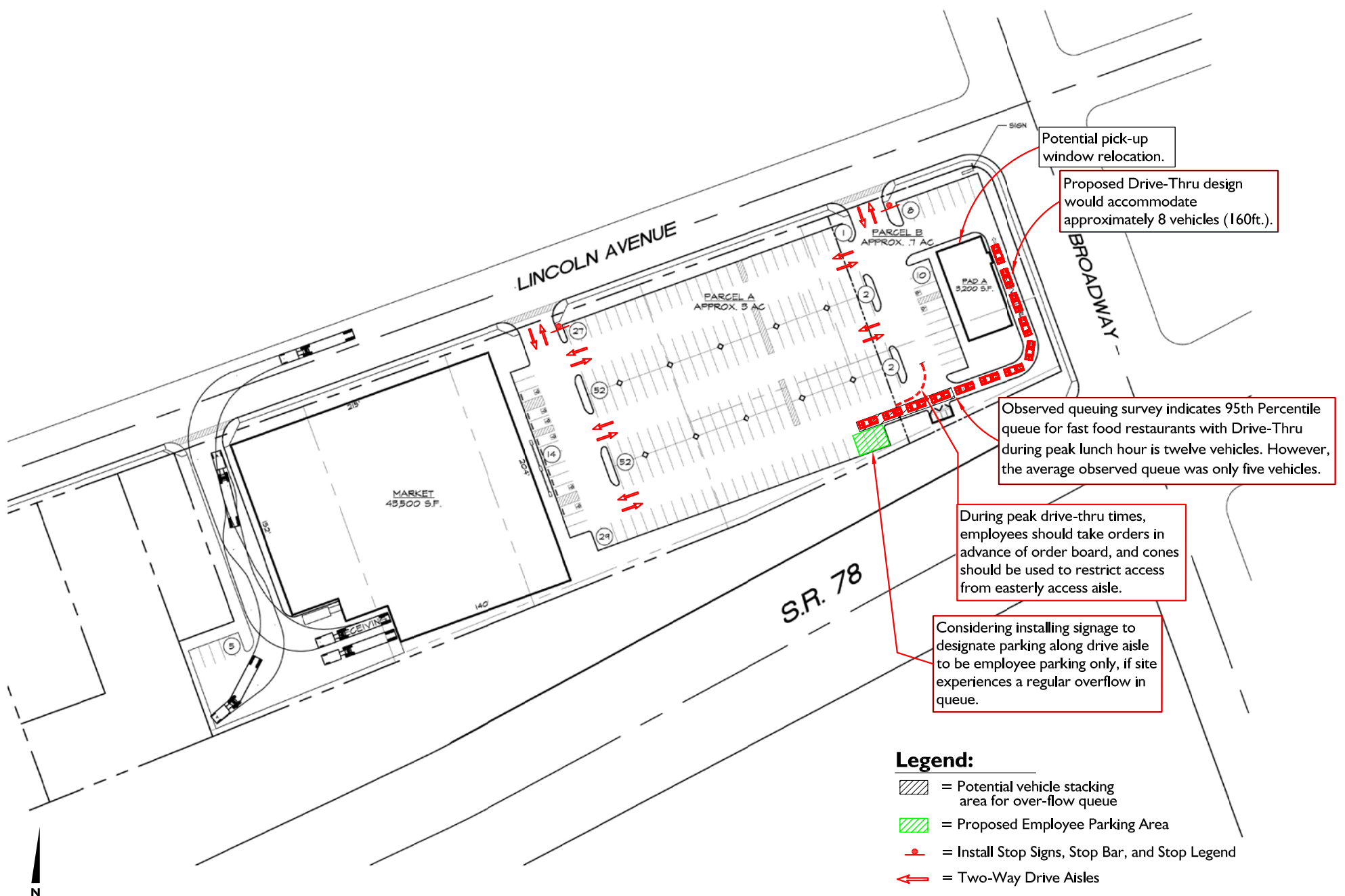
The applicant may need to further consult the waste management agency and the fire authority to determine whether the site is adequate for service.

### **D. Parking**

The project would provide a total of 201 off-street parking stalls. 196 parking stalls would be provided in the main parking area to serve both the supermarket and the fast food restaurant. Five (5) additional parking stalls would be provided in the rear of the site to serve the loading and delivery area.

According to Section 33-765 of Escondido Zoning Code, the project would require One (1) parking space for each 250 square feet of gross floor area of retail use for the supermarket and 20 parking spaces plus one (1) for each 100 square feet of gross floor area over 4,000 square feet for the fast food restaurant. This results in a total required parking of 194 stalls. The site is therefore expected to meet the City's parking requirement by an excess of seven (7) parking stalls.

# Exhibit 9-1 On-site Circulation and Drive-Thru Queuing



Potential pick-up window relocation.

Proposed Drive-Thru design would accommodate approximately 8 vehicles (160ft.).

Observed queuing survey indicates 95th Percentile queue for fast food restaurants with Drive-Thru during peak lunch hour is twelve vehicles. However, the average observed queue was only five vehicles.

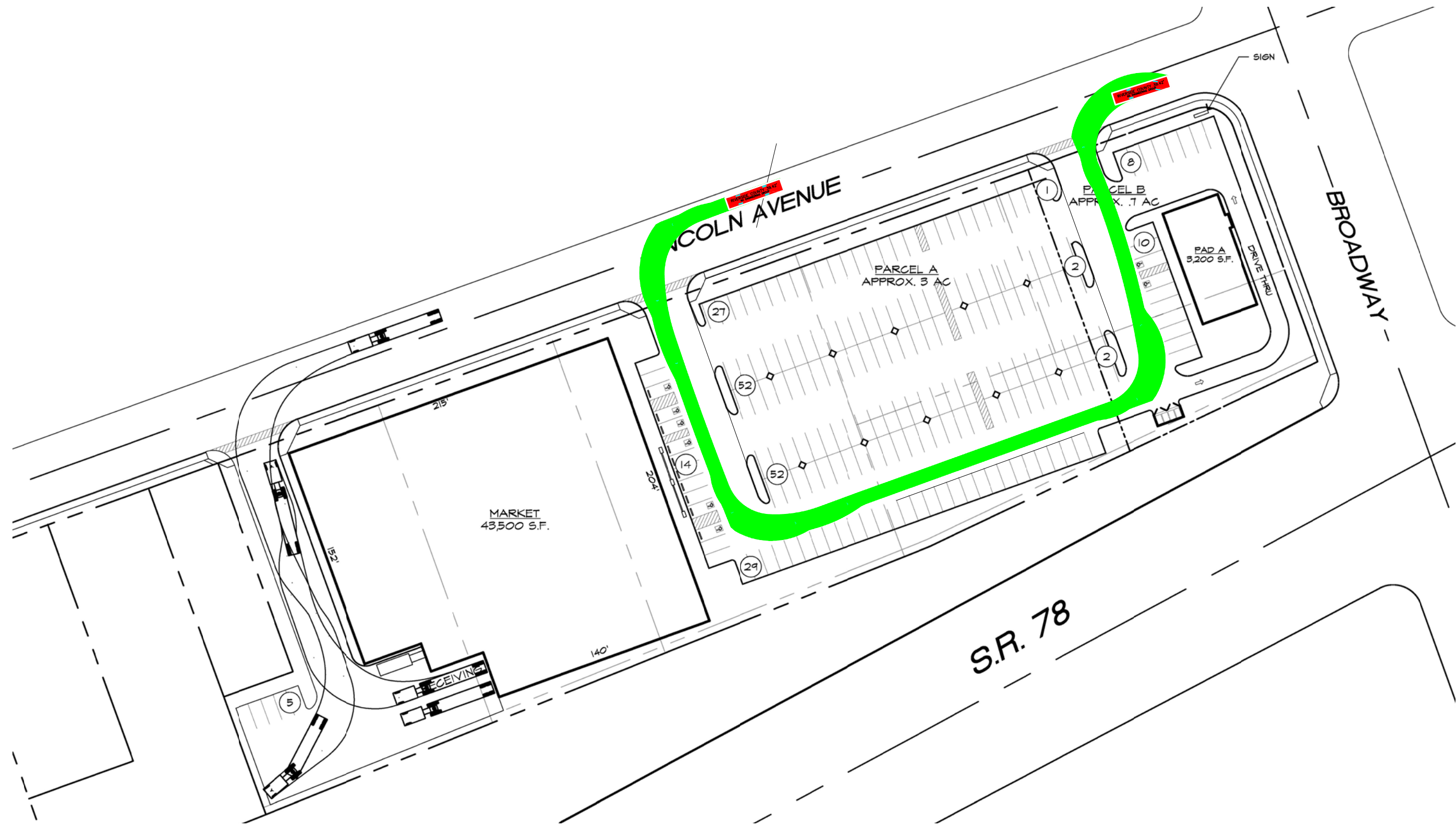
During peak drive-thru times, employees should take orders in advance of order board, and cones should be used to restrict access from easterly access aisle.

Considering installing signage to designate parking along drive aisle to be employee parking only, if site experiences a regular overflow in queue.

**Legend:**

- = Potential vehicle stacking area for over-flow queue
- = Proposed Employee Parking Area
- = Install Stop Signs, Stop Bar, and Stop Legend
- = Two-Way Drive Aisles

# On-Site Truck Circulation Turning Template



**Legend:**

 = 40' Fire Truck

**NOT TO SCALE**



## **10.0 Findings and Recommendations**

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### **A. Project Overview**

The proposed development would consist of a 43,500 square foot supermarket and a 3,200 square foot fast food restaurant with drive-thru. The project is expected to generate approximately 8,605 net trip-ends per day, with 407 net vehicles per hour during the AM peak hour and 479 net vehicles per hour during the PM peak hour. The site will be served by three (3) driveways along Lincoln Avenue.

### **B. Intersection Improvement Recommendations**

The traffic study has identified direct and cumulatively significant project impacts at several study area intersections in both existing and future conditions. A summary of the intersection improvements necessary to mitigate project impacts is shown on Table 10-1 and are graphically summarized on Exhibit 10-1. The recommended improvements are intended to mitigate the project impacts to a level of less than significant.

#### **1. Traffic Signal Warrants**

Traffic signals have been recommended as potential mitigation measures for three (3) unsignalized study area intersections and a Caltrans peak hour signal warrant analysis has been performed to preliminarily determine whether a signal is warranted. The peak hour warrants use the peak one (1) hour of traffic at the intersection as an indicator of whether a signal is warranted. Peak hour traffic signal warrant analysis worksheets are provided in Appendix M. The following table summarizes the results of the signal warrant analysis.

*<Table shown on following page>*

Peak Hour Traffic Signal Warrants Satisfied				
Intersection	Existing	Existing Plus Project	Year 2016 With Project	Year 2035 With Project
Escondido Boulevard at El Norte Parkway	YES	YES	YES	YES
Escondido Boulevard at Lincoln Avenue	NO	YES	YES	YES
North Broadway at Lincoln Avenue	NO	YES	YES	YES

## 2. Queuing Analysis

Due to the close proximity between the intersection of North Broadway at Lincoln Avenue and North Broadway at Lincoln Parkway / SR-78, an additional analysis has been performed to address potential queuing issues with the addition of a traffic signal. The intersections are spaced approximately 300 feet apart (centerline to centerline). Tables 10-5, 10-6 and 10-7 show the results of the queuing analysis performed using Synchro 8.0 and HCM methodology. To help reduce the potential of vehicle queues backing up into either intersection on North Broadway, the two (2) signals will need to operate using coordinated phase timing. Queuing analysis worksheets are provided in Appendix N.

### C. Street Segment Improvement Recommendations

The traffic study has identified direct and cumulatively significant project impacts at several study area street segments in both existing and future conditions. A summary of the street segment improvements necessary to mitigate project impacts is shown on Table 10-2 and are graphically summarized on Exhibit 10-1. The recommended improvements are intended to mitigate the project impacts to a level of less than significant, where feasible.

The capacity for roadway improvements within the study area is limited due to the built-out environment of the area. Several of the roadways listed above are currently designated in the City's General Plan for a higher capacity classification; however, obtaining ultimate right-of-way for these segments may be impractical.

To effectively mitigate project impacts, roadway widening and/or restricting on-street parking may be required. Mitigation recommendations that include roadway widening are only shown for segments that are not currently built-out to General Plan Classification, and the recommended widening would result in meeting ultimate buildout capacity. The improvements should be further reviewed to determine whether the widening is feasible. Should the roadway improvements be considered not feasible, then the project may be required to contribute additional impact fees to offset project impacts.

It should be noted that due to the generalized nature of ADT capacities, the roadway capacity values are typically viewed as general rather than absolute guides for estimating levels of service and sizing the future roadway system. A more detailed intersection evaluation (using peak hour data) is carried out for this project and represents a more accurate indication of actual traffic operations.

#### 1. Potentially Unmitigatable Impacts

This analysis has identified the necessary roadway improvements needed to mitigate potential significant project impacts. However, the lack of available right-of-way, neighborhood opposition, and other limiting factors may result in such improvements being infeasible. In certain cases the removal of on-street parking would off-set project impacts, but such mitigation is often undesirable. Should it be determined that mitigation is not feasible, then the project impacts would be considered significant and unmitigatable. The following list indicates the locations where project impacts may be infeasible. Please refer to Table 10-2 for a list of recommended improvements. It should be noted that the final determination of improvement feasibility would be made by the City of Escondido.

Segment #3:	Escondido Boulevard, El Norte Parkway to Decatur Way
Segment #4:	Escondido Boulevard, Decatur Way to Lincoln Avenue
Segment #6:	Escondido Boulevard, Mission Avenue to Washington Avenue
Segment #9:	Fig Street, Lincoln Avenue to Mission Avenue <sup>1</sup>
Segment #12:	Lincoln Avenue, Escondido Boulevard to North Broadway
Segment #15:	Lincoln Parkway, Garrick Street to Fig Street <sup>1</sup>
Segment #16:	Lincoln Avenue, Fig Street to Ash Street
Segment #17:	Lincoln Avenue, Ash Street to Harding Street <sup>1</sup>
Segment #18:	Lincoln Avenue, Harding Street to Rose Street <sup>1</sup>
Segment #21:	Mission Avenue, Centre City Parkway to Escondido Boulevard

#### **D. SANDAG Congestion Management Program (CMP) and Congestion Mitigation Strategies (CMS)**

As referenced from SANDAG, the original Congestion Management Program (CMP) was adopted for the San Diego region in 1991, with the most recent update (2002 CMP Update) completed in January of 2003. The primary purpose of the CMP is to monitor transportation system performance, develop programs to address congestion, and integrate transportation and land-use. Contained within SANDAG's 2002 CMP Update, the Congestion Mitigation Strategies (CMS) project was established to develop alternative congestion mitigation strategies that could be used within the San Diego region to mitigate existing and future traffic congestion.

Key congestion mitigation objections from in the CMS include:

- i. Increasing the capacity of the transportation system
- ii. Increasing the performance of the transportation system
- iii. Effecting a mode shift away from drive alone
- iv. Effecting a mode shift away from drive alone

- v. Shifting peak period trips to other time periods
- vi. Vehicle trip reductions

This report has attempted to incorporate the CMS objectives into the recommendations for the proposed project. Appendix O provides additional details from the CMS Toolbox for mitigation strategies and cost estimates.

#### **E. On-Site Circulation Recommendations**

- i. Construct the on-site circulation system per the detailed site plan.
- ii. Provide project access, as shown in Exhibit 10-2.
- iii. Install stop signs, stop bars, and stop legends at all project access points.
- iv. Maintain limited use area at all project driveways to ensure adequate sight distance is provided. (See section 8.B. for details)
- v. Install signage to designate "Employee Parking Only" for parking stalls along southern drive aisle, adjacent to the drive-thru restaurant.
- vi. Install signage at the westerly project access (PA 3) indicating that this driveway is for service and delivery vehicles only.

#### **F. Recommendations to Promote Alternative Modes of Transportation**

- i. Perform community outreach to educate and encourage local residents to use alternative modes of transportation to access the site, such as walking, bicycling, and public transit.
- ii. Provide on-site bicycle racks in easily accessible and highly visible locations. Bicycle racks should be provided for both the supermarket and fast food land uses.
- iii. Encourage management to display a poster/message board that promotes walking, bicycling and public transit and provides information about these options within the neighborhood.

- iv. Provide pedestrian pathways to North Broadway to allow public transit users easy access to the site.
- v. Encourage employees to use alternative modes of transportation, such as carpooling and public transit. Consider providing incentives for such usage.

#### **G. Special Considerations for Lincoln Elementary School Traffic**

Due to the close proximity of the site to Lincoln Elementary School, special consideration has been given to help reduce potential conflicts with vehicles, bicyclists, and pedestrians. Peak hour arrival and dismissal times were observed and pedestrian traffic counts were taken surrounding Lincoln Elementary. Lincoln Avenue is heavily used by parents as a drop-off and pick up location. During the afternoon peak dismissal time, approximately 63 pedestrians were observed crossing Lincoln Avenue at mid-block locations. Vehicles were also observed using the vacant property driveways as loading areas and turn around points. It may be reasonable to assume that parents will attempt to use the parking lot of the new development as a pick-up/drop-off area for the school.

To help reduce potential conflicts between the proposed site and the existing Lincoln Elementary School the following recommendations have been made;

- i. Install "Customer Parking Only" signage at each entrance to the site.
- ii. Consider installing a mid-block crosswalk and providing a crossing guard to assist in pedestrian crossings during peak school arrival and dismissal times.
- iii. Maintain limited use area at all project driveways to ensure adequate sight distance is provided. (See section 8.B. for details)

#### **H. Project Fair Share Analysis**

The project should participate in the City's sponsored regional transportation funding program. The project is not solely responsible for the degradation in level of service at the

study area intersections and street segments. Fair share represents the portion of the future growth in traffic that is attributed to the project. The project's fair share contribution to the impacted study area intersections is shown in Table 10-3 and the project's fair share contribution to the impacted street segments is shown in Table 10-4.

## **I. Construction Traffic Analysis**

It is expected that highest amount of construction traffic will occur during excavation and demolitions process, where all the excess material and soil will be hauled off-site. Typically, a dump truck can haul ten cubic yards of materials per trip. If it is assumed that there is approximately 15,000 cubic yards of materials to haul, it will take 1,500 trips in order to complete the excavation process. It is projected that this process will take between 30 to 60 days; therefore, it is estimated that this phase will generate approximately 200 to 400 trips per day. This also assumes a Passenger Car Equivalent conversion of 2x for trucks.

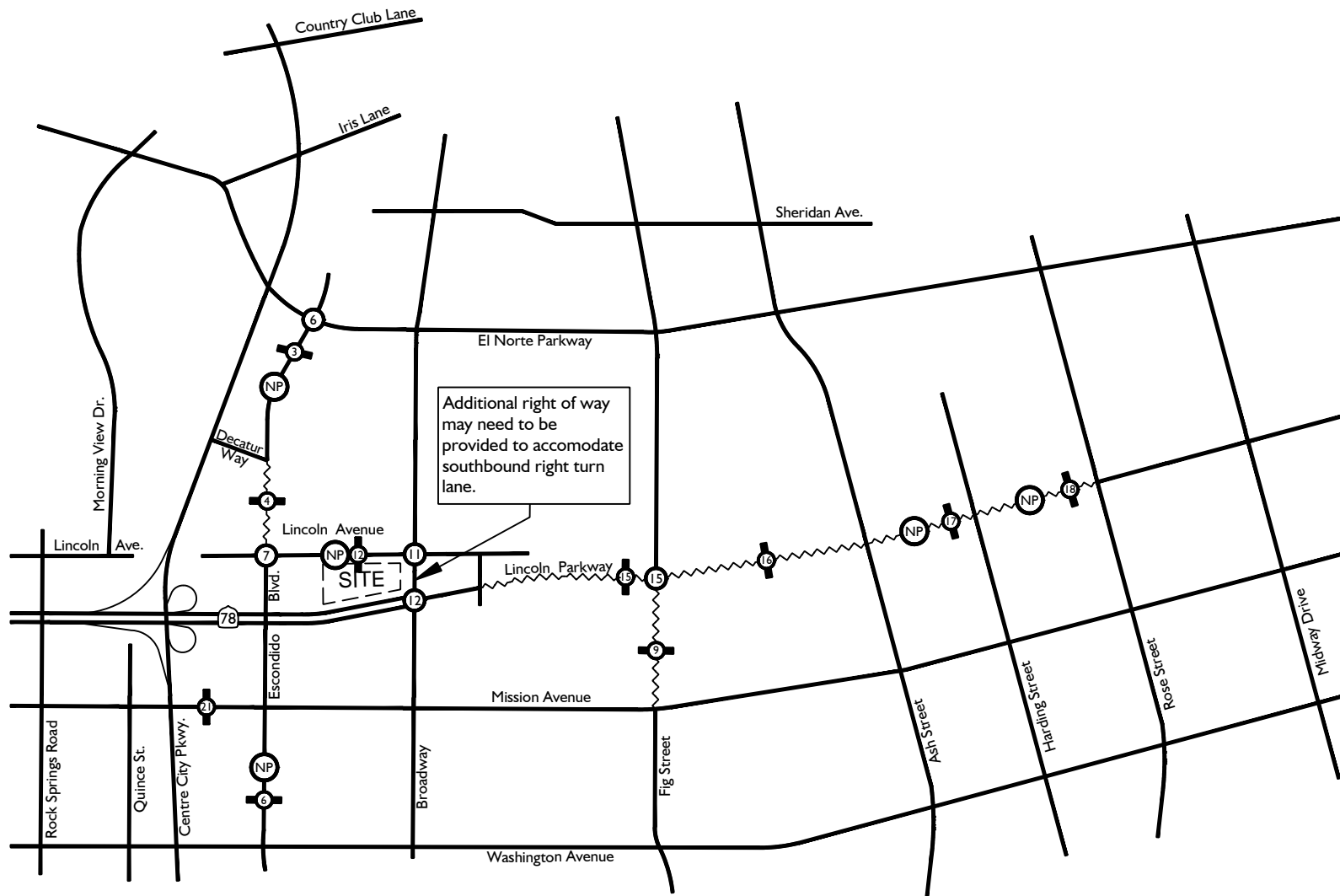
The traffic generated during construction is expected to be less than the traffic generated by the project once it is completed and operational. The project is expected to generate 8,605 daily trips once operational, compared to approximately 400 daily trips during construction. Therefore, the "worst-case" traffic impacts have already been analyzed and no additional off-site mitigation would be expected.

The following recommendations may further assist in limiting construction traffic impacts:

- i. Peak construction operations, such as the off-site hauling of material, should generally occur outside the peak hours of the adjacent street whenever possible.
- ii. Heavy construction vehicles should use City of Escondido preferred truck routes to access the site.
- iii. Flagger should be used whenever trucks are backing onto Lincoln Avenue or other public roads.
- iv. Idling trucks should be limited to 5 minutes or less to reduce vehicle emission impacts.

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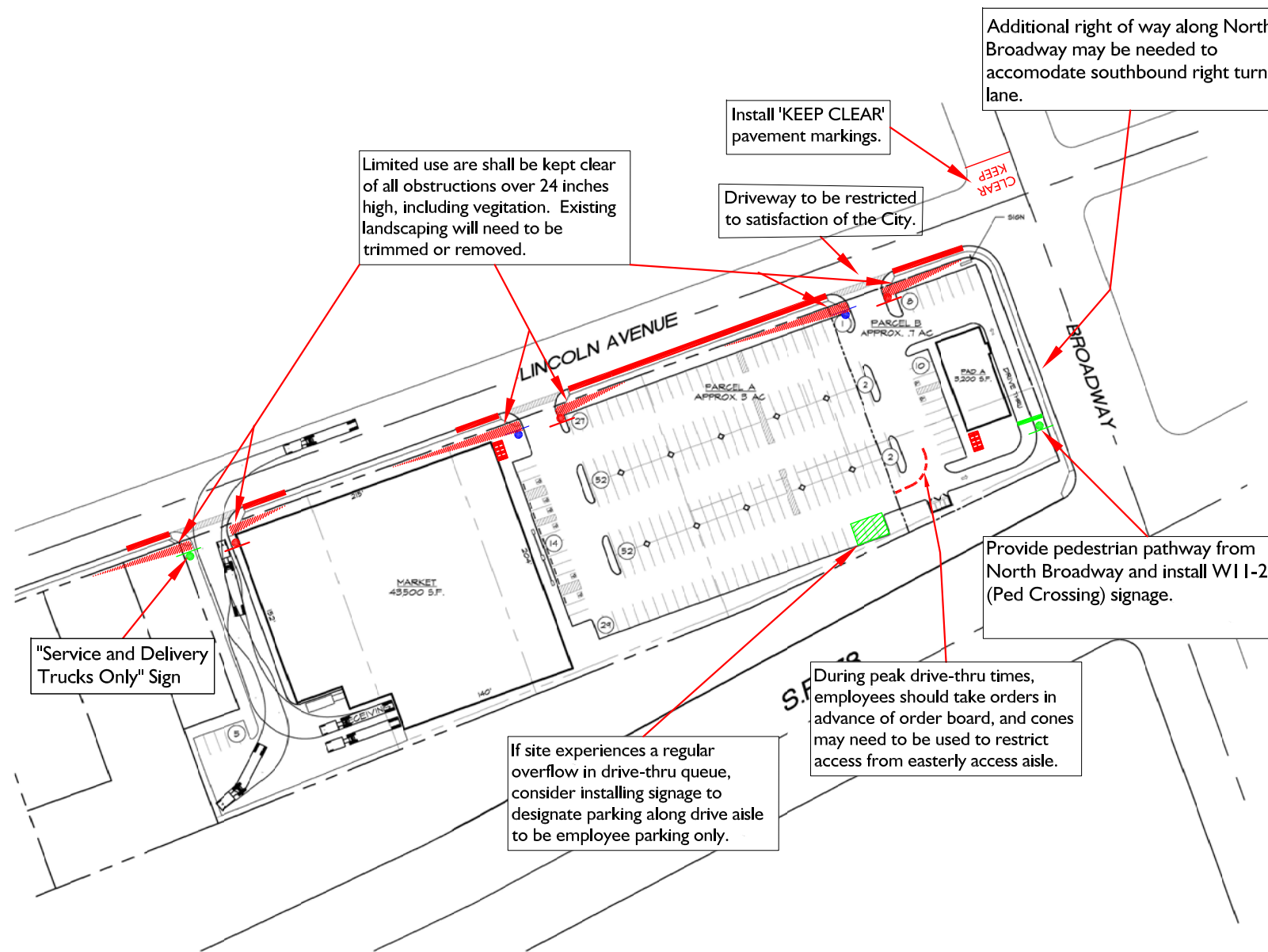
**Note:**  
The project is not solely responsible for the degradation in level of service at the study area intersections and street segments. The development should contribute a fair-share to the recommended improvements. Table 10-3 and Table 10-4 show the project's fair-share traffic contribution to study intersections and street segments, respectively.

**Legend:**

- ① = Study Area Intersection
- = Study Area Roadway Segment
- ➔ = Recommended Improvement
- ↔ = Improvement Recommended in Previous Scenario
- ~ = Roadway not built out to General Plan Classification  
Consider improvements to meet G.P. Classification, where feasible.
- Ⓝ = Consider restricting parking along street segment to increase capacity and improve level of service.

	Existing	Existing Plus Project Conditions	Project Opening Year (2016) With Project Conditions	Horizon Year (2035) With Project Conditions
⑥ Escondido Boulevard (NS) at El Norte Parkway (EW) OPTION 2				Improve Signal Phasing to be Protected/Permissive. (No additional improvements required)
⑦ Escondido Boulevard (NS) at Lincoln Avenue (EW)				No Additional Improvements Required
⑪ North Broadway (NS) at Lincoln Avenue (EW)				No Additional Improvements Required
⑫ North Broadway (NS) at SR-78/Lincoln Parkway (EW)				No Additional Improvements Required
⑮ Fig Street (NS) at Lincoln Parkway (EW)		No Improvements Required	No Improvements Required	

\* = Improvement done with restriping only; no roadway widening required.



- I. On-Site Circulation Recommendations**
- I. Construct the on-site circulation system per the detailed site plan.
  - II. Provide project access as shown in Exhibit 1-2.
  - III. Install stop signs, stop bars, and stop legends at all project access points.
  - IV. Maintain limited use area at all project driveways to ensure adequate sight distance is provided (See Section 8.B for details).
  - V. Install signage to designate "Employee Parking Only" for parking stalls along southern drive aisle, adjacent to the drive-thru restaurant.
  - VI. Install signage at westerly project driveway (Project Access 3) indicating access is for service and delivery trucks only.
- II. Recommendations to Promote Alternative Modes of Transportation**
- I. Perform community outreach to educate and encourage local residents to use alternative modes of transportation to access the site; such as walking, bicycling and public transit.
  - II. Provide on-site bicycle racks in easily accessible and high visible locations. Bicycle racks should be provided for both the supermarket and fast food use.
  - III. Encourage management to display a poster/message board that promotes walking, bicycling and public transit and provides information about these options within the neighborhood.
  - IV. Provide pedestrian pathways to North Broadway to allow public transit user's easy access to the site.
  - V. Encourage employees to use alternative modes of transportation, such as carpooling and public transit. Consider providing incentives for such use.
- III. Special Considerations for Lincoln Elementary School Traffic**
- To help reduce potential conflicts between the proposed site and the existing Lincoln Elementary School the following recommendations have been made:
- I. Install "Customer Parking Only" signage at each entrance to the site.
  - II. Consider installing crosswalk on Lincoln Avenue to assist in pedestrian crossings during peak school arrival and dismissal times. Crosswalk can be enhanced with in road lighting, overhead lighting and signage and/or chokers.
  - III. Maintain limited use area at all project driveways to ensure adequate sight distance is provided (See Section 8.B for details).

**Legend:**





-  = Install Stop Sign, Stop Bars, and Stop Legends
-  = Install "Customer Parking Only" Signs
-  = Red Curb (No Parking)
-  = Limited Use Area



Exhibit 10-3  
**Conceptual Design**  
**North Broadway at Lincoln Avenue**

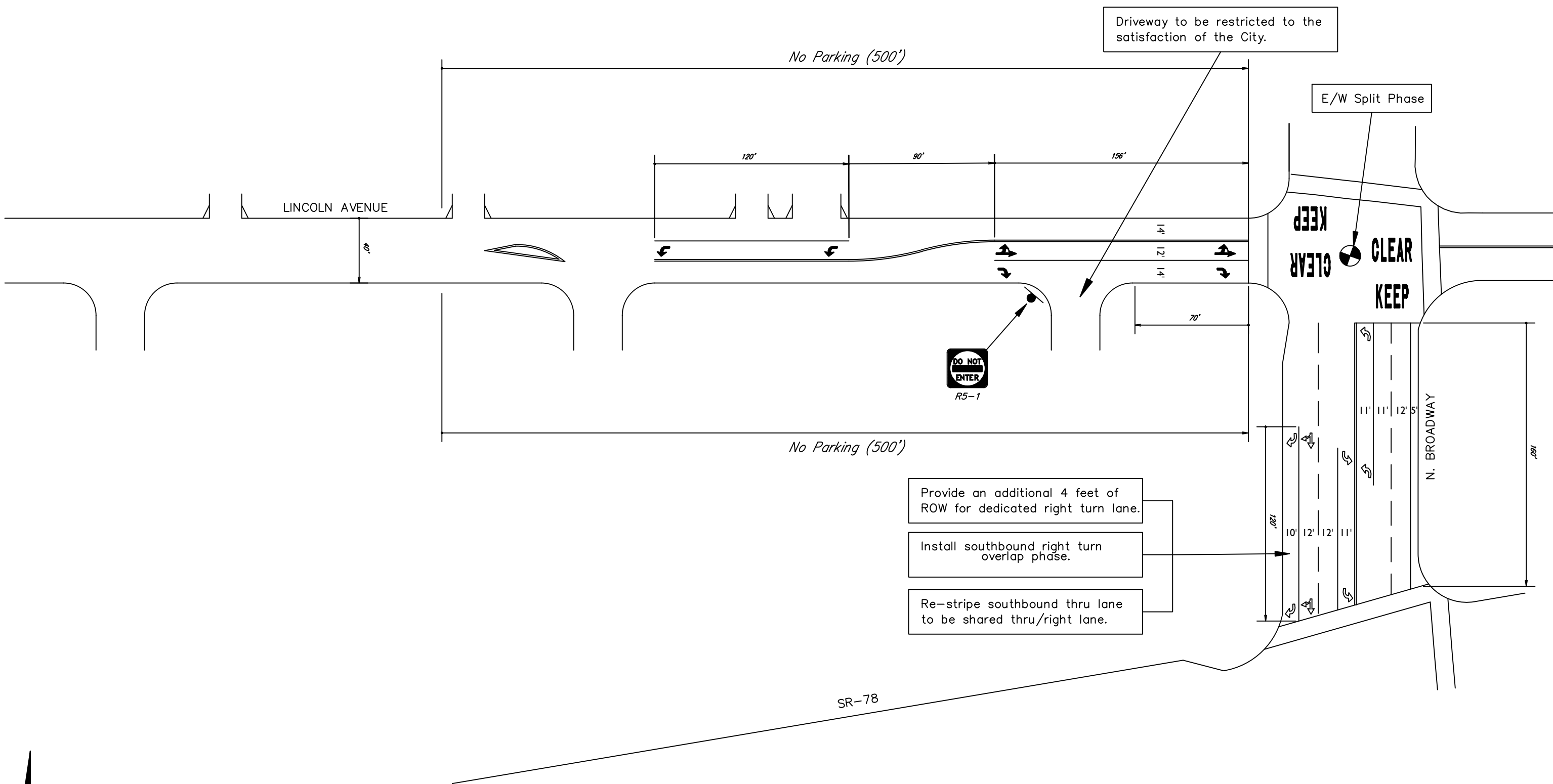
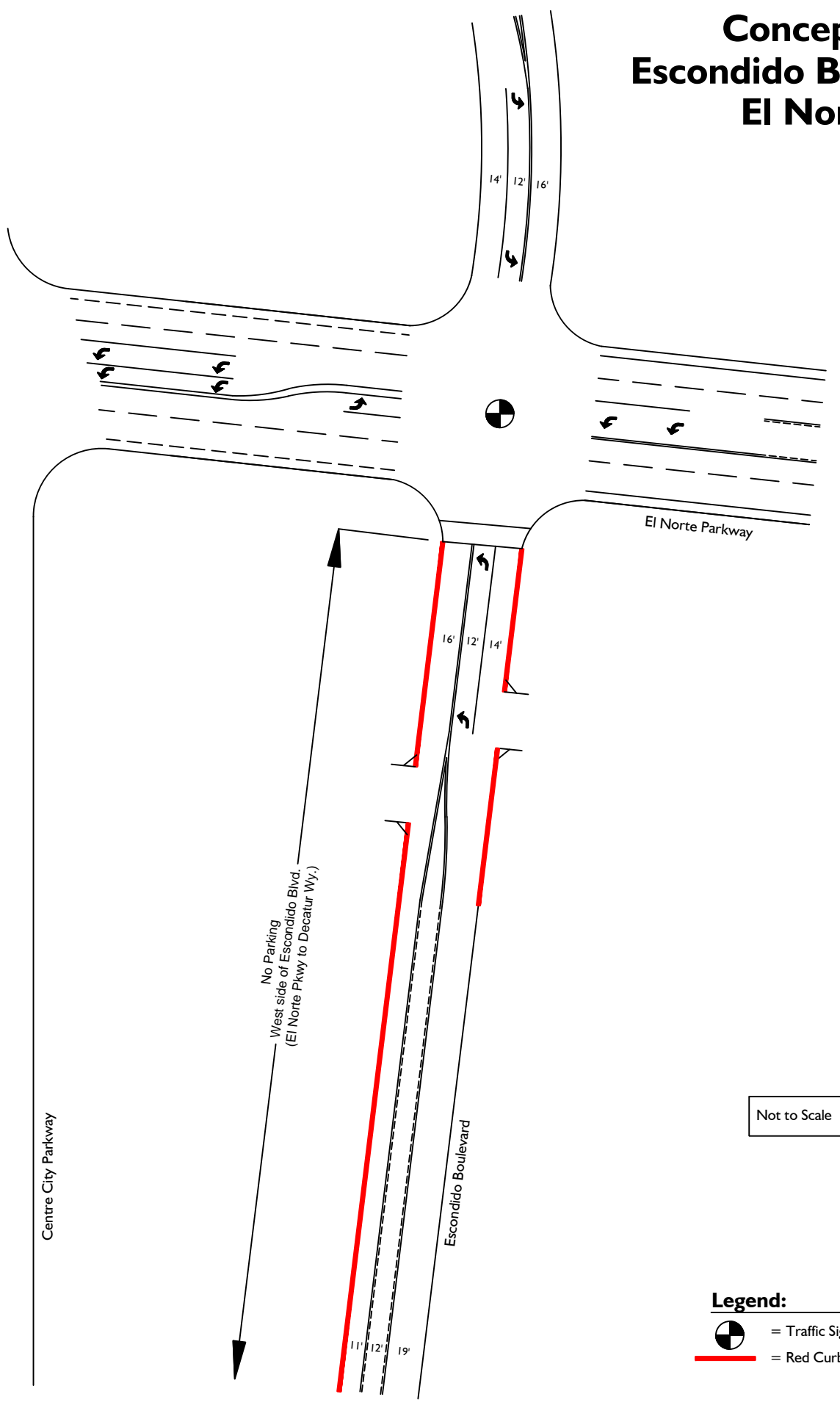


Exhibit 10-4  
**Conceptual Design  
 Escondido Boulevard. at  
 El Norte Parkway**



**TABLE 10-1**  
**Recommended Intersection Improvements<sup>1, 2</sup>**

Intersection	Recommended Improvements for Existing With Project Conditions <sup>3,5</sup>	Recommended Improvements for Project Opening Year (2016) With Project Conditions <sup>3,6</sup>	Recommended Improvements for Buildout (Year 2035) With Project Conditions <sup>3,7</sup>
Escondido Boulevard (NS) at 6. El Norte Parkway (EW) <sup>4</sup>	<ul style="list-style-type: none"> <li>- Intersection is currently operating at LOS F for Existing <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Install Traffic Signal and update the intersection by re-striping the following lane geometry:               <ul style="list-style-type: none"> <li>- one (1) northbound left turn lane</li> <li>- one (1) northbound shared thru/right turn lane</li> <li>- one (1) southbound left turn lane</li> <li>- one (1) southbound shared thru/right turn lane</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will continue to operate at LOS F for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards previous phase improvements</li> <li>- No additional improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will continue to operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Improve signal phase to be 'protected/permissive for east/west left turn movements</li> </ul>
Escondido Boulevard (NS) at 7. Lincoln Avenue (EW)	<ul style="list-style-type: none"> <li>- Intersection is currently operating at LOS D for Existing <i>Without</i> Project conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Install Traffic Signal and update the intersection by re-striping the following lane geometry:               <ul style="list-style-type: none"> <li>- one (1) westbound left turn lane</li> <li>- one (1) westbound shared thru/right turn lane</li> </ul> </li> <li>- Restrict parking along westbound approach</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will operate at LOS E for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements</li> <li>- No additional improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements</li> <li>- No additional improvements required</li> </ul>
North Broadway (NS) at 11. Lincoln Avenue (EW)	<ul style="list-style-type: none"> <li>- Intersection is currently operating at LOS F for Existing <i>Without</i> Project conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Install Traffic Signal and update the intersection by re-striping the following lane geometry:               <ul style="list-style-type: none"> <li>- one (1) eastbound left turn lane</li> <li>- one (1) eastbound shared thru/right turn lane</li> <li>- one (1) westbound left turn lane</li> <li>- one (1) westbound shared thru/right turn lane</li> </ul> </li> <li>- Coordinate the traffic signal timing with the traffic signal at North Broadway and Lincoln Parkway</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will continue to operate at LOS F for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards previous phase improvements</li> <li>- No additional improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will continue to operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards previous phase improvements</li> <li>- No additional improvements required</li> </ul>
North Broadway (NS) at 12. SR-78/Lincoln Parkway	<ul style="list-style-type: none"> <li>- Intersection is currently operating at LOS D for Existing <i>Without</i> Project conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Install southbound right-turn overlap<sup>8</sup></li> <li>- Restripe southbound thru lane to be shares thru right lane</li> <li>- Coordinate the traffic signal timing with the traffic signal at North Broadway and Lincoln Avenue and the traffic signal at Garrick Way and Lincoln Parkway.</li> <li>- Improvement may require providing additional right-of-way along North Broadway to accommodate a southbound right turn pocket.</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will operate at LOS D for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements</li> <li>- No additional improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements</li> <li>- No additional improvements required</li> </ul>
Fig Street (NS) at 15. Lincoln Avenue (EW)	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Intersection will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Restripe northbound to the following lane geometry:               <ul style="list-style-type: none"> <li>- two (2) northbound left turn lanes</li> <li>- one (1) northbound shared thru/right turn lane</li> </ul> </li> </ul>

<sup>1</sup> Recommended improvements would satisfy City of Escondido requirements to restore intersection Level of Service to "without project" conditions.

<sup>2</sup> The project is not solely responsible for the poor level of service at the study area intersections. The Project should contribute a fair-share percentage to off-site recommended improvements

<sup>3</sup> It is important to note that the improvements listed in this table represent the minimum requirements to restore level of service to "without project" conditions. Additional improvements would be required to improve LOS to C or better.

<sup>5</sup> Existing Plus Project impacts would be considered direct project impacts, per CEQA guidelines.

<sup>6</sup> Project Opening Year impacts would be considered cumulative impacts, per CEQA guidelines.

<sup>7</sup> Horizon Year (2035) impacts would be considered cumulative impacts, per CEQA guidelines.

<sup>8</sup> The installation of a southbound right-turn overlap phase would require restricting eastbound u-turns. This would require approval from Caltrans.

**TABLE 10-2  
Roadway Segment Improvements<sup>1, 2</sup>**

Intersection	Recommended Improvements for Existing With Project Conditions <sup>3,6</sup>	Recommended Improvements for Project Opening Year (2016) With Project Conditions <sup>3,7</sup>	Recommended Improvements for Buildout (Year 2035) With Project Conditions <sup>3,8</sup>
<b>North/South Roadways</b>			
Escondido Boulevard 3. El Norte Parkway to Decatur Way <sup>9</sup>	<ul style="list-style-type: none"> <li>- Segment is currently operating at LOS C for Existing <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Removing all parking on the west side of Escondido Boulevard.</li> <li>- Allowing parking on the east side of Escondido Boulevard to remain where it currently exists (8-foot wide street side parking)</li> <li>- Two 11-foot wide travel lanes (one northbound, one south bound)</li> <li>- One 12-foot wide center turn lane</li> <li>- Where Escondido Boulevard intersects El Norte Parkway intersection (including 120 feet south of the intersection) convert the center turn lane to a left turn pocket and remove all street parking on the east side of Escondido Boulevard to allow for right turn movements.</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS D for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase for improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Roadway is built out to General Plan Classification and additional improvements beyond those shown in previous phase may not be feasible.</li> <li>- Additional fee contributions may be accepted to offset impact.</li> <li>- Impact may be considered significant and unmitigatable</li> </ul>
Escondido Boulevard 4. Decatur Way to Lincoln Avenue	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS C for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- Build out roadway segment to City of Escondido General Plan Classification<sup>5</sup> which requires the following:</li> <li>- Increase the total number of lanes to four (4)</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS D for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>
Escondido Boulevard 6. Mission Avenue to Washington Avenue	<ul style="list-style-type: none"> <li>- Segment is currently operating at LOS D for Existing <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Restrict On-Street Parking<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS D for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS D for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>
Fig Street 9. Lincoln Avenue to Mission Avenue	<ul style="list-style-type: none"> <li>- Segment is currently operating at LOS E for Existing <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Build out roadway segment to City of Escondido General Plan Classification<sup>5</sup> which requires the following:</li> <li>- Increase roadway cross section width to 64 feet.</li> <li>- Increase the total number of lanes to four (4)</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS E for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS E for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>
<b>East/West Roadways</b>			
El Norte Parkway 11. Centre City Parkway to Escondido Blvd.	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Segment is currently built-out to General Plan Classification</li> <li>- Additional improvements may not be feasible</li> <li>- Impact may be considered significant and unmitigatable</li> </ul>	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>
Lincoln Avenue 12. Escondido Boulevard to North Broadway	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS A for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- Restrict On-Street Parking<sup>4</sup></li> </ul>
Lincoln Parkway/Lincoln Avenue 15. Garrick Way to Fig Street	<ul style="list-style-type: none"> <li>- Segment is currently operating at LOS D for Existing <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Build out roadway segment to City of Escondido General Plan Classification<sup>5</sup> which requires the following:</li> <li>- Increase roadway cross section width to 106 feet.</li> <li>- Increase the total number of lanes to six (6)</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS E for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>
Lincoln Parkway/Lincoln Avenue 16. Fig Street to Ash Street	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- Build out roadway segment to City of Escondido General Plan Classification<sup>5</sup> which requires the following:</li> <li>- Increase roadway cross section width to 106 feet.</li> <li>- Increase the total number of lanes to six (6)</li> </ul>
Lincoln Parkway/Lincoln Avenue 17. Ash Street to Harding Street	<ul style="list-style-type: none"> <li>- Segment is currently operating at LOS F for Existing <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Build out roadway segment to City of Escondido General Plan Classification<sup>5</sup> which requires the following:</li> <li>- Increase roadway cross section width to 64 feet.</li> <li>- Increase the total number of lanes to four (4)</li> <li>- Restrict On-Street Parking<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS F for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>
Lincoln Parkway/Lincoln Avenue 18. Harding Street to Rose Street	<ul style="list-style-type: none"> <li>- Segment is currently operating at LOS F for Existing <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Build out roadway segment to City of Escondido General Plan Classification<sup>5</sup> which requires the following:</li> <li>- Increase roadway cross section width to 64 feet.</li> <li>- Increase the total number of lanes to four (4)</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS F for Year 2016 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards improvements;</li> <li>- No additional improvements required, see previous phase improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS F for Year 2035 <i>Without</i> Project Conditions</li> <li>- Project should pay fair-share towards the following improvements;</li> <li>- Provide previous phase improvements, and;</li> <li>- Restrict On-Street Parking<sup>5</sup></li> </ul>
Mission Avenue 21. Centre City Parkway to Escondido Blvd.	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- No improvements required</li> </ul>	<ul style="list-style-type: none"> <li>- Segment will operate at LOS D for Year 2035 <i>Without</i> Project Conditions</li> <li>- Roadway is built out to ultimate classification and a traffic signal synchronization plan has already been implemented. Consider additional improvements to timing plan as traffic patterns change. Additional fee contributions may be required to offset impacts.</li> </ul>

<sup>1</sup> The improvements listed would mitigate the roadway segment to "without project" conditions. The feasibility of improvements will need to be reviewed prior to determining whether the impact is mitigatable.

<sup>2</sup> The project is not solely responsible for the poor level of service at the study area segments. The Project should contribute a fair-share percentage to off-site recommended improvements

<sup>3</sup> It is important to note that the improvements listed in this table represent the minimum requirements to restore the roadway segment to "without project" conditions.

<sup>4</sup> Restricting on-street parking increases the capacity of the roadway segment, as shown in Escondido LOS standards.

<sup>5</sup> Existing roadway segment characteristics do not reflect General Plan Roadway Classification characteristics.

<sup>6</sup> Existing Plus Project impacts would be considered direct project impacts, per CEQA guidelines.

<sup>7</sup> Project Opening Year impacts would be considered cumulative impacts, per CEQA guidelines.

<sup>8</sup> Horizon Year (2035) impacts would be considered cumulative impacts, per CEQA guidelines.

<sup>9</sup> Improvements recommended by City of Escondido Staff.

**TABLE 10-3**  
**Horizon Year (2035) Fair-Share Intersection Contribution<sup>1</sup>**

Intersection	Existing Traffic		Year 2035 With Project Traffic		Growth in Traffic		Project Traffic		Project % of Year 2035 With Project Growth in Traffic	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Escondido Boulevard (NS) at 6. El Norte Parkway (EW)	2,272	2,765	5,032	3,278	2,760	513	69	81	2.5%	15.8%
7. Lincoln Avenue (EW)	830	924	1,803	1,649	973	725	186	366	19.1%	50.5%
North Broadway (NS) at 11. Lincoln Avenue (EW)	1,425	1,949	2,434	2,429	1,009	480	214	424	21.2%	88.3%
12. SR 78/Lincoln Parkway (EW)	4,093	5,256	8,680	6,699	4,587	1,443	146	288	3.2%	20.0%
Fig Street (NS) at 15. Lincoln Parkway (EW)	2,346	2,598	3,675	3,221	1,329	623	60	70	4.5%	11.2%

<sup>1</sup> The project is not solely responsible for the degradation in level of service at the study area intersections and street segments. Fair share represents the portion of the future growth in traffic that is attributed to the project.

**TABLE 10-4**  
**Horizon Year (2035) Fair-Share Street Segment Contribution<sup>1</sup>**

Intersection	Existing Traffic	Year 2035 With Project Traffic	Growth in Traffic	Project Traffic	Project % of Year 2035 With Project Growth in Traffic
	ADT	ADT	ADT	ADT	ADT
Escondido Boulevard					
3. El Norte Parkway to Decatur Way	7,400	14,100	6,700	1,535	22.91%
4. Decatur Way to Lincoln Avenue	9,618	13,400	3,782	1,562	41.30%
6. Mission Avenue to Washington Avenue	15,302	17,477	2,175	645	29.65%
Fig Street					
9. Lincoln Avenue to Mission Avenue	8,980	10,100	1,120	288	25.71%
Lincoln Avenue					
12. Escondido Boulevard to North Broadway	2,556	7,714	5,158	4,538	87.98%
Lincoln Parkway/Lincoln Avenue					
15. Garrick Way to Fig Street	31,589	40,400	8,811	1,377	15.63%
16. Fig Street to Ash Street	24,699	38,600	13,901	909	6.54%
17. Ash Street to Harding Street	15,314	30,100	14,786	530	3.58%
18. Harding Street to Rose Street	12,591	23,800	11,209	370	3.30%
Mission Avenue					
21. Centre City Parkway to Escondido Blvd.	19,333	30,400	11,067	1,119	10.11%

<sup>1</sup> The project is not solely responsible for the degradation in level of service at the study area intersections and street segments. Fair share represents the portion of the future growth in traffic that is attributed to the project.



**Table 10-5  
Intersection Queuing for Existing Plus Project Conditions<sup>1</sup>**

No.	Intersection	AM PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	143 <sup>2</sup>	77	- <sup>3</sup>	32	192	- <sup>3</sup>	- <sup>3</sup>	30	11	- <sup>3</sup>	44	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincoln Parkway (EW)	240	132	0	94	318	178	213	269	604	102	467 <sup>2</sup>	0

No.	Intersection	MID DAY PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	163 <sup>2</sup>	147	- <sup>3</sup>	32	204	- <sup>3</sup>	- <sup>3</sup>	64	23	- <sup>3</sup>	47	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincoln Parkway (EW)	404	208	0	141	380	115	415 <sup>2</sup>	517	444	103	433 <sup>2</sup>	0

No.	Intersection	PM PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	118 <sup>2</sup>	215	- <sup>3</sup>	31	175	- <sup>3</sup>	- <sup>3</sup>	46	38	- <sup>3</sup>	51	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincoln Parkway (EW)	471 <sup>2</sup>	293	25	168 <sup>2</sup>	361	79	488 <sup>2</sup>	530	275	82	416 <sup>2</sup>	0

<sup>1</sup> Queue length was calculated using Synchro's internal formula based on characteristics of the intersection.

<sup>2</sup> 95th Percentile volume exceeds capacity, therefore the queue may be longer

<sup>3</sup> Due to the geometry of the intersection, the left and/or right turn movement is shared with the thru movement, thus the movement does not have an individual queue length

<sup>4</sup> Volume for 95th Percentile queue is metered by upstream signal

**Table 10-6  
Intersection Queuing for Opening Year (2016) Plus Project Conditions<sup>1</sup>**

No.	Intersection	AM PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	131 <sup>2</sup>	80	- <sup>3</sup>	30	233 <sup>2</sup>	- <sup>3</sup>	- <sup>3</sup>	33	13	- <sup>3</sup>	50	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincon Parkway (EW)	254	156	0	97	379	196	216	256	359	114	497	47

No.	Intersection	MID DAY PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	165 <sup>2</sup>	166	- <sup>3</sup>	32	224 <sup>2</sup>	- <sup>3</sup>	- <sup>3</sup>	65	24	- <sup>3</sup>	47	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincon Parkway (EW)	432 <sup>2</sup>	213	6	151 <sup>2</sup>	394	154	458 <sup>2</sup>	551	521	107	468 <sup>2</sup>	2

No.	Intersection	PM PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	126 <sup>2</sup>	215	- <sup>3</sup>	31	175	- <sup>3</sup>	- <sup>3</sup>	71	38	- <sup>3</sup>	52	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincon Parkway (EW)	481 <sup>2</sup>	313	18	170 <sup>2</sup>	489 <sup>2</sup>	92	494 <sup>2</sup>	545	260	86	458 <sup>2</sup>	0

<sup>1</sup> 95th Percentile queue length. Calculated using Synchro's internal formula based on characteristics of the intersection.

<sup>2</sup> 95th Percentile volume exceeds capacity, therefore the queue may be longer

<sup>3</sup> Due to the geometry of the intersection, the left and/or right turn movement is shared with the thru movement, thus the movement does not have an individual queue length

<sup>4</sup> Volume for 95th Percentile queue is metered by upstream signal

**Table 10-7  
Intersection Queuing for Horizon Year (2035) Plus Project Conditions<sup>1</sup>**

No.	Intersection	AM PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	241 <sup>4</sup>	141 <sup>4</sup>	- <sup>3</sup>	50	547 <sup>2</sup>	- <sup>3</sup>	- <sup>3</sup>	35	46	- <sup>3</sup>	118	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincoln Parkway (EW)	1374 <sup>2</sup>	196	0	66 <sup>4</sup>	915 <sup>2</sup>	783 <sup>2,4</sup>	291 <sup>2</sup>	318	938 <sup>2</sup>	162	2382 <sup>2</sup>	49

No.	Intersection	PM PEAK HOUR QUEUE (FEET)											
		Northbound			Southbound			Eastbound			Westbound		
		L	T	R	L	T	R	L	T	R	L	T	R
11	North Broadway (NS) at Lincoln Avenue (EW)	69 <sup>2</sup>	251	- <sup>3</sup>	61 <sup>2</sup>	122	- <sup>3</sup>	- <sup>3</sup>	104	35	- <sup>3</sup>	42	- <sup>5</sup>
12	North Broadway (NS) at SR 78/Lincoln Parkway (EW)	951 <sup>2</sup>	275	28	116 <sup>2</sup>	401 <sup>2</sup>	126	597 <sup>2</sup>	618	450	99	980 <sup>2</sup>	34

<sup>1</sup> 95th Percentile queue length. Calculated using Synchro's internal formula based on characteristics of the intersection.

<sup>2</sup> 95th Percentile volume exceeds capacity, therefore the queue may be longer

<sup>3</sup> Due to the geometry of the intersection, the left and/or right turn movement is shared with the thru movement, thus the movement does not have an individual queue length

<sup>4</sup> Volume for 95th Percentile queue is metered by upstream signal

# 11.0 Conclusions

## A. CEQA Checklist for Transportation/Traffic Impact Summary

<b>TRANSPORTATION / TRAFFIC:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<p>a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?</p> <p>Potentially significant impacts have been identified at intersections and street segments. Where roadway improvements are not feasible, fair-share fee contributions may be required to off-set impacts.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?</p> <p>Potentially significant impacts have been identified at intersections and street segments. Where roadway improvements are not feasible, fair-share fee contributions may be required to off-set impacts.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?</p> <p>Recommended project design features should be included as part of the development, specifically related to project access, sight distance, and internal circulation.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>e) Result in inadequate emergency access?</p> <p>The proposed site plan is adequate to serve emergency vehicle access.</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<Table continued on following page>

<b>TRANSPORTATION / TRAFFIC:</b>	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Result in inadequate parking capacity? The proposed site plan would provide adequate parking supply, per City of Escondido requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? Recommended project design features should be included as part of the development with regards to alternative modes of transportation.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**B. Conclusions**

This traffic impact analysis has been prepared for the proposed Centerpointe 78 development, located in the City of Escondido. . This report has identified potential significant impacts as a result of the project and has made recommendations to mitigate the traffic impacts. In certain cases, some impacts may be considered significant and unmitigatable and the City will be responsible for making the final determination as to whether the project can be accommodated. Upon completion of the project, the City should periodically review the site to ensure adequate operations. A copy of the scope of work for this traffic study is provided in Appendix P.

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# Appendices

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## **Appendix A**

Traffic Count Worksheets

**Appendix A**  
**Centerpointe 78 Study Area Traffic Count Overview**

Study Area Roadway Segment	Data Collection (Date) <sup>1</sup>
<b>North/South Roadways</b>	
<b>Centre City Parkway</b>	
1. Country Club Lane to Iris Lane	December
2. Iris Lane to El Norte Parkway	December
<b>Escondido Boulevard</b>	
3. El Norte Parkway to Decatur Way	December
4. Decatur Way to Lincoln Avenue	June
5. Lincoln Avenue to Mission Avenue	June
6. Mission Avenue to Washington Avenue	December
<b>North Broadway</b>	
7. El Norte Parkway to Lincoln Avenue	December
8. Lincoln Avenue to SR-78/Lincoln Parkway	June
<b>Fig Street</b>	
9. Lincoln Avenue to Mission Avenue	December
<b>East/West Roadways</b>	
<b>El Norte Parkway</b>	
10. Morning View Drive to City Center Parkway <sup>2</sup>	December
11. City Center Parkway to Escondido Boulevard <sup>2</sup>	June
<b>Lincoln Avenue</b>	
12. Escondido Boulevard to North Broadway	June
13. North Broadway to Garrick Way	December
<b>Lincoln Parkway/ Lincoln Avenue</b>	
14. North Broadway to Garrick Way	June
15. Garrick Way to Fig Street	June
16. Fig Street to Ash Street	June
17. Ash Street to Harding Street	June
18. Harding Street to Rose Street	June
19. Rose Street to Midway Drive	June
<b>Mission Avenue</b>	
20. Quince Street to Centre City Parkway	December
21. Centre City Parkway to Escondido Boulevard	December
<b>Caltrans Freeway Segments</b>	
<b>SR-78 Freeway</b>	
22. I-15 Freeway to Centre City Parkway <sup>3</sup>	June
23. Centre City Parkway to North Broadway <sup>3</sup>	June

<sup>1</sup> June counts taken on June 6, 2013  
December counts would be taken at earliest possible date during normal, non-holiday times, while school is in regular session.  
<sup>2</sup> Mid-day pedestrian counts will be used from previously taken counts on June 6, 2013 from the hours of 12:30pm to 2:30 PM, as on this day, Lincoln Elementary School was on an early release and school was out at 1:30pm.

Study Area Intersection	Data Collection (Date and Time) <sup>1</sup>
<b>Rock Springs Road (NS) at:</b>	
1. Mission Avenue (EW)	June (7-9am, 4-6pm); Dec. (12-2pm)
<b>Mornign View Drive (NS) at:</b>	
2. El Norte Parkway (EW)	Dec. (7-9am, 12-2pm, 4-6pm)
<b>Quince Street (NS) at:</b>	
3. Mission Avenue (EW)	Dec. (7-9am, 12-2pm, 4-6pm)
<b>Centre City Parkway (NS) at:</b>	
4. El Norte Parkway (EW)	June (7-9am, 4-6pm); Dec. (12-2pm)
5. Mission Avenue (EW)	June (7-9am, 4-6pm); Dec. (12-2pm)
<b>Escondido Boulevard (NS) at:</b>	
6. El Norte Parkway (EW)	June (7-9am, 4-6pm); Dec. (12-2pm)
7. Lincoln Avenue (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
8. Mission Avenue (EW)	June (7-9am, 4-6pm); Dec. (12-2pm)
<b>North Broadway (NS) at:</b>	
9. Sheridan Avenue (EW)	Dec. (7-9am, 2-4pm, 4-6pm)
10. El Norte Parkway (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
11. Lincoln Avenue (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
12. SR-78/Lincoln Parkway (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
13. Mission Avenue (EW)	June (7-9am, 4-6pm); Dec. (12-2pm)
<b>Garrick Way (NS) at:</b>	
14. Lincoln Parkway (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
<b>Fig Street (NS) at:</b>	
15. Lincoln Avenue (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
16. Mission Avenue (EW)	Dec. (7-9am, 2-4pm, 4-6am)

Pedestrian Count Locations	Data Collection (Date and Time) <sup>1</sup>
<b>Escondido Boulevard (NS) at:</b>	
1. Lincoln Avenue (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
<b>Lincoln Avenue</b>	
2. Btwn. Escondido Boulevard and N.Broadway	June (7-9am, 12:30-2:30pm, 4-6pm) <sup>2</sup>
<b>North Broadway (NS) at:</b>	
3. Sheridan Avenue (EW)	Dec. (7-9am, 2-4pm, 4-6pm)
4. El Norte Parkway (EW)	Dec. (7-9am, 2-4pm, 4-6pm)
5. Lincoln Avenue (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
6. SR-78/Lincoln Parkway (EW)	June (7-9am, 4-6pm); Dec. (2-4pm)
<b>Garrick Way (NS) at:</b>	
7. Lincoln Parkway (EW)	Dec. (7-9am, 2-4pm, 4-6pm)
<b>Fig Street (NS) at:</b>	
8. Lincoln Avenue (EW)	Dec. (7-9am, 2-4pm, 4-6pm)
9. Mission Avenue (EW)	Dec. (7-9am, 2-4pm, 4-6pm)



## Intersection Turning Movement Counts

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/6/13 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO ROCK SPRINGS RD MISSION AVE	PROJECT #: LOCATION #: CONTROL:	PTD13-0607-01 1 SIGNAL
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NOTES:  7-9AM & 4-6PM	AM PM MD OTHER OTHER	▲ N ◀ W S ▼	E ▶
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LANES:	NORTHBOUND ROCK SPRINGS RD			SOUTHBOUND ROCK SPRINGS RD			EASTBOUND MISSION AVE			WESTBOUND MISSION AVE			TOTAL
	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	

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

WEEKDAY AM	7:00 AM	4	17	2	33	44	26	5	34	9	4	131	20	329
	7:15 AM	8	35	1	36	67	27	14	45	5	7	141	12	398
	7:30 AM	7	46	5	35	72	31	8	65	6	8	162	19	464
	7:45 AM	10	52	5	35	61	22	8	64	7	12	205	29	510
	8:00 AM	12	32	9	50	66	19	11	58	6	14	118	23	418
	8:15 AM	8	23	5	31	59	10	8	66	6	12	142	19	389
	8:30 AM	12	35	5	23	30	22	15	79	15	15	112	26	389
	8:45 AM	10	34	7	27	50	20	11	70	10	13	104	31	387
	VOLUMES	71	274	39	270	449	177	80	481	64	85	1,115	179	3,284
	APPROACH %	18%	71%	10%	30%	50%	20%	13%	77%	10%	6%	81%	13%	
APP/DEPART	384	/	533	896	/	598	625	/	790	1,379	/	1,363	0	
BEGIN PEAK HR	7:15 AM													
VOLUMES	37	165	20	156	266	99	41	232	24	41	626	83	1,790	
APPROACH %	17%	74%	9%	30%	51%	19%	14%	78%	8%	5%	83%	11%		
PEAK HR FACTOR	0.828			0.944			0.940			0.762			0.877	
APP/DEPART	222	/	289	521	/	331	297	/	408	750	/	762	0	
MIDDAY	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	1:00 PM													0
	1:15 PM													0
	1:30 PM													0
	1:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
BEGIN PEAK HR	1:45 PM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
WEEKDAY PM	4:00 PM	10	102	14	22	44	11	43	179	10	12	120	47	614
	4:15 PM	10	97	12	26	61	11	40	155	11	14	85	41	563
	4:30 PM	7	89	13	30	42	15	36	158	20	17	100	42	569
	4:45 PM	12	114	14	29	62	13	45	167	16	16	111	35	634
	5:00 PM	9	112	20	30	51	10	48	191	30	17	94	42	654
	5:15 PM	13	116	12	35	76	10	41	161	9	16	90	35	614
	5:30 PM	11	97	14	34	42	10	33	168	13	10	94	55	581
	5:45 PM	5	98	9	36	66	8	24	145	5	14	58	37	505
	VOLUMES	77	825	108	242	444	88	310	1,324	114	116	752	334	4,734
	APPROACH %	8%	82%	11%	31%	57%	11%	18%	76%	7%	10%	63%	28%	
APP/DEPART	1,010	/	1,469	774	/	674	1,748	/	1,674	1,202	/	917	0	
BEGIN PEAK HR	4:45 PM													
VOLUMES	45	439	60	128	231	43	167	687	68	59	389	167	2,483	
APPROACH %	8%	81%	11%	32%	57%	11%	18%	75%	7%	10%	63%	27%		
PEAK HR FACTOR	0.965			0.831			0.857			0.949			0.949	
APP/DEPART	544	/	773	402	/	358	922	/	875	615	/	477	0	

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# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 12/11/13 WEDNESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO ROCK SPRINGS RD MISSION AVE	PROJECT #: PTD13-1213-02 LOCATION #: 1 CONTROL: SIGNAL
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NOTES:  12-2PM ONLY	AM PM MD OTHER OTHER	▲ N  S ▼	◀ W  E ▶
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	NORTHBOUND ROCK SPRINGS RD			SOUTHBOUND ROCK SPRINGS RD			EASTBOUND MISSION AVE			WESTBOUND MISSION AVE			TOTAL
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	

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

WEEKDAY AM	7:00 AM														0	
	7:15 AM														0	
	7:30 AM														0	
	7:45 AM														0	
	8:00 AM														0	
	8:15 AM														0	
	8:30 AM														0	
	8:45 AM														0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	
BEGIN PEAK HR	8:45 AM															
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000			
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	
WEEKDAY MIDDAY	12:00 PM	13	57	10	35	40	15	36	148	13	21	113	30	531	0	
	12:15 PM	12	70	8	23	39	22	11	74	36	15	118	41	469	0	
	12:30 PM	14	48	3	20	35	16	15	99	16	19	122	35	442	0	
	12:45 PM	11	46	7	25	44	20	19	114	20	16	125	35	482	0	
	1:00 PM	12	56	10	23	31	14	17	113	18	15	119	32	460	0	
	1:15 PM	11	41	7	27	47	16	24	100	19	15	107	47	461	0	
	1:30 PM	19	67	7	34	37	24	23	113	16	15	109	30	494	0	
	1:45 PM	12	66	10	27	41	18	23	128	16	29	128	35	533	0	
	VOLUMES	104	451	62	214	314	145	168	889	154	145	941	285	3,872	0	
	APPROACH %	17%	73%	10%	32%	47%	22%	14%	73%	13%	11%	69%	21%		0	
APP/DEPART	617	/	904	673	/	613	1,211	/	1,165	1,371	/	1,190	0	0		
BEGIN PEAK HR	1:00 PM															
VOLUMES	54	230	34	111	156	72	87	454	69	74	463	144	1,948	0		
APPROACH %	17%	72%	11%	33%	46%	21%	14%	74%	11%	11%	68%	21%		0		
PEAK HR FACTOR	0.855			0.892			0.913			0.887			0.914			
APP/DEPART	318	/	461	339	/	299	610	/	599	681	/	589	0	0		
WEEKDAY PM	4:00 PM														0	
	4:15 PM														0	
	4:30 PM														0	
	4:45 PM														0	
	5:00 PM														0	
	5:15 PM														0	
	5:30 PM														0	
	5:45 PM														0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0		
BEGIN PEAK HR	8:45 PM															
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0		
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000			
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0		

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## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 12/11/13 WEDNESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO MORNING VIEW EL NORTE	PROJECT #: LOCATION #: CONTROL:	PTD13-1213-02 2 SIGNAL
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NOTES:  7-9AM & 12-2PM & 4-6PM	AM PM MD OTHER OTHER	◀ W	▲ N ▼ S	E ▶
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LANES:	NORTHBOUND MORNING VIEW			SOUTHBOUND MORNING VIEW			EASTBOUND EL NORTE			WESTBOUND EL NORTE			TOTAL
	NL 1	NT 1	NR 0	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 0	WL 1	WT 3	WR 1	

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

WEEKDAY AM	7:00 AM	6	2	14	16	0	49	18	150	4	5	140	12	416
	7:15 AM	33	2	66	5	4	14	13	112	9	22	171	6	457
	7:30 AM	34	7	61	11	4	15	11	121	20	22	184	7	497
	7:45 AM	30	2	31	10	5	9	13	133	15	21	161	11	441
	8:00 AM	18	5	29	7	5	4	14	125	25	24	162	15	433
	8:15 AM	19	4	33	6	2	10	16	135	20	20	121	6	392
	8:30 AM	18	3	37	5	1	15	17	130	19	14	117	8	384
	8:45 AM	18	7	24	9	3	15	22	105	11	12	107	6	339
	VOLUMES	176	32	295	69	24	131	124	1,011	123	140	1,163	71	3,359
	APPROACH %	35%	6%	59%	31%	11%	58%	10%	80%	10%	10%	85%	5%	
APP/DEPART	503	/	227	224	/	287	1,258	/	1,375	1,374	/	1,470	0	
BEGIN PEAK HR	7:15 AM													
VOLUMES	115	16	187	33	18	42	51	491	69	89	678	39	1,828	
APPROACH %	36%	5%	59%	35%	19%	45%	8%	80%	11%	11%	84%	5%		
PEAK HR FACTOR	0.779			0.775			0.931			0.946			0.920	
APP/DEPART	318	/	106	93	/	176	611	/	711	806	/	835	0	
WEEKDAY MIDDAY	12:00 PM	28	6	32	22	9	29	13	135	12	36	142	14	478
	12:15 PM	12	9	19	20	8	28	36	137	14	20	120	14	437
	12:30 PM	15	9	18	18	8	40	18	103	14	21	138	11	413
	12:45 PM	19	6	20	24	8	30	31	122	18	16	131	6	431
	1:00 PM	16	6	32	16	7	39	17	131	17	15	137	7	440
	1:15 PM	16	9	13	22	7	30	18	107	17	9	113	9	370
	1:30 PM	23	4	23	17	4	39	23	134	25	12	114	5	423
	1:45 PM	14	3	33	26	2	29	20	136	19	18	149	7	456
	VOLUMES	143	52	190	165	53	264	176	1,005	136	147	1,044	73	3,448
	APPROACH %	37%	14%	49%	34%	11%	55%	13%	76%	10%	12%	83%	6%	
APP/DEPART	385	/	301	482	/	336	1,317	/	1,360	1,264	/	1,451	0	
BEGIN PEAK HR	12:00 PM													
VOLUMES	74	30	89	84	33	127	98	497	58	93	531	45	1,759	
APPROACH %	38%	16%	46%	34%	14%	52%	15%	76%	9%	14%	79%	7%		
PEAK HR FACTOR	0.731			0.924			0.873			0.871			0.920	
APP/DEPART	193	/	173	244	/	184	653	/	670	669	/	732	0	
WEEKDAY PM	4:00 PM	16	13	53	34	12	55	40	174	30	20	139	8	594
	4:15 PM	27	15	41	26	6	46	28	180	20	29	182	12	612
	4:30 PM	31	20	34	22	7	48	33	220	25	26	196	9	671
	4:45 PM	21	7	34	20	21	52	43	211	23	31	173	6	642
	5:00 PM	28	12	47	32	10	49	48	174	29	24	161	12	626
	5:15 PM	26	19	45	22	6	43	42	206	30	32	194	18	683
	5:30 PM	29	13	35	32	7	55	30	197	24	21	201	18	662
	5:45 PM	18	15	31	30	8	41	31	176	23	25	178	13	589
	VOLUMES	196	114	320	218	77	389	295	1,538	204	208	1,424	96	5,079
	APPROACH %	31%	18%	51%	32%	11%	57%	14%	76%	10%	12%	82%	6%	
APP/DEPART	630	/	505	684	/	489	2,037	/	2,076	1,728	/	2,009	0	
BEGIN PEAK HR	4:30 PM													
VOLUMES	106	58	160	96	44	192	166	811	107	113	724	45	2,622	
APPROACH %	33%	18%	49%	29%	13%	58%	15%	75%	10%	13%	82%	5%		
PEAK HR FACTOR	0.900			0.883			0.975			0.904			0.960	
APP/DEPART	324	/	269	332	/	264	1,084	/	1,067	882	/	1,022	0	

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0	0	1	27	28

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	<b>ESCONDIDO</b> QUINCE STREET MISSION AVENUE	<b>PROJECT #:</b> LOCATION #: CONTROL:	<b>PTD13-1213-02</b> 3 SIGNAL
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NOTES:  7-9AM & 12-2PM & 4-6PM	AM PM MD OTHER OTHER	▲ N ▼ S	◀ W E ▶
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LANES:	NORTHBOUND QUINCE STREET			SOUTHBOUND QUINCE STREET			EASTBOUND MISSION AVENUE			WESTBOUND MISSION AVENUE			TOTAL
	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	

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

WEEKDAY AM	7:00 AM	20	5	21	9	5	4	2	61	17	48	189	12	393
	7:15 AM	21	7	25	8	3	5	1	58	20	50	199	9	406
	7:30 AM	28	6	26	3	7	4	3	70	18	41	228	11	445
	7:45 AM	28	6	16	7	4	2	3	97	26	55	260	9	513
	8:00 AM	29	7	28	18	5	6	3	127	14	62	206	13	518
	8:15 AM	19	5	27	19	7	7	4	103	14	60	166	11	442
	8:30 AM	29	5	27	19	5	3	4	86	13	33	163	15	402
	8:45 AM	20	5	30	15	2	3	4	90	17	50	151	9	396
	VOLUMES	194	46	200	98	38	34	24	692	139	399	1,562	89	3,515
	APPROACH %	44%	10%	45%	58%	22%	20%	3%	81%	16%	19%	76%	4%	
APP/DEPART	440	/	159	170	/	576	855	/	990	2,050	/	1,790	0	
BEGIN PEAK HR	7:30 AM													
VOLUMES	104	24	97	47	23	19	13	397	72	218	860	44	1,918	
APPROACH %	46%	11%	43%	53%	26%	21%	3%	82%	15%	19%	77%	4%		
PEAK HR FACTOR	0.879													
APP/DEPART	225	/	81	89	/	313	482	/	541	1,122	/	983	0	
WEEKDAY MIDDAY	12:00 PM	23	19	38	51	14	10	14	164	25	39	147	7	551
	12:15 PM	20	13	31	28	23	9	35	103	17	32	149	9	469
	12:30 PM	26	17	36	39	18	11	10	112	23	27	160	12	491
	12:45 PM	21	15	42	47	24	9	18	110	20	34	175	8	523
	1:00 PM	26	12	29	36	20	11	12	122	19	28	152	9	476
	1:15 PM	22	13	28	37	15	16	6	127	20	30	175	10	499
	1:30 PM	29	10	45	23	11	8	9	149	17	32	156	5	494
	1:45 PM	24	9	31	38	13	8	10	138	32	36	176	7	522
	VOLUMES	191	108	280	299	138	82	114	1,025	173	258	1,290	67	4,025
	APPROACH %	33%	19%	48%	58%	27%	16%	9%	78%	13%	16%	80%	4%	
APP/DEPART	579	/	289	519	/	569	1,312	/	1,604	1,615	/	1,563	0	
BEGIN PEAK HR	12:00 PM													
VOLUMES	90	64	147	165	79	39	77	489	85	132	631	36	2,034	
APPROACH %	30%	21%	49%	58%	28%	14%	12%	75%	13%	17%	79%	5%		
PEAK HR FACTOR	0.941													
APP/DEPART	301	/	177	283	/	296	651	/	801	799	/	760	0	
WEEKDAY PM	4:00 PM	28	11	27	29	13	5	6	221	23	28	167	12	570
	4:15 PM	24	6	41	32	9	3	4	224	24	15	168	15	565
	4:30 PM	33	12	41	25	14	4	7	200	23	26	164	18	567
	4:45 PM	18	8	38	34	9	2	6	202	17	25	145	17	521
	5:00 PM	24	11	52	28	5	3	6	221	19	16	127	18	530
	5:15 PM	28	12	62	23	8	9	2	230	17	20	175	12	598
	5:30 PM	31	14	97	32	8	8	5	209	11	19	148	10	592
	5:45 PM	29	7	102	30	5	8	7	166	7	18	133	11	523
	VOLUMES	215	81	460	233	71	42	43	1,673	141	167	1,227	113	4,466
	APPROACH %	28%	11%	61%	67%	21%	12%	2%	90%	8%	11%	81%	7%	
APP/DEPART	756	/	237	346	/	379	1,857	/	2,366	1,507	/	1,484	0	
BEGIN PEAK HR	5:00 PM													
VOLUMES	112	44	313	113	26	28	20	826	54	73	583	51	2,243	
APPROACH %	24%	9%	67%	68%	16%	17%	2%	92%	6%	10%	82%	7%		
PEAK HR FACTOR	0.826													
APP/DEPART	469	/	115	167	/	153	900	/	1,252	707	/	723	0	

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				0
				0
				0
		1		1
0	0	5	0	5

			1	1
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		1		1
				0
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				0
		1		1
				0
				0
0	0	3	1	4

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/6/13 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO CENTRE CITY PKWY EL NORTE PKWY	PROJECT #: LOCATION #: CONTROL:	PTD13-0607-01 4 SIGNAL
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NOTES:  7-9AM & 4-6PM	AM PM MD OTHER OTHER	◀ W E ▶	▲ N S ▼
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LANES:	NORTHBOUND CENTRE CITY PKWY			SOUTHBOUND CENTRE CITY PKWY			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL
	NL 2	NT 2	NR 1	SL 2	ST 2	SR 1	EL 2	ET 2	ER 1	WL 2	WT 2	WR 0	

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

	NORTHBOUND CENTRE CITY PKWY			SOUTHBOUND CENTRE CITY PKWY			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL	
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR		
WEEKDAY AM	7:00 AM	24	43	19	21	144	4	6	82	41	64	130	25	603
	7:15 AM	20	63	30	30	175	8	9	88	53	54	107	29	666
	7:30 AM	31	49	24	53	160	6	7	124	66	63	141	25	749
	7:45 AM	30	48	24	37	195	9	5	121	51	55	161	32	768
	8:00 AM	39	44	18	33	165	17	6	84	47	58	163	21	695
	8:15 AM	45	51	17	23	113	14	3	120	39	44	149	24	642
	8:30 AM	42	60	18	31	128	8	3	74	61	40	109	18	592
	8:45 AM	46	44	17	22	109	10	6	106	52	48	122	28	610
	VOLUMES	277	402	167	250	1,189	76	45	799	410	426	1,082	202	5,325
	APPROACH %	33%	48%	20%	17%	78%	5%	4%	64%	33%	25%	63%	12%	
APP/DEPART	846	/	649	1,515	/	2,025	1,254	/	1,216	1,710	/	1,435	0	
BEGIN PEAK HR	7:15 AM													
VOLUMES	120	204	96	153	695	40	27	417	217	230	572	107	2,878	
APPROACH %	29%	49%	23%	17%	78%	5%	4%	63%	33%	25%	63%	12%		
PEAK HR FACTOR	0.929			0.921			0.839			0.916			0.937	
APP/DEPART	420	/	338	888	/	1,142	661	/	666	909	/	732	0	
MIDDAY	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	1:00 PM													0
	1:15 PM													0
	1:30 PM													0
	1:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
BEGIN PEAK HR	1:45 PM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
WEEKDAY PM	4:00 PM	72	116	52	42	75	6	6	171	33	32	115	31	751
	4:15 PM	72	106	49	37	75	8	3	198	36	33	163	32	812
	4:30 PM	65	109	48	45	89	10	6	200	33	38	139	22	804
	4:45 PM	75	104	47	32	63	7	13	207	43	36	162	36	825
	5:00 PM	92	121	74	37	75	18	10	208	60	31	148	31	905
	5:15 PM	97	129	60	32	64	7	8	240	51	42	159	33	922
	5:30 PM	75	126	58	32	59	8	18	257	49	38	169	37	926
	5:45 PM	70	109	68	55	63	6	11	217	42	30	143	23	837
	VOLUMES	618	920	456	312	563	70	75	1,698	347	280	1,198	245	6,782
	APPROACH %	31%	46%	23%	33%	60%	7%	4%	80%	16%	16%	70%	14%	
APP/DEPART	1,994	/	1,240	945	/	1,190	2,120	/	2,466	1,723	/	1,886	0	
BEGIN PEAK HR	5:00 PM													
VOLUMES	334	485	260	156	261	39	47	922	202	141	619	124	3,590	
APPROACH %	31%	45%	24%	34%	57%	9%	4%	79%	17%	16%	70%	14%		
PEAK HR FACTOR	0.940			0.877			0.904			0.906			0.969	
APP/DEPART	1,079	/	656	456	/	604	1,171	/	1,338	884	/	992	0	

				0
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0	0	0	0	0

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 12/11/13 WEDNESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO CENTRE CITY PKWY EL NORTE PKWY	PROJECT #: LOCATION #: CONTROL:	PTD13-1213-02 4 SIGNAL
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NOTES:  12-2PM ONLY	AM PM MD OTHER OTHER	▲ N ▼	◀ W S ▶ E	
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LANES:	NORTHBOUND CENTRE CITY PKWY			SOUTHBOUND CENTRE CITY PKWY			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL
	NL 2	NT 2	NR 1	SL 2	ST 2	SR 1	EL 2	ET 2	ER 1	WL 2	WT 2	WR 0	

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

	NORTHBOUND CENTRE CITY PKWY			SOUTHBOUND CENTRE CITY PKWY			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL	
	NL 2	NT 2	NR 1	SL 2	ST 2	SR 1	EL 2	ET 2	ER 1	WL 2	WT 2	WR 0		
WEEKDAY AM	7:00 AM												0	
	7:15 AM												0	
	7:30 AM												0	
	7:45 AM												0	
	8:00 AM												0	
	8:15 AM												0	
	8:30 AM												0	
	8:45 AM												0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
BEGIN PEAK HR	8:45 AM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
WEEKDAY MIDDAY	12:00 PM	69	76	42	25	68	11	4	107	59	36	112	10	619
	12:15 PM	62	62	34	21	68	6	12	128	65	35	120	19	632
	12:30 PM	69	66	31	21	70	9	8	89	61	43	121	22	610
	12:45 PM	50	66	38	24	70	15	7	110	60	20	107	18	585
	1:00 PM	72	83	29	18	74	9	9	121	52	27	90	24	608
	1:15 PM	54	75	26	27	64	12	5	89	49	36	94	16	547
	1:30 PM	66	92	30	21	69	3	7	102	56	42	110	18	616
	1:45 PM	57	97	35	22	62	11	3	149	51	34	141	22	684
	VOLUMES	499	617	265	179	545	76	55	895	453	273	895	149	4,901
	APPROACH %	36%	45%	19%	22%	68%	10%	4%	64%	32%	21%	68%	11%	
APP/DEPART	1,381	/	821	800	/	1,271	1,403	/	1,339	1,317	/	1,470	0	
BEGIN PEAK HR	1:00 PM													
VOLUMES	249	347	120	88	269	35	24	461	208	139	435	80	2,455	
APPROACH %	35%	48%	17%	22%	69%	9%	3%	67%	30%	21%	67%	12%		
PEAK HR FACTOR	0.947			0.951			0.853			0.830			0.897	
APP/DEPART	716	/	451	392	/	616	693	/	669	654	/	719	0	
WEEKDAY PM	4:00 PM													0
	4:15 PM													0
	4:30 PM													0
	4:45 PM													0
	5:00 PM													0
	5:15 PM													0
	5:30 PM													0
	5:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
BEGIN PEAK HR	8:45 PM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	

				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

1				1
2		4		6
	1			1
		1		1
		2		2
		1		1
1	1	3		5
	1	5		6
4	3	16	0	23

				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/6/13 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO CENTRE CITY PKWY MISSION AVE	PROJECT #: LOCATION #: CONTROL:	PTD13-0607-01 5 SIGNAL
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NOTES:  7-9AM & 4-6PM	AM PM MD OTHER OTHER	◀ W S ▼	▲ N S ▼	E ▶
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	NORTHBOUND CENTRE CITY PKWY			SOUTHBOUND CENTRE CITY PKWY			EASTBOUND MISSION AVE			WESTBOUND MISSION AVE			TOTAL	U-TURNS						
	LANES:	NL 2	NT 2	NR 1	SL 2	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2		WR 1	NB X	SB X	EB X	WB X	TTL	
WEEKDAY AM	7:00 AM	17	113	4	22	158	66	22	53	14	12	103	84	668					0	
	7:15 AM	25	138	6	23	164	66	30	50	19	17	131	85	754					0	
	7:30 AM	25	105	10	38	218	97	28	58	20	19	103	73	794					0	
	7:45 AM	25	119	7	42	203	118	30	70	28	18	125	60	845					0	
	8:00 AM	22	118	6	34	170	82	27	82	22	14	111	53	741					0	
	8:15 AM	18	109	13	26	165	88	30	71	20	16	114	56	726					0	
	8:30 AM	26	112	6	36	181	87	34	68	23	17	107	59	756					0	
	8:45 AM	21	104	4	56	160	91	23	69	20	20	92	72	732					0	
	VOLUMES	179	918	56	277	1,419	695	224	521	166	133	886	542	6,016	0	0	0	0	0	
	APPROACH %	16%	80%	5%	12%	59%	29%	25%	57%	18%	9%	57%	35%							
APP/DEPART	1,153	/	1,684	2,391	/	1,718	911	/	854	1,561	/	1,760	0							
BEGIN PEAK HR	7:15 AM																			
VOLUMES	97	480	29	137	755	363	115	260	89	68	470	271	3,134							
APPROACH %	16%	79%	5%	11%	60%	29%	25%	56%	19%	8%	58%	33%								
PEAK HR FACTOR	0.896													0.868						
APP/DEPART	606	/	866	1,255	/	912	464	/	426	809	/	930	0.927							
MIDDAY	12:00 PM													0					0	
	12:15 PM													0					0	
	12:30 PM													0					0	
	12:45 PM													0					0	
	1:00 PM													0					0	
	1:15 PM													0					0	
	1:30 PM													0					0	
	1:45 PM													0					0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%						0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						0	
BEGIN PEAK HR	1:45 PM																			
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%						0	
PEAK HR FACTOR	0.000													0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0.000						0.000	
WEEKDAY PM	4:00 PM	32	202	10	58	144	52	39	168	27	15	100	72	919					0	
	4:15 PM	14	122	2	47	131	73	68	159	20	10	94	81	821					0	
	4:30 PM	15	149	2	53	159	71	69	156	33	10	98	65	880					0	
	4:45 PM	13	131	8	38	146	65	74	186	35	9	124	72	901					0	
	5:00 PM	10	228	6	36	151	56	76	156	27	15	87	86	934					0	
	5:15 PM	24	170	16	53	134	40	85	169	19	15	88	76	889					0	
	5:30 PM	28	205	7	57	146	51	65	128	25	11	91	69	883					0	
	5:45 PM	13	148	18	55	140	42	72	141	18	19	66	57	789					0	
	VOLUMES	149	1,355	69	397	1,151	450	548	1,263	204	104	748	578	7,016	0	0	0	0	0	
	APPROACH %	9%	86%	4%	20%	58%	23%	27%	63%	10%	7%	52%	40%							
APP/DEPART	1,573	/	2,481	1,998	/	1,459	2,015	/	1,729	1,430	/	1,347	0							
BEGIN PEAK HR	4:45 PM																			
VOLUMES	75	734	37	184	577	212	300	639	106	50	390	303	3,607							
APPROACH %	9%	87%	4%	19%	59%	22%	29%	61%	10%	7%	52%	41%								
PEAK HR FACTOR	0.867													0.958	0.886					
APP/DEPART	846	/	1,337	973	/	733	1,045	/	860	743	/	677	0.965						0	



# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	<b>ESCONDIDO</b> CENTRE CITY PKWY MISSION AVE	<b>PROJECT #:</b> PTD13-1213-02 <b>LOCATION #:</b> 5 <b>CONTROL:</b> SIGNAL
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NOTES:  12-2PM ONLY	AM PM MD OTHER OTHER	▲ N ▼	◀ W E ▶	
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LANES:	NORTHBOUND CENTRE CITY PKWY			SOUTHBOUND CENTRE CITY PKWY			EASTBOUND MISSION AVE			WESTBOUND MISSION AVE			TOTAL
	NL 2	NT 2	NR 1	SL 2	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	

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

WEEKDAY AM	INTERSECTION DATA													
	TIME	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM														0
7:15 AM														0
7:30 AM														0
7:45 AM														0
8:00 AM														0
8:15 AM														0
8:30 AM														0
8:45 AM														0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0
BEGIN PEAK HR	8:45 AM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0
WEEKDAY MIDDAY	12:00 PM	23	143	26	50	129	82	49	132	30	14	108	29	815
	12:15 PM	19	132	10	36	140	82	52	109	35	17	110	55	797
	12:30 PM	34	123	19	41	141	79	36	95	31	14	103	42	758
	12:45 PM	27	128	12	45	133	67	53	112	31	16	129	55	808
	1:00 PM	40	133	22	35	132	69	59	115	33	20	102	51	811
	1:15 PM	24	130	21	34	163	64	41	72	44	14	108	50	765
	1:30 PM	28	148	27	34	121	68	64	119	29	21	113	58	830
	1:45 PM	29	138	26	33	135	61	54	114	35	23	121	56	825
	VOLUMES	224	1,075	163	308	1,094	572	408	868	268	139	894	396	6,409
	APPROACH %	15%	74%	11%	16%	55%	29%	26%	56%	17%	10%	63%	28%	
	APP/DEPART	1,462	/	1,879	1,974	/	1,501	1,544	/	1,339	1,429	/	1,690	0
BEGIN PEAK HR	1:00 PM													
VOLUMES	121	549	96	136	551	262	218	420	141	78	444	215	3,231	
APPROACH %	16%	72%	13%	14%	58%	28%	28%	54%	18%	11%	60%	29%		
PEAK HR FACTOR	0.943			0.909			0.919			0.921			0.973	
APP/DEPART	766	/	982	949	/	770	779	/	652	737	/	827	0	
WEEKDAY PM	4:00 PM													0
	4:15 PM													0
	4:30 PM													0
	4:45 PM													0
	5:00 PM													0
	5:15 PM													0
	5:30 PM													0
	5:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR	8:45 PM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	

			1	1
	1		2	3
			2	2
1			3	4
1	2			3
1			2	3
			2	2
				0
3	3	0	12	18

				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/6/13 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO N. ESCONDIDO BLVD EL NORTE PKWY	PROJECT #: LOCATION #: CONTROL:
			PTD13-0607-01 6 2-WAY STOP (NS)

NOTES:  7-9AM & 4-6PM	AM PM MD OTHER OTHER	▲ N S ▼	◀ W E ▶
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	NORTHBOUND N. ESCONDIDO BLVD			SOUTHBOUND N. ESCONDIDO BLVD			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL	U-TURNS					
	LANES:			SL	ST	SR	EL	ET	ER	WL	WT	WR		NB	SB	EB	WB	TTL	
	0	1	0	0	1	0	1	2	0	1	2	0		X	X	X	X		
WEEKDAY AM	7:00 AM	3	0	22	2	0	9	6	91	17	125	210	3	488					0
	7:15 AM	0	0	32	0	3	9	8	122	33	110	198	5	520					0
	7:30 AM	2	0	57	1	2	15	8	148	40	114	192	3	582					0
	7:45 AM	3	0	33	0	2	9	10	136	45	124	271	3	636					0
	8:00 AM	1	0	28	2	1	4	11	98	32	133	220	4	534					0
	8:15 AM	7	0	22	0	1	5	7	120	33	96	192	6	489					0
	8:30 AM	8	0	20	1	1	14	7	93	30	72	159	4	409					0
	8:45 AM	3	1	22	2	1	13	12	107	29	58	166	3	417					0
	VOLUMES	27	1	236	8	11	78	69	915	259	832	1,608	31	4,075	0	0	0	0	0
	APPROACH %	10%	0%	89%	8%	11%	80%	6%	74%	21%	34%	65%	1%						
APP/DEPART	264	/	101	97	/	1,102	1,243	/	1,159	2,471	/	1,713	0						
BEGIN PEAK HR	7:15 AM																		
VOLUMES	6	0	150	3	8	37	37	504	150	481	881	15	2,272						
APPROACH %	4%	0%	96%	6%	17%	77%	5%	73%	22%	35%	64%	1%							
PEAK HR FACTOR	0.661			0.667			0.881			0.865			0.893						
APP/DEPART	156	/	52	48	/	639	691	/	657	1,377	/	924	0						
MIDDAY	12:00 PM													0					0
	12:15 PM													0					0
	12:30 PM													0					0
	12:45 PM													0					0
	1:00 PM													0					0
	1:15 PM													0					0
	1:30 PM													0					0
	1:45 PM													0					0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
BEGIN PEAK HR	1:45 PM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0					
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
WEEKDAY PM	4:00 PM	7	1	61	4	0	15	10	235	17	40	160	2	552					0
	4:15 PM	12	1	65	1	3	13	10	235	32	34	178	4	588					0
	4:30 PM	6	1	59	0	3	20	10	255	23	49	173	10	609					0
	4:45 PM	9	3	71	1	2	16	14	233	24	42	192	3	610					0
	5:00 PM	4	0	71	6	1	19	27	265	34	41	204	6	678					0
	5:15 PM	8	3	70	2	0	22	17	292	29	46	188	5	682					0
	5:30 PM	12	2	79	1	1	16	13	314	24	52	214	1	729					0
	5:45 PM	3	0	92	0	2	25	19	287	29	50	165	4	676					0
	VOLUMES	61	11	568	15	12	146	120	2,116	212	354	1,474	35	5,124	0	0	0	0	0
	APPROACH %	10%	2%	89%	9%	7%	84%	5%	86%	9%	19%	79%	2%						
APP/DEPART	640	/	166	173	/	578	2,448	/	2,699	1,863	/	1,681	0						
BEGIN PEAK HR	5:00 PM																		
VOLUMES	27	5	312	9	4	82	76	1,158	116	189	771	16	2,765						
APPROACH %	8%	1%	91%	9%	4%	86%	6%	86%	9%	19%	79%	2%							
PEAK HR FACTOR	0.905			0.880			0.962			0.914			0.948						
APP/DEPART	344	/	97	95	/	309	1,350	/	1,479	976	/	880	0						

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 12/11/13 WEDNESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO ESCONDIDO BLVD EL NORTE PKWY	PROJECT #: LOCATION #: CONTROL:	PTD13-1213-02 6 2-WAY STOP (NS)
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NOTES:  12-2PM ONLY	AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E ▼
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LANES:	NORTHBOUND ESCONDIDO BLVD			SOUTHBOUND ESCONDIDO BLVD			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL
	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	

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

WEEKDAY AM	7:00 AM														0	
	7:15 AM														0	
	7:30 AM														0	
	7:45 AM														0	
	8:00 AM														0	
	8:15 AM														0	
	8:30 AM														0	
	8:45 AM														0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

0	0	0	0	0
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WEEKDAY AM	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	/	0
	BEGIN PEAK HR	8:45 AM														
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0	0	0	0	0
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WEEKDAY MIDDAY	12:00 PM	11	0	49	3	0	6	8	151	23	35	141	3	430
	12:15 PM	8	2	51	1	1	7	5	158	24	39	163	3	462
	12:30 PM	12	1	49	3	2	6	10	125	12	35	157	1	413
	12:45 PM	7	1	41	1	0	9	6	142	21	49	131	3	411
	1:00 PM	8	1	41	0	2	6	7	131	15	46	135	2	394
	1:15 PM	6	1	34	3	0	8	5	135	24	46	128	1	391
	1:30 PM	12	1	41	2	0	9	10	136	20	38	124	1	394
	1:45 PM	10	3	52	1	0	20	7	158	21	41	189	2	504
	VOLUMES	74	10	358	14	5	71	58	1,136	160	329	1,168	16	3,399
	APPROACH %	17%	2%	81%	16%	6%	79%	4%	84%	12%	22%	77%	1%	

0	0	4	0	4
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WEEKDAY MIDDAY	VOLUMES	38	4	190	8	3	28	29	576	80	158	592	10	1,716	
	APPROACH %	16%	2%	82%	21%	8%	72%	4%	84%	12%	21%	78%	1%		
	PEAK HR FACTOR	0.935			0.886			0.916			0.927			0.929	
	APP/DEPART	232	/	43	39	/	241	685	/	774	760	/	658	0	
	BEGIN PEAK HR	12:00 PM													

0	0	4	0	4
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WEEKDAY PM	4:00 PM															0
	4:15 PM															0
	4:30 PM															0
	4:45 PM															0
	5:00 PM															0
	5:15 PM															0
	5:30 PM															0
	5:45 PM															0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

0	0	0	0	0
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WEEKDAY PM	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0		
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0		
	BEGIN PEAK HR	8:45 PM														
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0		

0	0	0	0	0
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## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/6/13 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO N. ESCONDIDO BLVD LINCOLN AVE	PROJECT #: LOCATION #: CONTROL:
			PTD13-0607-01 7 2-WAY STOP (EW)

NOTES:  7-9AM & 4-6PM	AM PM MD OTHER OTHER	◀ W S ▶	▲ N S ▼	E ▶
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	NORTHBOUND N. ESCONDIDO BLVD			SOUTHBOUND N. ESCONDIDO BLVD			EASTBOUND LINCOLN AVE			WESTBOUND LINCOLN AVE			TOTAL	U-TURNS					
	LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1		WR 0	NB X	SB X	EB X	WB X	TTL
WEEKDAY AM	7:00 AM	1	18	2	9	80	0	0	0	2	17	1	10	140					0
	7:15 AM	3	21	5	8	90	0	2	0	4	17	0	12	162					0
	7:30 AM	0	39	5	4	106	1	2	2	3	27	1	11	201					0
	7:45 AM	1	27	7	16	120	0	1	2	2	32	0	23	231					0
	8:00 AM	1	26	8	17	112	0	0	3	2	36	1	20	226					0
	8:15 AM	0	48	4	3	86	1	0	0	1	14	1	14	172					0
	8:30 AM	1	40	5	0	77	0	0	0	1	8	1	6	139					0
	8:45 AM	2	36	7	5	83	1	0	0	2	10	1	6	153					0
	VOLUMES	9	255	43	62	754	3	5	7	17	161	6	102	1,424	0	0	0	0	0
	APPROACH %	3%	83%	14%	8%	92%	0%	17%	24%	59%	60%	2%	38%						
APP/DEPART	307	/	362	819	/	932	29	/	112	269	/	18	0						
BEGIN PEAK HR	7:30 AM																		
VOLUMES	2	140	24	40	424	2	3	7	8	109	3	68	830						
APPROACH %	1%	84%	14%	9%	91%	0%	17%	39%	44%	61%	2%	38%							
PEAK HR FACTOR	0.798			0.857			0.643			0.789			0.898						
APP/DEPART	166	/	211	466	/	541	18	/	71	180	/	7	0						
MIDDAY	2:00 PM													0					0
	2:15 PM													0					0
	2:30 PM													0					0
	2:45 PM													0					0
	3:00 PM													0					0
	3:15 PM													0					0
	3:30 PM													0					0
	3:45 PM													0					0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
BEGIN PEAK HR	3:45 PM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0						
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
WEEKDAY PM	4:00 PM	3	121	9	4	53	1	1	1	4	8	0	7	212					0
	4:15 PM	5	116	13	9	60	2	0	0	2	7	2	16	232					0
	4:30 PM	2	101	12	6	64	3	3	2	1	16	1	12	223					0
	4:45 PM	4	133	18	8	62	1	1	0	3	5	0	9	244					0
	5:00 PM	6	103	17	3	51	2	0	1	1	9	0	11	204					0
	5:15 PM	3	93	14	8	70	3	1	2	2	11	1	18	226					0
	5:30 PM	6	131	17	8	59	6	0	1	1	8	0	13	250					0
	5:45 PM	7	107	14	8	71	2	4	1	1	18	1	10	244					0
	VOLUMES	36	905	114	54	490	20	10	8	15	82	5	96	1,835	0	0	0	0	0
	APPROACH %	3%	86%	11%	10%	87%	4%	30%	24%	45%	45%	3%	52%						
APP/DEPART	1,055	/	1,011	564	/	587	33	/	176	183	/	61	0						
BEGIN PEAK HR	5:00 PM																		
VOLUMES	22	434	62	27	251	13	5	5	5	46	2	52	924						
APPROACH %	4%	84%	12%	9%	86%	4%	33%	33%	33%	46%	2%	52%							
PEAK HR FACTOR	0.835			0.898			0.625			0.833			0.924						
APP/DEPART	518	/	491	291	/	302	15	/	94	100	/	37	0						



## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 6/6/13 THURSDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	<b>ESCONDIDO</b> N. ESCONDIDO BLVD MISSION AVE	<b>PROJECT #:</b> PTD13-0607-01	<b>LOCATION #:</b> 8										
<b>NOTES:</b>  7-9AM & 4-6PM			<b>CONTROL:</b> SIGNAL	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">AM</td> <td style="text-align: center;">▲</td> </tr> <tr> <td style="text-align: center;">PM</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">MD</td> <td style="text-align: center;">◀ W      E ▶</td> </tr> <tr> <td style="text-align: center;">OTHER</td> <td style="text-align: center;">S</td> </tr> <tr> <td style="text-align: center;">OTHER</td> <td style="text-align: center;">▼</td> </tr> </table>	AM	▲	PM	N	MD	◀ W      E ▶	OTHER	S	OTHER	▼
AM	▲													
PM	N													
MD	◀ W      E ▶													
OTHER	S													
OTHER	▼													

	NORTHBOUND N. ESCONDIDO BLVD			SOUTHBOUND N. ESCONDIDO BLVD			EASTBOUND MISSION AVE			WESTBOUND MISSION AVE			TOTAL	U-TURNS					
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0		NB X	SB X	EB X	WB X	TTL	
<b>WEEKDAY AM</b>	7:00 AM	31	17	6	15	60	27	6	51	16	15	115	6	365					0
	7:15 AM	35	13	10	16	52	36	8	41	18	19	144	10	402					0
	7:30 AM	33	31	11	23	87	28	14	51	20	11	135	2	446					0
	7:45 AM	38	31	11	29	74	41	13	64	25	26	143	10	505					0
	8:00 AM	39	23	15	26	90	32	16	76	19	20	108	6	470					0
	8:15 AM	47	39	13	19	65	25	17	67	19	19	115	9	454					0
	8:30 AM	39	44	27	14	48	26	10	83	21	10	118	10	450					0
	8:45 AM	31	39	19	20	52	28	16	70	21	19	104	7	426					0
	VOLUMES	293	237	112	162	528	243	100	503	159	139	982	60	3,518	0	0	0	0	0
	APPROACH %	46%	37%	17%	17%	57%	26%	13%	66%	21%	12%	83%	5%						
APP/DEPART	642	/	397	933	/	826	762	/	777	1,181	/	1,518	0						
BEGIN PEAK HR	7:45 AM																		
VOLUMES	163	137	66	88	277	124	56	290	84	75	484	35	1,879						
APPROACH %	45%	37%	18%	18%	57%	25%	13%	67%	20%	13%	81%	6%							
PEAK HR FACTOR	0.832			0.826			0.943			0.830			0.930						
APP/DEPART	366	/	228	489	/	436	430	/	444	594	/	771	0						
<b>MIDDAY</b>	12:00 PM													0					0
	12:15 PM													0					0
	12:30 PM													0					0
	12:45 PM													0					0
	1:00 PM													0					0
	1:15 PM													0					0
	1:30 PM													0					0
	1:45 PM													0					0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0				
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
BEGIN PEAK HR	1:45 PM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0					0
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						0
<b>WEEKDAY PM</b>	4:00 PM	67	90	41	18	50	24	26	133	56	28	101	14	648					0
	4:15 PM	54	81	51	20	61	19	37	118	29	24	94	6	594					0
	4:30 PM	52	93	43	17	55	30	25	127	41	22	94	6	605					0
	4:45 PM	41	97	47	17	51	21	32	156	37	28	114	16	657					0
	5:00 PM	57	79	58	16	53	22	31	140	31	32	108	7	634					0
	5:15 PM	57	80	53	15	67	18	18	159	43	26	88	10	634					0
	5:30 PM	60	107	44	30	55	28	32	119	36	25	84	16	636					0
	5:45 PM	38	98	38	21	58	20	27	157	42	20	90	16	625					0
	VOLUMES	426	725	375	154	450	182	228	1,109	315	205	773	91	5,033	0	0	0	0	0
	APPROACH %	28%	48%	25%	20%	57%	23%	14%	67%	19%	19%	72%	9%						
APP/DEPART	1,526	/	1,044	786	/	970	1,652	/	1,638	1,069	/	1,381	0						
BEGIN PEAK HR	4:45 PM																		
VOLUMES	215	363	202	78	226	89	113	574	147	111	394	49	2,561						
APPROACH %	28%	47%	26%	20%	58%	23%	14%	69%	18%	20%	71%	9%							
PEAK HR FACTOR	0.924			0.869			0.923			0.877			0.975						
APP/DEPART	780	/	525	393	/	484	834	/	854	554	/	698	0						

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	ESCONDIDO ESCONDIDO BLVD MISSION AVE	<b>PROJECT #:</b> PTD13-1213-02 <b>LOCATION #:</b> 8 <b>CONTROL:</b> SIGNAL
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NOTES:  12-2PM ONLY	AM PM MD OTHER OTHER	▲ N ◀ W S ▼	E ▶
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	NORTHBOUND ESCONDIDO BLVD			SOUTHBOUND ESCONDIDO BLVD			EASTBOUND MISSION AVE			WESTBOUND MISSION AVE			TOTAL	U-TURNS				
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0		NB X	SB X	EB X	WB X	TTL
WEEKDAY AM	7:00 AM																	0
	7:15 AM																	0
	7:30 AM																	0
	7:45 AM																	0
	8:00 AM																	0
	8:15 AM																	0
	8:30 AM																	0
	8:45 AM																	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	/	0	0	0	
BEGIN PEAK HR	8:45 AM																	
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000					
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	/	0	0	0	
WEEKDAY MIDDAY	12:00 PM	60	74	27	17	61	22	36	125	38	23	99	5	587				0
	12:15 PM	59	67	38	19	62	24	26	90	31	24	110	5	555				0
	12:30 PM	61	71	33	25	43	19	16	107	33	25	85	4	522				0
	12:45 PM	63	63	33	18	70	19	30	84	35	28	97	14	554				0
	1:00 PM	53	81	22	14	57	26	30	105	26	29	124	13	580				0
	1:15 PM	63	67	41	22	82	24	26	74	7	23	110	10	549				0
	1:30 PM	63	68	22	10	59	28	18	107	35	21	101	10	542				0
	1:45 PM	45	72	21	17	38	27	25	119	29	25	98	11	527				0
	VOLUMES	467	563	237	142	472	189	207	811	234	198	824	72	4,416				0
	APPROACH %	37%	44%	19%	18%	59%	24%	17%	65%	19%	18%	75%	7%					0
APP/DEPART	1,267	/	842	803	/	904	1,252	/	1,190	1,094	/	1,480	0				0	
BEGIN PEAK HR	12:45 PM																	
VOLUMES	242	279	118	64	268	97	104	370	103	101	432	47	2,225				0	
APPROACH %	38%	44%	18%	15%	62%	23%	18%	64%	18%	17%	74%	8%					0	
PEAK HR FACTOR	0.934			0.838			0.896			0.873			0.959					
APP/DEPART	639	/	430	429	/	472	577	/	552	580	/	771	0				0	
WEEKDAY PM	4:00 PM													0				0
	4:15 PM													0				0
	4:30 PM													0				0
	4:45 PM													0				0
	5:00 PM													0				0
	5:15 PM													0				0
	5:30 PM													0				0
	5:45 PM													0				0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0				0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0				0	
BEGIN PEAK HR	8:45 PM																	
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0				0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				0	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000					
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0				0	

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	ESCONDIDO NORTH BROADWAY SHERIDAN AVE	<b>PROJECT #:</b> PTD13-1213-02	<b>LOCATION #:</b> 9	<b>CONTROL:</b> SIGNAL
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<b>NOTES:</b>  7-9AM & 2-4PM & 4-6PM	AM PM MD OTHER	▲ N ▼	◀ W E ▶
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LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NORTH BROADWAY			NORTH BROADWAY			SHERIDAN AVE			SHERIDAN AVE			
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0	

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

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL	
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0		
<b>WEEKDAY AM</b>	7:00 AM	28	162	25	18	184	6	2	1	4	23	5	38	496
	7:15 AM	19	160	46	41	210	6	2	2	2	43	7	55	593
	7:30 AM	8	165	14	22	174	2	2	2	6	30	4	71	500
	7:45 AM	2	149	1	13	214	3	0	0	0	16	0	75	473
	8:00 AM	2	61	1	8	222	1	0	0	2	5	0	11	313
	8:15 AM	1	57	4	3	127	1	1	0	1	12	0	8	215
	8:30 AM	2	71	7	6	83	0	0	0	1	6	0	6	182
	8:45 AM	2	59	5	5	93	1	1	0	15	0	9	12	202
	VOLUMES	64	884	103	116	1,307	20	8	5	31	135	25	276	2,974
	APPROACH %	6%	84%	10%	8%	91%	1%	18%	11%	70%	31%	6%	63%	
APP/DEPART	1,051	/	1,168	1,443	/	1,473	44	/	224	436	/	109	0	
BEGIN PEAK HR	7:00 AM													
VOLUMES	57	636	86	94	782	17	6	5	12	112	16	239	2,062	
APPROACH %	7%	82%	11%	11%	88%	2%	26%	22%	52%	31%	4%	65%		
PEAK HR FACTOR	0.866			0.869			0.575			0.874			0.869	
APP/DEPART	779	/	881	893	/	906	23	/	185	367	/	90	0	
<b>WEEKDAY MIDDAY</b>	2:00 PM	8	122	9	3	78	3	2	1	6	11	1	16	260
	2:15 PM	7	131	11	4	78	1	1	2	5	10	4	22	276
	2:30 PM	5	171	14	46	203	3	9	5	19	15	2	37	529
	2:45 PM	11	164	11	23	195	0	6	4	29	10	0	22	475
	3:00 PM	6	124	12	19	200	3	3	1	18	9	0	10	405
	3:15 PM	3	136	6	7	119	0	4	1	8	5	0	13	302
	3:30 PM	1	123	13	14	128	0	1	2	7	8	0	11	308
	3:45 PM	2	126	9	5	106	1	2	0	5	12	1	10	279
	VOLUMES	43	1,097	85	121	1,107	11	28	16	97	80	8	141	2,834
	APPROACH %	4%	90%	7%	10%	89%	1%	20%	11%	69%	35%	3%	62%	
APP/DEPART	1,225	/	1,266	1,239	/	1,284	141	/	222	229	/	62	0	
BEGIN PEAK HR	2:30 PM													
VOLUMES	25	595	43	95	717	6	22	11	74	39	2	82	1,711	
APPROACH %	4%	90%	6%	12%	88%	1%	21%	10%	69%	32%	2%	67%		
PEAK HR FACTOR	0.872			0.812			0.686			0.569			0.809	
APP/DEPART	663	/	699	818	/	830	107	/	149	123	/	33	0	
<b>WEEKDAY PM</b>	4:00 PM	6	118	8	10	108	1	5	1	4	8	0	13	282
	4:15 PM	1	128	13	9	120	0	0	0	4	10	0	13	298
	4:30 PM	3	121	13	11	139	0	1	0	2	4	0	9	303
	4:45 PM	4	147	13	9	123	0	1	2	4	4	0	12	319
	5:00 PM	3	134	15	8	133	0	0	0	5	5	0	10	313
	5:15 PM	7	166	14	16	152	1	1	0	6	7	0	11	381
	5:30 PM	3	136	18	4	132	0	0	0	4	10	0	9	316
	5:45 PM	2	115	12	9	93	0	2	0	1	5	0	10	249
	VOLUMES	29	1,065	106	76	1,000	2	10	3	30	53	0	87	2,461
	APPROACH %	2%	89%	9%	7%	93%	0%	23%	7%	70%	38%	0%	62%	
APP/DEPART	1,200	/	1,162	1,078	/	1,083	43	/	185	140	/	31	0	
BEGIN PEAK HR	4:45 PM													
VOLUMES	17	583	60	37	540	1	2	2	19	26	0	42	1,329	
APPROACH %	3%	88%	9%	6%	93%	0%	9%	9%	83%	38%	0%	62%		
PEAK HR FACTOR	0.882			0.855			0.821			0.895			0.872	
APP/DEPART	660	/	627	578	/	585	23	/	99	68	/	18	0	

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## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 6/6/13 THURSDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	ESCONDIDO N. BROADWAY EL NORTE PKWY	<b>PROJECT #:</b> PTD13-0607-01 <b>LOCATION #:</b> 10 <b>CONTROL:</b> SIGNAL
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NOTES:  7-9AM & 4-6PM	AM PM MD OTHER OTHER	▲ N ◀ W S ▶	E ▶
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	NORTHBOUND N. BROADWAY			SOUTHBOUND N. BROADWAY			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL	U-TURNS					
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 2	ET 2	ER 0	WL 2	WT 2	WR 0		NB X	SB X	EB X	WB X	TTL	
WEEKDAY AM	7:00 AM	19	31	22	6	45	29	15	92	10	38	269	5	581					0
	7:15 AM	16	55	28	9	63	39	22	106	10	55	236	9	648					0
	7:30 AM	14	60	46	16	75	59	45	120	17	41	229	16	738					0
	7:45 AM	27	70	40	23	89	67	26	123	30	51	300	17	863					0
	8:00 AM	29	40	27	25	152	93	14	79	21	54	236	8	778					0
	8:15 AM	25	23	18	15	66	56	18	113	25	46	229	3	637					0
	8:30 AM	17	42	34	12	56	39	9	63	15	47	172	7	513					0
	8:45 AM	25	25	21	7	61	28	18	101	13	49	183	6	537					0
	VOLUMES	172	346	236	113	607	410	167	797	141	381	1,854	71	5,295	0	0	0	0	0
	APPROACH %	23%	46%	31%	10%	54%	36%	15%	72%	13%	17%	80%	3%						
APP/DEPART	754	/	584	1,130	/	1,129	1,105	/	1,146	2,306	/	2,436	0						
BEGIN PEAK HR	7:15 AM																		
VOLUMES	86	225	141	73	379	258	107	428	78	201	1,001	50	3,027						
APPROACH %	19%	50%	31%	10%	53%	36%	17%	70%	13%	16%	80%	4%							
PEAK HR FACTOR	0.825			0.657			0.842			0.851			0.877						
APP/DEPART	452	/	382	710	/	658	613	/	642	1,252	/	1,345	0						
MIDDAY	2:00 PM													0					0
	2:15 PM													0					0
	2:30 PM													0					0
	2:45 PM													0					0
	3:00 PM													0					0
	3:15 PM													0					0
	3:30 PM													0					0
	3:45 PM													0					0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%					
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
BEGIN PEAK HR	3:45 PM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0						
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%						
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
WEEKDAY PM	4:00 PM	39	87	61	17	56	30	58	205	22	57	126	12	770					0
	4:15 PM	33	78	67	19	67	43	57	224	35	35	168	15	841					0
	4:30 PM	51	85	69	31	66	38	47	194	28	35	151	17	812					0
	4:45 PM	40	168	17	17	73	34	69	277	26	40	168	17	946					0
	5:00 PM	54	95	65	16	56	39	52	206	66	33	161	22	865					0
	5:15 PM	37	127	56	17	82	49	74	229	34	40	159	21	925					0
	5:30 PM	37	91	65	20	72	44	69	301	51	48	194	23	1,015					0
	5:45 PM	36	116	90	15	74	36	79	278	30	38	139	12	943					0
	VOLUMES	327	847	490	152	546	313	505	1,914	292	326	1,266	139	7,117	0	0	0	0	0
	APPROACH %	20%	51%	29%	15%	54%	31%	19%	71%	11%	19%	73%	8%						
APP/DEPART	1,664	/	1,491	1,011	/	1,164	2,711	/	2,556	1,731	/	1,906	0						
BEGIN PEAK HR	4:45 PM																		
VOLUMES	168	481	203	70	283	166	264	1,013	177	161	682	83	3,751						
APPROACH %	20%	56%	24%	13%	55%	32%	18%	70%	12%	17%	74%	9%							
PEAK HR FACTOR	0.880			0.877			0.863			0.874			0.924						
APP/DEPART	852	/	828	519	/	621	1,454	/	1,286	926	/	1,016	0						

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	ESCONDIDO NORTH BROADWAY EL NORTE PKWY	<b>PROJECT #:</b> 10	PTD13-1213-02 LOCATION #: SIGNAL
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<b>NOTES:</b>  2-4PM ONLY	AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E ▼
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LANES:	NORTHBOUND NORTH BROADWAY			SOUTHBOUND NORTH BROADWAY			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 2	ET 2	ER 0	WL 2	WT 2	WR 0	

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

	NORTHBOUND NORTH BROADWAY			SOUTHBOUND NORTH BROADWAY			EASTBOUND EL NORTE PKWY			WESTBOUND EL NORTE PKWY			TOTAL	
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 2	ET 2	ER 0	WL 2	WT 2	WR 0		
<b>WEEKDAY AM</b>	7:00 AM												0	
	7:15 AM												0	
	7:30 AM												0	
	7:45 AM												0	
	8:00 AM												0	
	8:15 AM												0	
	8:30 AM												0	
	8:45 AM												0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
BEGIN PEAK HR	8:45 AM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
<b>WEEKDAY MIDDAY</b>	2:00 PM	32	74	48	15	61	28	62	147	25	32	126	12	662
	2:15 PM	31	76	58	23	58	31	60	154	20	23	115	22	671
	2:30 PM	43	118	38	44	120	38	68	182	16	42	154	20	883
	2:45 PM	34	97	48	51	120	90	65	169	25	37	157	17	910
	3:00 PM	22	85	53	31	122	64	50	170	27	34	153	16	827
	3:15 PM	42	93	48	20	70	34	66	181	24	41	163	12	794
	3:30 PM	42	80	52	25	86	50	43	224	19	40	179	16	856
	3:45 PM	30	81	49	16	75	57	64	207	39	43	154	8	823
	VOLUMES	276	704	394	225	712	392	478	1,434	195	292	1,201	123	6,426
	APPROACH %	20%	51%	29%	17%	54%	29%	23%	68%	9%	18%	74%	8%	
APP/DEPART	1,374	/	1,305	1,329	/	1,199	2,107	/	2,053	1,616	/	1,869	0	
BEGIN PEAK HR	2:30 PM													
VOLUMES	141	393	187	146	432	226	249	702	92	154	627	65	3,414	
APPROACH %	20%	55%	26%	18%	54%	28%	24%	67%	9%	18%	74%	8%		
PEAK HR FACTOR	0.906			0.770			0.962			0.979			0.938	
APP/DEPART	721	/	707	804	/	678	1,043	/	1,035	846	/	994	0	
<b>WEEKDAY PM</b>	4:00 PM													0
	4:15 PM													0
	4:30 PM													0
	4:45 PM													0
	5:00 PM													0
	5:15 PM													0
	5:30 PM													0
	5:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	
BEGIN PEAK HR	8:45 PM													
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	

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# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/6/13 THURSDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO N. BROADWAY LINCOLN AVE	PROJECT #: LOCATION #: CONTROL:	PTD13-0607-01 11 2-WAY STOP (EW)
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NOTES:  7-9AM & 4-6PM	AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E ▼
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	NORTHBOUND N. BROADWAY			SOUTHBOUND N. BROADWAY			EASTBOUND LINCOLN AVE			WESTBOUND LINCOLN AVE			TOTAL	U-TURNS					
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0		NB X	SB X	EB X	WB X	TTL	
WEEKDAY AM	7:00 AM	7	73	8	4	135	17	1	1	1	12	2	6	267					0
	7:15 AM	16	88	6	7	139	12	3	1	7	6	2	4	291					0
	7:30 AM	25	96	5	7	130	13	3	0	6	5	2	6	298					0
	7:45 AM	38	130	10	6	178	31	1	1	16	5	5	9	430					0
	8:00 AM	49	93	9	7	197	13	3	2	17	8	2	6	406					0
	8:15 AM	9	94	3	1	139	8	4	5	12	5	3	6	289					0
	8:30 AM	5	86	8	0	127	3	2	1	8	11	1	6	258					0
	8:45 AM	7	87	7	4	128	8	1	1	6	3	2	4	258					0
	VOLUMES	156	747	56	36	1,173	105	18	12	73	55	19	47	2,497	0	0	0	0	0
	APPROACH %	16%	78%	6%	3%	89%	8%	17%	12%	71%	45%	16%	39%						
APP/DEPART	959	/	812	1,314	/	1,301	103	/	104	121	/	280	0						
BEGIN PEAK HR	7:15 AM																		
VOLUMES	128	407	30	27	644	69	10	4	46	24	11	25	1,425						
APPROACH %	23%	72%	5%	4%	87%	9%	17%	7%	77%	40%	18%	42%							
PEAK HR FACTOR	0.794			0.853			0.682			0.789			0.828						
APP/DEPART	565	/	442	740	/	714	60	/	61	60	/	208	0						
MIDDAY	2:00 PM													0					0
	2:15 PM													0					0
	2:30 PM													0					0
	2:45 PM													0					0
	3:00 PM													0					0
	3:15 PM													0					0
	3:30 PM													0					0
	3:45 PM													0					0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0					
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
BEGIN PEAK HR	3:45 PM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0						
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0						
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
WEEKDAY PM	4:00 PM	7	207	16	6	143	7	3	1	10	9	1	10	420					0
	4:15 PM	15	216	15	4	143	7	8	4	8	7	2	8	437					0
	4:30 PM	20	217	21	4	121	9	4	5	3	3	3	10	420					0
	4:45 PM	15	202	18	2	132	14	6	5	16	6	3	12	431					0
	5:00 PM	14	252	23	13	129	12	9	2	6	6	3	12	481					0
	5:15 PM	15	249	17	9	153	8	7	5	12	6	3	10	494					0
	5:30 PM	15	212	19	3	183	9	7	4	10	6	0	17	485					0
	5:45 PM	9	254	15	3	153	11	6	5	12	5	2	14	489					0
	VOLUMES	110	1,809	144	44	1,157	77	50	31	77	48	17	93	3,657	0	0	0	0	0
	APPROACH %	5%	88%	7%	3%	91%	6%	32%	20%	49%	30%	11%	59%						
APP/DEPART	2,063	/	1,952	1,278	/	1,282	158	/	219	158	/	204	0						
BEGIN PEAK HR	5:00 PM																		
VOLUMES	53	967	74	28	618	40	29	16	40	23	8	53	1,949						
APPROACH %	5%	88%	7%	4%	90%	6%	34%	19%	47%	27%	10%	63%							
PEAK HR FACTOR	0.946			0.879			0.885			0.913			0.986						
APP/DEPART	1,094	/	1,049	686	/	681	85	/	118	84	/	101	0						

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 12/11/13 WEDNESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO NORTH BROADWAY LINCOLN AVE	PROJECT #: LOCATION #: CONTROL:	PTD13-1213-02 11 2-WAY STOP (EW)
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NOTES:  2-4PM ONLY	AM PM MD OTHER	▲ N ▼	◀ W E ▶
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	NORTHBOUND NORTH BROADWAY			SOUTHBOUND NORTH BROADWAY			EASTBOUND LINCOLN AVE			WESTBOUND LINCOLN AVE			TOTAL	U-TURNS				
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0		NB X	SB X	EB X	WB X	TTL
WEEKDAY AM	12:00 AM																	0
	12:15 AM																	0
	12:30 AM																	0
	12:45 AM																	0
	1:00 AM																	0
	1:15 AM																	0
	1:30 AM																	0
	1:45 AM																	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	0	0	
BEGIN PEAK HR	1:45 AM																0	
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000			0.000		
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	0	0	
WEEKDAY MIDDAY	2:00 PM	21	156	17	3	124	10	3	4	11	3	2	5	359				0
	2:15 PM	30	182	17	4	95	5	2	6	8	6	2	6	363				0
	2:30 PM	28	195	14	8	181	22	2	7	34	3	2	9	505				0
	2:45 PM	18	192	11	5	202	12	3	3	20	6	0	12	484				0
	3:00 PM	8	178	14	8	178	14	5	9	10	4	1	10	439				0
	3:15 PM	11	207	16	5	151	9	5	2	5	2	2	10	425				0
	3:30 PM	14	206	17	5	159	11	2	3	16	6	2	10	451				0
	3:45 PM	11	172	16	8	139	5	2	1	12	5	0	6	377				0
	VOLUMES	141	1,488	122	46	1,229	88	24	35	116	35	11	68	3,403	0	0	0	0
	APPROACH %	8%	85%	7%	3%	90%	6%	14%	20%	66%	31%	10%	60%		0	0	0	0
APP/DEPART	1,751	/	1,580	1,363	/	1,380	175	/	203	114	/	240	0				0	
BEGIN PEAK HR	2:30 PM																1,853	
VOLUMES	65	772	55	26	712	57	15	21	69	15	5	41	1,853				0	
APPROACH %	7%	87%	6%	3%	90%	7%	14%	20%	66%	25%	8%	67%					0	
PEAK HR FACTOR	0.941			0.908			0.610			0.847			0.917					
APP/DEPART	892	/	828	795	/	796	105	/	102	61	/	127	0				0	
WEEKDAY PM	4:00 PM													0				0
	4:15 PM													0				0
	4:30 PM													0				0
	4:45 PM													0				0
	5:00 PM													0				0
	5:15 PM													0				0
	5:30 PM													0				0
	5:45 PM													0				0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	0	0	
BEGIN PEAK HR	8:45 PM																0	
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000					
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	0	0	

**INTERSECTION TURNING MOVEMENT COUNTS**

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/6/13 THURSDAY LOCATION: NORTH & SOUTH: EAST & WEST: ESCONDIDO N. BROADWAY SR-78 / LINCOLN PKWY PROJECT #: PTD13-0607-01 LOCATION #: 12 CONTROL: SIGNAL

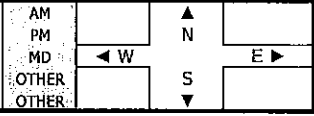
NOTES: 7-9AM & 4-6PM AM PM MD OTHER OTHER

Main data table with columns for Lanes (NL, NT, NR, SL, ST, SR, EL, ET, ER, WL, WT, WR), Time (WEEKDAY AM, MIDDAY, WEEKDAY PM), and U-TURNS (NB, SB, EB, WB, TTL). Rows include hourly volumes, approach percentages, and peak hour factors for each movement.

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	ESCONDIDO NORTH BROADWAY SR-78 / LINCOLN PKWY	PROJECT #: LOCATION #: CONTROL:	PTD13-1213-02 12 SIGNAL
<b>NOTES:</b>				
2-4PM ONLY				



LANES:	NORTHBOUND NORTH BROADWAY			SOUTHBOUND NORTH BROADWAY			EASTBOUND SR-78 / LINCOLN PKWY			WESTBOUND SR-78 / LINCOLN PKWY			TOTAL
	NL 2	NT 2	NR 1	SL 1	ST 2	SR 0	EL 2	ET 3	ER 1	WL 2	WT 3	WR 1	

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

WEEKDAY AM	12:00 AM													0
	12:15 AM													0
	12:30 AM													0
	12:45 AM													0
	1:00 AM													0
	1:15 AM													0
	1:30 AM													0
	1:45 AM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

WEEKDAY MIDDAY	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0
	BEGIN PEAK HR	1:45 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	PEAK HR FACTOR	0.000			0.000			0.000			0.000		
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0

				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

WEEKDAY PM	2:00 PM	117	87	22	14	58	69	94	243	133	26	156	4	1,023
	2:15 PM	106	102	21	9	54	54	107	256	156	19	166	7	1,057
	2:30 PM	109	115	20	9	134	70	115	272	146	23	174	7	1,194
	2:45 PM	108	120	22	8	132	69	109	288	174	34	227	10	1,301
	3:00 PM	107	66	18	10	111	71	110	326	169	29	223	10	1,250
	3:15 PM	153	94	23	9	90	67	121	269	175	33	221	16	1,271
	3:30 PM	153	90	35	15	70	75	106	305	159	26	246	10	1,290
	3:45 PM	166	80	20	6	82	72	127	322	209	31	212	12	1,339
	VOLUMES	1,019	754	181	80	731	547	889	2,281	1,321	221	1,625	76	9,725
	APPROACH %	52%	39%	9%	6%	54%	40%	20%	51%	29%	11%	85%	4%	4%

			1		1
					0
	1				1
	1				1
		1			1
					0
					0
					0
0	2	2	0		4

WEEKDAY PM	VOLUMES	1,954	/	1,719	1,358	/	2,273	4,491	/	2,542	1,922	/	3,191	0
	APP/DEPART	1,954	/	1,719	1,358	/	2,273	4,491	/	2,542	1,922	/	3,191	0
	BEGIN PEAK HR	3:00 PM												
	VOLUMES	579	330	96	40	353	285	464	1,222	712	119	902	48	5,150
	APPROACH %	58%	33%	10%	6%	52%	42%	19%	51%	30%	11%	84%	4%	4%
	PEAK HR FACTOR	0.904			0.883			0.911			0.948			
	APP/DEPART	1,005	/	842	678	/	1,184	2,398	/	1,358	1,069	/	1,766	0

				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0



# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 12/11/13 WEDNESDAY	LOCATION: NORTH & SOUTH: EAST & WEST:	ESCONDIDO NORTH BROADWAY MISSION AVE	PROJECT #: LOCATION #: CONTROL:	PTD13-1213-02 13 SIGNAL
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NOTES:  12-2PM ONLY	AM PM MD OTHER OTHER	◀ W E ▶	▲ N S ▼
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LANES:	NORTHBOUND NORTH BROADWAY			SOUTHBOUND NORTH BROADWAY			EASTBOUND MISSION AVE			WESTBOUND MISSION AVE			TOTAL
	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	

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

WEEKDAY AM	7:00 AM													0
	7:15 AM													0
	7:30 AM													0
	7:45 AM													0
	8:00 AM													0
	8:15 AM													0
	8:30 AM													0
	8:45 AM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0

				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

WEEKDAY AM	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR	8:45 AM												0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.000
	PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000

				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

WEEKDAY MIDDAY	12:00 PM	34	130	12	31	151	30	40	73	37	20	69	33	660
	12:15 PM	35	146	21	30	119	23	36	81	49	21	75	24	660
	12:30 PM	37	128	14	28	131	19	31	83	37	29	73	37	647
	12:45 PM	34	112	18	27	161	29	20	78	39	20	83	42	663
	1:00 PM	40	133	17	40	146	21	31	77	34	21	78	32	670
	1:15 PM	38	151	23	36	155	31	28	84	39	21	76	31	713
	1:30 PM	43	129	25	45	160	25	25	87	38	9	70	51	707
	1:45 PM	38	122	22	44	166	29	32	94	37	24	77	42	727
	VOLUMES	299	1,051	152	281	1,189	207	243	657	310	165	601	292	5,447
	APPROACH %	20%	70%	10%	17%	71%	12%	20%	54%	26%	16%	57%	28%	
	APP/DEPART	1,502	/	1,586	1,677	/	1,664	1,210	/	1,090	1,058	/	1,107	0
	BEGIN PEAK HR	1:00 PM												2,817

				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

WEEKDAY PM	4:00 PM													0
	4:15 PM													0
	4:30 PM													0
	4:45 PM													0
	5:00 PM													0
	5:15 PM													0
	5:30 PM													0
	5:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR	8:45 PM												0

				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0



# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 6/6/13 THURSDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	<b>ESCONDIDO</b> GARRICK WAY LINCOLN PKWY	<b>PROJECT #:</b> PTD13-0607-01 <b>LOCATION #:</b> 14 <b>CONTROL:</b> SIGNAL
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<b>NOTES:</b>  7-9AM & 4-6PM	AM PM MD OTHER OTHER	▲ N ◀ W S ▶	E ▶
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	NORTHBOUND GARRICK WAY			SOUTHBOUND GARRICK WAY			EASTBOUND LINCOLN PKWY			WESTBOUND LINCOLN PKWY			TOTAL	U-TURNS					
	LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 1	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3		WR 0	NB X	SB X	EB X	WB X	TTL
<b>WEEKDAY AM</b>	7:00 AM	1	1	0	6	1	23	2	142	11	1	288	14	490					0
	7:15 AM	1	0	1	6	0	16	3	165	7	3	303	14	519					0
	7:30 AM	5	1	1	17	1	18	4	187	12	2	288	22	558					0
	7:45 AM	4	0	2	15	0	14	1	162	22	10	264	33	527					0
	8:00 AM	5	0	1	12	0	25	3	141	11	3	274	18	493					0
	8:15 AM	5	0	1	7	0	19	3	161	13	3	248	19	479					0
	8:30 AM	5	0	1	3	0	17	2	144	9	0	245	10	436					0
	8:45 AM	10	0	0	6	2	11	3	159	13	3	199	5	411					0
	VOLUMES	36	2	7	72	4	143	21	1,261	98	25	2,109	135	3,913	0	0	0	0	0
	APPROACH %	80%	4%	16%	33%	2%	65%	2%	91%	7%	1%	93%	6%						
APP/DEPART	45	/	158	219	/	127	1,380	/	1,340	2,269	/	2,288	0						
BEGIN PEAK HR	7:15 AM																		
VOLUMES	15	1	5	50	1	73	11	655	52	18	1,129	87	2,097						
APPROACH %	71%	5%	24%	40%	1%	59%	2%	91%	7%	1%	91%	7%							
PEAK HR FACTOR	0.750			0.838			0.884			0.964			0.940						
APP/DEPART	21	/	99	124	/	71	718	/	710	1,234	/	1,217	0						
<b>MIDDAY</b>	2:00 PM													0					0
	2:15 PM													0					0
	2:30 PM													0					0
	2:45 PM													0					0
	3:00 PM													0					0
	3:15 PM													0					0
	3:30 PM													0					0
	3:45 PM													0					0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
BEGIN PEAK HR	3:45 PM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0						
<b>WEEKDAY PM</b>	4:00 PM	6	1	6	11	2	12	9	320	9	0	220	12	608					0
	4:15 PM	5	0	3	8	1	7	11	351	15	2	223	9	635					0
	4:30 PM	18	0	4	14	0	9	5	326	10	3	223	19	631					0
	4:45 PM	10	0	3	4	0	5	6	306	11	1	186	12	544					0
	5:00 PM	15	0	8	19	0	8	13	362	7	2	256	19	709					0
	5:15 PM	11	1	4	10	1	13	9	332	12	0	256	23	672					0
	5:30 PM	20	0	8	16	0	15	11	321	10	0	218	28	647					0
	5:45 PM	16	0	4	9	0	9	10	303	15	4	213	24	607					0
	VOLUMES	101	2	40	91	4	78	74	2,621	89	12	1,795	146	5,053	0	0	0	0	0
	APPROACH %	71%	1%	28%	53%	2%	45%	3%	94%	3%	1%	92%	7%						
APP/DEPART	143	/	222	173	/	105	2,784	/	2,752	1,953	/	1,974	0						
BEGIN PEAK HR	5:00 PM																		
VOLUMES	62	1	24	54	1	45	43	1,318	44	6	943	94	2,635						
APPROACH %	71%	1%	28%	54%	1%	45%	3%	94%	3%	1%	90%	9%							
PEAK HR FACTOR	0.777			0.806			0.920			0.935			0.929						
APP/DEPART	87	/	138	100	/	51	1,405	/	1,396	1,043	/	1,050	0						

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	ESCONDIDO GARRICK WAY LINCOLN PKWY	PROJECT #: LOCATION #: CONTROL:	PTD13-1213-02 14 SIGNAL																	
<b>NOTES:</b>  2-4PM ONLY			<table border="1" style="margin: auto;"> <tr><td>AM</td><td>▲</td><td></td></tr> <tr><td>PM</td><td></td><td>N</td></tr> <tr><td>MD</td><td>◀</td><td>W</td></tr> <tr><td>OTHER</td><td></td><td>S</td></tr> <tr><td>OTHER</td><td></td><td>▼</td></tr> <tr><td></td><td></td><td>E ▶</td></tr> </table>	AM	▲		PM		N	MD	◀	W	OTHER		S	OTHER		▼			E ▶
AM	▲																				
PM		N																			
MD	◀	W																			
OTHER		S																			
OTHER		▼																			
		E ▶																			

	NORTHBOUND GARRICK WAY			SOUTHBOUND GARRICK WAY			EASTBOUND LINCOLN PKWY			WESTBOUND LINCOLN PKWY			TOTAL	U-TURNS					
	NL 1	NT 0.5	NR 0.5	SL 1	ST 1	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0		NB X	SB X	EB X	WB X	TTL	
<b>WEEKDAY AM</b>	12:00 AM																	0	
	12:15 AM																	0	
	12:30 AM																	0	
	12:45 AM																	0	
	1:00 AM																	0	
	1:15 AM																	0	
	1:30 AM																	0	
	1:45 AM																	0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	/	0	0	0		
BEGIN PEAK HR	1:45 AM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	/	0	0	0		
<b>WEEKDAY MIDDAY</b>	2:00 PM	16	1	5	5	1	17	6	235	21	5	177	10	499				5	
	2:15 PM	10	0	5	14	0	12	3	265	2	2	190	18	521		4	1	0	
	2:30 PM	15	1	3	18	2	19	7	297	7	1	204	17	591				0	
	2:45 PM	11	0	4	11	0	7	8	287	9	1	232	19	589				0	
	3:00 PM	10	0	1	8	1	9	7	332	8	3	233	19	631		2		2	
	3:15 PM	12	0	4	10	0	14	4	316	8	2	266	18	654				0	
	3:30 PM	16	0	6	12	0	12	9	308	5	4	232	16	620				0	
	3:45 PM	11	1	2	8	2	9	8	345	3	5	234	8	636		2		2	
	VOLUMES	101	3	30	86	6	99	52	2,385	63	23	1,768	125	4,741					
	APPROACH %	75%	2%	22%	45%	3%	52%	2%	95%	3%	1%	92%	7%		0	0	8	1	9
APP/DEPART	134	/	180	191	/	92	2,500	/	2,501	1,916	/	1,968	0						
BEGIN PEAK HR	3:00 PM																		
VOLUMES	49	1	13	38	3	44	28	1,301	24	14	965	61	2,541						
APPROACH %	78%	2%	21%	45%	4%	52%	2%	96%	2%	1%	93%	6%							
PEAK HR FACTOR	0.716			0.885			0.950			0.909			0.971						
APP/DEPART	63	/	90	85	/	41	1,353	/	1,352	1,040	/	1,058	0						
<b>WEEKDAY PM</b>	4:00 PM													0				0	
	4:15 PM													0				0	
	4:30 PM													0				0	
	4:45 PM													0				0	
	5:00 PM													0				0	
	5:15 PM													0				0	
	5:30 PM													0				0	
	5:45 PM													0				0	
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	0	0	0	
BEGIN PEAK HR	8:45 PM																		
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0	0	0	0	0	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000						
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	0	0	0	0	0	

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 6/6/13 THURSDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	<b>ESCONDIDO</b> N. FIG ST LINCOLN AVE	<b>PROJECT #:</b> PTD13-0607-01 <b>LOCATION #:</b> 15 <b>CONTROL:</b> SIGNAL																																																		
<b>NOTES:</b>  7-9AM & 4-6PM		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">AM</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>PM</td> <td></td> <td></td> <td></td> <td style="text-align: center;">▲</td> <td style="text-align: center;">N</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MD</td> <td></td> <td style="text-align: center;">◀</td> <td style="text-align: center;">W</td> <td></td> <td></td> <td style="text-align: center;">E</td> <td style="text-align: center;">▶</td> <td></td> <td></td> </tr> <tr> <td>OTHER</td> <td></td> <td></td> <td></td> <td style="text-align: center;">▼</td> <td style="text-align: center;">S</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>OTHER</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		AM										PM				▲	N					MD		◀	W			E	▶			OTHER				▼	S					OTHER									
AM																																																					
PM				▲	N																																																
MD		◀	W			E	▶																																														
OTHER				▼	S																																																
OTHER																																																					

	NORTHBOUND N. FIG ST			SOUTHBOUND N. FIG ST			EASTBOUND LINCOLN AVE			WESTBOUND LINCOLN AVE			TOTAL
	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
<b>WEEKDAY AM</b>													
7:00 AM	28	20	1	1	24	12	12	88	29	14	243	2	474
7:15 AM	37	36	6	2	62	18	15	122	21	17	221	2	559
7:30 AM	39	69	12	2	64	20	19	142	23	17	207	7	621
7:45 AM	42	84	10	3	68	14	22	149	22	17	225	1	657
8:00 AM	33	13	5	1	97	20	6	99	21	12	201	1	509
8:15 AM	32	13	6	0	35	11	3	150	27	12	215	0	504
8:30 AM	38	16	8	1	33	15	7	126	20	10	189	2	465
8:45 AM	31	15	5	0	28	9	5	105	23	9	161	0	391
VOLUMES	280	266	53	10	411	119	89	981	186	108	1,662	15	4,180
APPROACH %	47%	44%	9%	2%	76%	22%	7%	78%	15%	6%	93%	1%	
APP/DEPART	599	/	370	540	/	705	1,256	/	1,044	1,785	/	2,061	0
BEGIN PEAK HR	7:15 AM												
VOLUMES	151	202	33	8	291	72	62	512	87	63	854	11	2,346
APPROACH %	39%	52%	9%	2%	78%	19%	9%	77%	13%	7%	92%	1%	
PEAK HR FACTOR	0.710			0.786			0.856			0.955			0.893
APP/DEPART	386	/	275	371	/	441	661	/	553	928	/	1,077	0
<b>MIDDAY</b>													
2:00 PM													0
2:15 PM													0
2:30 PM													0
2:45 PM													0
3:00 PM													0
3:15 PM													0
3:30 PM													0
3:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR	3:45 PM												
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
<b>WEEKDAY PM</b>													
4:00 PM	42	22	5	0	18	9	11	276	22	2	169	1	577
4:15 PM	40	24	15	3	28	11	21	278	30	7	176	1	634
4:30 PM	39	27	10	3	25	10	16	273	20	14	168	1	606
4:45 PM	36	22	11	0	33	5	19	251	28	13	168	1	587
5:00 PM	60	47	12	10	24	11	15	275	20	8	197	1	680
5:15 PM	49	42	10	1	20	17	10	291	27	6	192	2	667
5:30 PM	40	37	13	2	29	11	28	272	18	4	189	4	647
5:45 PM	33	37	8	0	62	18	18	243	11	9	165	0	604
VOLUMES	339	258	84	19	239	92	138	2,159	176	63	1,424	11	5,002
APPROACH %	50%	38%	12%	5%	68%	26%	6%	87%	7%	4%	95%	1%	
APP/DEPART	681	/	407	350	/	478	2,473	/	2,262	1,498	/	1,855	0
BEGIN PEAK HR	5:00 PM												
VOLUMES	182	163	43	13	135	57	71	1,081	76	27	743	7	2,598
APPROACH %	47%	42%	11%	6%	66%	28%	6%	88%	6%	3%	96%	1%	
PEAK HR FACTOR	0.815			0.641			0.936			0.943			0.955
APP/DEPART	388	/	241	205	/	238	1,228	/	1,137	777	/	982	0

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

0	0	0	0	0

0	0	0	0	0

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY	<b>LOCATION:</b> NORTH & SOUTH: EAST & WEST:	<b>ESCONDIDO</b> FIG ST LINCOLN AVE	<b>PROJECT #:</b> 15	<b>PTD13-1213-02</b> <b>LOCATION #:</b> 15 <b>CONTROL:</b> SIGNAL
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<b>NOTES:</b>  2-4PM ONLY	AM PM MD OTHER OTHER	▲ N ◀ W S ▶ E ▼
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	NORTHBOUND FIG ST			SOUTHBOUND FIG ST			EASTBOUND LINCOLN AVE			WESTBOUND LINCOLN AVE			TOTAL	U-TURNS				
	NL 1	NT 1	NR 1	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0		NB X	SB X	EB X	WB X	TTL
<b>WEEKDAY AM</b>	7:00 AM																	0
	7:15 AM																	0
	7:30 AM																	0
	7:45 AM																	0
	8:00 AM																	0
	8:15 AM																	0
	8:30 AM																	0
	8:45 AM																	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	/	0	0	0	
BEGIN PEAK HR	8:45 AM																	
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000					
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0	/	0	0	0	
<b>WEEKDAY MIDDAY</b>	2:00 PM	20	61	7	4	14	3	20	178	22	6	160	4	499				0
	2:15 PM	21	45	8	2	33	11	22	198	25	11	169	2	547				0
	2:30 PM	34	33	8	7	67	12	18	223	19	30	165	1	617				0
	2:45 PM	28	27	8	1	45	10	15	241	26	13	188	1	603				0
	3:00 PM	48	29	11	0	37	13	14	268	25	5	209	5	664				0
	3:15 PM	27	29	11	1	29	21	12	243	24	16	231	1	645				0
	3:30 PM	34	25	8	4	21	15	12	266	26	11	176	4	602				0
	3:45 PM	35	31	12	2	27	13	10	276	21	6	190	1	624				0
	VOLUMES	247	280	73	21	273	98	123	1,893	188	98	1,488	19	4,801				0
	APPROACH %	41%	47%	12%	5%	70%	25%	6%	86%	9%	6%	93%	1%					0
APP/DEPART	600	/	422	392	/	559	2,204	/	1,987	1,605	/	1,833	0				0	
BEGIN PEAK HR	3:00 PM																	
VOLUMES	144	114	42	7	114	62	48	1,053	96	38	806	11	2,535				0	
APPROACH %	48%	38%	14%	4%	62%	34%	4%	88%	8%	4%	94%	1%					0	
PEAK HR FACTOR	0.852			0.897			0.975			0.862			0.954					
APP/DEPART	300	/	173	183	/	248	1,197	/	1,102	855	/	1,012	0				0	
<b>WEEKDAY PM</b>	4:00 PM																	0
	4:15 PM																	0
	4:30 PM																	0
	4:45 PM																	0
	5:00 PM																	0
	5:15 PM																	0
	5:30 PM																	0
	5:45 PM																	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0				0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				0
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0				0	
BEGIN PEAK HR	8:45 PM																	
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0				0	
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				0	
PEAK HR FACTOR	0.000			0.000			0.000			0.000			0.000					
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0				0	



## 24-Hour Average Daily Traffic (ADT) Counts

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

CENTRE CITY PARKWAY: BTN COUNTRY CLUB DR & IRIS LN

SEGMENT: 1

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	9	7			12:00	70	94		
00:15	11	5			12:15	89	95		
00:30	8	1			12:30	71	96		
00:45	0	28	3	16	12:45	83	313	91	376
01:00	6	0			13:00	95	76		
01:15	8	4			13:15	75	85		
01:30	6	2			13:30	88	81		
01:45	7	27	1	7	13:45	89	347	92	334
02:00	3	4			14:00	110	110		
02:15	8	1			14:15	118	76		
02:30	1	2			14:30	138	117		
02:45	0	12	2	9	14:45	113	479	89	392
03:00	1	2			15:00	121	98		
03:15	1	3			15:15	115	103		
03:30	3	1			15:30	130	116		
03:45	4	9	9	15	15:45	124	490	98	415
04:00	2	8			16:00	123	111		
04:15	5	9			16:15	136	96		
04:30	6	18			16:30	143	104		
04:45	7	20	22	57	16:45	172	574	109	420
05:00	2	37			17:00	134	94		
05:15	11	45			17:15	162	80		
05:30	14	61			17:30	162	85		
05:45	23	50	72	215	17:45	147	605	61	320
06:00	32	74			18:00	135	76		
06:15	24	86			18:15	124	76		
06:30	39	117			18:30	78	67		
06:45	45	140	145	422	18:45	112	449	52	271
07:00	75	161			19:00	73	49		
07:15	75	158			19:15	85	33		
07:30	104	195			19:30	72	33		
07:45	71	325	183	697	19:45	78	308	42	157
08:00	74	151			20:00	63	26		
08:15	61	158			20:15	56	30		
08:30	55	126			20:30	59	35		
08:45	70	260	136	571	20:45	52	230	28	119
09:00	66	103			21:00	56	21		
09:15	55	94			21:15	42	30		
09:30	50	99			21:30	52	19		
09:45	54	225	114	410	21:45	29	179	14	84
10:00	53	88			22:00	25	22		
10:15	64	102			22:15	21	11		
10:30	55	112			22:30	17	10		
10:45	72	244	103	405	22:45	12	75	12	55
11:00	73	110			23:00	11	14		
11:15	89	83			23:15	10	6		
11:30	92	106			23:30	16	9		
11:45	90	344	79	378	23:45	11	48	9	38

**Total Vol.** 1684 3202 **4886** 4097 2981 **7078**

	Daily Totals				Combined
	NB	SB	EB	WB	
	5781	6183			<b>11964</b>

Split %	AM		40.8%	PM		59.2%
	34.5%	65.5%		57.9%	42.1%	

<b>Peak Hour</b>	11:00	07:00	<b>07:00</b>	16:45	15:15	<b>16:30</b>
<b>Volume</b>	344	697	<b>1022</b>	630	428	<b>998</b>
<b>P.H.F.</b>	0.93	0.89	<b>0.85</b>	0.92	0.92	<b>0.89</b>

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

CENTRE CITY PARKWAY: BTN IRIS LN & EL NORTE PKWY

SEGMENT: 2

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB		
00:00	10	11			12:00	91	110				
00:15	14	4			12:15	104	98				
00:30	9	2			12:30	87	106				
00:45	6	39	4	21	60	12:45	89	371	111	425	796
01:00	6	2			13:00	111	102				
01:15	9	4			13:15	98	105				
01:30	8	3			13:30	111	98				
01:45	6	29	1	10	39	13:45	128	448	91	396	844
02:00	4	3			14:00	128	132				
02:15	8	2			14:15	131	105				
02:30	1	1			14:30	170	130				
02:45	0	13	4	10	23	14:45	143	572	125	492	1064
03:00	1	2			15:00	147	137				
03:15	2	3			15:15	126	133				
03:30	4	4			15:30	135	134				
03:45	6	13	7	16	29	15:45	154	562	126	530	1092
04:00	2	13			16:00	140	131				
04:15	5	9			16:15	164	109				
04:30	7	15			16:30	163	116				
04:45	8	22	23	60	82	16:45	197	664	120	476	1140
05:00	3	38			17:00	166	122				
05:15	10	49			17:15	183	113				
05:30	13	76			17:30	171	102				
05:45	27	53	78	241	294	17:45	149	669	82	419	1088
06:00	31	93			18:00	161	81				
06:15	25	121			18:15	132	102				
06:30	49	153			18:30	105	87				
06:45	51	156	184	551	707	18:45	129	527	63	333	860
07:00	71	227			19:00	95	51				
07:15	95	235			19:15	101	37				
07:30	128	282			19:30	96	47				
07:45	92	386	257	1001	1387	19:45	97	389	45	180	569
08:00	84	229			20:00	86	36				
08:15	70	192			20:15	59	43				
08:30	63	152			20:30	70	36				
08:45	72	289	160	733	1022	20:45	61	276	34	149	425
09:00	85	128			21:00	60	28				
09:15	52	116			21:15	49	33				
09:30	61	119			21:30	55	46				
09:45	69	267	152	515	782	21:45	38	202	19	126	328
10:00	55	101			22:00	30	25				
10:15	75	114			22:15	30	15				
10:30	55	125			22:30	20	12				
10:45	86	271	129	469	740	22:45	18	98	12	64	162
11:00	79	133			23:00	13	12				
11:15	89	106			23:15	13	4				
11:30	107	125			23:30	18	12				
11:45	89	364	109	473	837	23:45	11	55	11	39	94

**Total Vol.** 1902 4100 **6002** 4833 3629 **8462**

		Daily Totals					
		NB	SB	EB	WB	Combined	
		6735	7729			<b>14464</b>	

Split %	AM			PM		
	31.7%	68.3%	41.5%	57.1%	42.9%	58.5%

Peak Hour	07:15	07:15	07:15	16:45	15:00	16:30
Volume	399	1003	1402	717	530	1180
P.H.F.	0.78	0.89	0.85	0.93	0.97	0.93



WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

ESCONDIDO BOULEVARD: BTN EL NORTE PKY & DECATUR WY

SEGMEBNT: 3

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	5	12			12:00	48	66		
00:15	10	3			12:15	54	62		
00:30	8	4			12:30	44	54		
00:45	8	31	3	22	12:45	35	181	51	233
01:00	4	5			13:00	41	54		
01:15	3	4			13:15	40	55		
01:30	7	5			13:30	51	60		
01:45	3	17	2	16	13:45	50	182	62	231
02:00	2	3			14:00	68	62		
02:15	3	3			14:15	70	66		
02:30	2	4			14:30	66	51		
02:45	3	10	7	17	14:45	51	255	70	249
03:00	4	9			15:00	58	68		
03:15	3	3			15:15	48	77		
03:30	4	7			15:30	51	51		
03:45	6	17	5	24	15:45	65	222	57	253
04:00	10	9			16:00	70	62		
04:15	8	12			16:15	65	55		
04:30	9	11			16:30	77	48		
04:45	12	39	15	47	16:45	78	290	68	233
05:00	11	18			17:00	91	77		
05:15	15	16			17:15	98	84		
05:30	11	21			17:30	101	74		
05:45	19	56	22	77	17:45	77	367	74	309
06:00	18	18			18:00	65	63		
06:15	24	26			18:15	62	72		
06:30	26	35			18:30	40	67		
06:45	35	103	44	123	18:45	55	222	59	261
07:00	44	68			19:00	52	48		
07:15	51	77			19:15	41	36		
07:30	65	95			19:30	50	44		
07:45	66	226	101	341	19:45	46	189	37	165
08:00	70	112			20:00	55	24		
08:15	54	98			20:15	33	24		
08:30	62	70			20:30	41	24		
08:45	58	244	65	345	20:45	48	177	35	107
09:00	51	60			21:00	47	32		
09:15	40	54			21:15	41	32		
09:30	55	51			21:30	31	16		
09:45	40	186	40	205	21:45	26	145	20	100
10:00	35	35			22:00	21	12		
10:15	41	44			22:15	14	8		
10:30	45	40			22:30	20	12		
10:45	40	161	41	160	22:45	25	80	13	45
11:00	44	52			23:00	10	14		
11:15	41	50			23:15	7	4		
11:30	51	42			23:30	4	7		
11:45	55	191	42	186	23:45	10	31	4	29

**Total Vol.** 1281 1563 **2844** 2341 2215 **4556**

		Daily Totals				
		NB	SB	EB	WB	Combined
		3622	3778			7400

Split %	AM		38.4%	PM		61.6%
	45.0%	55.0%		51.4%	48.6%	

<b>Peak Hour</b>	07:30	07:30	<b>07:30</b>	16:45	17:00	<b>17:00</b>
<b>Volume</b>	255	406	<b>661</b>	368	309	<b>676</b>
<b>P.H.F.</b>	0.91	0.91	<b>0.91</b>	0.93	0.92	<b>0.93</b>

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

N. ESCONDIDO: BTN DECATUR WAY & LINCOLN AVE

SEGMENT: 4

AM Period	NB	SB	EB	WB		PM Period	NB	SB	EB	WB	
00:00	9	2				12:00	76	52			
00:15	8	7				12:15	79	82			
00:30	10	6				12:30	103	61			
00:45	2	29	0	15	44	12:45	74	332	70	265	597
01:00	6	4				13:00	89	62			
01:15	4	4				13:15	85	66			
01:30	5	2				13:30	97	81			
01:45	4	19	3	13	32	13:45	80	351	74	283	634
02:00	2	3				14:00	96	84			
02:15	6	0				14:15	106	76			
02:30	2	0				14:30	86	62			
02:45	3	13	3	6	19	14:45	91	379	59	281	660
03:00	4	1				15:00	93	69			
03:15	2	2				15:15	93	55			
03:30	2	2				15:30	107	67			
03:45	0	8	2	7	15	15:45	107	400	60	251	651
04:00	3	1				16:00	125	58			
04:15	2	1				16:15	136	77			
04:30	2	6				16:30	126	73			
04:45	4	11	5	13	24	16:45	108	495	62	270	765
05:00	4	9				17:00	137	60			
05:15	14	9				17:15	126	88			
05:30	8	12				17:30	138	73			
05:45	8	34	24	54	88	17:45	127	528	75	296	824
06:00	22	44				18:00	125	82			
06:15	11	24				18:15	133	82			
06:30	14	53				18:30	113	62			
06:45	24	71	64	185	256	18:45	76	447	50	276	723
07:00	20	87				19:00	71	44			
07:15	27	82				19:15	80	51			
07:30	45	90				19:30	81	53			
07:45	54	146	105	364	510	19:45	65	297	51	199	496
08:00	54	135				20:00	81	44			
08:15	52	121				20:15	68	43			
08:30	62	117				20:30	64	36			
08:45	49	217	67	440	657	20:45	50	263	25	148	411
09:00	49	82				21:00	65	38			
09:15	35	71				21:15	69	42			
09:30	45	75				21:30	82	25			
09:45	44	173	68	296	469	21:45	45	261	22	127	388
10:00	39	60				22:00	36	32			
10:15	48	50				22:15	39	30			
10:30	60	62				22:30	27	19			
10:45	63	210	59	231	441	22:45	33	135	18	99	234
11:00	68	71				23:00	29	15			
11:15	72	62				23:15	22	14			
11:30	73	64				23:30	14	12			
11:45	97	310	48	245	555	23:45	11	76	8	49	125

**Total Vol.** 1241 1869 **3110** 3964 2544 **6508**

						Daily Totals				
						NB	SB	EB	WB	Combined
						5205	4413			9618

Split %	AM				PM			
	39.9%	60.1%	32.3%		60.9%	39.1%	67.7%	

Peak Hour	11:45	07:45	07:45	17:00	17:15	17:30
Volume	355	478	700	528	318	835
P.H.F.	0.86	0.89	0.93	0.98	0.90	0.97

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

N. ESCONDIDO BLVD: BTN LINCOLN AVE & MISSION AVE

SEGMENT: 5

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	6	4			12:00	80	61		
00:15	12	5			12:15	87	97		
00:30	9	4			12:30	100	70		
00:45	8	35	2	15	12:45	106	373	76	304
01:00	5	4			13:00	95	71		
01:15	6	5			13:15	96	79		
01:30	4	3			13:30	100	78		
01:45	5	20	1	13	13:45	80	371	92	320
02:00	2	2			14:00	97	108		
02:15	7	1			14:15	92	85		
02:30	1	0			14:30	85	66		
02:45	4	14	2	5	14:45	91	365	74	333
03:00	3	1			15:00	74	70		
03:15	1	3			15:15	91	65		
03:30	2	3			15:30	119	76		
03:45	0	6	0	7	15:45	113	397	60	271
04:00	3	2			16:00	122	95		
04:15	2	1			16:15	146	105		
04:30	1	6			16:30	140	111		
04:45	2	8	7	16	16:45	141	549	80	391
05:00	4	11			17:00	121	92		
05:15	14	11			17:15	103	95		
05:30	4	16			17:30	152	103		
05:45	6	28	24	62	17:45	131	507	99	389
06:00	13	53			18:00	143	84		
06:15	10	34			18:15	132	108		
06:30	7	67			18:30	116	71		
06:45	17	47	83	237	18:45	81	472	65	328
07:00	20	107			19:00	72	54		
07:15	25	101			19:15	86	62		
07:30	28	131			19:30	84	55		
07:45	37	110	125	464	19:45	85	327	58	229
08:00	42	153			20:00	72	48		
08:15	66	111			20:15	63	47		
08:30	60	92			20:30	63	42		
08:45	62	230	98	454	20:45	45	243	28	165
09:00	50	93			21:00	78	43		
09:15	41	79			21:15	72	39		
09:30	43	74			21:30	68	31		
09:45	36	170	70	316	21:45	53	271	36	149
10:00	44	73			22:00	34	28		
10:15	51	63			22:15	38	28		
10:30	67	67			22:30	30	23		
10:45	76	238	54	257	22:45	32	134	12	91
11:00	60	74			23:00	17	11		
11:15	73	75			23:15	22	12		
11:30	77	72			23:30	16	12		
11:45	94	304	54	275	23:45	11	66	13	48

**Total Vol.** 1210 2121 **3331** 4075 3018 **7093**

		Daily Totals			
		EB	WB	Combined	
		NB	SB		
		5285	5139	10424	

Split %	AM		32.0%	PM		68.0%
	36.3%	63.7%		57.5%	42.5%	

<b>Peak Hour</b>	11:45	07:30	<b>07:30</b>	17:30	17:30	<b>17:30</b>
<b>Volume</b>	361	520	<b>693</b>	558	394	<b>952</b>
<b>P.H.F.</b>	0.90	0.85	<b>0.89</b>	0.94	0.91	<b>0.93</b>

PACIFIC TECHNICAL DATA

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

ESCONDIDO BOULEVARD: BTN MISSION AVE & WASHINGTON AVE

SEGMENT: 6

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	12	15			12:00	168	128		
00:15	8	6			12:15	159	115		
00:30	7	5			12:30	177	103		
00:45	9	36	3	29	12:45	155	659	135	481
01:00	6	3			13:00	152	105		
01:15	6	14			13:15	184	102		
01:30	7	4			13:30	162	121		
01:45	8	27	3	24	13:45	135	633	95	423
02:00	5	4			14:00	164	107		
02:15	8	0			14:15	165	109		
02:30	9	2			14:30	153	135		
02:45	6	28	2	8	14:45	146	628	136	487
03:00	1	5			15:00	189	141		
03:15	3	2			15:15	161	123		
03:30	5	7			15:30	152	111		
03:45	5	14	4	18	15:45	180	682	150	525
04:00	4	12			16:00	189	169		
04:15	6	9			16:15	184	150		
04:30	8	10			16:30	192	129		
04:45	12	30	11	42	16:45	213	778	145	593
05:00	13	15			17:00	210	157		
05:15	18	19			17:15	203	134		
05:30	22	28			17:30	217	127		
05:45	26	79	33	95	17:45	182	812	116	534
06:00	35	48			18:00	187	108		
06:15	32	51			18:15	150	132		
06:30	48	65			18:30	126	134		
06:45	52	167	77	241	18:45	116	579	101	475
07:00	62	95			19:00	121	78		
07:15	66	98			19:15	102	78		
07:30	70	121			19:30	120	72		
07:45	95	293	135	449	19:45	103	446	58	286
08:00	88	141			20:00	73	50		
08:15	103	116			20:15	81	61		
08:30	111	103			20:30	116	40		
08:45	98	400	88	448	20:45	104	374	45	196
09:00	70	78			21:00	88	62		
09:15	95	70			21:15	69	44		
09:30	88	95			21:30	61	29		
09:45	95	348	84	327	21:45	39	257	36	171
10:00	103	88			22:00	47	32		
10:15	121	79			22:15	30	23		
10:30	135	95			22:30	23	12		
10:45	111	470	103	365	22:45	19	119	11	78
11:00	135	112			23:00	27	10		
11:15	142	126			23:15	15	9		
11:30	151	114			23:30	11	8		
11:45	141	569	126	478	23:45	11	64	10	37

**Total Vol.** 2461 2524 **4985** 6031 4286 **10317**

		Daily Totals				
		NB	SB	EB	WB	Combined
		8492	6810			15302

Split %	AM		32.6%	PM		67.4%
	49.4%	50.6%		58.5%	41.5%	

Peak Hour	11:45	07:30	11:45	16:45	15:45	16:45
Volume	645	513	1117	843	598	1406
P.H.F.	0.91	0.91	0.94	0.97	0.88	0.96

PACIFIC TECHNICAL DATA

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

NORTH BROADWAY: BTN EL NORTE PKY & LINCOLN AVE

SEGMENT: 7

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB		
00:00	19	18			12:00	99	107				
00:15	21	13			12:15	116	111				
00:30	21	13			12:30	116	98				
00:45	21	82	5	49	131	12:45	103	434	109	425	859
01:00	16	5			13:00	95	130				
01:15	7	2			13:15	108	117				
01:30	15	5			13:30	133	107				
01:45	10	48	7	19	67	13:45	126	462	120	474	936
02:00	13	5			14:00	158	115				
02:15	12	8			14:15	168	108				
02:30	6	7			14:30	205	189				
02:45	6	37	4	24	61	14:45	184	715	195	607	1322
03:00	11	6			15:00	168	180				
03:15	6	11			15:15	181	141				
03:30	11	8			15:30	177	152				
03:45	9	37	14	39	76	15:45	162	688	167	640	1328
04:00	19	18			16:00	158	155				
04:15	18	21			16:15	168	152				
04:30	26	16			16:30	196	150				
04:45	22	85	19	74	159	16:45	204	726	169	626	1352
05:00	35	22			17:00	229	192				
05:15	38	35			17:15	189	187				
05:30	44	51			17:30	216	164				
05:45	51	168	68	176	344	17:45	209	843	153	696	1539
06:00	68	89			18:00	189	131				
06:15	69	99			18:15	171	145				
06:30	70	108			18:30	163	116				
06:45	77	284	116	412	696	18:45	176	699	110	502	1201
07:00	88	141			19:00	155	133				
07:15	98	168			19:15	140	70				
07:30	121	155			19:30	137	74				
07:45	135	442	205	669	1111	19:45	141	573	98	375	948
08:00	105	218			20:00	101	58				
08:15	116	189			20:15	104	57				
08:30	98	161			20:30	124	70				
08:45	91	410	135	703	1113	20:45	115	444	47	232	676
09:00	70	121			21:00	115	53				
09:15	84	108			21:15	106	49				
09:30	85	111			21:30	80	51				
09:45	81	320	119	459	779	21:45	98	399	48	201	600
10:00	84	84			22:00	71	36				
10:15	91	94			22:15	57	32				
10:30	92	114			22:30	53	30				
10:45	103	370	120	412	782	22:45	42	223	31	129	352
11:00	99	126			23:00	43	21				
11:15	110	120			23:15	29	26				
11:30	106	127			23:30	33	23				
11:45	107	422	90	463	885	23:45	27	132	15	85	217

**Total Vol.** 2705 3499 **6204** 6338 4992 **11330**

	Daily Totals				Combined
	NB	SB	EB	WB	
	9043	8491			17534

Split %	AM		35.4%	PM		64.6%
	43.6%	56.4%		55.9%	44.1%	

Peak Hour	07:30	07:45	07:30	17:00	16:45	16:45
Volume	477	773	1244	843	712	1550
P.H.F.	0.88	0.89	0.91	0.93	0.93	0.92

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

N. BROADWAY: BTN LINCOLN AVE & SR-78/LINCOLN PKWY

SEGMENT: 8

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	41	44			12:00	128	148		
00:15	45	35			12:15	142	135		
00:30	40	40			12:30	151	151		
00:45	35	161	42	161	12:45	162	583	135	569
01:00	33	41			13:00	177	148		
01:15	25	34			13:15	152	152		
01:30	19	28			13:30	184	177		
01:45	28	105	32	135	13:45	152	665	150	627
02:00	23	33			14:00	141	160		
02:15	22	35			14:15	166	141		
02:30	19	26			14:30	152	162		
02:45	16	80	18	112	14:45	168	627	142	605
03:00	11	15			15:00	184	135		
03:15	15	15			15:15	195	133		
03:30	12	12			15:30	177	148		
03:45	19	57	9	51	15:45	195	751	132	548
04:00	15	11			16:00	218	152		
04:15	11	15			16:15	252	177		
04:30	15	21			16:30	263	132		
04:45	20	61	20	67	16:45	244	977	148	609
05:00	18	33			17:00	280	144		
05:15	32	35			17:15	284	175		
05:30	35	44			17:30	252	180		
05:45	40	125	51	163	17:45	261	1077	176	675
06:00	54	70			18:00	248	160		
06:15	65	84			18:15	218	178		
06:30	84	101			18:30	206	142		
06:45	77	280	121	376	18:45	235	907	115	595
07:00	90	151			19:00	184	135		
07:15	113	148			19:15	162	130		
07:30	121	152			19:30	135	121		
07:45	165	489	189	640	19:45	141	622	101	487
08:00	166	223			20:00	111	98		
08:15	103	170			20:15	106	90		
08:30	95	152			20:30	108	84		
08:45	102	466	133	678	20:45	126	451	92	364
09:00	95	135			21:00	115	77		
09:15	103	127			21:15	103	84		
09:30	84	141			21:30	84	65		
09:45	96	378	126	529	21:45	90	392	42	268
10:00	111	141			22:00	96	48		
10:15	105	122			22:15	91	51		
10:30	121	129			22:30	78	44		
10:45	126	463	135	527	22:45	65	330	40	183
11:00	104	130			23:00	88	35		
11:15	120	142			23:15	54	42		
11:30	113	126			23:30	42	35		
11:45	126	463	127	525	23:45	40	224	44	156

**Total Vol.** 3128 3964 **7092** 7606 5686 **13292**

	<b>Daily Totals</b>				<b>Combined</b>
	NB	SB	EB	WB	
	10734	9650			<b>20384</b>

<b>Split %</b>	<b>AM</b>		<b>34.8%</b>	<b>PM</b>		<b>65.2%</b>
	44.1%	55.9%		57.2%	42.8%	

<b>Peak Hour</b>	07:15	07:30	<b>07:30</b>	17:00	17:30	<b>17:00</b>
<b>Volume</b>	565	734	<b>1289</b>	1077	694	<b>1752</b>
<b>P.H.F.</b>	0.85	0.82	<b>0.83</b>	0.94	0.96	<b>0.95</b>

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

FIG STREET: BTN LINCOLN AVE & MISSION AVE

SEGMENT: 9

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB		
00:00	10	7			12:00	46	60				
00:15	9	8			12:15	45	53				
00:30	5	7			12:30	46	53				
00:45	5	29	8	30	59	12:45	32	169	50	216	385
01:00	4	5			13:00	47	65				
01:15	2	6			13:15	57	73				
01:30	6	5			13:30	57	59				
01:45	4	16	5	21	37	13:45	53	214	67	264	478
02:00	4	9			14:00	85	55				
02:15	6	4			14:15	88	75				
02:30	5	3			14:30	75	108				
02:45	2	17	2	18	35	14:45	83	331	95	333	664
03:00	5	2			15:00	72	77				
03:15	6	2			15:15	77	65				
03:30	6	2			15:30	72	60				
03:45	12	29	7	13	42	15:45	72	293	61	263	556
04:00	8	5			16:00	90	73				
04:15	12	3			16:15	60	97				
04:30	11	4			16:30	91	90				
04:45	15	46	5	17	63	16:45	91	332	102	362	694
05:00	19	7			17:00	102	97				
05:15	26	14			17:15	107	90				
05:30	35	20			17:30	104	89				
05:45	66	146	47	88	234	17:45	98	411	114	390	801
06:00	70	48			18:00	76	85				
06:15	68	45			18:15	65	72				
06:30	77	62			18:30	75	80				
06:45	84	299	91	246	545	18:45	55	271	51	288	559
07:00	65	91			19:00	51	64				
07:15	89	118			19:15	53	57				
07:30	116	135			19:30	40	61				
07:45	135	405	135	479	884	19:45	36	180	50	232	412
08:00	75	141			20:00	40	49				
08:15	65	88			20:15	28	44				
08:30	51	65			20:30	37	34				
08:45	55	246	70	364	610	20:45	36	141	42	169	310
09:00	62	54			21:00	25	38				
09:15	48	44			21:15	15	42				
09:30	51	51			21:30	22	42				
09:45	42	203	42	191	394	21:45	27	89	27	149	238
10:00	28	53			22:00	29	30				
10:15	42	42			22:15	23	24				
10:30	44	40			22:30	17	24				
10:45	32	146	50	185	331	22:45	14	83	14	92	175
11:00	42	43			23:00	9	17				
11:15	57	50			23:15	13	11				
11:30	47	46			23:30	5	18				
11:45	49	195	47	186	381	23:45	10	37	10	56	93

**Total Vol.** 1777 1838 **3615** 2551 2814 **5365**

	Daily Totals				Combined
	NB	SB	EB	WB	
	4328	4652			<b>8980</b>

Split %	AM		40.3%	PM		59.7%
	49.2%	50.8%		47.5%	52.5%	

Peak Hour	07:15	07:15	07:15	17:00	17:00	17:00
Volume	415	529	944	411	390	801
P.H.F.	0.77	0.94	0.87	0.97	0.86	0.94

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

EL NORTE PARKWAY: BTN MORNING VIEW DR & CITY CENTER PKY

SEGMENT: 10

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			25	20	12:00			185	191			
00:15			15	15	12:15			181	163			
00:30			10	11	12:30			135	164			
00:45			13	63	11	57	120	171	672	165	683	1355
01:00			6	10	13:00			154	163			
01:15			8	4	13:15			156	141			
01:30			8	14	13:30			177	138			
01:45			12	34	10	38	72	202	689	189	631	1320
02:00			6	3	14:00			186	138			
02:15			2	1	14:15			184	174			
02:30			3	5	14:30			200	183			
02:45			4	15	3	12	27	207	777	195	690	1467
03:00			3	1	15:00			205	195			
03:15			3	6	15:15			231	173			
03:30			7	5	15:30			209	223			
03:45			5	18	13	25	43	255	900	224	815	1715
04:00			5	16	16:00			265	184			
04:15			7	12	16:15			244	219			
04:30			12	13	16:30			288	222			
04:45			21	45	22	63	108	276	1073	210	835	1908
05:00			17	22	17:00			267	188			
05:15			36	42	17:15			266	241			
05:30			42	55	17:30			267	249			
05:45			53	148	59	178	326	232	1032	211	889	1921
06:00			66	75	18:00			257	190			
06:15			76	80	18:15			199	179			
06:30			115	163	18:30			183	156			
06:45			141	398	152	470	868	156	795	152	677	1472
07:00			190	162	19:00			143	135			
07:15			200	204	19:15			142	111			
07:30			186	217	19:30			112	112			
07:45			177	753	182	765	1518	114	511	110	468	979
08:00			162	209	20:00			101	114			
08:15			178	153	20:15			75	108			
08:30			175	150	20:30			95	94			
08:45			149	664	140	652	1316	91	362	88	404	766
09:00			154	129	21:00			90	102			
09:15			136	128	21:15			70	80			
09:30			151	151	21:30			63	63			
09:45			147	588	151	559	1147	50	273	67	312	585
10:00			141	123	22:00			51	74			
10:15			127	144	22:15			42	54			
10:30			122	111	22:30			55	51			
10:45			151	541	140	518	1059	42	190	42	221	411
11:00			155	153	23:00			38	38			
11:15			162	146	23:15			17	19			
11:30			143	151	23:30			16	36			
11:45			151	611	156	606	1217	27	98	18	111	209

**Total Vol.** 3878 3943 **7821** 7372 6736 **14108**

		Daily Totals		
NB	SB	EB	WB	Combined
		11250	10679	<b>21929</b>

Split %	AM			PM		
	49.6%	50.4%	<b>35.7%</b>	52.3%	47.7%	<b>64.3%</b>

Peak Hour	07:00	07:15	<b>07:15</b>	16:30	17:15	<b>16:45</b>
Volume	753	812	<b>1537</b>	1097	891	<b>1964</b>
P.H.F.	0.94	0.94	<b>0.95</b>	0.95	0.89	<b>0.95</b>



THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

EL NORTE PARKWAY: BTN CENTRE CITY PKWY & ESCONDIDO BLVD

SEGMENT: 11

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			26	27	12:00			177	198			
00:15			22	22	12:15			165	168			
00:30			15	24	12:30			151	169			
00:45			20	83	16	89	172	177	670	188	723	1393
01:00			19	12	13:00			162	178			
01:15			15	16	13:15			142	189			
01:30			12	13	13:30			151	184			
01:45			8	54	7	48	102	190	645	188	739	1384
02:00			11	12	14:00			184	178			
02:15			10	11	14:15			169	183			
02:30			12	8	14:30			184	177			
02:45			12	45	6	37	82	226	763	185	723	1486
03:00			9	5	15:00			221	196			
03:15			15	10	15:15			184	224			
03:30			11	17	15:30			205	197			
03:45			16	51	11	43	94	224	834	190	807	1641
04:00			20	14	16:00			251	181			
04:15			18	24	16:15			284	202			
04:30			21	29	16:30			295	218			
04:45			22	81	41	108	189	262	1092	212	813	1905
05:00			50	54	17:00			318	206			
05:15			51	52	17:15			339	210			
05:30			65	93	17:30			362	228			
05:45			77	243	138	337	580	332	1351	191	835	2186
06:00			80	137	18:00			305	202			
06:15			103	114	18:15			262	185			
06:30			114	181	18:30			241	192			
06:45			108	405	210	642	1047	205	1013	191	770	1783
07:00			121	211	19:00			184	181			
07:15			168	211	19:15			166	168			
07:30			205	195	19:30			170	169			
07:45			184	678	222	839	1517	152	672	138	656	1328
08:00			151	257	20:00			144	153			
08:15			166	246	20:15			152	158			
08:30			135	210	20:30			135	133			
08:45			140	592	187	900	1492	141	572	155	599	1171
09:00			168	182	21:00			111	118			
09:15			177	145	21:15			115	114			
09:30			151	168	21:30			106	120			
09:45			141	637	136	631	1268	115	447	130	482	929
10:00			135	136	22:00			126	99			
10:15			148	122	22:15			108	81			
10:30			152	148	22:30			111	83			
10:45			162	597	152	558	1155	90	435	60	323	758
11:00			155	170	23:00			84	52			
11:15			148	140	23:15			66	47			
11:30			156	155	23:30			70	56			
11:45			177	636	200	665	1301	54	274	28	183	457

**Total Vol.** 4102 4897 **8999** 8768 7653 **16421**

Daily Totals				
NB	SB	EB	WB	Combined
		12870	12550	<b>25420</b>

Split %	AM			PM		
	45.6%	54.4%	<b>35.4%</b>	53.4%	46.6%	<b>64.6%</b>

<b>Peak Hour</b>	07:15	07:45	<b>07:30</b>	17:00	16:45	<b>17:00</b>
<b>Volume</b>	708	935	<b>1626</b>	1351	856	<b>2186</b>
<b>P.H.F.</b>	0.86	0.91	<b>0.99</b>	0.93	0.94	<b>0.93</b>

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

LINCOLN AVENUE: BTN ESCONDIDO BLVD & N. BROADWAY

SEGMENT: 12

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			2	2	12:00			19	34			
00:15			2	3	12:15			16	15			
00:30			3	2	12:30			10	15			
00:45			1	8	0	7	15	17	62	22	86	148
01:00			2	3	13:00			21	35			
01:15			1	0	13:15			18	10			
01:30			1	1	13:30			23	44			
01:45			4	8	3	7	15	40	102	30	119	221
02:00			0	1	14:00			31	15			
02:15			1	2	14:15			17	9			
02:30			0	1	14:30			14	17			
02:45			0	1	0	4	5	9	71	26	67	138
03:00			0	1	15:00			13	21			
03:15			0	2	15:15			14	25			
03:30			0	0	15:30			13	19			
03:45			0	0	0	3	3	16	56	18	83	139
04:00			0	0	16:00			12	21			
04:15			1	0	16:15			16	17			
04:30			1	2	16:30			19	22			
04:45			3	5	2	4	9	17	64	33	93	157
05:00			3	3	17:00			22	40			
05:15			2	3	17:15			17	26			
05:30			0	4	17:30			22	32			
05:45			8	13	10	20	33	28	89	25	123	212
06:00			6	25	18:00			26	30			
06:15			10	5	18:15			22	36			
06:30			10	18	18:30			23	29			
06:45			13	39	30	78	117	12	83	22	117	200
07:00			12	37	19:00			9	24			
07:15			8	23	19:15			12	17			
07:30			12	34	19:30			10	11			
07:45			21	53	66	160	213	12	43	20	72	115
08:00			23	70	20:00			8	22			
08:15			38	22	20:15			15	12			
08:30			12	9	20:30			13	23			
08:45			4	77	15	116	193	4	40	20	77	117
09:00			9	16	21:00			4	29			
09:15			9	12	21:15			4	23			
09:30			10	9	21:30			2	30			
09:45			10	38	9	46	84	3	13	21	103	116
10:00			8	10	22:00			2	15			
10:15			5	9	22:15			1	22			
10:30			9	10	22:30			2	15			
10:45			17	39	16	45	84	0	5	10	62	67
11:00			8	17	23:00			0	18			
11:15			11	24	23:15			0	6			
11:30			7	13	23:30			1	12			
11:45			10	36	17	71	107	0	1	11	47	48

**Total Vol.** 317 561 **878** 629 1049 **1678**

		Daily Totals		
NB	SB	EB	WB	Combined
		946	1610	<b>2556</b>

Split %	AM			PM		
	36.1%	63.9%	<b>34.4%</b>	37.5%	62.5%	<b>65.6%</b>

<b>Peak Hour</b>	07:30	07:15	<b>07:30</b>	13:15	16:45	<b>13:00</b>
<b>Volume</b>	94	193	<b>286</b>	112	131	<b>221</b>
<b>P.H.F.</b>	0.62	0.69	<b>0.77</b>	0.70	0.82	<b>0.79</b>

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

LINCOLN AVENUE: BTN NORTH BROADWAY & GARRICK WY

SEGMENT: 13

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			3	2	12:00			9	13			
00:15			0	2	12:15			20	13			
00:30			3	2	12:30			9	8			
00:45			2	8	0	6	14	15	53	14	48	101
01:00			0	3	13:00			14	11			
01:15			0	1	13:15			19	9			
01:30			5	3	13:30			19	14			
01:45			1	6	1	8	14	11	63	12	46	109
02:00			0	0	14:00			20	17			
02:15			1	0	14:15			24	20			
02:30			2	2	14:30			35	20			
02:45			3	6	3	5	11	21	100	18	75	175
03:00			0	1	15:00			24	20			
03:15			1	1	15:15			24	19			
03:30			0	1	15:30			26	23			
03:45			0	1	1	4	5	31	105	12	74	179
04:00			0	1	16:00			30	19			
04:15			1	4	16:15			23	19			
04:30			0	4	16:30			24	17			
04:45			0	1	7	16	17	27	104	25	80	184
05:00			0	8	17:00			38	24			
05:15			3	7	17:15			37	28			
05:30			1	20	17:30			31	23			
05:45			4	8	23	58	66	32	138	20	95	233
06:00			15	21	18:00			30	26			
06:15			13	41	18:15			28	17			
06:30			9	26	18:30			28	21			
06:45			10	47	21	109	156	26	112	35	99	211
07:00			15	22	19:00			34	25			
07:15			11	15	19:15			21	23			
07:30			18	18	19:30			20	15			
07:45			18	62	26	81	143	21	96	18	81	177
08:00			12	17	20:00			19	22			
08:15			9	22	20:15			17	34			
08:30			10	19	20:30			17	11			
08:45			11	42	10	68	110	6	59	8	75	134
09:00			10	7	21:00			18	10			
09:15			9	9	21:15			14	11			
09:30			12	10	21:30			14	5			
09:45			11	42	9	35	77	10	56	11	37	93
10:00			15	10	22:00			11	10			
10:15			15	9	22:15			6	12			
10:30			8	9	22:30			4	9			
10:45			7	45	11	39	84	3	24	4	35	59
11:00			6	17	23:00			5	1			
11:15			12	18	23:15			2	1			
11:30			20	6	23:30			5	1			
11:45			8	46	16	57	103	5	17	1	4	21

**Total Vol.** 314 486 **800** 927 749 **1676**

		Daily Totals			
NB	SB	EB	WB	Combined	
		1241	1235	<b>2476</b>	
		55.3%	44.7%	<b>67.7%</b>	

**Split %** AM 39.3% 60.8% **32.3%**

**Peak Hour** 07:00 05:45 **06:15** 17:00 18:30 **16:45**  
**Volume** 62 111 **157** 138 104 **233**  
**P.H.F.** 0.86 0.68 **0.73** 0.91 0.74 **0.90**

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

LINCOLN PARKWAY: BTN N. BRAODWAY & GARRICK WAY

SEGMENT: 14

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00			71	30	12:00			199	193
00:15			62	32	12:15			195	150
00:30			70	17	12:30			202	188
00:45		244	41	18	12:45	341		244	840
01:00			36	14	13:00			251	182
01:15			28	14	13:15			202	175
01:30			33	15	13:30			265	219
01:45		123	26	12	13:45	178		245	963
02:00			25	15	14:00			260	202
02:15			21	11	14:15			251	216
02:30			29	7	14:30			253	208
02:45		91	16	20	14:45	144		241	1005
03:00			23	16	15:00			275	215
03:15			13	22	15:15			314	235
03:30			15	14	15:30			275	236
03:45		60	9	30	15:45	82	142	323	1187
04:00			12	37	16:00			368	228
04:15			11	19	16:15			404	233
04:30			22	40	16:30			377	255
04:45		61	16	80	16:45	176	237	352	1501
05:00			14	92	17:00			418	277
05:15			25	98	17:15			366	284
05:30			39	163	17:30			372	262
05:45		144	66	302	17:45	655	799	350	1506
06:00			80	336	18:00			337	213
06:15			101	250	18:15			327	241
06:30			106	287	18:30			338	227
06:45		398	111	348	18:45	1221	1619	287	1289
07:00			161	315	19:00			253	205
07:15			184	328	19:15			267	152
07:30			215	312	19:30			258	170
07:45		762	202	284	19:45	1239	2001	246	1024
08:00			160	309	20:00			202	135
08:15			219	288	20:15			175	128
08:30			166	262	20:30			227	121
08:45		722	177	221	20:45	1080	1802	203	807
09:00			147	223	21:00			213	106
09:15			180	197	21:15			215	127
09:30			133	186	21:30			213	130
09:45		629	169	205	21:45	811	1440	215	856
10:00			168	184	22:00			170	112
10:15			135	186	22:15			187	85
10:30			166	196	22:30			171	79
10:45		626	157	212	22:45	778	1404	138	666
11:00			193	185	23:00			109	68
11:15			144	162	23:15			114	46
11:30			221	184	23:30			82	36
11:45		723	165	181	23:45	712	1435	87	392

**Total Vol.** 4583 6959 **11542** 12036 8352 **20388**

Split %	AM		Daily Totals		
	NB	SB	EB	WB	Combined
	39.7%	60.3%	16619	15311	<b>31930</b>
			59.0%	41.0%	<b>63.9%</b>

Peak Hour	07:30	06:45	<b>07:00</b>	16:15	17:00	<b>17:00</b>
Volume	796	1303	<b>2001</b>	1551	1055	<b>2561</b>
P.H.F.	0.91	0.94	<b>0.95</b>	0.93	0.93	<b>0.92</b>

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

LINCOLN PARKWAY: BTN GARRICK WY & FIG ST

SEGMENT: 15

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			35	14	12:00			225	157			
00:15			29	14	12:15			249	173			
00:30			30	14	12:30			221	182			
00:45			28	122	10	52	174	235	930	208	720	1650
01:00			26	15	13:00			240	166			
01:15			21	12	13:15			206	175			
01:30			33	12	13:30			241	180			
01:45			18	98	19	58	156	244	931	188	709	1640
02:00			21	15	14:00			259	219			
02:15			15	20	14:15			232	235			
02:30			15	13	14:30			259	184			
02:45			10	61	36	84	145	312	1062	200	838	1900
03:00			13	31	15:00			341	219			
03:15			14	19	15:15			355	230			
03:30			24	48	15:30			359	226			
03:45			16	67	86	184	251	361	1416	238	913	2329
04:00			17	94	16:00			366	235			
04:15			29	114	16:15			275	241			
04:30			48	172	16:30			284	240			
04:45			74	168	310	690	858	251	1176	206	922	2098
05:00			73	282	17:00			435	265			
05:15			111	249	17:15			352	288			
05:30			119	312	17:30			388	251			
05:45			98	401	345	1188	1589	326	1501	242	1046	2547
06:00			133	281	18:00			250	191			
06:15			141	285	18:15			275	177			
06:30			176	292	18:30			284	179			
06:45			204	654	300	1158	1812	238	1047	155	702	1749
07:00			150	319	19:00			211	145			
07:15			184	326	19:15			194	122			
07:30			219	305	19:30			216	136			
07:45			202	755	315	1265	2020	224	845	125	528	1373
08:00			162	300	20:00			233	107			
08:15			180	284	20:15			238	127			
08:30			162	241	20:30			227	133			
08:45			160	664	211	1036	1700	209	907	133	500	1407
09:00			181	173	21:00			180	110			
09:15			125	190	21:15			198	80			
09:30			151	175	21:30			182	77			
09:45			169	626	215	753	1379	133	693	69	336	1029
10:00			167	184	22:00			117	62			
10:15			150	149	22:15			116	51			
10:30			212	196	22:30			87	38			
10:45			154	683	173	702	1385	82	402	29	180	582
11:00			210	171	23:00			79	19			
11:15			195	142	23:15			63	26			
11:30			185	203	23:30			69	18			
11:45			205	795	170	686	1481	40	251	21	84	335

**Total Vol.** 5094 7856 **12950** 11161 7478 **18639**

Daily Totals				Combined
NB	SB	EB	WB	
		16255	15334	<b>31589</b>

Split %	AM			PM		
	39.3%	60.7%	<b>41.0%</b>	59.9%	40.1%	<b>59.0%</b>

<b>Peak Hour</b>	11:45	07:00	<b>07:00</b>	17:00	17:00	<b>17:00</b>
<b>Volume</b>	900	1265	<b>2020</b>	1501	1046	<b>2547</b>
<b>P.H.F.</b>	0.90	0.97	<b>0.96</b>	0.86	0.91	<b>0.91</b>

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

LINCOLN AVENUE: BTN FIG ST & ASH ST

SEGMENT: 16

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			60	20	12:00			174	125			
00:15			47	24	12:15			162	104			
00:30			48	15	12:30			161	135			
00:45			39	194	12:45			175	672	141	505	1177
01:00			26	14	13:00			184	152			
01:15			23	13	13:15			151	141			
01:30			23	10	13:30			188	218			
01:45			19	91	13:45			195	718	161	672	1390
02:00			18	15	14:00			205	141			
02:15			12	8	14:15			215	130			
02:30			25	13	14:30			197	146			
02:45			12	67	14:45			204	821	147	564	1385
03:00			19	15	15:00			209	152			
03:15			12	17	15:15			230	187			
03:30			14	11	15:30			196	183			
03:45			8	53	15:45			233	868	155	677	1545
04:00			14	27	16:00			266	180			
04:15			7	16	16:15			284	177			
04:30			19	37	16:30			289	195			
04:45			14	54	16:45			262	1101	192	744	1845
05:00			14	69	17:00			305	170			
05:15			23	98	17:15			302	202			
05:30			35	151	17:30			288	177			
05:45			53	125	17:45			260	1155	184	733	1888
06:00			63	213	18:00			260	176			
06:15			83	200	18:15			284	127			
06:30			89	244	18:30			246	188			
06:45			84	319	18:45			244	1034	167	658	1692
07:00			120	262	19:00			211	138			
07:15			135	240	19:15			213	136			
07:30			168	241	19:30			211	127			
07:45			151	574	19:45			208	843	118	519	1362
08:00			135	248	20:00			163	108			
08:15			168	205	20:15			136	106			
08:30			121	218	20:30			185	102			
08:45			133	557	20:45			182	666	87	403	1069
09:00			122	165	21:00			183	81			
09:15			141	143	21:15			168	117			
09:30			120	127	21:30			206	93			
09:45			123	506	21:45			160	717	100	391	1108
10:00			145	155	22:00			134	91			
10:15			80	135	22:15			137	72			
10:30			129	155	22:30			164	58			
10:45			125	479	22:45			107	542	55	276	818
11:00			135	121	23:00			92	52			
11:15			98	123	23:15			80	47			
11:30			179	138	23:30			65	27			
11:45			120	532	23:45			70	307	26	152	459

**Total Vol.** 3551 5410 **8961** 9444 6294 **15738**

		Daily Totals			
NB	SB	EB	WB	Combined	
		12995	11704	<b>24699</b>	

Split %	AM			PM		
	39.6%	60.4%	<b>36.3%</b>	60.0%	40.0%	<b>63.7%</b>

<b>Peak Hour</b>	11:30	06:30	<b>07:15</b>	16:30	16:30	<b>16:30</b>
<b>Volume</b>	635	1005	<b>1570</b>	1158	759	<b>1917</b>
<b>P.H.F.</b>	0.89	0.96	<b>0.96</b>	0.95	0.94	<b>0.95</b>

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

LINCOLN AVENUE: BTN ASH ST & HARDING ST

SEGMENT: 17

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB				
00:00			41	12	12:00			100	78				
00:15			33	17	12:15			105	58				
00:30			30	13	12:30			90	70				
00:45			33	137	13	55	192	12:45	88	383	66	272	655
01:00			16	8	13:00			115	80				
01:15			17	16	13:15			126	75				
01:30			20	9	13:30			162	91				
01:45			12	65	4	37	102	13:45	121	524	90	336	860
02:00			15	17	14:00			105	77				
02:15			12	7	14:15			144	84				
02:30			15	7	14:30			115	75				
02:45			10	52	8	39	91	14:45	154	518	78	314	832
03:00			7	6	15:00			107	94				
03:15			6	13	15:15			160	95				
03:30			7	4	15:30			134	86				
03:45			8	28	20	43	71	15:45	153	554	93	368	922
04:00			14	20	16:00			168	90				
04:15			3	10	16:15			177	115				
04:30			11	19	16:30			184	126				
04:45			4	32	46	95	127	16:45	189	718	118	449	1167
05:00			8	55	17:00			190	130				
05:15			12	60	17:15			177	105				
05:30			18	76	17:30			192	111				
05:45			33	71	161	352	423	17:45	152	711	90	436	1147
06:00			15	150	18:00			186	99				
06:15			43	133	18:15			158	86				
06:30			43	156	18:30			175	104				
06:45			77	178	161	600	778	18:45	158	677	105	394	1071
07:00			80	138	19:00			156	106				
07:15			81	141	19:15			160	84				
07:30			121	151	19:30			140	85				
07:45			135	417	132	562	979	19:45	140	596	78	353	949
08:00			131	121	20:00			107	65				
08:15			105	121	20:15			123	68				
08:30			77	105	20:30			107	54				
08:45			60	373	88	435	808	20:45	111	448	55	242	690
09:00			81	97	21:00			112	53				
09:15			69	78	21:15			115	67				
09:30			58	71	21:30			134	76				
09:45			67	275	94	340	615	21:45	106	467	77	273	740
10:00			84	82	22:00			95	56				
10:15			43	72	22:15			100	50				
10:30			62	80	22:30			114	46				
10:45			79	268	85	319	587	22:45	71	380	45	197	577
11:00			106	66	23:00			57	34				
11:15			58	75	23:15			52	22				
11:30			93	76	23:30			45	21				
11:45			98	355	78	295	650	23:45	38	192	12	89	281

**Total Vol.** 2251 3172 **5423** 6168 3723 **9891**

Split %	AM		Daily Totals		
	NB	SB	EB	WB	Combined
	41.5%	58.5%	8419	6895	15314
	35.4%		62.4%	37.6%	64.6%

Peak Hour	07:30	05:45	07:30	16:45	16:15	16:15
Volume	492	600	1017	748	489	1229
P.H.F.	0.91	0.93	0.93	0.97	0.94	0.96

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

LINCOLN AVENUE: BTN HARDING ST & ROSE ST

SEGMENT: 18

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			36	11	12:00			82	74			
00:15			30	12	12:15			77	44			
00:30			25	9	12:30			60	60			
00:45			29	120	9	41	161	80	299	51	229	528
01:00			12	10	13:00			88	66			
01:15			11	6	13:15			75	70			
01:30			20	7	13:30			105	80			
01:45			7	50	2	25	75	80	348	71	287	635
02:00			11	15	14:00			95	66			
02:15			11	6	14:15			103	68			
02:30			13	7	14:30			95	57			
02:45			9	44	8	36	80	111	404	71	262	666
03:00			7	6	15:00			100	79			
03:15			5	9	15:15			124	95			
03:30			5	5	15:30			109	74			
03:45			10	27	19	39	66	117	450	84	332	782
04:00			11	18	16:00			126	88			
04:15			3	7	16:15			129	90			
04:30			11	19	16:30			138	115			
04:45			4	29	36	80	109	123	516	98	391	907
05:00			6	43	17:00			158	119			
05:15			12	53	17:15			116	95			
05:30			15	81	17:30			135	106			
05:45			28	61	142	319	380	111	520	96	416	936
06:00			17	134	18:00			149	90			
06:15			39	111	18:15			125	70			
06:30			44	136	18:30			141	92			
06:45			46	146	127	508	654	130	545	95	347	892
07:00			70	111	19:00			136	84			
07:15			71	148	19:15			131	75			
07:30			88	126	19:30			114	77			
07:45			75	304	144	529	833	112	493	69	305	798
08:00			65	105	20:00			95	52			
08:15			66	111	20:15			105	51			
08:30			68	90	20:30			90	42			
08:45			51	250	68	374	624	83	373	46	191	564
09:00			70	67	21:00			100	50			
09:15			58	67	21:15			103	70			
09:30			42	69	21:30			111	62			
09:45			58	228	78	281	509	91	405	74	256	661
10:00			73	70	22:00			80	42			
10:15			41	56	22:15			78	47			
10:30			45	63	22:30			96	38			
10:45			70	229	69	258	487	58	312	42	169	481
11:00			65	52	23:00			50	28			
11:15			55	62	23:15			50	24			
11:30			82	67	23:30			37	19			
11:45			71	273	66	247	520	23	160	12	83	243

**Total Vol.** 1761 2737 **4498** 4825 3268 **8093**

		Daily Totals			
NB	SB	EB	WB	Combined	
		6586	6005	<b>12591</b>	

Split %	AM			PM		
	39.2%	60.8%	<b>35.7%</b>	59.6%	40.4%	<b>64.3%</b>

<b>Peak Hour</b>	11:30	07:00	<b>07:00</b>	16:15	16:30	<b>16:15</b>
<b>Volume</b>	312	529	<b>833</b>	548	427	<b>970</b>
<b>P.H.F.</b>	0.95	0.89	<b>0.95</b>	0.87	0.90	<b>0.88</b>



THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

LINCOLN AVENUE: BTN ROSE ST & MIDWAY DR

SEGMENT: 19

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			24	11	12:00			61	51			
00:15			22	11	12:15			60	32			
00:30			19	9	12:30			48	54			
00:45			20	85	8	39	124	50	219	33	170	389
01:00			13	8	13:00			52	38			
01:15			9	5	13:15			50	49			
01:30			16	3	13:30			75	49			
01:45			4	42	3	19	61	103	280	46	182	462
02:00			9	9	14:00			57	63			
02:15			9	6	14:15			73	45			
02:30			8	5	14:30			68	32			
02:45			5	31	6	26	57	94	292	48	188	480
03:00			6	5	15:00			76	60			
03:15			1	7	15:15			104	63			
03:30			7	7	15:30			88	46			
03:45			7	21	10	29	50	93	361	65	234	595
04:00			10	13	16:00			99	60			
04:15			4	4	16:15			102	43			
04:30			8	11	16:30			121	72			
04:45			3	25	20	48	73	93	415	93	268	683
05:00			6	28	17:00			113	65			
05:15			8	42	17:15			124	85			
05:30			16	61	17:30			104	69			
05:45			28	58	104	235	293	114	455	71	290	745
06:00			11	103	18:00			114	67			
06:15			32	83	18:15			97	54			
06:30			33	99	18:30			98	71			
06:45			39	115	88	373	488	115	424	74	266	690
07:00			37	78	19:00			105	66			
07:15			43	89	19:15			97	78			
07:30			50	92	19:30			90	53			
07:45			61	191	96	355	546	93	385	51	248	633
08:00			87	93	20:00			81	41			
08:15			69	85	20:15			83	41			
08:30			50	79	20:30			73	38			
08:45			56	262	60	317	579	78	315	37	157	472
09:00			43	55	21:00			81	39			
09:15			43	46	21:15			73	65			
09:30			38	45	21:30			84	78			
09:45			43	167	46	192	359	80	318	53	235	553
10:00			45	50	22:00			60	31			
10:15			35	45	22:15			71	37			
10:30			37	30	22:30			76	27			
10:45			54	171	44	169	340	42	249	27	122	371
11:00			51	34	23:00			42	21			
11:15			37	33	23:15			29	14			
11:30			54	49	23:30			31	15			
11:45			44	186	40	156	342	20	122	11	61	183

**Total Vol.** 1354 1958 **3312** 3835 2421 **6256**

		Daily Totals			
NB	SB	EB	WB	Combined	
		5189	4379	<b>9568</b>	
Split %		AM	PM		
		40.9%	59.1%	<b>34.6%</b>	
			61.3%	38.7%	<b>65.4%</b>

Peak Hour	AM	PM
	07:30 05:45 <b>07:30</b>	17:15 16:30 <b>16:30</b>
<b>Volume</b>	267 389 <b>633</b>	456 315 <b>766</b>
<b>P.H.F.</b>	0.77 0.94 <b>0.88</b>	0.92 0.85 <b>0.92</b>

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

MISSION AVENUE: BTN QUINCE ST & CENTRE CITY PKY

SEGMENT: 20

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			16	8	12:00			214	200			
00:15			10	10	12:15			152	199			
00:30			5	10	12:30			169	186			
00:45			9	40	8	36	76	163	698	207	792	1490
01:00			5	9	13:00			164	205			
01:15			6	8	13:15			135	197			
01:30			3	5	13:30			176	210			
01:45			5	19	3	25	44	182	657	181	793	1450
02:00			5	10	14:00			177	188			
02:15			3	6	14:15			187	178			
02:30			5	12	14:30			181	171			
02:45			2	15	8	36	51	196	741	161	698	1439
03:00			9	6	15:00			186	176			
03:15			4	7	15:15			194	188			
03:30			6	4	15:30			237	175			
03:45			8	27	8	25	52	228	845	184	723	1568
04:00			3	11	16:00			258	188			
04:15			9	10	16:15			242	195			
04:30			7	14	16:30			216	177			
04:45			8	27	19	54	81	298	1014	208	768	1782
05:00			14	20	17:00			268	168			
05:15			13	46	17:15			244	177			
05:30			18	67	17:30			269	167			
05:45			23	68	109	242	310	223	1004	131	643	1647
06:00			39	115	18:00			215	133			
06:15			50	196	18:15			153	128			
06:30			38	249	18:30			150	127			
06:45			69	196	255	815	1011	119	637	117	505	1142
07:00			66	209	19:00			98	102			
07:15			74	226	19:15			87	90			
07:30			87	220	19:30			96	97			
07:45			113	340	244	899	1239	86	367	76	365	732
08:00			139	216	20:00			73	73			
08:15			129	199	20:15			82	82			
08:30			122	178	20:30			67	68			
08:45			123	513	178	771	1284	66	288	72	295	583
09:00			112	187	21:00			50	74			
09:15			108	167	21:15			48	58			
09:30			135	153	21:30			61	40			
09:45			136	491	140	647	1138	42	201	41	213	414
10:00			113	154	22:00			59	34			
10:15			153	155	22:15			49	23			
10:30			135	156	22:30			32	21			
10:45			163	564	182	647	1211	27	167	17	95	262
11:00			158	167	23:00			24	18			
11:15			157	172	23:15			16	11			
11:30			167	199	23:30			17	14			
11:45			173	655	189	727	1382	16	73	8	51	124

**Total Vol.** 2955 4924 **7879** 6692 5941 **12633**

		Daily Totals			
NB	SB	EB	WB	Combined	
		9647	10865	<b>20512</b>	
Split %		AM		PM	
		37.5%	62.5%	53.0%	47.0%
		<b>38.4%</b>		<b>61.6%</b>	

**Peak Hour** 11:15 06:30 **11:30** 16:45 12:45 **16:45**  
**Volume** 711 939 **1493** 1079 819 **1799**  
**P.H.F.** 0.83 0.92 **0.90** 0.91 0.98 **0.89**

WEDNESDAY, DECEMBER 11, 2013

CITY: ESCONDIDO

PROJECT: PTD13-1213-02

MISSION AVENUE: BTN CENTRE CITY PKY & ESCONDIDO BLVD

SEGMENT: 21

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB				
00:00			12	12	12:00			195	188				
00:15			11	9	12:15			162	179				
00:30			9	10	12:30			166	195				
00:45			5	37	7	38	75	12:45	175	698	188	750	1448
01:00			7	9	13:00			184	195				
01:15			5	5	13:15			141	177				
01:30			4	4	13:30			166	184				
01:45			6	22	5	23	45	13:45	152	643	195	751	1394
02:00			3	8	14:00			184	167				
02:15			5	7	14:15			174	182				
02:30			4	9	14:30			162	175				
02:45			2	14	5	29	43	14:45	184	704	177	701	1405
03:00			1	7	15:00			188	165				
03:15			4	5	15:15			174	179				
03:30			6	4	15:30			202	174				
03:45			9	20	6	22	42	15:45	195	759	165	683	1442
04:00			5	8	16:00			218	177				
04:15			4	12	16:15			222	168				
04:30			5	14	16:30			215	188				
04:45			10	24	21	55	79	16:45	235	890	213	746	1636
05:00			11	16	17:00			206	192				
05:15			18	35	17:15			223	184				
05:30			20	51	17:30			189	177				
05:45			21	70	88	190	260	17:45	195	813	151	704	1517
06:00			44	97	18:00			195	121				
06:15			51	152	18:15			168	135				
06:30			44	195	18:30			152	116				
06:45			61	200	212	656	856	18:45	122	637	108	480	1117
07:00			88	205	19:00			106	108				
07:15			95	218	19:15			84	90				
07:30			103	226	19:30			80	77				
07:45			121	407	235	884	1291	19:45	70	340	84	359	699
08:00			135	185	20:00			65	85				
08:15			115	177	20:15			66	65				
08:30			103	195	20:30			75	58				
08:45			118	471	182	739	1210	20:45	54	260	51	259	519
09:00			108	188	21:00			40	40				
09:15			111	175	21:15			35	35				
09:30			121	151	21:30			44	44				
09:45			114	454	142	656	1110	21:45	51	170	41	160	330
10:00			135	135	22:00			40	35				
10:15			141	152	22:15			52	28				
10:30			126	129	22:30			35	22				
10:45			151	553	177	593	1146	22:45	33	160	16	101	261
11:00			144	162	23:00			28	20				
11:15			152	155	23:15			18	15				
11:30			148	168	23:30			20	11				
11:45			162	606	175	660	1266	23:45	21	87	9	55	142

**Total Vol.** 2878 4545 **7423** 6161 5749 **11910**

		Daily Totals		
NB	SB	EB	WB	Combined
		9039	10294	<b>19333</b>
Split %		AM		
		51.7%	48.3%	<b>61.6%</b>

**Split %** 38.8% 61.2% **38.4%**

**Peak Hour** 11:45 07:00 **11:45** 16:00 16:30 **16:30**  
**Volume** 685 884 **1422** 890 777 **1656**  
**P.H.F.** 0.88 0.94 **0.93** 0.95 0.91 **0.92**

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

SR-78: BTN I-15 FWY & CENTRE CITY PKWY

SEGMENT: 22

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			108	80	12:00			360	305			
00:15			115	111	12:15			351	362			
00:30			90	92	12:30			368	377			
00:45			88	401	90	373	774	419	1498	351	1395	2893
01:00			91	106	13:00			429	342			
01:15			77	84	13:15			384	348			
01:30			54	70	13:30			426	344			
01:45			50	272	55	315	587	442	1681	375	1409	3090
02:00			40	42	14:00			405	380			
02:15			44	52	14:15			423	352			
02:30			35	50	14:30			451	395			
02:45			38	157	46	190	347	441	1720	388	1515	3235
03:00			31	35	15:00			468	375			
03:15			33	46	15:15			495	411			
03:30			40	41	15:30			552	426			
03:45			51	155	30	152	307	505	2020	462	1674	3694
04:00			42	44	16:00			562	484			
04:15			56	51	16:15			628	405			
04:30			66	50	16:30			592	477			
04:45			60	224	68	213	437	584	2366	418	1784	4150
05:00			70	72	17:00			666	511			
05:15			77	111	17:15			635	505			
05:30			99	120	17:30			606	475			
05:45			121	367	135	438	805	569	2476	425	1916	4392
06:00			135	151	18:00			552	435			
06:15			141	226	18:15			508	418			
06:30			195	242	18:30			542	360			
06:45			235	706	375	994	1700	418	2020	384	1597	3617
07:00			320	395	19:00			395	325			
07:15			415	462	19:15			388	368			
07:30			368	442	19:30			375	342			
07:45			418	1521	418	1717	3238	336	1494	329	1364	2858
08:00			362	421	20:00			342	333			
08:15			336	435	20:15			305	303			
08:30			342	384	20:30			318	268			
08:45			377	1417	362	1602	3019	352	1317	235	1139	2456
09:00			384	375	21:00			370	221			
09:15			362	384	21:15			308	207			
09:30			419	351	21:30			229	180			
09:45			387	1552	336	1446	2998	235	1142	195	803	1945
10:00			362	352	22:00			215	184			
10:15			384	375	22:15			226	177			
10:30			362	362	22:30			202	175			
10:45			377	1485	336	1425	2910	184	827	135	671	1498
11:00			352	328	23:00			155	115			
11:15			384	341	23:15			142	126			
11:30			362	375	23:30			116	128			
11:45			355	1453	359	1403	2856	121	534	114	483	1017

**Total Vol.** 9710 10268 **19978** 19095 15750 **34845**

Daily Totals				
NB	SB	EB	WB	Combined
		28805	26018	<b>54823</b>

Split %	AM			PM		
	48.6%	51.4%	<b>36.4%</b>	54.8%	45.2%	<b>63.6%</b>

<b>Peak Hour</b>	07:15	07:15	<b>07:15</b>	16:45	17:00	<b>16:45</b>
<b>Volume</b>	1563	1743	<b>3306</b>	2491	1916	<b>4400</b>
<b>P.H.F.</b>	0.93	0.94	<b>0.94</b>	0.94	0.94	<b>0.93</b>

THURSDAY JUNE 6TH, 2013

CITY: ESCONDIDO

PROJECT: PTD13-0607-01

SR-78: BTN CENTRE CITY PKWY & N BROADWAY

SEGMENT: 23

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB				
00:00			111	97	12:00			345	316				
00:15			103	101	12:15			370	342				
00:30			95	95	12:30			351	362				
00:45			80	389	88	381	770	12:45	432	1498	318	1338	2836
01:00			77	105	13:00			418	351				
01:15			60	77	13:15			362	336				
01:30			44	68	13:30			419	321				
01:45			51	232	51	301	533	13:45	406	1605	352	1360	2965
02:00			55	44	14:00			421	377				
02:15			54	42	14:15			432	352				
02:30			40	40	14:30			462	368				
02:45			33	182	33	159	341	14:45	435	1750	384	1481	3231
03:00			35	32	15:00			467	360				
03:15			28	41	15:15			484	377				
03:30			41	44	15:30			519	418				
03:45			44	148	35	152	300	15:45	478	1948	444	1599	3547
04:00			35	40	16:00			519	449				
04:15			44	55	16:15			618	426				
04:30			54	54	16:30			606	468				
04:45			60	193	70	219	412	16:45	548	2291	362	1705	3996
05:00			66	88	17:00			629	484				
05:15			84	98	17:15			613	463				
05:30			90	115	17:30			552	488				
05:45			105	345	121	422	767	17:45	584	2378	408	1843	4221
06:00			111	165	18:00			510	419				
06:15			151	202	18:15			462	404				
06:30			184	262	18:30			441	368				
06:45			229	675	368	997	1672	18:45	403	1816	377	1568	3384
07:00			315	419	19:00			362	351				
07:15			395	441	19:15			370	342				
07:30			352	435	19:30			351	331				
07:45			426	1488	408	1703	3191	19:45	303	1386	362	1386	2772
08:00			318	426	20:00			318	303				
08:15			321	418	20:15			322	268				
08:30			362	368	20:30			303	282				
08:45			366	1367	377	1589	2956	20:45	365	1308	226	1079	2387
09:00			377	365	21:00			377	241				
09:15			354	351	21:15			254	221				
09:30			395	344	21:30			240	202				
09:45			362	1488	326	1386	2874	21:45	221	1092	184	848	1940
10:00			375	341	22:00			202	195				
10:15			370	362	22:15			184	161				
10:30			358	344	22:30			195	151				
10:45			384	1487	312	1359	2846	22:45	165	746	141	648	1394
11:00			352	352	23:00			141	135				
11:15			377	348	23:15			151	152				
11:30			344	368	23:30			132	114				
11:45			368	1441	352	1420	2861	23:45	117	541	103	504	1045

**Total Vol.** 9435 10088 **19523** 18359 15359 **33718**

Split %	AM		PM		Combined
	NB	SB	EB	WB	
	48.3%	51.7%	54.4%	45.6%	63.3%

Peak Hour	NB	SB	EB	WB	Combined
	09:30	07:15	07:15	16:15	17:00
Volume	1502	1710	3201	2401	1843
P.H.F.	0.95	0.97	0.96	0.95	0.94

## Pedestrian Counts

# INTERSECTION TURNING MOVEMENT COUNTS

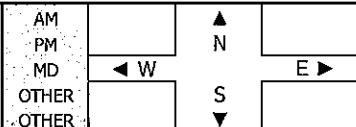
PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
6/6/13  
THURSDAY

**LOCATION:** ESCONDIDO  
**STREET:** ESCONDIDO BOULEVARD  
**CROSS STREETS:** LINCOLN AVENUE

**PROJECT #:** PTD13-0607-01  
**LOCATION #:** 1  
**CONTROL:** 2-WAY STOP (EW)

NOTES: 7-9 AM; 4-6 PM;



<b>WEEKDAY AM</b>	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
<b>MIDDAY</b>	12:30 PM
	12:45 PM
	1:00 PM
	1:15 PM
	1:30 PM
	1:45 PM
	2:00 PM
	2:15 PM
<b>WEEKDAY PM</b>	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
<b>TOTAL</b>	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	4	0	4
0	0	2	0	2
1	3	7	0	11
0	1	2	0	3
0	0	2	0	2
0	0	6	2	8
1	0	3	1	5
0	0	2	3	5
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	1	3
0	0	3	0	3
0	0	0	0	0
1	0	0	0	1
0	0	3	0	3
1	0	2	0	3
0	0	0	0	0
0	0	0	1	1
<b>6</b>	<b>4</b>	<b>36</b>	<b>8</b>	<b>54</b>

PEDESTRIAN CROSSINGS				
NB	SB	EB	WB	TOTAL
		4		4
		2		2
1	3	7		11
	1	2		3
		2		2
		6	2	8
1		3	1	5
		2	3	5
2			1	3
		3		3
				0
1				1
		3		3
1		2		3
				0
			1	1
<b>6</b>	<b>4</b>	<b>36</b>	<b>8</b>	<b>54</b>

### INTERSECTION TURNING MOVEMENT COUNTS

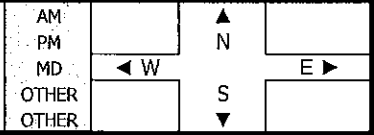
PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
12/11/13  
WEDNESDAY

**LOCATION:** ESCONDIDO  
**STREET:** ESCONDIDO BOULEVARD  
**CROSS STREET:** LINCOLN AVENUE

**PROJECT #:** PTD13-1213-02  
**LOCATION #:** 1  
**CONTROL:** 2-WAY STOP (EW)

NOTES: 2-4 PM ONLY



	TIME
<b>WEEKDAY AM</b>	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
<b>MIDDAY</b>	2:00 PM
	2:15 PM
	2:30 PM
	2:45 PM
	3:00 PM
	3:15 PM
	3:30 PM
	3:45 PM
<b>WEEKDAY PM</b>	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
<b>TOTAL</b>	

<b>PEDESTRIAN + BIKE CROSSINGS</b>				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	5	4	7	18
3	1	1	10	15
5	1	4	6	16
0	9	7	1	17
0	0	1	5	6
3	4	10	1	18
2	2	3	1	8
0	2	4	1	7
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
15	24	34	32	105

<b>PEDESTRIAN CROSSINGS</b>				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
2	5	4	7	18
3	1	1	10	15
5	1	4	6	16
	9	7	1	17
		1	5	6
3	4	10	1	18
2	2	3	1	8
	2	4	1	7
				0
				0
				0
				0
				0
				0
				0
				0
15	24	34	32	105



## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

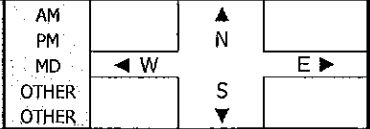
**DATE:**  
6/6/13  
THURSDAY

**LOCATION:** ESCONDIDO  
**STREET:** LINCOLN AVENUE  
**CROSS STREETS:** BETWEEN N. BROADWAY & ESCONDIDO BOULEVARD

**PROJECT #:** PTD13-0607-01  
**LOCATION #:** BLOCK PEDS

NOTES: 7-9 AM; 12:30-2:30 PM; 4-6 PM

NB = WALKING TOWARDS SCHOOL  
SB = WALKING AWAY FROM SCHOOL



<b>WEEKDAY AM</b>	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
8:45 AM	
<b>MIDDAY</b>	12:30 PM
	12:45 PM
	1:00 PM
	1:15 PM
	1:30 PM
	1:45 PM
	2:00 PM
2:15 PM	
<b>WEEKDAY PM</b>	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
5:45 PM	
<b>TOTAL</b>	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
6	0	0	0	6
22	7	0	0	29
0	3	0	0	3
0	1	0	0	1
0	0	0	0	0
3	0	0	0	3
1	1	0	0	2
0	2	0	0	2
14	2	0	0	16
4	21	0	0	25
1	14	0	0	15
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
2	0	0	0	2
0	0	0	0	0
1	0	0	0	1
<b>56</b>	<b>53</b>	<b>0</b>	<b>0</b>	<b>109</b>

PEDESTRIAN CROSSINGS				
NB	SB	EB	WB	TOTAL
1				1
				0
				0
6				6
22	7			29
	3			3
	1			1
				0
3				3
1	1			2
	2			2
14	2			16
4	21			25
1	14			15
				0
				0
	1			1
				0
1				1
	1			1
2				2
				0
1				1
<b>56</b>	<b>53</b>	<b>0</b>	<b>0</b>	<b>109</b>

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 12/11/13 WEDNESDAY
--------------------------------

LOCATION: ESCONDIDO  
 STREET NORTH BROADWAY  
 CROSS STREET SHERIDAN AVENUE

PROJECT #: PTD13-1213-02  
 LOCATION #: 3  
 CONTROL: SIGNAL

NOTES: 7-9 AM; 2-4 PM; 4-6 PM	AM PM MD OTHER OTHER	 N W  E  S	
-------------------------------	----------------------------------	------------------------	--

WEEKDAY AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
MIDDAY	2:00 PM
	2:15 PM
	2:30 PM
	2:45 PM
	3:00 PM
	3:15 PM
	3:30 PM
	3:45 PM
WEEKDAY PM	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
TOTAL	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
88	25	32	76	221
203	70	2	196	471
63	8	15	53	139
1	2	4	2	9
1	1	0	5	7
9	3	2	14	28
0	6	1	1	8
0	0	2	1	3
1	0	2	3	6
145	78	55	209	487
95	72	31	184	382
7	11	9	68	95
4	9	20	33	66
0	2	13	28	43
4	2	3	24	33
2	2	3	21	28
4	3	2	6	15
5	2	5	14	26
0	6	5	19	30
4	6	0	18	28
0	1	3	11	15
1	0	0	4	5
0	0	0	9	9
2	0	0	8	10
639	309	209	1,007	2,164

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
88	25	32	76	221
203	70	2	196	471
63	8	15	53	139
1	2	4	2	9
1	1		5	7
9	3	2	14	28
	6	1	1	8
		2	1	3
1		2	3	6
145	78	55	209	487
95	72	31	184	382
7	11	9	68	95
4	9	20	33	66
0	2	13	28	43
4	2	3	24	33
2	2	3	21	28
4	3	2	6	15
5	2	5	14	26
0	6	5	19	30
4	6		18	28
	1	3	11	15
1			4	5
			9	9
2			8	10
639	309	209	1,007	2,164

## INTERSECTION TURNING MOVEMENT COUNTS

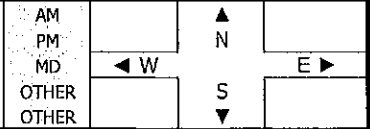
PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
12/11/13  
WEDNESDAY

**LOCATION:** ESCONDIDO  
**STREET:** NORTH BROADWAY  
**CROSS STREET:** EL NORTE PARKWAY

**PROJECT #:** PTD13-1213-02  
**LOCATION #:** 4  
**CONTROL:** SIGNAL

NOTES: 7-9 AM; 2-4 PM; 4-6PM



<b>WEEKDAY AM</b>	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
<b>MIDDAY</b>	2:00 PM
	2:15 PM
	2:30 PM
	2:45 PM
	3:00 PM
	3:15 PM
<b>WEEKDAY PM</b>	3:30 PM
	3:45 PM
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
5:15 PM	
5:30 PM	
5:45 PM	
<b>TOTAL</b>	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7	10	37	66	120
16	22	29	69	136
2	8	6	13	29
1	4	3	9	17
0	2	2	5	9
2	1	2	5	10
1	1	1	4	7
5	1	2	9	17
3	1	2	5	11
15	4	29	55	103
46	5	98	133	282
14	10	7	49	80
10	7	4	37	58
32	6	17	45	100
6	1	5	20	32
8	4	6	17	35
2	5	7	10	24
2	9	5	17	33
7	4	6	23	40
10	8	6	16	40
5	4	2	11	22
4	2	3	10	19
3	0	3	5	11
5	3	2	10	20
<b>206</b>	<b>122</b>	<b>284</b>	<b>643</b>	<b>1,255</b>

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7	10	37	66	120
16	22	29	69	136
2	8	6	13	29
1	4	3	9	17
	2	2	5	9
2	1	2	5	10
1	1	1	4	7
5	1	2	9	17
3	1	2	5	11
15	4	29	55	103
46	5	98	133	282
14	10	7	49	80
10	7	4	37	58
32	6	17	45	100
6	1	5	20	32
8	4	6	17	35
2	5	7	10	24
2	9	5	17	33
7	4	6	23	40
10	8	6	16	40
5	4	2	11	22
4	2	3	10	19
3	0	3	5	11
5	3	2	10	20
<b>206</b>	<b>122</b>	<b>284</b>	<b>643</b>	<b>1,255</b>

# INTERSECTION TURNING MOVEMENT COUNTS

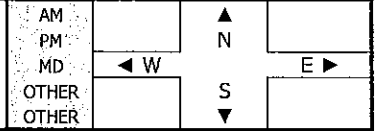
PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
6/6/13  
THURSDAY

**LOCATION:** ESCONDIDO  
**STREET:** NORTH BROADWAY  
**CROSS STREETS:** LINCOLN AVENUE

**PROJECT #:** PTD13-0607-01  
**LOCATION #:** 5  
**CONTROL:** 2-WAY STOP (EW)

NOTES: 7-9 AM; 4-6 PM;



<b>WEEKDAY AM</b>	7:00 AM	
	7:15 AM	
	7:30 AM	
	7:45 AM	
	8:00 AM	
	8:15 AM	
	8:30 AM	
	8:45 AM	
<b>MIDDAY</b>	12:30 PM	
	12:45 PM	
	1:00 PM	
	1:15 PM	
	1:30 PM	
	1:45 PM	
	2:00 PM	
	2:15 PM	
<b>WEEKDAY PM</b>	4:00 PM	
	4:15 PM	
	4:30 PM	
	4:45 PM	
	5:00 PM	
	5:15 PM	
	5:30 PM	
	5:45 PM	
<b>TOTAL</b>		

<b>PEDESTRIAN + BIKE CROSSINGS</b>				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
1	0	0	0	1
4	0	2	0	6
35	0	21	0	56
68	0	58	2	128
103	0	98	8	209
19	0	13	0	32
0	0	2	29	31
2	1	0	1	4
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
<b>270</b>	<b>1</b>	<b>220</b>	<b>42</b>	<b>533</b>

<b>PEDESTRIAN CROSSINGS</b>				
NB	SB	EB	WB	TOTAL
1				1
4		2		6
35		21		56
68		58	2	128
103		98	8	209
19		13		32
		2	29	31
2	1		1	4
<b>270</b>	<b>1</b>	<b>220</b>	<b>42</b>	<b>533</b>

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
12/11/13  
WEDNESDAY

**LOCATION:** ESCONDIDO  
**STREET:** NORTH BROADWAY  
**CROSS STREET:** LINCOLN AVENUE

**PROJECT #:** PTD13-1213-02  
**LOCATION #:** 5  
**CONTROL:** 2-WAY STOP (EW)

NOTES: 2-4 PM ONLY

AM		▲	
PM		N	
MD	◀ W		E ▶
OTHER		S	
OTHER		▼	

<b>WEEKDAY AM</b>	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
<b>MIDDAY</b>	2:00 PM
	2:15 PM
	2:30 PM
	2:45 PM
	3:00 PM
	3:15 PM
	3:30 PM
3:45 PM	
<b>WEEKDAY PM</b>	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
<b>TOTAL</b>	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
8	1	11	1	21
54	2	36	3	95
168	2	135	5	310
61	0	50	4	115
10	0	18	2	30
13	0	8	0	21
7	0	12	2	21
9	0	13	4	26
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
330	5	283	21	639

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
				0
8	1	11	1	21
54	2	36	3	95
168	2	135	5	310
61		50	4	115
10		18	2	30
13		8		21
7		12	2	21
9		13	4	26
				0
				0
				0
				0
				0
				0
				0
				0
				0
330	5	283	21	639

### INTERSECTION TURNING MOVEMENT COUNTS

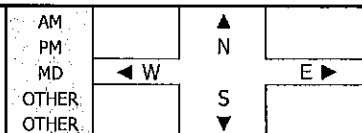
PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
6/6/13  
**THURSDAY**

**LOCATION:** ESCONDIDO  
**STREET:** NORTH BROADWAY  
**CROSS STREETS:** SR-78/LINCOLN PARKWAY

**PROJECT #:** PTD13-0607-01  
**LOCATION #:** 6  
**CONTROL:** SIGNAL

NOTES: 7-9 AM; 4-6 PM;



	7:00 AM
<b>WEEKDAY AM</b>	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
<b>MIDDAY</b>	12:30 PM
	12:45 PM
	1:00 PM
	1:15 PM
	1:30 PM
	1:45 PM
	2:00 PM
2:15 PM	
<b>WEEKDAY PM</b>	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
<b>TOTAL</b>	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	4	0	4
0	0	20	0	20
1	0	29	0	30
7	1	46	0	54
2	0	38	0	40
22	0	41	0	63
1	1	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	2	1	4
0	0	4	0	4
1	1	6	0	8
0	0	0	2	2
0	2	2	1	5
1	0	3	0	4
0	1	1	0	2
<b>35</b>	<b>7</b>	<b>196</b>	<b>4</b>	<b>242</b>

PEDESTRIAN CROSSINGS				
NB	SB	EB	WB	TOTAL
				0
		4		4
		20		20
1		29		30
7	1	46		54
2		38		40
22		41		63
1	1			2
	1	2	1	4
		4		4
1	1	6		8
			2	2
	2	2	1	5
1		3		4
	1	1		2
<b>35</b>	<b>7</b>	<b>196</b>	<b>4</b>	<b>242</b>

# INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
12/11/13  
WEDNESDAY

**LOCATION:** ESCONDIDO  
**STREET:** NORTH BROADWAY  
**CROSS STREET:** SR-78/LINCOLN PARKWAY

**PROJECT #:** PTD13-1213-02  
**LOCATION #:** 6  
**CONTROL:** SIGNAL

NOTES: 2-4 PM ONLY	AM	PM	MD	OTHER	OTHER
			← W	▲ N	E ►
				▼ S	

WEEKDAY AM	7:00 AM	
	7:15 AM	
	7:30 AM	
	7:45 AM	
	8:00 AM	
	8:15 AM	
	8:30 AM	
	8:45 AM	
MIDDAY	2:00 PM	
	2:15 PM	
	2:30 PM	
	2:45 PM	
	3:00 PM	
	3:15 PM	
	3:30 PM	
	3:45 PM	
WEEKDAY PM	4:00 PM	
	4:15 PM	
	4:30 PM	
	4:45 PM	
	5:00 PM	
	5:15 PM	
	5:30 PM	
	5:45 PM	
		<b>TOTAL</b>

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	14	1	16
0	0	43	2	45
0	2	117	1	120
0	2	93	2	97
0	1	11	0	12
0	1	23	0	24
0	1	19	0	20
0	0	6	0	6
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	7	326	6	340

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
1		14	1	16
		43	2	45
	2	117	1	120
	2	93	2	97
	1	11		12
	1	23		24
	1	19		20
		6		6
				0
				0
				0
				0
				0
				0
				0
				0
1	7	326	6	340

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

**DATE:**  
12/11/13  
WEDNESDAY

**LOCATION:** ESCONDIDO  
**STREET:** GARRICK WAY  
**CROSS STREET:** LINCOLN PARKWAY

**PROJECT #:** PTD13-1213-02  
**LOCATION #:** 7  
**CONTROL:** SIGNAL

NOTES: 7-9 AM; 2-4 PM; 4-6 PM	AM PM MD OTHER OTHER	▲ N ◀ W S ▼	E ▶
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<b>WEEKDAY AM</b>	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
<b>MIDDAY</b>	2:00 PM
	2:15 PM
	2:30 PM
	2:45 PM
	3:00 PM
	3:15 PM
	3:30 PM
	3:45 PM
<b>WEEKDAY PM</b>	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
<b>TOTAL</b>	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	2	2
0	0	0	0	0
0	1	0	3	4
0	0	0	0	0
1	2	0	1	4
0	0	0	0	0
0	0	0	0	0
0	1	0	1	2
0	0	0	0	0
0	0	0	1	1
0	10	0	11	21
0	7	0	7	14
0	0	0	0	0
0	3	0	3	6
0	1	0	0	1
0	2	0	2	4
0	0	0	0	0
0	2	0	2	4
0	3	0	4	7
0	3	0	3	6
0	0	0	0	0
0	1	0	0	1
0	3	0	3	6
<b>1</b>	<b>39</b>	<b>0</b>	<b>43</b>	<b>83</b>

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
			2	2
				0
	1		3	4
				0
1	2		1	4
				0
				0
	1		1	2
				0
			1	1
	10		11	21
	7		7	14
				0
	3		3	6
	1			1
	2		2	4
				0
			2	2
	2		2	4
	3		4	7
	3		3	6
				0
	1			1
	3		3	6
<b>1</b>	<b>39</b>	<b>0</b>	<b>43</b>	<b>83</b>



## INTERSECTION TURNING MOVEMENT COUNTS

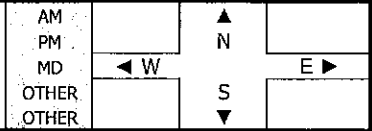
PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY
---------------------------------------

**LOCATION:** ESCONDIDO  
**STREET:** FIG STREET  
**CROSS STREET:** LINCOLN AVENUE

**PROJECT #:** PTD13-1213-02  
**LOCATION #:** 8  
**CONTROL:** SIGNAL

NOTES: 7-9 AM; 2-4 PM; 4-6 PM



<b>WEEKDAY AM</b>	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
<b>MIDDAY</b>	2:00 PM
	2:15 PM
	2:30 PM
	2:45 PM
	3:00 PM
	3:15 PM
	3:30 PM
	3:45 PM
<b>WEEKDAY PM</b>	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
<b>TOTAL</b>	

<b>PEDESTRIAN + BIKE CROSSINGS</b>				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
2	2	4	14	22
5	10	13	33	61
33	26	21	93	173
11	34	20	69	134
19	35	27	42	123
4	0	12	4	20
2	1	1	0	4
0	2	4	0	6
8	19	11	62	100
11	38	30	68	147
32	42	83	84	241
0	2	13	15	30
0	9	5	3	17
1	3	5	4	13
0	1	14	24	39
0	2	4	1	7
2	1	6	5	14
0	0	0	0	0
1	0	1	2	4
1	1	0	3	5
0	0	0	0	0
1	2	5	0	8
0	2	3	7	12
0	7	0	4	11
<b>133</b>	<b>239</b>	<b>282</b>	<b>537</b>	<b>1,191</b>

<b>PEDESTRIAN CROSSINGS</b>				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
2	2	4	14	22
5	10	13	33	61
33	26	21	93	173
11	34	20	69	134
19	35	27	42	123
4	0	12	4	20
2	1	1	0	4
0	2	4	0	6
8	19	11	62	100
11	38	30	68	147
32	42	83	84	241
0	2	13	15	30
0	9	5	3	17
1	3	5	4	13
0	1	14	24	39
0	2	4	1	7
2	1	6	5	14
0	0	0	0	0
1	0	1	2	4
1	1	0	3	5
0	0	0	0	0
1	2	5	0	8
0	2	3	7	12
0	7	0	4	11
<b>133</b>	<b>239</b>	<b>282</b>	<b>537</b>	<b>1,191</b>

## INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

<b>DATE:</b> 12/11/13 WEDNESDAY
---------------------------------------

**LOCATION:** ESCONDIDO  
**STREET:** FIG STREET  
**CROSS STREET:** MISSION AVENUE

**PROJECT #:** PTD13-1213-02  
**LOCATION #:** 9  
**CONTROL:** SIGNAL

NOTES: 7-9 AM; 2-4 PM; 4-6 PM	AM PM MD OTHER OTHER	▲ N ◀ W      E ▶ S ▼	
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<b>WEEKDAY AM</b>	7:00 AM	
	7:15 AM	
	7:30 AM	
	7:45 AM	
	8:00 AM	
	8:15 AM	
	8:30 AM	
	8:45 AM	
<b>MIDDAY</b>	2:00 PM	
	2:15 PM	
	2:30 PM	
	2:45 PM	
	3:00 PM	
	3:15 PM	
	3:30 PM	
3:45 PM		
<b>WEEKDAY PM</b>	4:00 PM	
	4:15 PM	
	4:30 PM	
	4:45 PM	
	5:00 PM	
	5:15 PM	
	5:30 PM	
	5:45 PM	
<b>TOTAL</b>		

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
9	8	10	5	32
10	25	19	12	66
36	41	36	37	150
15	49	36	22	122
7	5	5	5	22
3	11	8	16	38
8	0	2	9	19
1	4	2	2	9
10	10	17	27	64
6	6	10	10	32
12	34	45	47	138
55	115	52	91	313
22	42	31	33	128
20	13	15	16	64
9	15	5	15	44
8	19	15	15	57
6	5	6	8	25
9	4	6	7	26
3	24	2	15	44
10	19	13	15	57
9	14	6	10	39
13	6	6	12	37
9	8	16	12	45
21	7	21	5	54
<b>311</b>	<b>484</b>	<b>384</b>	<b>446</b>	<b>1,625</b>

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
9	8	10	5	32
10	25	19	12	66
36	41	36	37	150
15	49	36	22	122
7	5	5	5	22
3	11	8	16	38
8	0	2	9	19
1	4	2	2	9
10	10	17	27	64
6	6	10	10	32
12	34	45	47	138
55	115	52	91	313
22	42	31	33	128
20	13	15	16	64
9	15	5	15	44
8	19	15	15	57
6	5	6	8	25
9	4	6	7	26
3	24	2	15	44
10	19	13	15	57
9	14	6	10	39
13	6	6	12	37
9	8	16	12	45
21	7	21	5	54
<b>311</b>	<b>484</b>	<b>384</b>	<b>446</b>	<b>1,625</b>

## **Appendix B**

Existing Conditions  
HCM Intersection Analysis Worksheets

Existing AM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	↖
Volume (veh/h)	41	232	24	41	626	83	37	165	20	156	266	99
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	44	247	26	54	824	109	45	199	24	166	283	105
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.76	0.76	0.76	0.83	0.83	0.83	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1461	152	73	1436	190	287	896	107	404	524	445
Arrive On Green	0.04	0.45	0.45	0.04	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3235	337	1774	3143	416	992	3186	380	1153	1863	1583
Grp Volume(v), veh/h	44	134	139	54	464	469	45	109	114	166	283	105
Grp Sat Flow(s),veh/h/ln	1774	1770	1803	1774	1770	1789	992	1770	1796	1153	1863	1583
Q Serve(g_s), s	1.3	2.4	2.4	1.6	10.3	10.3	2.1	2.5	2.6	6.9	6.8	2.7
Cycle Q Clear(g_c), s	1.3	2.4	2.4	1.6	10.3	10.3	9.0	2.5	2.6	9.4	6.8	2.7
Prop In Lane	1.00		0.19	1.00		0.23	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	64	799	814	73	809	818	287	498	505	404	524	445
V/C Ratio(X)	0.69	0.17	0.17	0.74	0.57	0.57	0.16	0.22	0.22	0.41	0.54	0.24
Avail Cap(c_a), veh/h	167	799	814	167	809	818	456	799	811	600	841	715
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	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	8.6	8.7	25.2	10.6	10.6	20.0	14.6	14.7	18.3	16.2	14.7
Incr Delay (d2), s/veh	12.4	0.5	0.5	11.7	2.6	2.5	0.3	0.2	0.2	0.7	0.9	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	0.9	1.3	1.3	1.0	5.5	5.5	0.6	1.2	1.3	2.2	3.6	1.2
LnGrp Delay(d),s/veh	37.8	9.1	9.1	36.9	13.2	13.2	20.2	14.9	14.9	18.9	17.1	15.0
LnGrp LOS	D	A	A	D	B	B	C	B	B	B	B	B
Approach Vol, veh/h		317			987			268			554	
Approach Delay, s/veh		13.1			14.5			15.8			17.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	39.8		19.0	5.9	40.1		19.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.0	24.0		24.0	5.0	24.0		24.0
Max Q Clear Time (g_c+l1), s	3.6	4.4		11.4	3.3	12.3		11.0
Green Ext Time (p_c), s	0.0	7.8		3.5	0.0	5.9		3.6

Intersection Summary		
HCM 2010 Ctrl Delay		15.1
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/27/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	51	491	69	89	678	39	115	16	187	33	18	42
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	55	528	74	94	714	41	147	21	240	42	23	54
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	2194	303	121	2616	815	401	33	373	236	125	294
Arrive On Green	0.04	0.49	0.49	0.07	0.51	0.51	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1774	4519	624	1774	5085	1583	1317	129	1474	1114	495	1162
Grp Volume(v), veh/h	55	394	208	94	714	41	147	0	261	42	0	77
Grp Sat Flow(s),veh/h/ln	1774	1695	1753	1774	1695	1583	1317	0	1603	1114	0	1658
Q Serve(g_s), s	1.9	4.2	4.3	3.2	4.9	0.8	6.1	0.0	9.0	2.2	0.0	2.3
Cycle Q Clear(g_c), s	1.9	4.2	4.3	3.2	4.9	0.8	8.4	0.0	9.0	11.2	0.0	2.3
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.92	1.00		0.70
Lane Grp Cap(c), veh/h	70	1646	851	121	2616	815	401	0	406	236	0	420
V/C Ratio(X)	0.79	0.24	0.24	0.77	0.27	0.05	0.37	0.00	0.64	0.18	0.00	0.18
Avail Cap(c_a), veh/h	200	1646	851	257	2616	815	682	0	747	473	0	773
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	9.3	9.3	28.5	8.5	7.5	21.5	0.0	20.7	25.7	0.0	18.2
Incr Delay (d2), s/veh	17.3	0.3	0.7	10.0	0.3	0.1	0.6	0.0	1.7	0.4	0.0	0.2
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	1.3	2.0	2.2	1.9	2.3	0.4	2.3	0.0	4.2	0.7	0.0	1.1
LnGrp Delay(d),s/veh	46.9	9.7	10.0	38.5	8.8	7.6	22.0	0.0	22.4	26.1	0.0	18.4
LnGrp LOS	D	A	B	D	A	A	C		C	C		B
Approach Vol, veh/h		657			849			408			119	
Approach Delay, s/veh		12.9			12.0			22.3			21.1	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	34.2		19.7	6.5	36.0		19.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	30.0		29.0	7.0	32.0		29.0				
Max Q Clear Time (g_c+I1), s	5.2	6.3		13.2	3.9	6.9		11.0				
Green Ext Time (p_c), s	0.1	10.0		2.5	0.0	10.3		2.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			14.9									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕	↗	↖	↕	
Volume (veh/h)	13	397	72	218	860	44	104	24	97	47	23	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	15	473	86	251	989	51	118	27	110	70	34	28
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.88	0.88	0.88	0.67	0.67	0.67
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1213	219	299	1914	99	150	236	201	90	88	72
Arrive On Green	0.01	0.40	0.40	0.17	0.56	0.56	0.08	0.13	0.13	0.05	0.09	0.09
Sat Flow, veh/h	1774	2995	542	1774	3425	177	1774	1863	1583	1774	946	779
Grp Volume(v), veh/h	15	278	281	251	511	529	118	27	110	70	0	62
Grp Sat Flow(s),veh/h/ln	1774	1770	1767	1774	1770	1832	1774	1863	1583	1774	0	1725
Q Serve(g_s), s	0.5	7.1	7.2	8.8	11.5	11.5	4.2	0.8	4.2	2.5	0.0	2.2
Cycle Q Clear(g_c), s	0.5	7.1	7.2	8.8	11.5	11.5	4.2	0.8	4.2	2.5	0.0	2.2
Prop In Lane	1.00		0.31	1.00		0.10	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	26	716	715	299	989	1024	150	236	201	90	0	160
V/C Ratio(X)	0.58	0.39	0.39	0.84	0.52	0.52	0.79	0.11	0.55	0.78	0.00	0.39
Avail Cap(c_a), veh/h	110	716	715	359	989	1024	166	754	641	249	0	779
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)	0.96	0.96	0.96	0.86	0.86	0.86	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.4	13.5	13.5	25.8	8.8	8.8	28.8	24.8	26.3	30.1	0.0	27.4
Incr Delay (d2), s/veh	18.0	1.5	1.6	12.2	1.7	1.6	20.0	0.2	2.3	13.6	0.0	1.5
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	0.4	3.8	3.8	5.3	6.0	6.2	2.9	0.4	2.0	1.6	0.0	1.1
LnGrp Delay(d),s/veh	49.5	15.0	15.1	38.0	10.4	10.4	48.8	25.1	28.6	43.7	0.0	29.0
LnGrp LOS	D	B	B	D	B	B	D	C	C	D		C
Approach Vol, veh/h		574			1291			255				132
Approach Delay, s/veh		15.9			15.8			37.6				36.8
Approach LOS		B			B			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	55.8	9.4	10.0	4.9	65.7	7.2	12.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	26.0	6.0	29.0	4.0	35.0	9.0	26.0				
Max Q Clear Time (g_c+I1), s	10.8	9.2	6.2	4.2	2.5	13.5	4.5	6.2				
Green Ext Time (p_c), s	0.2	9.6	0.0	0.8	0.0	11.1	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			19.5									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↖	↖↗	↕		↖↗	↕	↖	↖↗	↕	↖
Volume (veh/h)	27	417	217	230	572	107	120	204	96	153	695	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	32	496	258	250	622	116	129	219	103	166	755	43
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	887	397	311	924	172	180	1477	661	220	1518	679
Arrive On Green	0.03	0.25	0.25	0.09	0.31	0.31	0.05	0.42	0.42	0.06	0.43	0.43
Sat Flow, veh/h	3442	3539	1583	3442	2980	555	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	32	496	258	250	369	369	129	219	103	166	755	43
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1765	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.2	16.5	19.7	9.6	24.6	24.7	5.0	5.2	5.5	6.4	20.9	2.2
Cycle Q Clear(g_c), s	1.2	16.5	19.7	9.6	24.6	24.7	5.0	5.2	5.5	6.4	20.9	2.2
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	887	397	311	549	547	180	1477	661	220	1518	679
V/C Ratio(X)	0.30	0.56	0.65	0.80	0.67	0.67	0.72	0.15	0.16	0.75	0.50	0.06
Avail Cap(c_a), veh/h	178	1675	749	560	1034	1031	305	1477	661	382	1518	679
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.1	44.1	45.4	60.3	40.6	40.7	63.1	24.5	24.5	62.2	28.0	22.7
Incr Delay (d2), s/veh	1.5	0.6	1.8	4.8	1.4	1.5	5.2	0.2	0.5	5.2	1.2	0.2
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	0.6	8.1	8.8	4.8	12.2	12.2	2.5	2.6	2.5	3.2	10.4	1.0
LnGrp Delay(d),s/veh	65.6	44.7	47.2	65.1	42.1	42.1	68.3	24.7	25.1	67.4	29.2	22.8
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		786			988			451			964	
Approach Delay, s/veh		46.4			47.9			37.2			35.5	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.7	63.4	17.2	39.9	13.1	65.0	9.2	47.9				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6				
Max Green Setting (Gmax), s	15.0	55.0	22.0	64.0	12.0	58.0	7.0	*79				
Max Q Clear Time (g_c+I1), s	8.4	7.5	11.6	21.7	7.0	22.9	3.2	26.7				
Green Ext Time (p_c), s	0.3	9.2	0.6	12.2	0.1	8.8	0.0	12.6				
Intersection Summary												
HCM 2010 Ctrl Delay			42.3									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												



HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/27/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	115	260	89	68	470	271	97	480	29	137	755	363
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	129	292	0	78	540	0	108	533	0	159	878	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.90	0.90	0.90	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	961	430	101	836	374	180	1353	605	244	1419	635
Arrive On Green	0.09	0.27	0.00	0.06	0.24	0.00	0.05	0.38	0.00	0.07	0.40	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	129	292	0	78	540	0	108	533	0	159	878	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	5.2	4.8	0.0	3.2	10.1	0.0	2.2	8.0	0.0	3.3	14.5	0.0
Cycle Q Clear(g_c), s	5.2	4.8	0.0	3.2	10.1	0.0	2.2	8.0	0.0	3.3	14.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	163	961	430	101	836	374	180	1353	605	244	1419	635
V/C Ratio(X)	0.79	0.30	0.00	0.78	0.65	0.00	0.60	0.39	0.00	0.65	0.62	0.00
Avail Cap(c_a), veh/h	218	1401	627	218	1401	627	329	1353	605	376	1419	635
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)	0.94	0.94	0.00	0.78	0.78	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.6	21.2	0.0	34.1	25.2	0.0	33.9	16.4	0.0	33.1	17.5	0.0
Incr Delay (d2), s/veh	12.5	0.2	0.0	9.5	0.7	0.0	3.2	0.9	0.0	2.9	2.0	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	3.1	2.4	0.0	1.8	5.0	0.0	1.1	4.1	0.0	1.7	7.5	0.0
LnGrp Delay(d),s/veh	45.0	21.3	0.0	43.5	25.9	0.0	37.1	17.3	0.0	36.0	19.5	0.0
LnGrp LOS	D	C		D	C		D	B		D	B	
Approach Vol, veh/h		421			618			641			1037	
Approach Delay, s/veh		28.6			28.1			20.6			22.0	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	48.8	8.2	23.9	7.8	50.1	10.7	21.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	9.0	29.0	7.0	29.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	5.3	10.0	5.2	6.8	4.2	16.5	7.2	12.1				
Green Ext Time (p_c), s	0.1	9.5	0.0	5.8	0.1	7.5	0.1	5.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			24.1									
HCM 2010 LOS			C									

Intersection												
Int Delay, s/veh	5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	37	504	150	481	881	15	6	0	150	3	8	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	86	86	86	66	66	66	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	573	170	559	1024	17	9	0	227	4	12	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1042	0	0	743	0	0	2379	2902	372	2522	2979	521
Stage 1	-	-	-	-	-	-	742	742	-	2152	2152	-
Stage 2	-	-	-	-	-	-	1637	2160	-	370	827	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	663	-	-	860	-	-	18	16	625	14	14	500
Stage 1	-	-	-	-	-	-	374	420	-	49	86	-
Stage 2	-	-	-	-	-	-	105	85	-	622	384	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	663	-	-	860	-	-	~ 5	5	625	~ 4	~ 5	500
Mov Cap-2 Maneuver	-	-	-	-	-	-	~-22	~-12	-	53	31	-
Stage 1	-	-	-	-	-	-	350	393	-	46	30	-
Stage 2	-	-	-	-	-	-	20	30	-	371	360	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	5.8	-	50.9
HCM LOS	-	-	-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	+	625	663	-	-	860	-	-	35	500
HCM Lane V/C Ratio	-	0.364	0.063	-	-	0.65	-	-	0.469	0.11
HCM Control Delay (s)	-	14	10.8	-	-	16.6	-	-	178.1	13.1
HCM Lane LOS	-	B	B	-	-	C	-	-	F	B
HCM 95th %tile Q(veh)	-	1.7	0.2	-	-	4.9	-	-	1.6	0.4

Notes:  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Intersection												
Int Delay, s/veh	6.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	7	8	109	3	68	2	140	24	40	424	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	79	79	79	80	80	80	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	11	12	138	4	86	2	175	30	47	493	2






















Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	811	766	493	778	766	175	493	0	0	175	0	0
Stage 1	586	586	-	180	180	-	-	-	-	-	-	-
Stage 2	225	180	-	598	586	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	298	333	576	314	333	868	1071	-	-	1401	-	-
Stage 1	496	497	-	822	750	-	-	-	-	-	-	-
Stage 2	778	750	-	489	497	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	259	321	576	291	321	868	1071	-	-	1401	-	-
Mov Cap-2 Maneuver	259	321	-	291	321	-	-	-	-	-	-	-
Stage 1	495	480	-	820	748	-	-	-	-	-	-	-
Stage 2	695	748	-	452	480	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.2	26.5	0.1	0.7
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1071	-	-	381	389	1401	-	-
HCM Lane V/C Ratio	0.002	-	-	0.074	0.586	0.033	-	-
HCM Control Delay (s)	8.4	-	-	15.2	26.5	7.7	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %file Q(veh)	0	-	-	0.2	3.6	0.1	-	-

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	56	290	84	75	484	35	163	137	66	88	277	124
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	60	309	89	90	583	42	196	165	80	106	334	149
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	811	230	115	1071	77	234	830	385	136	714	313
Arrive On Green	0.04	0.30	0.30	0.07	0.32	0.32	0.13	0.35	0.35	0.08	0.30	0.30
Sat Flow, veh/h	1774	2724	772	1774	3349	241	1774	2350	1090	1774	2397	1050
Grp Volume(v), veh/h	60	199	199	90	308	317	196	122	123	106	245	238
Grp Sat Flow(s),veh/h/ln	1774	1770	1727	1774	1770	1820	1774	1770	1670	1774	1770	1678
Q Serve(g_s), s	2.6	6.9	7.1	3.9	11.1	11.1	8.3	3.7	4.0	4.5	8.7	9.0
Cycle Q Clear(g_c), s	2.6	6.9	7.1	3.9	11.1	11.1	8.3	3.7	4.0	4.5	8.7	9.0
Prop In Lane	1.00		0.45	1.00		0.13	1.00		0.65	1.00		0.63
Lane Grp Cap(c), veh/h	77	527	514	115	566	582	234	625	590	136	527	500
V/C Ratio(X)	0.78	0.38	0.39	0.78	0.54	0.55	0.84	0.20	0.21	0.78	0.46	0.48
Avail Cap(c_a), veh/h	161	527	514	161	566	582	253	625	590	230	527	500
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)	0.95	0.95	0.95	0.53	0.53	0.53	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	21.5	21.5	35.6	21.6	21.6	32.7	17.3	17.4	35.0	22.1	22.2
Incr Delay (d2), s/veh	15.0	1.9	2.1	8.4	2.0	1.9	20.0	0.7	0.8	9.2	2.9	3.2
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	1.6	3.7	3.7	2.2	5.7	5.9	5.4	1.9	1.9	2.6	4.6	4.6
LnGrp Delay(d),s/veh	51.6	23.4	23.6	43.9	23.6	23.6	52.7	18.0	18.2	44.3	25.0	25.4
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		458			715			441			589	
Approach Delay, s/veh		27.2			26.2			33.5			28.7	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	29.8	14.2	27.0	7.3	31.5	9.9	31.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	23.0	11.0	23.0	7.0	23.0	10.0	24.0				
Max Q Clear Time (g_c+I1), s	5.9	9.1	10.3	11.0	4.6	13.1	6.5	6.0				
Green Ext Time (p_c), s	0.0	5.4	0.0	3.6	0.0	4.4	0.1	4.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			28.5									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/27/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↑	↑		↑	↑↑		↑	↑↑	
Volume (veh/h)	6	5	12	112	16	239	57	636	86	94	782	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.73	0.80		0.73	1.00		0.91	1.00		0.58
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	11	9	21	129	18	275	66	731	99	108	899	20
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.57	0.57	0.57	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	116	188	343	29	442	83	968	131	139	1196	27
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.05	0.31	0.31	0.08	0.34	0.34
Sat Flow, veh/h	159	289	470	1105	72	1105	1774	3090	418	1774	3474	77
Grp Volume(v), veh/h	41	0	0	129	0	293	66	418	412	108	458	461
Grp Sat Flow(s),veh/h/ln	918	0	0	1105	0	1178	1774	1770	1739	1774	1770	1782
Q Serve(g_s), s	0.2	0.0	0.0	6.1	0.0	11.4	2.1	12.2	12.2	3.4	13.2	13.2
Cycle Q Clear(g_c), s	11.6	0.0	0.0	17.7	0.0	11.4	2.1	12.2	12.2	3.4	13.2	13.2
Prop In Lane	0.27		0.51	1.00		0.94	1.00		0.24	1.00		0.04
Lane Grp Cap(c), veh/h	446	0	0	343	0	471	83	554	544	139	609	614
V/C Ratio(X)	0.09	0.00	0.00	0.38	0.00	0.62	0.79	0.76	0.76	0.78	0.75	0.75
Avail Cap(c_a), veh/h	447	0	0	343	0	471	216	554	544	216	609	614
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	0.0	21.0	0.0	13.8	27.1	17.8	17.8	26.0	16.7	16.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.7	0.0	2.5	15.3	9.2	9.4	9.0	8.3	8.3
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	0.4	0.0	0.0	1.9	0.0	4.0	1.4	7.3	7.3	2.0	7.8	7.8
LnGrp Delay(d),s/veh	11.1	0.0	0.0	21.6	0.0	16.3	42.4	27.0	27.2	35.1	25.0	24.9
LnGrp LOS	B			C		B	D	C	C	D	C	C
Approach Vol, veh/h		41			422			896			1027	
Approach Delay, s/veh		11.1			17.9			28.2			26.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	22.0		27.0	6.7	23.8		27.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	5.4	14.2		13.6	4.1	15.2		19.7
Green Ext Time (p_c), s	0.0	3.0		2.2	0.0	2.3		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	107	428	78	201	1001	50	86	225	141	73	379	258
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.93	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	127	510	93	236	1178	59	105	274	172	111	574	391
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.85	0.85	0.85	0.82	0.82	0.82	0.66	0.66	0.66
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	1137	206	285	1374	69	126	733	440	133	670	456
Arrive On Green	0.05	0.37	0.37	0.08	0.40	0.40	0.07	0.35	0.35	0.08	0.36	0.36
Sat Flow, veh/h	3442	3091	560	3442	3425	171	1774	2066	1239	1774	1869	1273
Grp Volume(v), veh/h	127	303	300	236	608	629	105	233	213	111	543	422
Grp Sat Flow(s),veh/h/ln	1721	1840	1811	1721	1770	1827	1774	1770	1535	1774	1770	1372
Q Serve(g_s), s	5.5	18.7	18.9	10.2	47.2	47.3	8.8	14.7	15.6	9.3	42.8	42.8
Cycle Q Clear(g_c), s	5.5	18.7	18.9	10.2	47.2	47.3	8.8	14.7	15.6	9.3	42.8	42.8
Prop In Lane	1.00		0.31	1.00		0.09	1.00		0.81	1.00		0.93
Lane Grp Cap(c), veh/h	171	677	666	285	710	733	126	628	545	133	634	492
V/C Ratio(X)	0.74	0.45	0.45	0.83	0.86	0.86	0.83	0.37	0.39	0.83	0.86	0.86
Avail Cap(c_a), veh/h	194	740	728	423	829	856	171	747	648	230	806	625
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.6	36.0	36.1	67.9	41.1	41.2	69.0	36.1	36.4	68.7	44.7	44.7
Incr Delay (d2), s/veh	11.6	0.3	0.4	7.1	7.5	7.4	19.7	0.3	0.3	9.6	6.9	8.7
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	2.9	9.6	9.5	5.1	24.5	25.4	5.0	7.2	6.7	4.9	22.1	17.4
LnGrp Delay(d),s/veh	82.2	36.3	36.4	75.0	48.6	48.5	88.7	36.4	36.7	78.3	51.6	53.4
LnGrp LOS	F	D	D	E	D	D	F	D	D	E	D	D
Approach Vol, veh/h		730			1473			551			1076	
Approach Delay, s/veh		44.3			52.8			46.5			55.1	
Approach LOS		D			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.8	57.9	17.0	59.8	15.2	58.5	12.0	64.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	63.5	18.5	60.5	14.5	68.5	8.5	70.5				
Max Q Clear Time (g_c+I1), s	11.3	17.6	12.2	20.9	10.8	44.8	7.5	49.3				
Green Ext Time (p_c), s	0.1	11.0	0.3	14.4	0.1	9.2	0.0	11.1				
Intersection Summary												
HCM 2010 Ctrl Delay			50.9									
HCM 2010 LOS			D									

Intersection												
Int Delay, s/veh	6.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	4	46	24	11	25	128	407	30	27	644	69
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	68	68	68	79	79	79	79	79	79	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	6	68	30	14	32	162	515	38	32	758	81

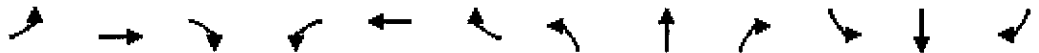
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1451	1739	419	1303	1760	277	839	0	0	553	0	0
Stage 1	862	862	-	858	858	-	-	-	-	-	-	-
Stage 2	589	877	-	445	902	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	92	86	583	118	84	720	791	-	-	1013	-	-
Stage 1	316	370	-	318	372	-	-	-	-	-	-	-
Stage 2	461	364	-	562	355	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	61	66	583	80	65	720	791	-	-	1013	-	-
Mov Cap-2 Maneuver	61	66	-	80	65	-	-	-	-	-	-	-
Stage 1	251	358	-	253	296	-	-	-	-	-	-	-
Stage 2	334	289	-	473	344	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	37	77.6	2.4	0.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn	WBLn	SBL	SBT	SBR
Capacity (veh/h)	791	-	-	198	119	1013	-	-
HCM Lane V/C Ratio	0.205	-	-	0.446	0.638	0.031	-	-
HCM Control Delay (s)	10.7	-	-	37	77.6	8.7	-	-
HCM Lane LOS	B	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0.8	-	-	2.1	3.3	0.1	-	-

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↔↔	↔	↔	↔↔	↔
Volume (veh/h)	217	632	627	127	1034	61	400	268	32	33	353	309
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.97	1.00		0.85	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	252	735	729	128	1044	62	412	276	33	42	453	396
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.99	0.99	0.99	0.97	0.97	0.97	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	309	1510	695	305	1505	453	490	1267	482	126	1054	453
Arrive On Green	0.09	0.30	0.30	0.09	0.30	0.30	0.14	0.36	0.36	0.07	0.29	0.29
Sat Flow, veh/h	3442	5085	1580	3442	5085	1530	3442	3539	1347	1774	3681	1583
Grp Volume(v), veh/h	252	735	729	128	1044	62	412	276	33	42	453	396
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1530	1721	1770	1347	1774	1840	1583
Q Serve(g_s), s	9.6	15.9	39.8	4.7	24.4	4.0	15.6	7.3	2.2	3.0	13.4	31.9
Cycle Q Clear(g_c), s	9.6	15.9	39.8	4.7	24.4	4.0	15.6	7.3	2.2	3.0	13.4	31.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	1510	695	305	1505	453	490	1267	482	126	1054	453
V/C Ratio(X)	0.82	0.49	1.05	0.42	0.69	0.14	0.84	0.22	0.07	0.33	0.43	0.87
Avail Cap(c_a), veh/h	431	1510	695	308	1505	453	1022	1882	716	159	1194	514
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.9	38.7	37.6	57.8	41.8	34.6	56.0	30.0	28.3	59.3	38.9	45.5
Incr Delay (d2), s/veh	8.2	0.2	47.9	0.9	1.4	0.1	4.0	0.1	0.1	1.5	0.3	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	4.9	7.5	34.9	2.3	11.6	1.7	7.7	3.6	0.8	1.5	6.8	15.7
LnGrp Delay(d),s/veh	68.1	39.0	85.5	58.7	43.2	34.8	60.0	30.1	28.4	60.8	39.2	59.6
LnGrp LOS	E	D	F	E	D	C	E	C	C	E	D	E
Approach Vol, veh/h		1716			1234			721			891	
Approach Delay, s/veh		63.0			44.4			47.1			49.3	
Approach LOS		E			D			D			D	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	47.8	24.3	44.9	17.2	47.7	14.7	54.5
Change Period (Y+Rc), s* 5.1999998		8.01999998		6.51999998		8.01999998		6.5
Max Green Setting (Gmax), s	* 12	30.09799999		43.56799999		35.0	* 12	71.3
Max Q Clear Time (g_c+l1), s	6.7	41.8	17.6	33.9	11.6	26.4	5.0	9.3
Green Ext Time (p_c), s	0.2	0.0	1.5	4.5	0.4	7.5	0.0	8.1

Intersection Summary

HCM 2010 Ctrl Delay	52.8
HCM 2010 LOS	D

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/27/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	87	182	74	80	376	178	134	500	40	129	751	133
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	97	202	82	90	422	200	141	526	42	137	799	141
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	616	242	114	569	267	137	1535	122	137	1390	245
Arrive On Green	0.07	0.25	0.25	0.06	0.24	0.24	0.07	0.44	0.44	0.07	0.44	0.44
Sat Flow, veh/h	1774	2485	975	1774	2341	1098	1845	3454	275	1845	3128	552
Grp Volume(v), veh/h	97	142	142	90	318	304	141	280	288	137	470	470
Grp Sat Flow(s),veh/h/ln	1774	1770	1691	1774	1770	1669	1845	1840	1889	1845	1840	1840
Q Serve(g_s), s	5.1	6.2	6.5	4.7	15.7	15.9	7.0	9.4	9.5	7.0	18.0	18.0
Cycle Q Clear(g_c), s	5.1	6.2	6.5	4.7	15.7	15.9	7.0	9.4	9.5	7.0	18.0	18.0
Prop In Lane	1.00		0.58	1.00		0.66	1.00		0.15	1.00		0.30
Lane Grp Cap(c), veh/h	123	439	419	114	430	406	137	818	839	137	818	817
V/C Ratio(X)	0.79	0.32	0.34	0.79	0.74	0.75	1.03	0.34	0.34	1.00	0.57	0.57
Avail Cap(c_a), veh/h	131	618	590	131	618	583	137	818	839	137	818	817
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	29.1	29.2	43.6	33.0	33.1	43.8	17.2	17.2	43.8	19.6	19.6
Incr Delay (d2), s/veh	25.7	0.4	0.5	23.6	2.8	3.2	85.7	1.1	1.1	77.7	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	3.1	3.1	3.1	8.0	7.7	6.8	5.0	5.1	6.5	9.8	9.8
LnGrp Delay(d),s/veh	69.0	29.5	29.7	67.1	35.8	36.3	129.9	18.3	18.3	121.5	22.5	22.5
LnGrp LOS	E	C	C	E	D	D	F	B	B	F	C	C
Approach Vol, veh/h		381			712			709			1077	
Approach Delay, s/veh		39.6			40.0			40.5			35.1	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	46.0	10.1	27.4	11.0	46.0	10.5	27.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	42.0	7.0	33.0	7.0	42.0	7.0	33.0
Max Q Clear Time (g_c+I1), s	9.0	11.5	6.7	8.5	9.0	20.0	7.1	17.9
Green Ext Time (p_c), s	0.0	12.2	0.0	6.1	0.0	10.5	0.0	5.1

Intersection Summary		
HCM 2010 Ctrl Delay		38.2
HCM 2010 LOS		D

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/27/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↗	↖	↖↖↖	↗	↖	↗		↖	↗	
Volume (veh/h)	11	655	52	18	1129	87	15	1	5	50	1	73
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	744	59	19	1176	91	20	1	7	60	1	87
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96	0.75	0.75	0.75	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2388	741	34	2421	753	35	18	124	85	2	179
Arrive On Green	0.01	0.47	0.47	0.02	0.48	0.48	0.02	0.09	0.09	0.05	0.12	0.12
Sat Flow, veh/h	1774	5085	1578	1774	5085	1582	1774	202	1412	1774	18	1544
Grp Volume(v), veh/h	12	744	59	19	1176	91	20	0	8	60	0	88
Grp Sat Flow(s),veh/h/ln	1774	1695	1578	1774	1695	1582	1774	0	1614	1774	0	1562
Q Serve(g_s), s	0.3	3.9	0.9	0.5	6.7	1.4	0.5	0.0	0.2	1.4	0.0	2.2
Cycle Q Clear(g_c), s	0.3	3.9	0.9	0.5	6.7	1.4	0.5	0.0	0.2	1.4	0.0	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		0.99
Lane Grp Cap(c), veh/h	22	2388	741	34	2421	753	35	0	142	85	0	181
V/C Ratio(X)	0.54	0.31	0.08	0.57	0.49	0.12	0.57	0.00	0.06	0.71	0.00	0.49
Avail Cap(c_a), veh/h	292	2388	741	292	2421	753	292	0	1137	292	0	1100
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.9	7.0	6.2	20.7	7.6	6.2	20.7	0.0	17.8	20.0	0.0	17.6
Incr Delay (d2), s/veh	19.2	0.3	0.2	14.1	0.7	0.3	13.7	0.0	0.2	10.3	0.0	2.0
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	0.3	1.9	0.4	0.3	3.2	0.7	0.4	0.0	0.1	0.9	0.0	1.1
LnGrp Delay(d),s/veh	40.2	7.4	6.4	34.8	8.3	6.5	34.4	0.0	18.0	30.3	0.0	19.6
LnGrp LOS	D	A	A	C	A	A	C		B	C		B

Approach Vol, veh/h		815			1286			28				148
Approach Delay, s/veh		7.8			8.6			29.7				24.0
Approach LOS		A			A			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	24.0	4.8	8.9	4.5	24.3	6.0	7.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0
Max Q Clear Time (g_c+I1), s	2.5	5.9	2.5	4.2	2.3	8.7	3.4	2.2
Green Ext Time (p_c), s	0.0	10.7	0.0	0.5	0.0	8.9	0.0	0.5

Intersection Summary		
HCM 2010 Ctrl Delay		9.5
HCM 2010 LOS		A

























HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	62	512	87	63	854	11	151	202	33	8	291	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.89	1.00		0.93	1.00		0.79
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	72	595	101	66	899	12	213	285	46	10	368	91
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.71	0.71	0.71	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	965	163	84	1160	15	244	773	613	18	392	97
Arrive On Green	0.05	0.33	0.33	0.05	0.32	0.32	0.14	0.42	0.42	0.01	0.29	0.29
Sat Flow, veh/h	1774	2948	498	1774	3570	48	1774	1863	1478	1774	1362	337
Grp Volume(v), veh/h	72	356	340	66	446	465	213	285	46	10	0	459
Grp Sat Flow(s),veh/h/ln	1774	1770	1676	1774	1770	1848	1774	1863	1478	1774	0	1699
Q Serve(g_s), s	3.2	13.6	13.7	2.9	18.2	18.2	9.4	8.5	1.5	0.4	0.0	21.1
Cycle Q Clear(g_c), s	3.2	13.6	13.7	2.9	18.2	18.2	9.4	8.5	1.5	0.4	0.0	21.1
Prop In Lane	1.00		0.30	1.00		0.03	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	89	579	549	84	575	600	244	773	613	18	0	488
V/C Ratio(X)	0.81	0.61	0.62	0.78	0.77	0.77	0.87	0.37	0.07	0.57	0.00	0.94
Avail Cap(c_a), veh/h	89	579	549	111	575	600	244	773	613	89	0	488
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	22.7	22.7	37.7	24.4	24.4	33.8	16.2	14.1	39.4	0.0	27.8
Incr Delay (d2), s/veh	41.4	4.8	5.2	22.7	9.8	9.4	27.5	0.3	0.1	25.4	0.0	26.4
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	2.6	7.4	7.1	2.0	10.4	10.8	6.5	4.4	0.6	0.3	0.0	13.4
LnGrp Delay(d),s/veh	79.0	27.5	27.9	60.4	34.2	33.8	61.3	16.5	14.2	64.8	0.0	54.2
LnGrp LOS	E	C	C	E	C	C	E	B	B	E		D
Approach Vol, veh/h		768			977			544				469
Approach Delay, s/veh		32.5			35.8			33.8				54.5
Approach LOS		C			D			C				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	30.2	15.0	27.0	8.0	30.0	4.8	37.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	5.0	25.0	11.0	23.0	4.0	26.0	4.0	30.0				
Max Q Clear Time (g_c+I1), s	4.9	15.7	11.4	23.1	5.2	20.2	2.4	10.5				
Green Ext Time (p_c), s	0.0	6.3	0.0	0.0	0.0	4.3	0.0	5.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.7									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/27/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	101	261	63	30	492	73	58	185	70	75	273	211
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.82	0.93		0.89	0.98		0.86	0.93		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	138	358	86	33	541	80	72	228	86	86	314	243
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.91	0.91	0.91	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	359	756	529	378	1234	181	268	531	200	443	405	314
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	772	1863	1304	877	3042	447	830	1230	464	982	939	726
Grp Volume(v), veh/h	138	358	86	33	313	308	72	0	314	86	0	557
Grp Sat Flow(s), veh/h/ln	772	1863	1304	877	1770	1719	830	0	1694	982	0	1665
Q Serve(g_s), s	7.8	7.0	2.1	1.4	6.3	6.4	4.0	0.0	6.4	3.3	0.0	14.1
Cycle Q Clear(g_c), s	14.1	7.0	2.1	8.4	6.3	6.4	18.1	0.0	6.4	9.7	0.0	14.1
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.27	1.00		0.44
Lane Grp Cap(c), veh/h	359	756	529	378	718	698	268	0	732	443	0	719
V/C Ratio(X)	0.38	0.47	0.16	0.09	0.44	0.44	0.27	0.00	0.43	0.19	0.00	0.77
Avail Cap(c_a), veh/h	359	756	529	378	718	698	279	0	756	458	0	743
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	10.8	9.3	13.9	10.6	10.6	19.7	0.0	9.8	13.1	0.0	12.0
Incr Delay (d2), s/veh	3.1	2.1	0.7	0.5	1.9	2.0	0.5	0.0	0.4	0.2	0.0	5.0
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	2.0	4.0	0.8	0.4	3.4	3.4	1.0	0.0	3.0	0.9	0.0	7.3
LnGrp Delay(d),s/veh	18.8	12.9	10.0	14.3	12.5	12.6	20.2	0.0	10.2	13.3	0.0	16.9
LnGrp LOS	B	B	A	B	B	B	C		B	B		B
Approach Vol, veh/h		582			654			386				643
Approach Delay, s/veh		13.9			12.6			12.0				16.4
Approach LOS		B			B			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.0		25.3		24.0		25.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		20.0		22.0		20.0		22.0				
Max Q Clear Time (g_c+I1), s		16.1		16.1		10.4		20.1				
Green Ext Time (p_c), s		2.5		3.3		5.1		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.9									
HCM 2010 LOS			B									

Existing Mid-Day Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖	↗
Volume (veh/h)	87	454	69	74	463	144	54	230	34	111	156	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	96	499	76	83	520	162	64	271	40	125	175	81
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	1415	215	106	1195	371	343	834	122	338	501	426
Arrive On Green	0.07	0.46	0.46	0.06	0.45	0.45	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	3082	467	1774	2661	825	1119	3100	452	1064	1863	1583
Grp Volume(v), veh/h	96	286	289	83	345	337	64	153	158	125	175	81
Grp Sat Flow(s),veh/h/ln	1774	1770	1780	1774	1770	1717	1119	1770	1783	1064	1863	1583
Q Serve(g_s), s	3.0	5.9	5.9	2.6	7.6	7.6	2.8	3.9	4.0	6.0	4.3	2.2
Cycle Q Clear(g_c), s	3.0	5.9	5.9	2.6	7.6	7.6	7.1	3.9	4.0	10.1	4.3	2.2
Prop In Lane	1.00		0.26	1.00		0.48	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	124	812	817	106	795	771	343	476	480	338	501	426
V/C Ratio(X)	0.77	0.35	0.35	0.78	0.43	0.44	0.19	0.32	0.33	0.37	0.35	0.19
Avail Cap(c_a), veh/h	282	812	817	251	795	771	516	750	755	503	789	671
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	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	9.9	9.9	26.3	10.7	10.7	19.5	16.6	16.6	20.6	16.7	15.9
Incr Delay (d2), s/veh	9.8	1.2	1.2	10.6	1.6	1.6	0.3	0.4	0.4	0.7	0.4	0.2
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	1.8	3.1	3.2	1.6	4.0	3.9	0.9	2.0	2.0	1.8	2.2	1.0
LnGrp Delay(d),s/veh	35.7	11.1	11.1	36.9	12.2	12.3	19.8	16.9	17.0	21.3	17.1	16.2
LnGrp LOS	D	B	B	D	B	B	B	B	B	C	B	B

Approach Vol, veh/h		671			765			375				381
Approach Delay, s/veh		14.6			14.9			17.5				18.3
Approach LOS		B			B			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	43.4		19.2	8.0	42.8		19.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	26.0		24.0	9.0	25.0		24.0
Max Q Clear Time (g_c+I1), s	4.6	7.9		12.1	5.0	9.6		9.1
Green Ext Time (p_c), s	0.0	7.7		3.2	0.1	7.1		3.5

Intersection Summary

HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
 2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	98	497	58	93	531	45	74	30	89	84	33	127
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	113	571	67	107	610	52	101	41	122	91	36	138
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.73	0.73	0.73	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	1731	201	137	1881	586	388	112	333	398	92	351
Arrive On Green	0.08	0.37	0.37	0.08	0.37	0.37	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	4622	536	1774	5085	1583	1206	414	1232	1218	338	1296
Grp Volume(v), veh/h	113	417	221	107	610	52	101	0	163	91	0	174
Grp Sat Flow(s),veh/h/ln	1774	1695	1768	1774	1695	1583	1206	0	1645	1218	0	1634
Q Serve(g_s), s	2.7	3.8	3.9	2.6	3.7	0.9	3.2	0.0	3.5	2.8	0.0	3.8
Cycle Q Clear(g_c), s	2.7	3.8	3.9	2.6	3.7	0.9	7.0	0.0	3.5	6.3	0.0	3.8
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.75	1.00		0.79
Lane Grp Cap(c), veh/h	145	1269	662	137	1881	586	388	0	445	398	0	442
V/C Ratio(X)	0.78	0.33	0.33	0.78	0.32	0.09	0.26	0.00	0.37	0.23	0.00	0.39
Avail Cap(c_a), veh/h	328	1269	662	328	1881	586	870	0	1103	885	0	1096
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.5	9.6	9.7	19.6	9.8	8.9	15.7	0.0	12.8	15.3	0.0	12.9
Incr Delay (d2), s/veh	8.6	0.7	1.4	9.1	0.5	0.3	0.4	0.0	0.5	0.3	0.0	0.6
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	1.9	2.1	1.6	1.8	0.5	1.1	0.0	1.6	1.0	0.0	1.8
LnGrp Delay(d),s/veh	28.1	10.3	11.0	28.7	10.2	9.2	16.1	0.0	13.3	15.6	0.0	13.4
LnGrp LOS	C	B	B	C	B	A	B		B	B		B
Approach Vol, veh/h		751			769			264				265
Approach Delay, s/veh		13.2			12.7			14.3				14.2
Approach LOS		B			B			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	20.2		15.7	7.5	20.0		15.7
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	16.0		29.0	8.0	16.0		29.0
Max Q Clear Time (g_c+I1), s	4.6	5.9		8.3	4.7	5.7		9.0
Green Ext Time (p_c), s	0.1	5.8		2.8	0.1	5.8		2.7

Intersection Summary		
HCM 2010 Ctrl Delay		13.3
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	77	489	85	132	631	36	90	64	147	165	79	39
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	96	611	106	143	686	39	96	68	156	188	90	44
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	1165	202	179	1406	80	132	272	231	229	238	116
Arrive On Green	0.07	0.39	0.39	0.10	0.41	0.41	0.07	0.15	0.15	0.13	0.20	0.20
Sat Flow, veh/h	1774	3018	522	1774	3405	193	1774	1863	1583	1774	1183	578
Grp Volume(v), veh/h	96	358	359	143	356	369	96	68	156	188	0	134
Grp Sat Flow(s),veh/h/ln	1774	1770	1771	1774	1770	1829	1774	1863	1583	1774	0	1761
Q Serve(g_s), s	3.6	10.5	10.5	5.3	10.0	10.0	3.6	2.2	6.3	7.0	0.0	4.4
Cycle Q Clear(g_c), s	3.6	10.5	10.5	5.3	10.0	10.0	3.6	2.2	6.3	7.0	0.0	4.4
Prop In Lane	1.00		0.30	1.00		0.11	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	132	683	684	179	731	755	132	272	231	229	0	354
V/C Ratio(X)	0.73	0.52	0.53	0.80	0.49	0.49	0.73	0.25	0.67	0.82	0.00	0.38
Avail Cap(c_a), veh/h	184	683	684	184	731	755	184	747	635	237	0	758
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)	0.94	0.94	0.94	0.85	0.85	0.85	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.5	15.9	15.9	29.6	14.5	14.5	30.5	25.5	27.2	28.6	0.0	23.3
Incr Delay (d2), s/veh	8.0	2.7	2.7	18.1	2.0	1.9	8.5	0.5	3.4	19.6	0.0	0.7
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	2.0	5.6	5.6	3.5	5.2	5.4	2.0	1.2	3.0	4.6	0.0	2.2
LnGrp Delay(d),s/veh	38.5	18.6	18.6	47.7	16.5	16.4	39.0	25.9	30.6	48.2	0.0	23.9
LnGrp LOS	D	B	B	D	B	B	D	C	C	D		C
Approach Vol, veh/h		813			868			320			322	
Approach Delay, s/veh		20.9			21.6			32.1			38.1	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	47.7	9.0	17.5	9.0	49.5	12.7	13.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s	7.3	12.5	5.6	6.4	5.6	12.0	9.0	8.3				
Green Ext Time (p_c), s	0.0	7.4	0.0	1.6	0.0	7.6	0.0	1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			25.1									
HCM 2010 LOS			C									



HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	461	208	139	435	80	249	347	120	88	269	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	28	542	245	167	524	96	262	365	126	93	283	37
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.85	0.85	0.85	0.83	0.83	0.83	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	98	827	370	219	804	147	321	1736	777	143	1553	695
Arrive On Green	0.03	0.23	0.23	0.06	0.27	0.27	0.09	0.49	0.49	0.04	0.44	0.44
Sat Flow, veh/h	3442	3539	1583	3442	2990	546	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	28	542	245	167	309	311	262	365	126	93	283	37
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1766	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.1	19.5	19.7	6.7	21.8	22.0	10.5	8.2	6.2	3.7	6.9	1.9
Cycle Q Clear(g_c), s	1.1	19.5	19.7	6.7	21.8	22.0	10.5	8.2	6.2	3.7	6.9	1.9
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	827	370	219	476	475	321	1736	777	143	1553	695
V/C Ratio(X)	0.29	0.66	0.66	0.76	0.65	0.65	0.82	0.21	0.16	0.65	0.18	0.05
Avail Cap(c_a), veh/h	147	1585	709	367	906	904	538	1736	777	220	1553	695
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.9	48.8	48.9	64.8	45.6	45.6	62.6	20.3	19.8	66.4	24.1	22.7
Incr Delay (d2), s/veh	1.6	0.9	2.0	5.4	1.5	1.5	5.1	0.3	0.4	4.9	0.3	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	0.6	9.7	8.8	3.4	10.8	10.9	5.2	4.1	2.8	1.9	3.4	0.8
LnGrp Delay(d),s/veh	68.5	49.7	50.9	70.2	47.1	47.2	67.7	20.6	20.3	71.3	24.3	22.8
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		815			787			753			413	
Approach Delay, s/veh		50.7			52.0			36.9			34.8	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	76.0	14.0	38.8	19.1	68.7	9.0	43.8				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	* 6				
Max Green Setting (Gmax), s	9.0	69.0	15.0	63.0	22.0	56.0	6.0	* 72				
Max Q Clear Time (g_c+I1), s	5.7	10.2	8.7	21.7	12.5	8.9	3.1	24.0				
Green Ext Time (p_c), s	0.1	5.6	0.3	11.1	0.6	5.6	0.0	11.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			44.9									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	218	420	141	78	444	215	121	549	96	136	551	262
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	237	457	0	85	483	0	129	584	0	149	605	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	1009	452	110	808	362	205	1327	594	231	1353	605
Arrive On Green	0.12	0.29	0.00	0.06	0.23	0.00	0.06	0.38	0.00	0.07	0.38	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	237	457	0	85	483	0	129	584	0	149	605	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	9.0	8.0	0.0	3.6	9.2	0.0	2.8	9.4	0.0	3.2	9.7	0.0
Cycle Q Clear(g_c), s	9.0	8.0	0.0	3.6	9.2	0.0	2.8	9.4	0.0	3.2	9.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	1009	452	110	808	362	205	1327	594	231	1353	605
V/C Ratio(X)	1.13	0.45	0.00	0.77	0.60	0.00	0.63	0.44	0.00	0.65	0.45	0.00
Avail Cap(c_a), veh/h	211	1353	605	211	1353	605	318	1327	594	363	1353	605
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)	0.80	0.80	0.00	0.81	0.81	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	22.3	0.0	35.1	26.2	0.0	34.8	17.7	0.0	34.5	17.5	0.0
Incr Delay (d2), s/veh	93.5	0.3	0.0	9.1	0.6	0.0	3.1	1.1	0.0	3.0	1.1	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	9.8	4.0	0.0	2.0	4.6	0.0	1.4	4.7	0.0	1.6	4.9	0.0
LnGrp Delay(d),s/veh	127.0	22.5	0.0	44.2	26.7	0.0	38.0	18.8	0.0	37.5	18.5	0.0
LnGrp LOS	F	C		D	C		D	B		D	B	
Approach Vol, veh/h		694			568			713			754	
Approach Delay, s/veh		58.2			29.3			22.3			22.3	
Approach LOS		E			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	46.6	8.7	25.6	8.5	47.2	13.0	21.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	9.0	29.0	7.0	29.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	5.2	11.4	5.6	10.0	4.8	11.7	11.0	11.2				
Green Ext Time (p_c), s	0.1	7.5	0.0	6.2	0.1	7.7	0.0	6.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.9									
HCM 2010 LOS			C									

**Intersection**

Int Delay, s/veh 3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	29	576	80	158	592	10	38	4	190	8	3	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	93	93	93	94	94	94	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	626	87	170	637	11	40	4	202	9	3	31

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	647	0	0	713
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	934	-	-	883
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	934	-	-	883
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.1	16.5	17
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	180	639	934	-	-	883	-	-	139	672
HCM Lane V/C Ratio	0.248	0.316	0.034	-	-	0.192	-	-	0.089	0.047
HCM Control Delay (s)	31.5	13.2	9	-	-	10	-	-	33.4	10.6
HCM Lane LOS	D	B	A	-	-	B	-	-	D	B
HCM 95th %tile Q(veh)	0.9	1.4	0.1	-	-	0.7	-	-	0.3	0.1

Intersection												
Int Delay, s/veh	8.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	3	5	92	2	71	10	332	50	25	270	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	59	59	59	92	92	92	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	4	6	156	3	120	11	361	54	29	310	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	812	751	310	756	751	361	310	0	0	361	0	0
Stage 1	368	368	-	383	383	-	-	-	-	-	-	-
Stage 2	444	383	-	373	368	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3,518	4,018	3,318	3,518	4,018	3,318	2,218	-	-	2,218	-	-
Pot Cap-1 Maneuver	298	340	730	325	340	684	1250	-	-	1198	-	-
Stage 1	652	621	-	640	612	-	-	-	-	-	-	-
Stage 2	593	612	-	648	621	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	238	329	730	312	329	684	1250	-	-	1198	-	-
Mov Cap-2 Maneuver	238	329	-	312	329	-	-	-	-	-	-	-
Stage 1	646	606	-	634	607	-	-	-	-	-	-	-
Stage 2	482	607	-	623	606	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	31	0.2	0.7
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1250	-	-	352	408	1198	-	-
HCM Lane V/C Ratio	0.009	-	-	0.046	0.685	0.024	-	-
HCM Control Delay (s)	7.9	-	-	15.7	31	8.1	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	5	0.1	-	-

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	104	370	103	101	432	47	242	279	118	64	268	97
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	116	411	114	116	497	54	260	300	127	76	319	115
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.93	0.93	0.93	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	898	247	147	1054	114	278	750	311	98	528	187
Arrive On Green	0.08	0.33	0.33	0.08	0.33	0.33	0.16	0.31	0.31	0.06	0.21	0.21
Sat Flow, veh/h	1774	2745	754	1774	3222	349	1774	2442	1011	1774	2565	908
Grp Volume(v), veh/h	116	263	262	116	272	279	260	216	211	76	218	216
Grp Sat Flow(s),veh/h/ln	1774	1770	1730	1774	1770	1801	1774	1770	1684	1774	1770	1703
Q Serve(g_s), s	4.5	8.3	8.4	4.5	8.6	8.7	10.2	6.8	7.0	3.0	7.9	8.1
Cycle Q Clear(g_c), s	4.5	8.3	8.4	4.5	8.6	8.7	10.2	6.8	7.0	3.0	7.9	8.1
Prop In Lane	1.00		0.44	1.00		0.19	1.00		0.60	1.00		0.53
Lane Grp Cap(c), veh/h	147	579	566	147	579	589	278	543	517	98	364	350
V/C Ratio(X)	0.79	0.46	0.46	0.79	0.47	0.47	0.94	0.40	0.41	0.78	0.60	0.62
Avail Cap(c_a), veh/h	177	579	566	177	579	589	278	629	599	227	579	557
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)	0.89	0.89	0.89	0.69	0.69	0.69	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	18.7	18.8	31.6	18.8	18.8	29.3	19.2	19.3	32.8	25.3	25.4
Incr Delay (d2), s/veh	15.9	2.3	2.4	12.6	1.9	1.9	37.4	0.5	0.5	12.3	1.6	1.8
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	2.8	4.4	4.4	2.7	4.5	4.6	7.9	3.4	3.3	1.8	4.0	3.9
LnGrp Delay(d),s/veh	47.5	21.0	21.2	44.3	20.7	20.7	66.7	19.7	19.8	45.1	26.9	27.2
LnGrp LOS	D	C	C	D	C	C	E	B	B	D	C	C
Approach Vol, veh/h		641			667			687			510	
Approach Delay, s/veh		25.9			24.8			37.5			29.7	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	36.7	15.0	18.5	9.8	36.7	7.9	25.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	23.0	11.0	23.0	7.0	23.0	9.0	25.0
Max Q Clear Time (g_c+I1), s	6.5	10.4	12.2	10.1	6.5	10.7	5.0	9.0
Green Ext Time (p_c), s	0.0	5.4	0.0	4.4	0.0	5.3	0.0	4.9

Intersection Summary		
HCM 2010 Ctrl Delay		29.6
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗		↖	↗	
Volume (veh/h)	22	11	74	39	2	82	25	595	43	95	717	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.80	0.85		0.80	1.00		0.78	1.00		0.55
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	32	16	107	68	4	144	29	684	49	117	885	7
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.69	0.69	0.69	0.57	0.57	0.57	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	89	357	470	14	494	46	1023	73	150	1324	10
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.03	0.31	0.31	0.08	0.37	0.37
Sat Flow, veh/h	179	226	903	1074	35	1250	1774	3280	234	1774	3572	28
Grp Volume(v), veh/h	155	0	0	68	0	148	29	368	365	117	438	454
Grp Sat Flow(s),veh/h/ln	1309	0	0	1074	0	1284	1774	1770	1744	1774	1770	1830
Q Serve(g_s), s	0.0	0.0	0.0	2.6	0.0	4.5	0.9	10.4	10.5	3.7	12.0	12.0
Cycle Q Clear(g_c), s	4.3	0.0	0.0	6.9	0.0	4.5	0.9	10.4	10.5	3.7	12.0	12.0
Prop In Lane	0.21		0.69	1.00		0.97	1.00		0.13	1.00		0.02
Lane Grp Cap(c), veh/h	593	0	0	470	0	508	46	552	544	150	656	678
V/C Ratio(X)	0.26	0.00	0.00	0.14	0.00	0.29	0.63	0.67	0.67	0.78	0.67	0.67
Avail Cap(c_a), veh/h	597	0	0	473	0	512	215	552	544	215	656	678
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	14.2	0.0	11.9	27.8	17.2	17.3	25.9	15.2	15.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.3	13.6	6.3	6.4	10.9	5.3	5.2
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	0.0	0.0	0.8	0.0	1.6	0.6	6.1	6.0	2.3	6.8	7.0
LnGrp Delay(d),s/veh	12.1	0.0	0.0	14.3	0.0	12.2	41.5	23.5	23.7	36.8	20.5	20.4
LnGrp LOS	B			B		B	D	C	C	D	C	C
Approach Vol, veh/h		155			216			762			1009	
Approach Delay, s/veh		12.1			12.9			24.3			22.3	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	22.0		26.8	5.5	25.4		26.8				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0				
Max Q Clear Time (g_c+I1), s	5.7	12.5		6.3	2.9	14.0		8.9				
Green Ext Time (p_c), s	0.0	4.1		2.3	0.0	3.1		2.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			21.3									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	249	702	92	154	627	65	141	393	168	146	432	226
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.87	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	259	731	96	157	640	66	155	432	185	190	561	294
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.98	0.98	0.98	0.91	0.91	0.91	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	1077	141	219	949	98	187	786	333	223	775	406
Arrive On Green	0.10	0.33	0.33	0.06	0.30	0.30	0.11	0.32	0.32	0.13	0.34	0.34
Sat Flow, veh/h	3442	3257	427	3442	3187	328	1774	2423	1028	1774	2248	1177
Grp Volume(v), veh/h	259	413	414	157	355	351	155	314	303	190	441	414
Grp Sat Flow(s),veh/h/ln	1721	1840	1844	1721	1770	1745	1774	1770	1681	1774	1770	1655
Q Serve(g_s), s	8.5	22.4	22.4	5.2	20.4	20.5	9.9	16.9	17.2	12.1	25.2	25.2
Cycle Q Clear(g_c), s	8.5	22.4	22.4	5.2	20.4	20.5	9.9	16.9	17.2	12.1	25.2	25.2
Prop In Lane	1.00		0.23	1.00		0.19	1.00		0.61	1.00		0.71
Lane Grp Cap(c), veh/h	332	608	610	219	527	520	187	574	545	223	610	571
V/C Ratio(X)	0.78	0.68	0.68	0.72	0.67	0.68	0.83	0.55	0.56	0.85	0.72	0.72
Avail Cap(c_a), veh/h	640	931	932	402	772	762	422	895	850	483	956	894
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	33.4	33.4	53.1	35.7	35.7	50.7	32.1	32.2	49.5	33.1	33.1
Incr Delay (d2), s/veh	4.0	1.3	1.3	4.3	1.5	1.5	9.1	0.8	0.9	8.8	1.6	1.8
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	4.2	11.6	11.6	2.6	10.2	10.1	5.3	8.3	8.1	6.5	12.5	11.8
LnGrp Delay(d),s/veh	55.1	34.8	34.8	57.5	37.2	37.3	59.9	32.9	33.1	58.3	34.7	34.9
LnGrp LOS	E	C	C	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		1086			863			772			1045	
Approach Delay, s/veh		39.6			40.9			38.4			39.1	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.1	42.0	11.9	42.7	16.7	44.4	15.7	39.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	31.5	58.5	13.5	58.5	27.5	62.5	21.5	50.5				
Max Q Clear Time (g_c+I1), s	14.1	19.2	7.2	24.4	11.9	27.2	10.5	22.5				
Green Ext Time (p_c), s	0.5	13.1	0.2	12.9	0.3	12.7	0.7	12.0				
Intersection Summary												
HCM 2010 Ctrl Delay			39.5									
HCM 2010 LOS			D									

HCM 2010 TWSC  
11: N. BROADWAY & LINCOLN AVE.

1/27/2014

Intersection

Int Delay, s/veh 16.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	21	69	15	5	41	65	772	55	26	712	57
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	85	85	85	94	94	94	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	34	113	18	6	48	69	821	59	29	782	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1423	1889	423	1455	1891	440	845	0	0	880	0	0
Stage 1	871	871	-	989	989	-	-	-	-	-	-	-
Stage 2	552	1018	-	466	902	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	96	70	579	91	69	565	787	-	-	764	-	-
Stage 1	312	367	-	265	323	-	-	-	-	-	-	-
Stage 2	486	313	-	546	355	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	74	61	579	37	61	565	787	-	-	764	-	-
Mov Cap-2 Maneuver	74	61	-	37	61	-	-	-	-	-	-	-
Stage 1	285	353	-	242	295	-	-	-	-	-	-	-
Stage 2	397	286	-	381	342	-	-	-	-	-	-	-

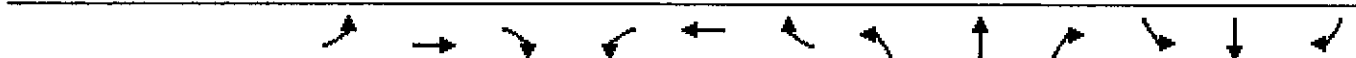
Approach	EB	WB	NB	SB
HCM Control Delay, s	155.5	86.4	0.7	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	787	-	-	158	109	764	-	-
HCM Lane V/C Ratio	0.088	-	-	1.089	0.658	0.037	-	-
HCM Control Delay (s)	10	-	-	155.5	86.4	9.9	-	-
HCM Lane LOS	B	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	9	3.4	0.1	-	-



HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗↗	↖	↖↖	↗↗↗	↖	↖↖	↗↗	↖	↖	↗↗	↖
Volume (veh/h)	464	1222	712	119	902	48	579	330	96	40	353	285
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.70	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	510	1343	782	125	949	51	643	367	107	45	401	324
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	568	1809	892	277	1378	429	721	1161	364	121	687	293
Arrive On Green	0.17	0.36	0.36	0.08	0.27	0.27	0.21	0.33	0.33	0.07	0.19	0.19
Sat Flow, veh/h	3442	5085	1574	3442	5085	1582	3442	3539	1111	1774	3681	1568
Grp Volume(v), veh/h	510	1343	782	125	949	51	643	367	107	45	401	324
Grp Sat Flow(s),veh/h/ln	1721	1695	1574	1721	1695	1582	1721	1770	1111	1774	1840	1568
Q Serve(g_s), s	21.6	34.3	52.8	5.1	24.8	3.6	27.0	11.5	10.6	3.6	14.8	27.7
Cycle Q Clear(g_c), s	21.6	34.3	52.8	5.1	24.8	3.6	27.0	11.5	10.6	3.6	14.8	27.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	568	1809	892	277	1378	429	721	1161	364	121	687	293
V/C Ratio(X)	0.90	0.74	0.88	0.45	0.69	0.12	0.89	0.32	0.29	0.37	0.58	1.11
Avail Cap(c_a), veh/h	668	1809	892	278	1378	429	992	1390	436	143	687	293
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.7	41.9	27.9	65.1	48.5	40.8	57.0	37.4	37.1	66.1	55.1	60.4
Incr Delay (d2), s/veh	13.5	2.8	11.9	1.2	1.5	0.1	7.9	0.2	0.4	1.9	1.3	84.5
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	11.3	16.5	30.4	2.5	11.8	1.6	13.7	5.7	3.3	1.8	7.6	18.9
LnGrp Delay(d),s/veh	74.2	44.7	39.7	66.3	50.0	40.9	65.0	37.6	37.5	68.0	56.4	144.9
LnGrp LOS	E	D	D	E	D	D	E	D	D	E	E	F
Approach Vol, veh/h		2635			1125			1117			770	
Approach Delay, s/veh		48.9			51.4			53.3			94.3	
Approach LOS		D			D			D			F	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	60.8	36.3	34.2	29.7	48.2	15.3	55.2
Change Period (Y+Rc), s* 5.1999998		8.0.1999998		6.5.1999998		8.0.1999998		6.5
Max Green Setting (Gmax), s	* 12	52.0.7999999		27.28.7999999		36.0	* 12	58.3
Max Q Clear Time (g_c+I1), s	7.1	54.8	29.0	29.7	23.6	26.8	5.6	13.5
Green Ext Time (p_c), s	0.1	0.0	2.1	0.0	1.0	8.5	0.0	8.3

Intersection Summary

HCM 2010 Ctrl Delay	56.5
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	116	342	148	75	301	156	159	535	87	165	627	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	125	368	159	81	324	168	173	582	95	176	667	113
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	644	274	104	536	272	213	1079	176	216	1077	182
Arrive On Green	0.09	0.27	0.27	0.06	0.24	0.24	0.12	0.34	0.34	0.12	0.34	0.34
Sat Flow, veh/h	1774	2420	1030	1774	2274	1155	1845	3170	516	1845	3150	533
Grp Volume(v), veh/h	125	268	259	81	251	241	173	337	340	176	389	391
Grp Sat Flow(s),veh/h/ln	1774	1770	1681	1774	1770	1659	1845	1840	1846	1845	1840	1843
Q Serve(g_s), s	5.1	9.6	9.8	3.3	9.3	9.6	6.7	10.9	10.9	6.8	13.0	13.0
Cycle Q Clear(g_c), s	5.1	9.6	9.8	3.3	9.3	9.6	6.7	10.9	10.9	6.8	13.0	13.0
Prop In Lane	1.00		0.61	1.00		0.70	1.00		0.28	1.00		0.29
Lane Grp Cap(c), veh/h	158	471	447	104	417	391	213	626	628	216	629	630
V/C Ratio(X)	0.79	0.57	0.58	0.78	0.60	0.62	0.81	0.54	0.54	0.81	0.62	0.62
Avail Cap(c_a), veh/h	193	650	618	193	650	610	226	626	628	226	629	630
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	23.3	23.4	34.1	25.0	25.1	31.7	19.6	19.6	31.7	20.2	20.2
Incr Delay (d2), s/veh	16.4	1.1	1.2	11.6	1.4	1.6	18.9	3.3	3.3	19.4	4.5	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	4.8	4.7	2.0	4.7	4.5	4.5	6.1	6.1	4.6	7.4	7.4
LnGrp Delay(d),s/veh	49.2	24.4	24.6	45.7	26.4	26.7	50.6	22.9	22.9	51.0	24.7	24.7
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		652			573			850			956	
Approach Delay, s/veh		29.2			29.2			28.5			29.6	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.6	29.0	8.3	23.5	12.5	29.1	10.5	21.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	25.0	8.0	27.0	9.0	25.0	8.0	27.0				
Max Q Clear Time (g_c+I1), s	8.8	12.9	5.3	11.8	8.7	15.0	7.1	11.6				
Green Ext Time (p_c), s	0.0	7.0	0.0	5.7	0.0	6.1	0.0	5.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.1									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	1301	24	14	965	61	49	1	13	38	3	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	29	1369	25	15	1060	67	68	1	18	43	3	49
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.72	0.72	0.72	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	2249	683	27	2190	682	89	14	244	65	13	212
Arrive On Green	0.03	0.44	0.44	0.02	0.43	0.43	0.05	0.16	0.16	0.04	0.15	0.15
Sat Flow, veh/h	1774	5085	1544	1774	5085	1583	1774	84	1512	1774	88	1438
Grp Volume(v), veh/h	29	1369	25	15	1060	67	68	0	19	43	0	52
Grp Sat Flow(s),veh/h/ln	1774	1695	1544	1774	1695	1583	1774	0	1596	1774	0	1526
Q Serve(g_s), s	0.8	9.5	0.4	0.4	7.0	1.2	1.8	0.0	0.5	1.1	0.0	1.4
Cycle Q Clear(g_c), s	0.8	9.5	0.4	0.4	7.0	1.2	1.8	0.0	0.5	1.1	0.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.94
Lane Grp Cap(c), veh/h	48	2249	683	27	2190	682	89	0	258	65	0	225
V/C Ratio(X)	0.61	0.61	0.04	0.56	0.48	0.10	0.76	0.00	0.07	0.66	0.00	0.23
Avail Cap(c_a), veh/h	267	2249	683	267	2190	682	267	0	1031	267	0	986
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.4	9.9	7.3	22.7	9.5	7.9	21.8	0.0	16.5	22.1	0.0	17.5
Incr Delay (d2), s/veh	11.9	1.2	0.1	16.8	0.8	0.3	12.5	0.0	0.1	10.9	0.0	0.5
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	0.5	4.7	0.2	0.3	3.4	0.6	1.2	0.0	0.2	0.7	0.0	0.6
LnGrp Delay(d),s/veh	34.2	11.1	7.4	39.6	10.3	8.1	34.3	0.0	16.7	33.0	0.0	18.0
LnGrp LOS	C	B	A	D	B	A	C		B	C		B
Approach Vol, veh/h		1423			1142			87				95
Approach Delay, s/veh		11.5			10.5			30.4				24.8
Approach LOS		B			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.7	24.5	6.3	10.9	5.2	24.0	5.7	11.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0				
Max Q Clear Time (g_c+l1), s	2.4	11.5	3.8	3.4	2.8	9.0	3.1	2.5				
Green Ext Time (p_c), s	0.0	7.6	0.0	0.4	0.0	9.7	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.2									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	1053	96	38	806	11	144	114	42	7	114	62
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.94	1.00		0.87	1.00		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	49	1086	99	44	937	13	169	134	49	8	127	69
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.86	0.86	0.86	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	1307	119	55	1431	20	203	684	503	14	254	138
Arrive On Green	0.04	0.40	0.40	0.03	0.40	0.40	0.11	0.37	0.37	0.01	0.26	0.26
Sat Flow, veh/h	1774	3229	294	1774	3570	50	1774	1863	1370	1774	974	529
Grp Volume(v), veh/h	49	594	591	44	464	486	169	134	49	8	0	196
Grp Sat Flow(s),veh/h/ln	1774	1770	1753	1774	1770	1850	1774	1863	1370	1774	0	1503
Q Serve(g_s), s	2.3	25.5	25.6	2.1	18.1	18.1	7.9	4.2	2.0	0.4	0.0	9.4
Cycle Q Clear(g_c), s	2.3	25.5	25.6	2.1	18.1	18.1	7.9	4.2	2.0	0.4	0.0	9.4
Prop In Lane	1.00		0.17	1.00		0.03	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	62	716	709	55	709	742	203	684	503	14	0	392
V/C Ratio(X)	0.79	0.83	0.83	0.79	0.65	0.65	0.83	0.20	0.10	0.56	0.00	0.50
Avail Cap(c_a), veh/h	146	716	709	146	709	742	209	684	503	146	0	407
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.6	22.6	22.7	40.8	20.6	20.6	36.7	18.3	17.6	41.9	0.0	26.7
Incr Delay (d2), s/veh	19.4	10.8	11.0	21.9	4.7	4.5	23.3	0.1	0.1	29.6	0.0	1.0
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	1.5	14.5	14.5	1.4	9.7	10.1	5.2	2.1	0.8	0.3	0.0	4.0
LnGrp Delay(d),s/veh	60.0	33.4	33.7	62.7	25.3	25.1	60.0	18.4	17.7	71.5	0.0	27.6
LnGrp LOS	E	C	C	E	C	C	E	B	B	E		C
Approach Vol, veh/h		1234			994			352			204	
Approach Delay, s/veh		34.6			26.9			38.3			29.4	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	38.3	13.7	26.1	7.0	38.0	4.7	35.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	34.0	10.0	23.0	7.0	34.0	7.0	26.0				
Max Q Clear Time (g_c+l1), s	4.1	27.6	9.9	11.4	4.3	20.1	2.4	6.2				
Green Ext Time (p_c), s	0.0	5.4	0.0	0.9	0.0	10.7	0.0	2.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			31.9									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.






















1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	425	142	32	395	61	60	170	52	61	191	86
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.89		0.70	0.93		0.70	0.90		0.70	0.81		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	92	489	163	38	470	73	65	183	56	66	208	93
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	380	785	466	301	1219	186	421	513	157	435	474	212
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	767	1863	1106	726	2891	440	965	1228	376	919	1133	507
Grp Volume(v), veh/h	92	489	163	38	284	259	65	0	239	66	0	301
Grp Sat Flow(s),veh/h/ln	767	1863	1106	726	1770	1562	965	0	1603	919	0	1640
Q Serve(g_s), s	4.7	10.3	5.0	2.2	5.5	5.7	2.6	0.0	5.1	2.6	0.0	6.5
Cycle Q Clear(g_c), s	10.4	10.3	5.0	12.4	5.5	5.7	9.1	0.0	5.1	7.7	0.0	6.5
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.23	1.00		0.31
Lane Grp Cap(c), veh/h	380	785	466	301	746	658	421	0	670	435	0	685
V/C Ratio(X)	0.24	0.62	0.35	0.13	0.38	0.39	0.15	0.00	0.36	0.15	0.00	0.44
Avail Cap(c_a), veh/h	380	785	466	301	746	658	425	0	676	438	0	692
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	11.3	9.8	16.2	9.9	10.0	13.6	0.0	9.9	12.6	0.0	10.3
Incr Delay (d2), s/veh	1.5	3.7	2.1	0.9	1.5	1.8	0.2	0.0	0.3	0.2	0.0	0.4
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	1.2	6.0	1.8	0.5	3.0	2.8	0.7	0.0	2.3	0.7	0.0	3.0
LnGrp Delay(d),s/veh	15.1	15.0	11.8	17.0	11.4	11.7	13.7	0.0	10.2	12.7	0.0	10.8
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		744			581			304				367
Approach Delay, s/veh		14.3			11.9			11.0				11.1
Approach LOS		B			B			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		24.8		25.0		24.8				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		21.0		21.0		21.0		21.0				
Max Q Clear Time (g_c+l1), s		12.4		9.7		14.4		11.1				
Green Ext Time (p_c), s		5.1		3.3		4.2		3.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.5									
HCM 2010 LOS			B									

Existing PM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	687	68	59	389	167	45	439	60	128	231	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	194	799	79	62	409	176	47	457	62	154	278	52
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.96	0.96	0.96	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	1442	143	79	858	365	335	1050	142	301	624	531
Arrive On Green	0.13	0.44	0.44	0.04	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	3254	322	1774	2421	1030	1046	3135	423	879	1863	1583
Grp Volume(v), veh/h	194	434	444	62	298	287	47	257	262	154	278	52
Grp Sat Flow(s),veh/h/ln	1774	1770	1806	1774	1770	1681	1046	1770	1788	879	1863	1583
Q Serve(g_s), s	7.2	12.3	12.3	2.3	8.8	9.0	2.5	7.6	7.7	11.2	7.9	1.5
Cycle Q Clear(g_c), s	7.2	12.3	12.3	2.3	8.8	9.0	10.4	7.6	7.7	18.9	7.9	1.5
Prop In Lane	1.00		0.18	1.00		0.61	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	236	784	801	79	627	596	335	593	599	301	624	531
V/C Ratio(X)	0.82	0.55	0.55	0.79	0.47	0.48	0.14	0.43	0.44	0.51	0.45	0.10
Avail Cap(c_a), veh/h	262	784	801	183	627	596	355	627	634	318	660	561
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	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	13.9	13.9	32.0	17.0	17.0	21.6	17.5	17.5	24.9	17.6	15.5
Incr Delay (d2), s/veh	17.2	2.8	2.8	14.8	2.4	2.6	0.2	0.5	0.5	1.4	0.5	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	4.6	6.5	6.6	1.5	4.7	4.6	0.7	3.8	3.9	2.8	4.1	0.7
LnGrp Delay(d),s/veh	45.7	16.7	16.7	46.8	19.4	19.6	21.8	18.0	18.0	26.3	18.1	15.6
LnGrp LOS	D	B	B	D	B	B	C	B	B	C	B	B
Approach Vol, veh/h		1072			647			566			484	
Approach Delay, s/veh		21.9			22.1			18.3			20.4	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	36.3		26.7	13.0	30.3		26.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	27.0		24.0	10.0	24.0		24.0				
Max Q Clear Time (g_c+I1), s	4.3	14.3		20.9	9.2	11.0		12.4				
Green Ext Time (p_c), s	0.0	7.3		1.8	0.0	7.4		4.8				
Intersection Summary												
HCM 2010 Ctrl Delay			21.0									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	166	811	107	113	724	45	106	58	160	96	44	192
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	171	836	110	126	804	50	118	64	178	109	50	218
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.90	0.90	0.90	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	1896	248	162	2051	639	304	136	379	328	95	415
Arrive On Green	0.10	0.42	0.42	0.09	0.40	0.40	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	4552	596	1774	5085	1583	1107	436	1213	1133	304	1325
Grp Volume(v), veh/h	171	622	324	126	804	50	118	0	242	109	0	268
Grp Sat Flow(s),veh/h/ln	1774	1695	1758	1774	1695	1583	1107	0	1649	1133	0	1629
Q Serve(g_s), s	6.4	8.8	8.8	4.7	7.5	1.3	6.6	0.0	7.9	5.7	0.0	9.1
Cycle Q Clear(g_c), s	6.4	8.8	8.8	4.7	7.5	1.3	15.6	0.0	7.9	13.7	0.0	9.1
Prop In Lane	1.00		0.34	1.00		1.00	1.00		0.74	1.00		0.81
Lane Grp Cap(c), veh/h	185	1412	732	162	2051	639	304	0	516	328	0	510
V/C Ratio(X)	0.92	0.44	0.44	0.78	0.39	0.08	0.39	0.00	0.47	0.33	0.00	0.53
Avail Cap(c_a), veh/h	185	1412	732	291	2051	639	437	0	714	465	0	706
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	14.0	14.0	29.8	14.2	12.3	25.3	0.0	18.5	24.0	0.0	18.9
Incr Delay (d2), s/veh	44.4	1.0	1.9	7.8	0.6	0.2	0.8	0.0	0.7	0.6	0.0	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	5.4	4.3	4.6	2.6	3.6	0.6	2.1	0.0	3.7	1.8	0.0	4.1
LnGrp Delay(d),s/veh	74.1	14.9	15.9	37.6	14.7	12.5	26.2	0.0	19.2	24.6	0.0	19.8
LnGrp LOS	E	B	B	D	B	B	C		B	C		B
Approach Vol, veh/h		1117			980			360				377
Approach Delay, s/veh		24.3			17.5			21.5				21.2
Approach LOS		C			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.1	31.9		24.9	11.0	31.0		24.9
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	11.0	23.0		29.0	7.0	27.0		29.0
Max Q Clear Time (g_c+I1), s	6.7	10.8		15.7	8.4	9.5		17.6
Green Ext Time (p_c), s	0.1	8.6		3.6	0.0	11.2		3.3

Intersection Summary		
HCM 2010 Ctrl Delay		21.2
HCM 2010 LOS		C



HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	826	54	73	583	51	112	44	313	113	26	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	22	918	60	86	686	60	135	53	377	130	30	32
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.83	0.83	0.83	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	1185	77	119	1282	112	168	508	432	164	223	238
Arrive On Green	0.03	0.35	0.35	0.07	0.39	0.39	0.09	0.27	0.27	0.09	0.27	0.27
Sat Flow, veh/h	1774	3373	220	1774	3294	288	1774	1863	1583	1774	826	881
Grp Volume(v), veh/h	22	482	496	86	368	378	135	53	377	130	0	62
Grp Sat Flow(s),veh/h/ln	1774	1770	1824	1774	1770	1812	1774	1863	1583	1774	0	1707
Q Serve(g_s), s	0.9	17.9	17.9	3.5	11.9	11.9	5.5	1.6	16.8	5.3	0.0	2.0
Cycle Q Clear(g_c), s	0.9	17.9	17.9	3.5	11.9	11.9	5.5	1.6	16.8	5.3	0.0	2.0
Prop In Lane	1.00		0.12	1.00		0.16	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	52	622	641	119	689	705	168	508	432	164	0	462
V/C Ratio(X)	0.42	0.77	0.77	0.72	0.53	0.54	0.80	0.10	0.87	0.79	0.00	0.13
Avail Cap(c_a), veh/h	168	622	641	168	689	705	168	680	578	216	0	669
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)	0.82	0.82	0.82	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.3	21.4	21.4	33.8	17.4	17.4	32.8	20.2	25.7	32.9	0.0	20.4
Incr Delay (d2), s/veh	4.3	7.6	7.4	8.2	2.8	2.8	24.0	0.1	11.0	13.7	0.0	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	0.5	10.0	10.3	2.0	6.3	6.4	3.8	0.8	8.6	3.2	0.0	1.0
LnGrp Delay(d),s/veh	39.6	29.0	28.7	42.0	20.2	20.2	56.8	20.2	36.7	46.6	0.0	20.6
LnGrp LOS	D	C	C	D	C	C	E	C	D	D		C
Approach Vol, veh/h		1000			832			565			192	
Approach Delay, s/veh		29.1			22.5			40.0			38.2	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	41.0	11.0	24.0	6.2	43.8	10.8	24.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0				
Max Q Clear Time (g_c+H1), s	5.5	19.9	7.5	4.0	2.9	13.9	7.3	18.8				
Green Ext Time (p_c), s	0.0	4.6	0.0	2.0	0.0	8.1	0.0	1.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			30.0									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↗	↖↗	↕		↖↗	↕	↗	↖↗	↕	↗
Volume (veh/h)	47	922	202	141	619	124	334	485	260	156	261	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	52	1024	224	155	680	136	355	516	277	177	297	44
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	1244	556	197	1106	221	405	1364	610	220	1173	525
Arrive On Green	0.03	0.35	0.35	0.06	0.38	0.38	0.12	0.39	0.39	0.06	0.33	0.33
Sat Flow, veh/h	3442	3539	1583	3442	2941	588	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	52	1024	224	155	409	407	355	516	277	177	297	44
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1759	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	2.5	44.5	18.0	7.5	31.6	31.7	17.1	17.7	22.0	8.6	10.3	3.2
Cycle Q Clear(g_c), s	2.5	44.5	18.0	7.5	31.6	31.7	17.1	17.7	22.0	8.6	10.3	3.2
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	1244	556	197	666	662	405	1364	610	220	1173	525
V/C Ratio(X)	0.47	0.82	0.40	0.79	0.61	0.62	0.88	0.38	0.45	0.81	0.25	0.08
Avail Cap(c_a), veh/h	122	1364	610	265	755	751	530	1364	610	306	1173	525
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.2	49.9	41.3	78.5	42.7	42.7	73.2	37.3	38.6	77.9	41.1	38.8
Incr Delay (d2), s/veh	3.0	3.9	0.5	10.7	1.2	1.2	12.4	0.8	2.4	10.3	0.5	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	1.2	22.4	7.9	3.9	15.7	15.6	8.8	8.8	10.0	4.4	5.2	1.5
LnGrp Delay(d),s/veh	83.2	53.8	41.8	89.2	43.9	43.9	85.6	38.1	41.1	88.2	41.7	39.1
LnGrp LOS	F	D	D	F	D	D	F	D	D	F	D	D
Approach Vol, veh/h		1300			971			1148			518	
Approach Delay, s/veh		52.9			51.1			53.5			57.4	
Approach LOS		D			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.8	72.0	14.6	65.3	25.9	62.9	10.5	69.4				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	* 6				
Max Green Setting (Gmax), s	15.0	65.0	13.0	65.0	26.0	54.0	6.0	* 72				
Max Q Clear Time (g_c+I1), s	10.6	24.0	9.5	46.5	19.1	12.3	4.5	33.7				
Green Ext Time (p_c), s	0.2	8.0	0.1	12.7	0.7	8.0	0.0	20.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.2									
HCM 2010 LOS			D									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	300	639	106	50	390	303	75	734	37	184	577	212
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	337	718	0	55	429	0	86	844	0	192	601	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.87	0.87	0.87	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	345	1483	664	99	992	444	223	1014	454	259	1051	470
Arrive On Green	0.19	0.42	0.00	0.06	0.28	0.00	0.06	0.29	0.00	0.08	0.30	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	337	718	0	55	429	0	86	844	0	192	601	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	18.5	14.4	0.0	3.0	9.7	0.0	2.3	21.8	0.0	5.3	14.1	0.0
Cycle Q Clear(g_c), s	18.5	14.4	0.0	3.0	9.7	0.0	2.3	21.8	0.0	5.3	14.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	345	1483	664	99	992	444	223	1014	454	259	1051	470
V/C Ratio(X)	0.98	0.48	0.00	0.56	0.43	0.00	0.39	0.83	0.00	0.74	0.57	0.00
Avail Cap(c_a), veh/h	345	1483	664	145	1050	470	247	1014	454	282	1051	470
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.1	20.7	0.0	45.0	28.8	0.0	43.8	32.7	0.0	44.3	29.1	0.0
Incr Delay (d2), s/veh	42.1	0.2	0.0	4.9	0.3	0.0	1.1	8.0	0.0	9.3	2.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	7.1	0.0	1.6	4.7	0.0	1.1	11.8	0.0	2.9	7.2	0.0
LnGrp Delay(d),s/veh	81.3	20.9	0.0	49.8	29.1	0.0	44.9	40.6	0.0	53.6	31.3	0.0
LnGrp LOS	F	C		D	C		D	D		D	C	
Approach Vol, veh/h		1055			484			930			793	
Approach Delay, s/veh		40.2			31.5			41.0			36.7	
Approach LOS		D			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	32.0	9.4	44.9	10.3	33.0	23.0	31.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	8.0	40.0	7.0	29.0	19.0	29.0				
Max Q Clear Time (g_c+I1), s	7.3	23.8	5.0	16.4	4.3	16.1	20.5	11.7				
Green Ext Time (p_c), s	0.0	3.1	0.0	8.6	0.0	7.8	0.0	5.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			38.3									
HCM 2010 LOS			D									

HCM 2010 TWSC  
6: ESCONDIDO BLVD. & EL NORTE PKY.

1/27/2014

Intersection

Int Delay, s/veh 9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	76	1158	116	189	771	16	27	5	312	9	4	82
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	91	91	91	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	1206	121	208	847	18	30	5	343	10	5	93

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	865	0	0	1327	0	0	2266	2705	664	2035	2756	432
Stage 1	-	-	-	-	-	-	1425	1425	-	1271	1271	-
Stage 2	-	-	-	-	-	-	841	1280	-	764	1485	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	774	-	-	516	-	-	~ 22	21	403	33	19	572
Stage 1	-	-	-	-	-	-	142	200	-	178	237	-
Stage 2	-	-	-	-	-	-	326	235	-	362	187	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	774	-	-	516	-	-	~ 12	11	403	~ 3	10	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	45	-	3360	~-65	-
Stage 1	-	-	-	-	-	-	128	180	-	160	141	-
Stage 2	-	-	-	-	-	-	158	140	-	47	168	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	3.2	60.2	
HCM LOS			F	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	49	403	774	-	-	516	-	-	+	572
HCM Lane V/C Ratio	0.718	0.851	0.102	-	-	0.403	-	-	-	0.163
HCM Control Delay (s)	181.6	47.8	10.2	-	-	16.6	-	-	-	12.5
HCM Lane LOS	F	E	B	-	-	C	-	-	-	B
HCM 95th %tile Q(veh)	2.9	8.2	0.3	-	-	1.9	-	-	-	0.6

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 TWSC  
7: ESCONDIDO BLVD. & LINCOLN AVE.

1/27/2014

**Intersection**

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	46	2	52	22	434	62	27	251	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	83	83	83	83	83	83	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	8	8	55	2	63	27	523	75	30	279	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	947	915	279	923	915	523	279	0	0	523	0	0
Stage 1	339	339	-	576	576	-	-	-	-	-	-	-
Stage 2	608	576	-	347	339	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	241	273	760	250	273	554	1284	-	-	1043	-	-
Stage 1	676	640	-	503	502	-	-	-	-	-	-	-
Stage 2	483	502	-	669	640	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	204	260	760	232	260	554	1284	-	-	1043	-	-
Mov Cap-2 Maneuver	204	260	-	232	260	-	-	-	-	-	-	-
Stage 1	662	622	-	492	491	-	-	-	-	-	-	-
Stage 2	417	491	-	635	622	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	21.7	0.3	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1284	-	-	298	334	1043	-	-
HCM Lane V/C Ratio	0.021	-	-	0.081	0.361	0.029	-	-
HCM Control Delay (s)	7.9	-	-	18.1	21.7	8.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.6	0.1	-	-

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Volume (veh/h)	113	574	147	111	394	49	215	363	202	78	226	89
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	123	624	160	126	448	56	234	395	220	90	260	102
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	795	204	158	909	113	273	778	428	133	687	263
Arrive On Green	0.09	0.28	0.28	0.09	0.29	0.29	0.15	0.35	0.35	0.08	0.27	0.27
Sat Flow, veh/h	1774	2792	715	1774	3169	394	1774	2205	1213	1774	2505	958
Grp Volume(v), veh/h	123	395	389	126	249	255	234	316	299	90	182	180
Grp Sat Flow(s),veh/h/ln	1774	1770	1737	1774	1770	1793	1774	1770	1649	1774	1770	1694
Q Serve(g_s), s	5.5	16.6	16.7	5.6	9.4	9.5	10.4	11.4	11.6	4.0	6.7	7.0
Cycle Q Clear(g_c), s	5.5	16.6	16.7	5.6	9.4	9.5	10.4	11.4	11.6	4.0	6.7	7.0
Prop In Lane	1.00		0.41	1.00		0.22	1.00		0.74	1.00		0.57
Lane Grp Cap(c), veh/h	154	504	495	158	507	514	273	624	582	133	485	464
V/C Ratio(X)	0.80	0.78	0.79	0.80	0.49	0.50	0.86	0.51	0.51	0.67	0.37	0.39
Avail Cap(c_a), veh/h	176	526	516	176	526	533	308	624	582	198	504	482
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	26.6	26.6	36.1	23.9	23.9	33.3	20.6	20.7	36.4	23.7	23.8
Incr Delay (d2), s/veh	19.8	7.4	7.6	20.5	0.7	0.7	19.0	0.7	0.8	5.8	0.5	0.5
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	3.6	9.2	9.0	3.7	4.7	4.8	6.5	5.6	5.4	2.2	3.3	3.3
LnGrp Delay(d),s/veh	56.0	33.9	34.2	56.6	24.6	24.7	52.3	21.2	21.4	42.2	24.2	24.3
LnGrp LOS	E	C	C	E	C	C	D	C	C	D	C	C
Approach Vol, veh/h		907			630			849			452	
Approach Delay, s/veh		37.0			31.0			29.9			27.8	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	27.0	16.4	26.1	11.0	27.2	10.1	32.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	24.0	14.0	23.0	8.0	24.0	9.0	28.0
Max Q Clear Time (g_c+I1), s	7.6	18.7	12.4	9.0	7.5	11.5	6.0	13.6
Green Ext Time (p_c), s	0.0	3.4	0.1	4.4	0.0	6.4	0.0	5.3

Intersection Summary		
HCM 2010 Ctrl Delay		32.1
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔		↔	↔	
Volume (veh/h)	2	2	19	26	0	42	17	583	60	37	540	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	1.00		0.98	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	2	2	23	29	0	47	19	662	68	44	635	1
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.90	0.90	0.90	0.88	0.88	0.88	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	31	218	392	0	252	34	1546	159	70	1805	3
Arrive On Green	0.16	0.16	0.16	0.16	0.00	0.16	0.02	0.48	0.48	0.04	0.50	0.50
Sat Flow, veh/h	45	186	1326	1338	0	1531	1774	3236	332	1774	3625	6
Grp Volume(v), veh/h	27	0	0	29	0	47	19	362	368	44	310	326
Grp Sat Flow(s),veh/h/ln	1557	0	0	1338	0	1531	1774	1770	1798	1774	1770	1861
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	1.0	0.4	5.1	5.1	0.9	4.0	4.0
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.3	0.0	1.0	0.4	5.1	5.1	0.9	4.0	4.0
Prop In Lane	0.07		0.85	1.00		1.00	1.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	359	0	0	392	0	252	34	845	859	70	881	926
V/C Ratio(X)	0.08	0.00	0.00	0.07	0.00	0.19	0.56	0.43	0.43	0.63	0.35	0.35
Avail Cap(c_a), veh/h	1042	0	0	989	0	935	330	845	859	330	881	926
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	0.0	13.9	0.0	13.6	18.3	6.5	6.5	17.8	5.8	5.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.4	13.6	1.6	1.6	9.1	1.1	1.1
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	0.2	0.0	0.0	0.3	0.0	0.4	0.3	2.8	2.8	0.6	2.2	2.3
LnGrp Delay(d),s/veh	13.5	0.0	0.0	14.0	0.0	13.9	31.9	8.0	8.0	27.0	6.9	6.8
LnGrp LOS	B			B		B	C	A	A	C	A	A
Approach Vol, veh/h		27			76			749			680	
Approach Delay, s/veh		13.5			13.9			8.6			8.1	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	22.0		10.2	4.7	22.8		10.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	2.9	7.1		2.5	2.4	6.0		3.3
Green Ext Time (p_c), s	0.0	6.1		0.4	0.0	6.5		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		8.8
HCM 2010 LOS		A

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	264	1013	177	161	682	83	168	481	203	70	283	166
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.96	1.00		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	307	1178	206	185	784	95	191	547	231	80	322	189
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1455	253	235	1357	164	217	689	290	100	455	255
Arrive On Green	0.11	0.47	0.47	0.07	0.43	0.43	0.12	0.29	0.29	0.06	0.22	0.22
Sat Flow, veh/h	3442	3124	543	3442	3168	384	1774	2400	1010	1774	2057	1154
Grp Volume(v), veh/h	307	691	693	185	438	441	191	403	375	80	275	236
Grp Sat Flow(s),veh/h/ln	1721	1840	1827	1721	1770	1783	1774	1770	1641	1774	1770	1441
Q Serve(g_s), s	12.9	47.2	48.0	7.8	27.6	27.6	15.6	30.9	31.1	6.5	21.1	22.4
Cycle Q Clear(g_c), s	12.9	47.2	48.0	7.8	27.6	27.6	15.6	30.9	31.1	6.5	21.1	22.4
Prop In Lane	1.00		0.30	1.00		0.22	1.00		0.62	1.00		0.80
Lane Grp Cap(c), veh/h	365	857	851	235	758	763	217	508	471	100	391	319
V/C Ratio(X)	0.84	0.81	0.81	0.79	0.58	0.58	0.88	0.79	0.80	0.80	0.70	0.74
Avail Cap(c_a), veh/h	551	953	946	363	820	826	368	661	613	187	481	391
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.5	33.6	33.8	67.4	31.9	31.9	63.4	48.4	48.4	68.5	52.8	53.3
Incr Delay (d2), s/veh	7.3	4.7	5.1	6.1	0.9	0.9	12.2	5.0	5.5	13.4	3.5	5.8
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	6.5	25.1	25.3	3.9	13.7	13.8	8.4	15.8	14.8	3.6	10.7	9.4
LnGrp Delay(d),s/veh	71.8	38.3	38.9	73.5	32.8	32.8	75.6	53.4	54.0	81.9	56.3	59.1
LnGrp LOS	E	D	D	E	C	C	E	D	D	F	E	E
Approach Vol, veh/h		1691			1064			969			591	
Approach Delay, s/veh		44.6			39.9			58.0			60.9	
Approach LOS		D			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	46.6	14.5	72.9	22.5	37.0	20.1	67.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	54.9	15.5	76.1	30.5	39.9	23.5	68.1				
Max Q Clear Time (g_c+I1), s	8.5	33.1	9.8	50.0	17.6	24.4	14.9	29.6				
Green Ext Time (p_c), s	0.1	9.1	0.3	18.5	0.4	7.6	0.7	23.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			48.7									
HCM 2010 LOS			D									



Intersection												
Int Delay, s/veh	11.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	29	16	40	23	8	53	53	967	74	28	618	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	91	91	91	95	95	95	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	18	45	25	9	58	56	1018	78	32	702	45

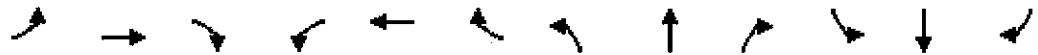
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1414	1996	374	1592	1979	548	748	0	0	1096	0	0
Stage 1	789	789	-	1168	1168	-	-	-	-	-	-	-
Stage 2	625	1207	-	424	811	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	98	60	623	72	61	480	856	-	-	633	-	-
Stage 1	350	400	-	206	266	-	-	-	-	-	-	-
Stage 2	439	254	-	578	391	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	69	53	623	45	54	480	856	-	-	633	-	-
Mov Cap-2 Maneuver	69	53	-	45	54	-	-	-	-	-	-	-
Stage 1	327	380	-	193	249	-	-	-	-	-	-	-
Stage 2	348	237	-	485	371	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	130.4	120.9	0.5	0.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	856	-	-	108	109	633	-	-
HCM Lane V/C Ratio	0.065	-	-	0.884	0.847	0.05	-	-
HCM Control Delay (s)	9.5	-	-	130.4	120.9	11	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	5.3	4.9	0.2	-	-

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗↗	↗	↖↖	↗↗↗	↗	↖↖	↗↗	↗	↖	↗↗	↗
Volume (veh/h)	538	1256	554	90	881	69	626	465	108	47	311	311
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	598	1396	616	96	937	73	736	547	127	54	357	357
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	650	1808	925	262	1235	383	793	1196	527	124	653	279
Arrive On Green	0.19	0.36	0.36	0.08	0.24	0.24	0.23	0.34	0.34	0.07	0.18	0.18
Sat Flow, veh/h	3442	5085	1577	3442	5085	1579	3442	3539	1558	1774	3681	1573
Grp Volume(v), veh/h	598	1396	616	96	937	73	736	547	127	54	357	357
Grp Sat Flow(s),veh/h/ln	1721	1695	1577	1721	1695	1579	1721	1770	1558	1774	1840	1573
Q Serve(g_s), s	26.5	37.8	41.2	4.1	26.5	5.7	32.5	18.8	9.1	4.5	13.7	27.5
Cycle Q Clear(g_c), s	26.5	37.8	41.2	4.1	26.5	5.7	32.5	18.8	9.1	4.5	13.7	27.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	650	1808	925	262	1235	383	793	1196	527	124	653	279
V/C Ratio(X)	0.92	0.77	0.67	0.37	0.76	0.19	0.93	0.46	0.24	0.44	0.55	1.28
Avail Cap(c_a), veh/h	706	1863	942	266	1235	383	861	1239	546	137	653	279
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	44.4	21.8	68.1	54.5	46.6	58.4	40.2	37.0	69.2	58.1	63.8
Incr Delay (d2), s/veh	16.6	2.0	1.7	0.9	2.8	0.2	15.3	0.3	0.2	2.4	1.0	150.7
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	14.1	18.0	18.3	2.0	12.7	2.5	17.1	9.2	4.0	2.3	7.1	23.7
LnGrp Delay(d),s/veh	78.4	46.4	23.6	68.9	57.3	46.9	73.7	40.5	37.2	71.6	59.1	214.5
LnGrp LOS	E	D	C	E	E	D	E	D	D	E	E	F
Approach Vol, veh/h		2610			1106			1410			768	
Approach Delay, s/veh		48.3			57.6			57.5			132.2	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	63.1	40.9	34.0	34.5	45.6	16.0	58.9
Change Period (Y+Rc), s* 5.1999998		8.8.1999998	6.5.1999998	8.8.1999998	8.8.1999998	6.5		6.5
Max Green Setting (Gmax), s	* 12	56.88.7999999	27.51.7999999	37.0	* 12	54.3		
Max Q Clear Time (g_c+l1), s	6.1	43.2	34.5	29.5	28.5	28.5	6.5	20.8
Green Ext Time (p_c), s	0.1	12.0	1.3	0.0	0.8	7.9	0.0	9.7

Intersection Summary

HCM 2010 Ctrl Delay	63.2
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	210	535	140	83	349	195	135	811	49	201	596	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	221	563	147	86	360	201	147	882	53	218	648	68
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	865	225	111	570	313	184	1128	68	189	1084	114
Arrive On Green	0.12	0.31	0.31	0.06	0.26	0.26	0.10	0.32	0.32	0.10	0.32	0.32
Sat Flow, veh/h	1774	2781	724	1774	2207	1212	1845	3528	212	1845	3363	352
Grp Volume(v), veh/h	221	358	352	86	287	274	147	460	475	218	354	362
Grp Sat Flow(s),veh/h/ln	1774	1770	1735	1774	1770	1649	1845	1840	1900	1845	1840	1875
Q Serve(g_s), s	9.0	13.6	13.7	3.7	11.3	11.5	6.1	17.7	17.7	8.0	12.6	12.7
Cycle Q Clear(g_c), s	9.0	13.6	13.7	3.7	11.3	11.5	6.1	17.7	17.7	8.0	12.6	12.7
Prop In Lane	1.00		0.42	1.00		0.73	1.00		0.11	1.00		0.19
Lane Grp Cap(c), veh/h	204	551	540	111	457	426	184	588	607	189	593	604
V/C Ratio(X)	1.08	0.65	0.65	0.78	0.63	0.64	0.80	0.78	0.78	1.16	0.60	0.60
Avail Cap(c_a), veh/h	204	633	621	181	611	569	212	588	607	189	593	604
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	23.3	23.3	36.1	25.7	25.8	34.4	24.1	24.1	35.1	22.2	22.3
Incr Delay (d2), s/veh	86.7	1.9	2.0	11.0	1.4	1.6	17.0	10.0	9.7	113.5	4.4	4.3
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	9.3	6.9	6.9	2.2	5.7	5.4	4.0	10.6	10.9	10.0	7.1	7.3
LnGrp Delay(d),s/veh	121.3	25.2	25.3	47.2	27.1	27.4	51.4	34.1	33.8	148.6	26.6	26.6
LnGrp LOS	F	C	C	D	C	C	D	C	C	F	C	C
Approach Vol, veh/h		931			647			1082			934	
Approach Delay, s/veh		48.0			29.9			36.3			55.1	
Approach LOS		D			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	29.0	8.9	28.3	11.8	29.2	13.0	24.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	25.0	8.0	28.0	9.0	24.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s	10.0	19.7	5.7	15.7	8.1	14.7	11.0	13.5				
Green Ext Time (p_c), s	0.0	4.0	0.0	6.3	0.0	6.4	0.0	6.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			43.1									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	43	1318	44	6	943	94	62	1	24	54	1	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	47	1433	48	6	1003	100	79	1	31	67	1	56
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.78	0.78	0.78	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	2367	726	11	2201	685	100	7	203	89	3	190
Arrive On Green	0.04	0.47	0.47	0.01	0.43	0.43	0.06	0.13	0.13	0.05	0.13	0.13
Sat Flow, veh/h	1774	5085	1560	1774	5085	1583	1774	50	1541	1774	27	1508
Grp Volume(v), veh/h	47	1433	48	6	1003	100	79	0	32	67	0	57
Grp Sat Flow(s),veh/h/ln	1774	1695	1560	1774	1695	1583	1774	0	1591	1774	0	1535
Q Serve(g_s), s	1.2	9.7	0.8	0.2	6.4	1.8	2.0	0.0	0.8	1.7	0.0	1.6
Cycle Q Clear(g_c), s	1.2	9.7	0.8	0.2	6.4	1.8	2.0	0.0	0.8	1.7	0.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	70	2367	726	11	2201	685	100	0	210	89	0	193
V/C Ratio(X)	0.68	0.61	0.07	0.53	0.46	0.15	0.79	0.00	0.15	0.76	0.00	0.30
Avail Cap(c_a), veh/h	269	2367	726	269	2201	685	269	0	1033	269	0	997
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	9.2	6.8	22.9	9.3	7.9	21.5	0.0	17.8	21.7	0.0	18.3
Incr Delay (d2), s/veh	10.8	1.2	0.2	33.0	0.7	0.4	13.1	0.0	0.3	12.3	0.0	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	0.8	4.8	0.4	0.2	3.1	0.8	1.4	0.0	0.4	1.1	0.0	0.7
LnGrp Delay(d),s/veh	32.8	10.3	7.0	55.9	9.9	8.4	34.7	0.0	18.1	33.9	0.0	19.2
LnGrp LOS	C	B	A	E	A	A	C		B	C		B
Approach Vol, veh/h		1528			1109			111				124
Approach Delay, s/veh		10.9			10.1			29.9				27.2
Approach LOS		B			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	25.5	6.6	9.8	5.8	24.0	6.3	10.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0
Max Q Clear Time (g_c+l1), s	2.2	11.7	4.0	3.6	3.2	8.4	3.7	2.8
Green Ext Time (p_c), s	0.0	7.5	0.0	0.5	0.0	10.2	0.0	0.5

Intersection Summary		
HCM 2010 Ctrl Delay		12.0
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	1081	76	27	743	7	182	163	43	13	135	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	76	1150	81	29	790	7	225	201	53	20	211	89
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.81	0.81	0.81	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	98	1351	95	42	1336	12	262	665	558	32	280	118
Arrive On Green	0.06	0.40	0.40	0.02	0.37	0.37	0.15	0.36	0.36	0.02	0.23	0.23
Sat Flow, veh/h	1774	3350	236	1774	3595	32	1774	1863	1563	1774	1233	520
Grp Volume(v), veh/h	76	607	624	29	389	408	225	201	53	20	0	300
Grp Sat Flow(s),veh/h/ln	1774	1770	1817	1774	1770	1857	1774	1863	1563	1774	0	1753
Q Serve(g_s), s	3.4	25.1	25.2	1.3	14.3	14.3	10.0	6.3	1.8	0.9	0.0	12.9
Cycle Q Clear(g_c), s	3.4	25.1	25.2	1.3	14.3	14.3	10.0	6.3	1.8	0.9	0.0	12.9
Prop In Lane	1.00		0.13	1.00		0.02	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	98	714	733	42	658	690	262	665	558	32	0	398
V/C Ratio(X)	0.78	0.85	0.85	0.69	0.59	0.59	0.86	0.30	0.10	0.63	0.00	0.75
Avail Cap(c_a), veh/h	198	714	733	154	658	690	264	665	558	154	0	500
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	21.9	21.9	39.1	20.4	20.4	33.6	18.7	17.3	39.4	0.0	29.1
Incr Delay (d2), s/veh	12.2	12.1	12.0	18.2	3.9	3.7	23.5	0.3	0.1	18.7	0.0	4.9
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	2.0	14.5	14.9	0.8	7.6	8.0	6.6	3.3	0.8	0.6	0.0	6.8
LnGrp Delay(d),s/veh	49.8	34.0	33.8	57.3	24.3	24.1	57.1	19.0	17.4	58.1	0.0	34.0
LnGrp LOS	D	C	C	E	C	C	E	B	B	E		C
Approach Vol, veh/h		1307			826			479			320	
Approach Delay, s/veh		34.8			25.4			36.7			35.5	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	36.5	15.9	22.3	8.5	34.0	5.4	32.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	32.0	12.0	23.0	9.0	30.0	7.0	28.0				
Max Q Clear Time (g_c+I1), s	3.3	27.2	12.0	14.9	5.4	16.3	2.9	8.3				
Green Ext Time (p_c), s	0.0	4.1	0.0	1.4	0.0	10.2	0.0	3.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.5									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	122	567	183	42	382	55	74	245	80	71	165	113
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.91	0.99		0.91	0.97		0.89	0.95		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	131	610	197	51	460	66	80	266	87	82	190	130
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	462	897	693	286	1477	210	360	481	157	335	370	253
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	845	1863	1440	668	3068	436	1019	1299	425	968	999	684
Grp Volume(v), veh/h	131	610	197	51	264	262	80	0	353	82	0	320
Grp Sat Flow(s),veh/h/ln	845	1863	1440	668	1770	1735	1019	0	1724	968	0	1683
Q Serve(g_s), s	6.1	13.6	4.4	3.4	4.9	5.0	3.6	0.0	8.8	4.0	0.0	8.0
Cycle Q Clear(g_c), s	11.0	13.6	4.4	17.1	4.9	5.0	11.6	0.0	8.8	12.7	0.0	8.0
Prop In Lane	1.00		1.00	1.00		0.25	1.00		0.25	1.00		0.41
Lane Grp Cap(c), veh/h	462	897	693	286	852	835	360	0	639	335	0	624
V/C Ratio(X)	0.28	0.68	0.28	0.18	0.31	0.31	0.22	0.00	0.55	0.24	0.00	0.51
Avail Cap(c_a), veh/h	462	897	693	286	852	835	379	0	670	353	0	655
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	10.8	8.4	17.4	8.5	8.6	17.7	0.0	13.5	18.5	0.0	13.2
Incr Delay (d2), s/veh	1.5	4.1	1.0	1.4	0.9	1.0	0.3	0.0	0.9	0.4	0.0	0.7
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	1.6	8.0	1.9	0.7	2.6	2.6	1.0	0.0	4.3	1.1	0.0	3.8
LnGrp Delay(d),s/veh	13.5	14.9	9.4	18.7	9.5	9.5	18.0	0.0	14.4	18.9	0.0	13.9
LnGrp LOS	B	B	A	B	A	A	B		B	B		B
Approach Vol, veh/h		938			577			433			402	
Approach Delay, s/veh		13.6			10.3			15.0			14.9	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.0		24.0		30.0		24.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		26.0		21.0		26.0		21.0				
Max Q Clear Time (g_c+I1), s		15.6		14.7		19.1		13.6				
Green Ext Time (p_c), s		6.4		2.7		4.7		3.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.3									
HCM 2010 LOS			B									

## **Appendix C**

SANDAG Series 12 2035 Highway Network  
Select Zone Assignment Model

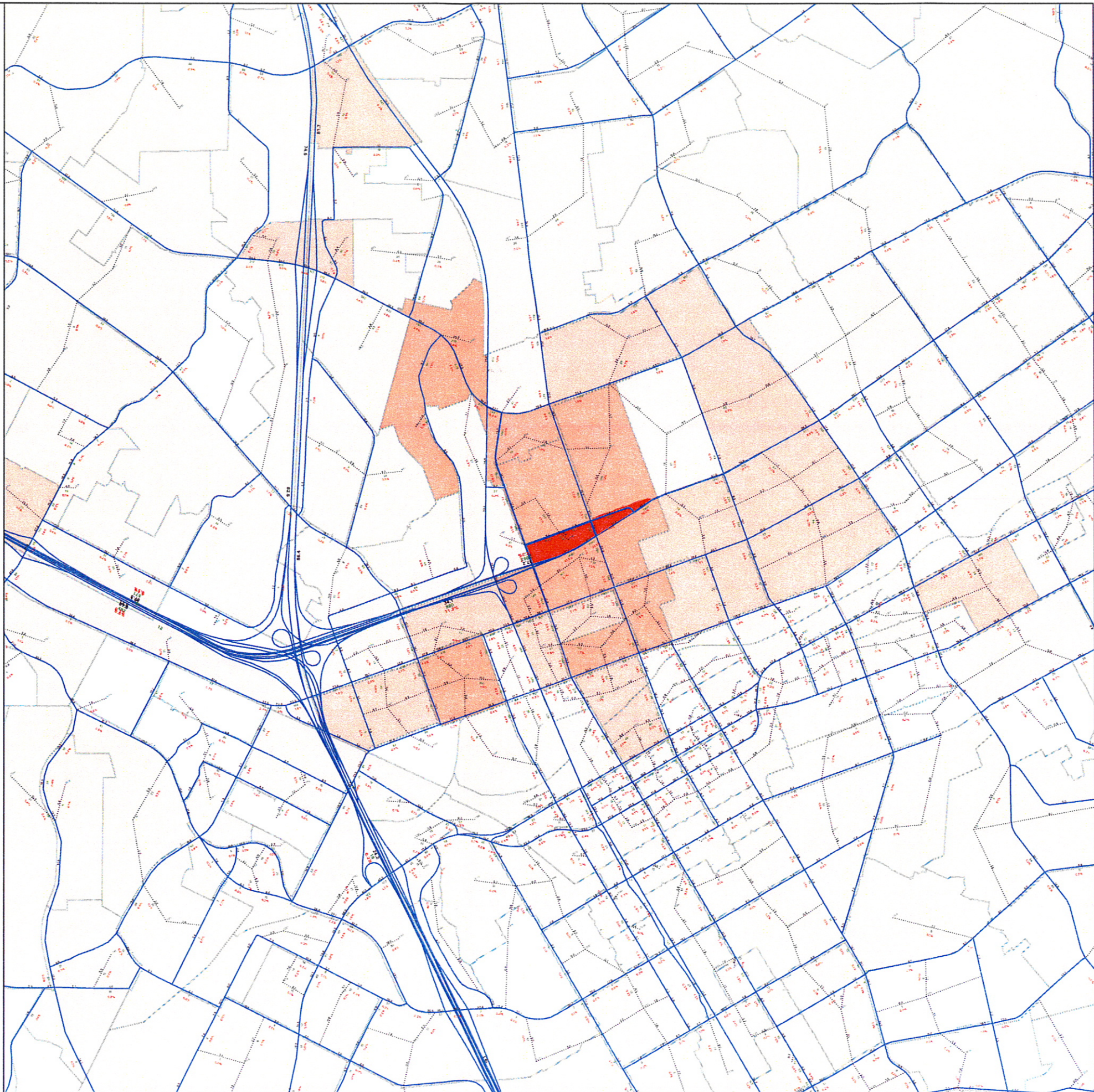
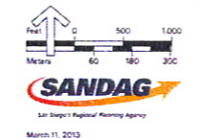
**SANDAG Series 12  
2035 Highway Network  
Select Zone Assignment  
ESCONDIDO Area**

Model Run 03/08/13  
2035RC-RTP11: ESCONDIDO SUPERMARKET TIS  
2035 - 2011 RTP  
Revenue Constrained

- Forecasted Volumes:
- Unadjusted Forecast Volume (in Thousands)
  - Whole Select Link Volume
  - Select Link Percentage
  - Traffic Analysis Zone

- Link Distributions:
- N** 100%
  - N** 50.1% -> 99.9%
  - N** 25.1% -> 50.0%
  - N** 10.1% -> 25.0%
  - N** 5.1% -> 10.0%
  - N** 0.1% -> 5.0%
  - N** 0%

- Zonal Distributions:
- 100%
  - 25.1% -> 99.9%
  - 10.1% -> 25.0%
  - 1.1% -> 10.0%
  - 0.6% -> 1.0%
  - 0.1% -> 0.5%
  - Zero Ties (0.0%)





## **Appendix D**

Cumulative Project Information

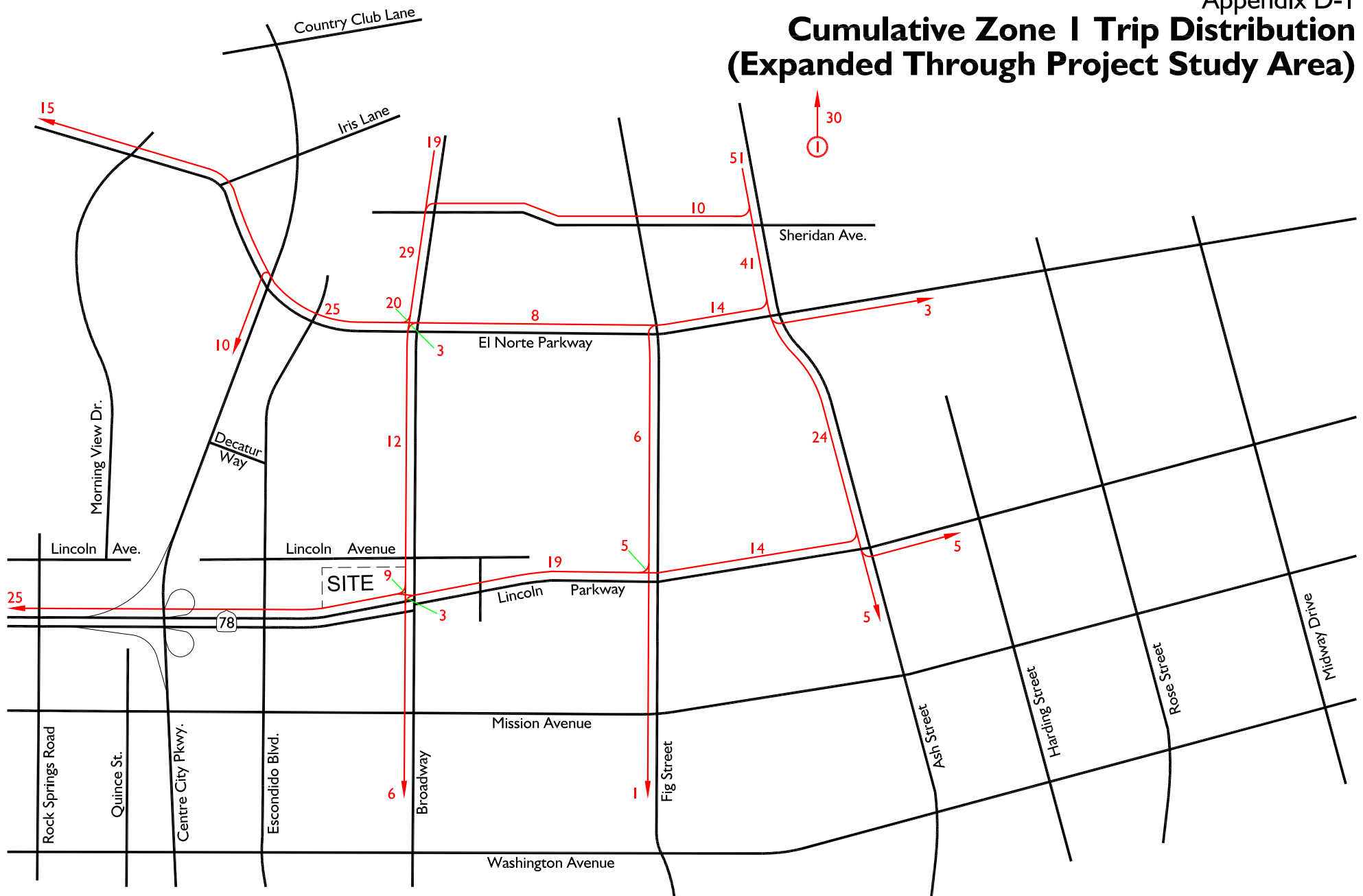
**Appendix D**  
**Cumulative Projects Trip Generation<sup>1</sup>**

Cumulative Project Trip Generation										
Project	Land Use	Quantity	Units <sup>2</sup>	Peak Hour						Daily
				AM			PM			
				In	Out	Total	In	Out	Total	
Hidden Valley Ranch	Single Family Detached Homes	179	DU	43	100	143	125	54	179	1,790
Pacific Ranch (Boer Residential)	Single Family Detached Homes	16	DU	4	9	13	11	5	16	160
Pacific Ranch (Zenner Residential)	Single Family Detached Homes	33	DU	8	18	26	23	10	33	330
Pacific Ranch (Pickering Residential)	Single Family Detached Homes	14	DU	3	8	11	10	4	14	140
Pacific Ranch (Baker Residential)	Single Family Detached Homes	16	DU	4	9	13	11	5	16	160
Pacific Ranch (Baker Conway Residential)	Single Family Detached Homes	14	DU	3	8	11	10	4	14	140
<i>Sub-Total Pacific Ranch</i>		93	DU	22	52	74	65	28	93	930
<b>Total Cumulative Projects Trip Generation</b>				<b>65</b>	<b>152</b>	<b>217</b>	<b>190</b>	<b>82</b>	<b>272</b>	<b>2,720</b>

<sup>1</sup> Source: City of Escondido and Linscott, Law & Greenspan Engineers

<sup>2</sup> DU = Dwelling Units

# Cumulative Zone I Trip Distribution (Expanded Through Project Study Area)

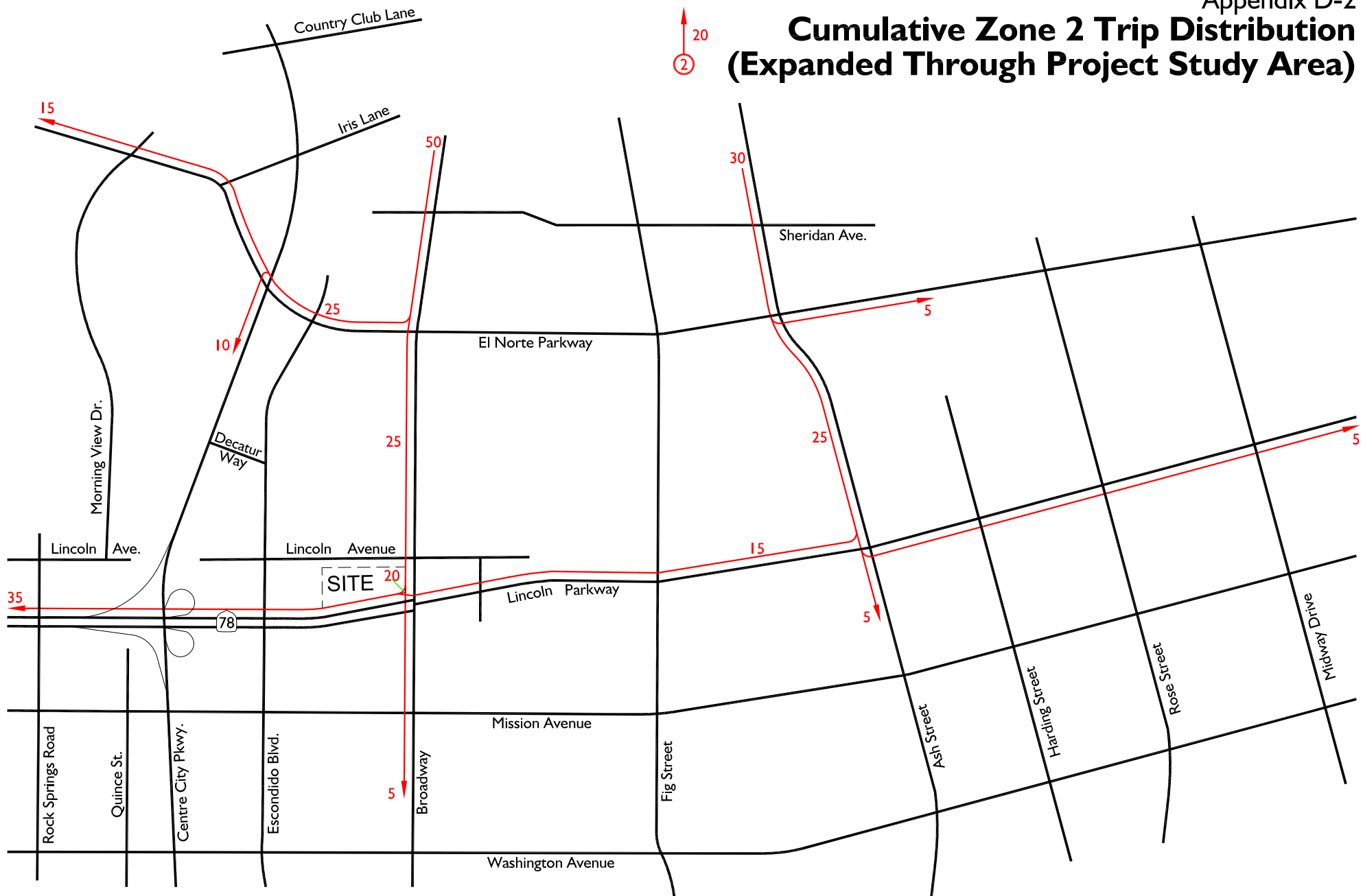


**Legend:**

- ① = Hidden Valley Ranch: 179 DU Single Family Homes
- 10 = Percent to/from Project



# Cumulative Zone 2 Trip Distribution (Expanded Through Project Study Area)



**Legend:**

- ② = Pacific Ranch Development: 93 DU Single Family Homes
- 10 = Percent to/from Project

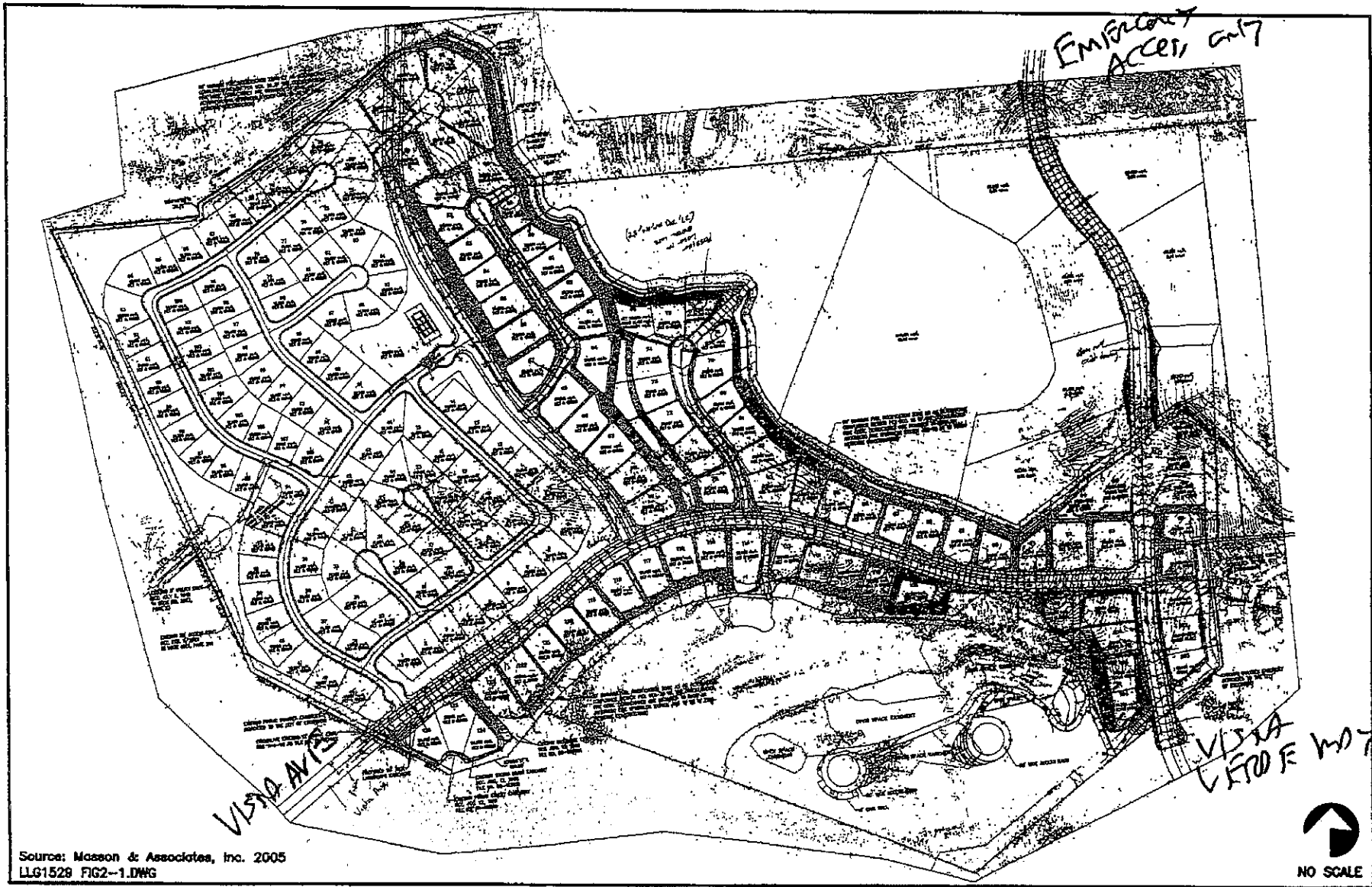
## **2.0 PROJECT DESCRIPTION**

### **2.1 Project Location**

The proposed Hidden Valley Ranch residential development is located in the City of Escondido, east of the Conway Drive/Centennial Way and south of Rincon Avenue.

### **2.2 Project Description**

The proposed project is a 149.9-acre residential development with 179 single-family detached units. Access to the site will be provided via Vista Avenue directly west of the project site, and via Vista Verde Way to El Norte Parkway. The site plan is shown on *Figure 2-1*.



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# Figure 2-1

SITE PLAN

HIDDEN VALLEY RANCH

## 7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

### 7.1 TRIP GENERATION

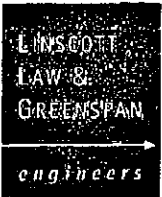
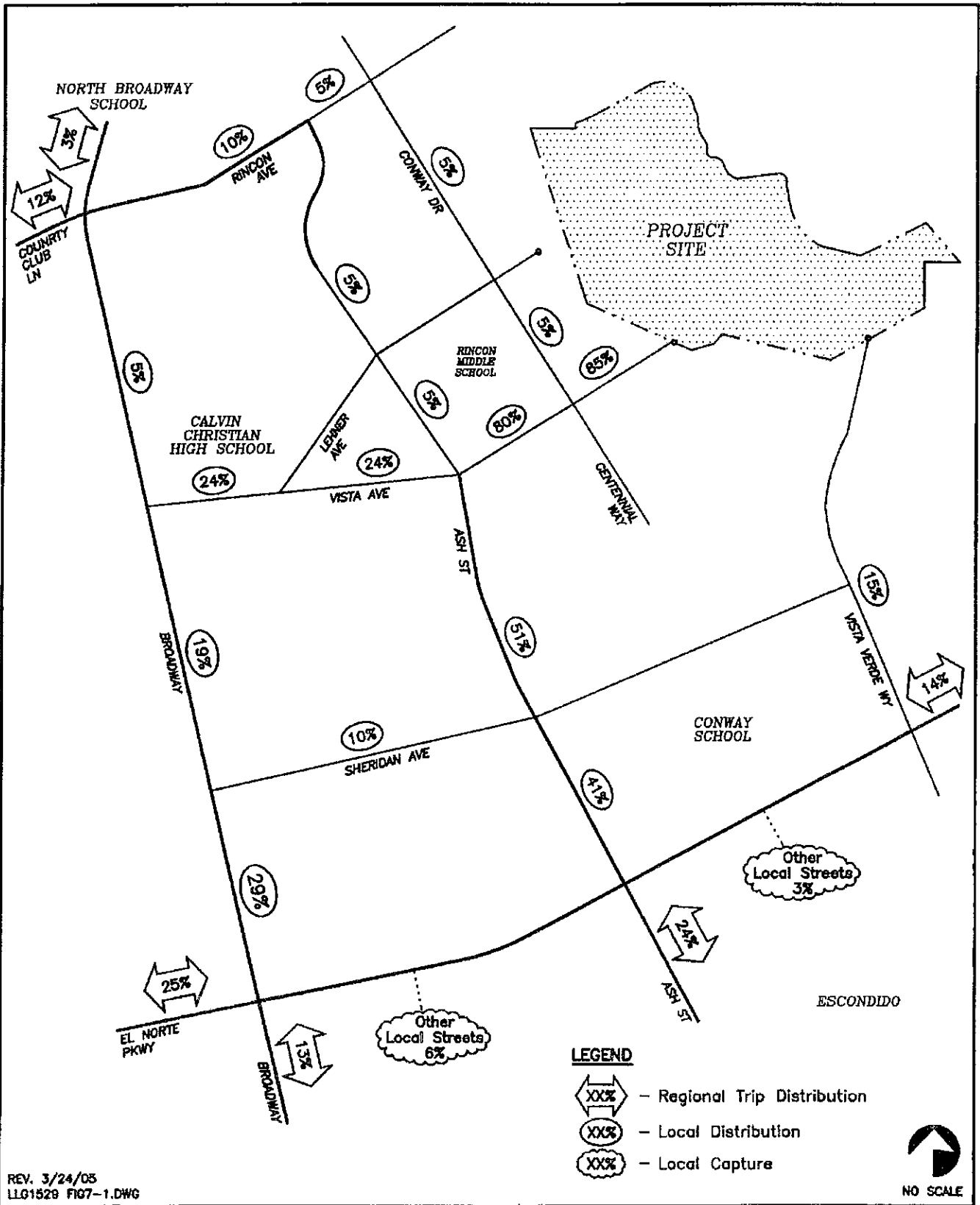
*Table 7-1* summarizes the trip generation for the Hidden Valley Ranch development. The trip generation rates are based on the *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. As seen on *Table 7-1*, the project is calculated to generate a total of 1,790 daily project trips, with 143 trips (43 inbound and 100 outbound trips) in the AM peak hour and 179 trips (125 inbound and 54 outbound trips) in the PM peak hour.

### 7.2 TRIP DISTRIBUTION/ASSIGNMENT

The project-generated traffic was distributed to the street system based on a SANDAG Select Zone Assignment (SZA) of Traffic Analysis Zone (TAZ) 531. The SZA uses the land-use assumptions in the Cities/County 2030 Transportation Forecast to distribute traffic volumes generated by the TAZ throughout the region. It is from this forecasted distribution (as well as existing traffic counts and the project's location in relation to the I-15 and 78 freeways) that the general regional traffic distribution is deduced.

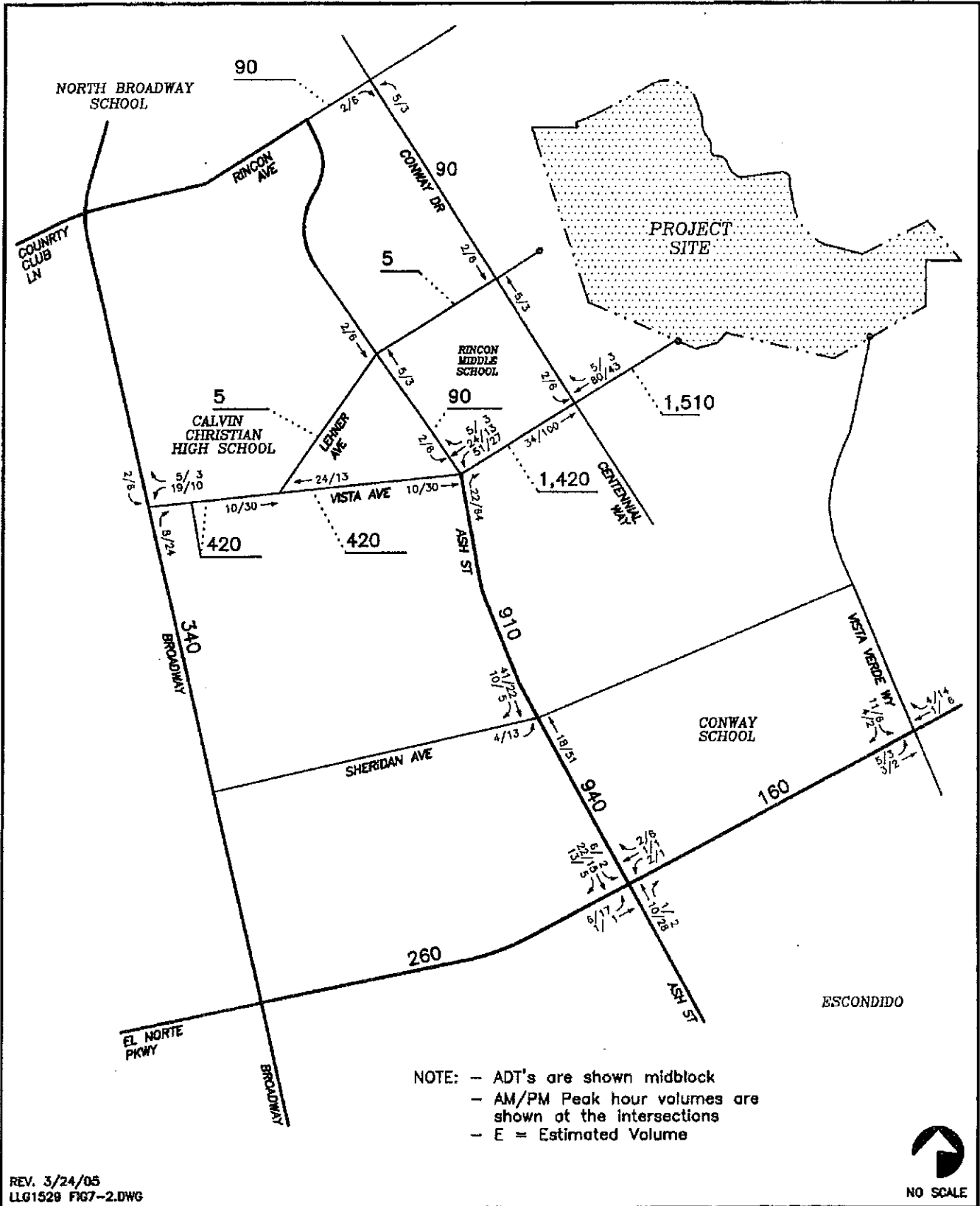
The traffic distribution was not changed to reflect the fact that some drivers will choose to avoid Vista Avenue during the peak periods of Rincon Middle School. Drivers can choose to use Vista Verde Way instead. The trip distribution assignment is considered to represent the worst case.

*Figure 7-1* depicts the regional project traffic distribution percentages. *Figure 7-2* depicts the project traffic assignment based on this distribution, while *Figure 7-3* depicts the total traffic volumes for the existing + project condition.



**Figure 7-1**  
**REGIONAL TRAFFIC DISTRIBUTION**  
**AM/PM PEAK HOURS & ADTs**  
**HIDDEN VALLEY RANCH**

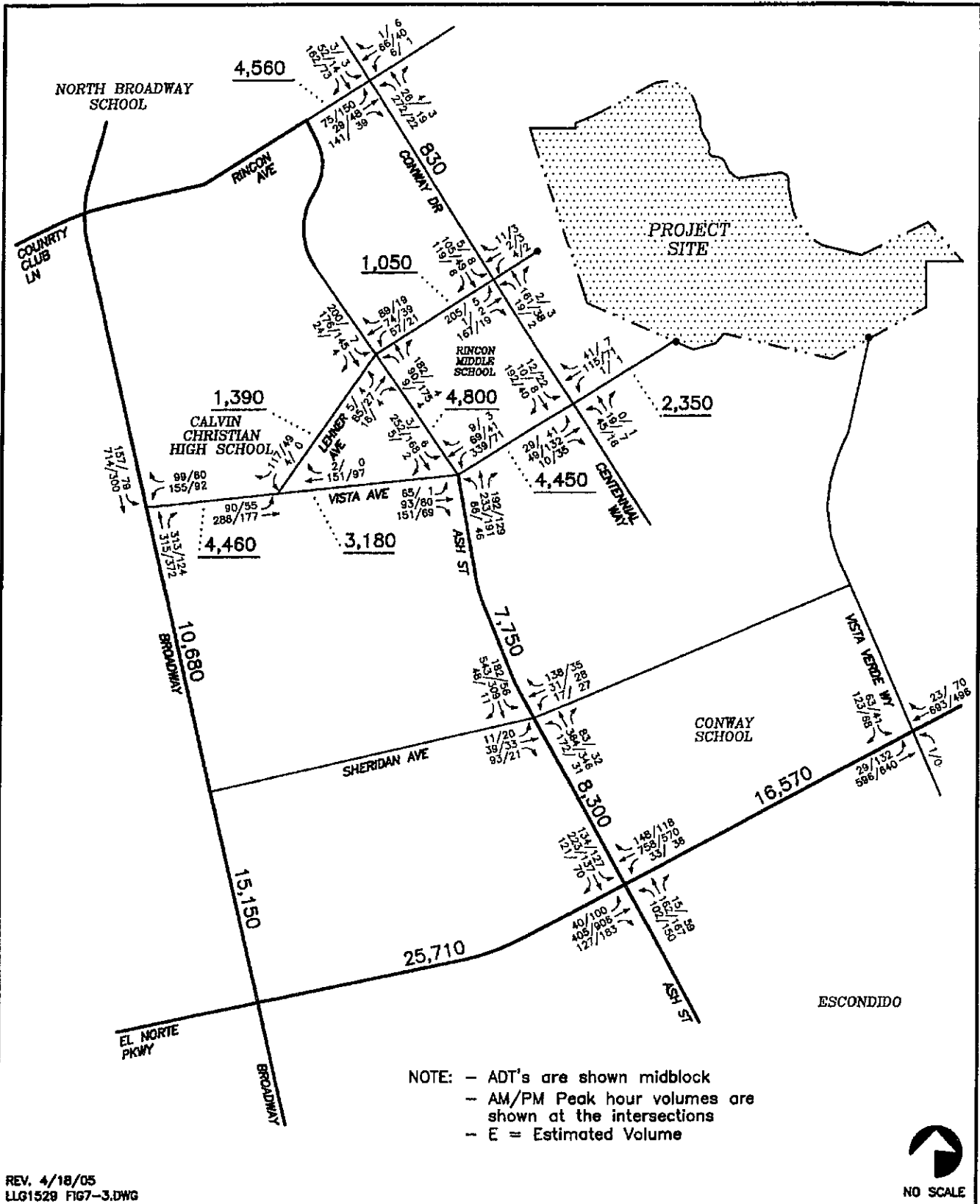




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**Figure 7-2**  
**PROJECT TRAFFIC VOLUMES**  
**AM/PM PEAK HOURS & ADT's**

HIDDEN VALLEY RANCH



**Figure 7-3**  
**EXISTING + PROJECT TRAFFIC VOLUMES**  
**AM/PM PEAK HOURS & ADTs**  
**HIDDEN VALLEY RANCH**

**TABLE 7-1  
TRIP GENERATION SUMMARY**

Land Use	Quantity	Daily Trip Ends (ADT)		AM Peak Hour					PM Peak Hour				
		Rate	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Single Family Residential	179 Units	10.0/Unit	1,790	8%	3:7	43	100	143	10%	7:3	125	54	179

*Footnotes:*

1. Generation rate obtained from the SANDAG Brief Guide (April 2002).
2. Trip-ends are one-way traffic movements, either entering or leaving.

## 8.0 CUMULATIVE PROJECTS

A list of 10 near-term cumulative projects was obtained based on discussions with the City of Escondido for inclusion in this analysis. *Figure 8-1* depicts the location of each cumulative project and *Table 8-1* summarizes the trip generation for each cumulative project. Following is a brief description of each of the cumulative projects included in this analysis.

### 8.1 Description Of Projects

**TR 883** – TR 883 is a proposed 11 unit single-family residential project located at the northeast corner of El Norte Parkway and Alita Lane in the City of Escondido. The project is calculated to generate 110 daily trips, 9 AM peak hour trips (3 inbound and 6 outbound) and 11 PM peak hour trips (8 inbound and 3 outbound). Project data was obtained from the City of Escondido.

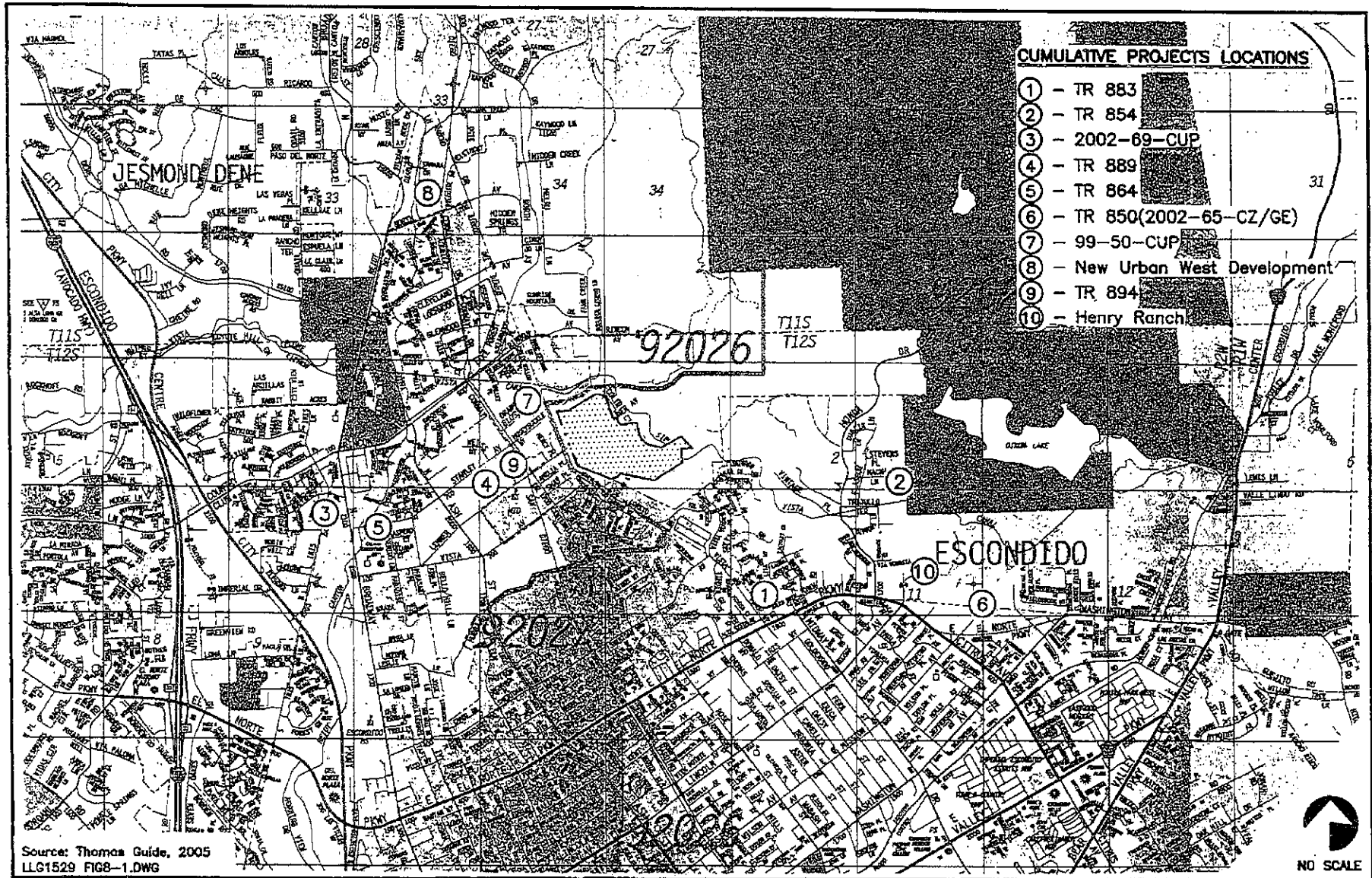
**TR 854** – TR 854 is a proposed 10 unit single-family residential project located on McNaughton near La Honda Drive in the City of Escondido. The project is calculated to generate 100 daily trips, 8 AM peak hour trips (2 inbound and 6 outbound) and 10 PM peak hour trips (7 inbound and 3 outbound). Project data was obtained from the City of Escondido.

**2002 69 CUP** – 2002 69 CUP is a proposed 143 unit elder care facility located on the west side Broadway, south of Village Lane in the City of Escondido. The project is calculated to generate 358 daily trips, 14 AM peak hour trips (8 inbound and 6 outbound) and 29 PM peak hour trips (15 inbound and 14 outbound). Project data was obtained from the City of Escondido.

**TR 889** – TR 889 is a proposed 15 unit single-family residential project located on the south side Stanley Avenue in the City of Escondido. The project is calculated to generate 150 daily trips, 12 AM peak hour trips (4 inbound and 8 outbound) and 15 PM peak hour trips (10 inbound and 5 outbound). Project data was obtained from the City of Escondido.

**TR 864** – TR 864 is a proposed 18 unit single-family residential project located on the east side North Broadway opposite Meadowbrook in the City of Escondido. The project is calculated to generate 180 daily trips, 14 AM peak hour trips (4 inbound and 10 outbound) and 18 PM peak hour trips (13 inbound and 5 outbound). Project data was obtained from the City of Escondido.

**TR 850 (2002-65-CZ/GE)** - Track 850 is a proposed 125-unit single-family residential subdivision at 2600 E. Washington Avenue. The project site is located on the north side of East Washington Avenue, west of Valley Center Road. This project is calculated to generate 1,250 daily trips, 100 AM peak hour trips (30 inbound and 70 outbound) and 125 PM peak hour trips (88 inbound and 37 outbound). Project data was obtained from the Washington Hills Traffic Study completed by LLG engineers.



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**Figure 8-1**  
**CUMULATIVE PROJECTS LOCATIONS**  
**HIDDEN VALLEY RANCH**

**TABLE 8-1  
CUMULATIVE PROJECTS**

Cumulative Projects	Land Use	Size	Rate	ADT	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
1 TR 883	S. F. Residential	11 Units	10 /Unit	110	3	6	9	8	3	11
2 TR 854	S. F. Residential	10 Units	10 /Unit	100	2	6	8	7	3	10
3 2002-69-CUP	Elder Care Facility	143 Units	2.5 /Unit	358	8	6	14	15	14	29
4 TR 889	S. F. Residential	15 Units	10 /Unit	150	4	8	12	10	5	15
5 TR 864	S. F. Residential	18 Units	10 /Unit	180	4	10	14	13	5	18
6 TR 850 (2002-65-CZ/GE)	S. F. Residential	125 Units	10 /Unit	1,250	30	70	100	88	37	125
7 99-50-CUP	Religious Facility	32,000 SF	9 /KSF	288	8	6	14	11	12	23
	Dormitory	11 Bed	7 /Bed	77	2	5	7	4	3	7
8 New Urban Wests Dev.	S. F. Residential	34 Units	10 /Unit	340	8	19	27	24	10	34
9 TR 894	S. F. Residential	10 Units	10 /Unit	100	2	6	8	7	3	10
10 Henry Ranch	S. F. Residential	125 Units	10 /Unit	1250	30	70	100	88	38	125
<b>Total Cumulative Projects</b>				<b>4,203</b>	<b>101</b>	<b>212</b>	<b>313</b>	<b>275</b>	<b>132</b>	<b>407</b>

*Footnotes*

- <sup>a</sup> Trip generation shown is the difference of existing and proposed land uses.
- <sup>b</sup> Site specific trip generation.

**99-50-CUP** – 99-50-CUP is a 32,000 SF religious facility with a 11-bed dormitory project at 2600 E. Washington Avenue. The project site is located on the north side of East Washington Avenue, west of Valley Center Road. This project is calculated to generate 1,250 daily trips, 100 AM peak hour trips (30 inbound and 70 outbound) and 125 PM peak hour trips (88 inbound and 37 outbound).

**New Urban West's Development** is a proposed 34-unit single-family residential subdivision located on the north side of North Avenue, east of Broadway Road. This project is calculated to generate 340 daily trips, 27 AM peak hour trips (8 inbound and 19 outbound) and 34 PM peak hour trips (7 inbound and 3 outbound). Project data was obtained from the City of Escondido.

**TR 894** – TR 894 is a proposed 10 unit single-family residential project located on the south side Stanley Avenue in the City of Escondido. The project is calculated to generate 100 daily trips, 8 AM peak hour trips (2 inbound and 6 outbound) and 10 PM peak hour trips (7 inbound and 3 outbound). Project data was obtained from the City of Escondido.

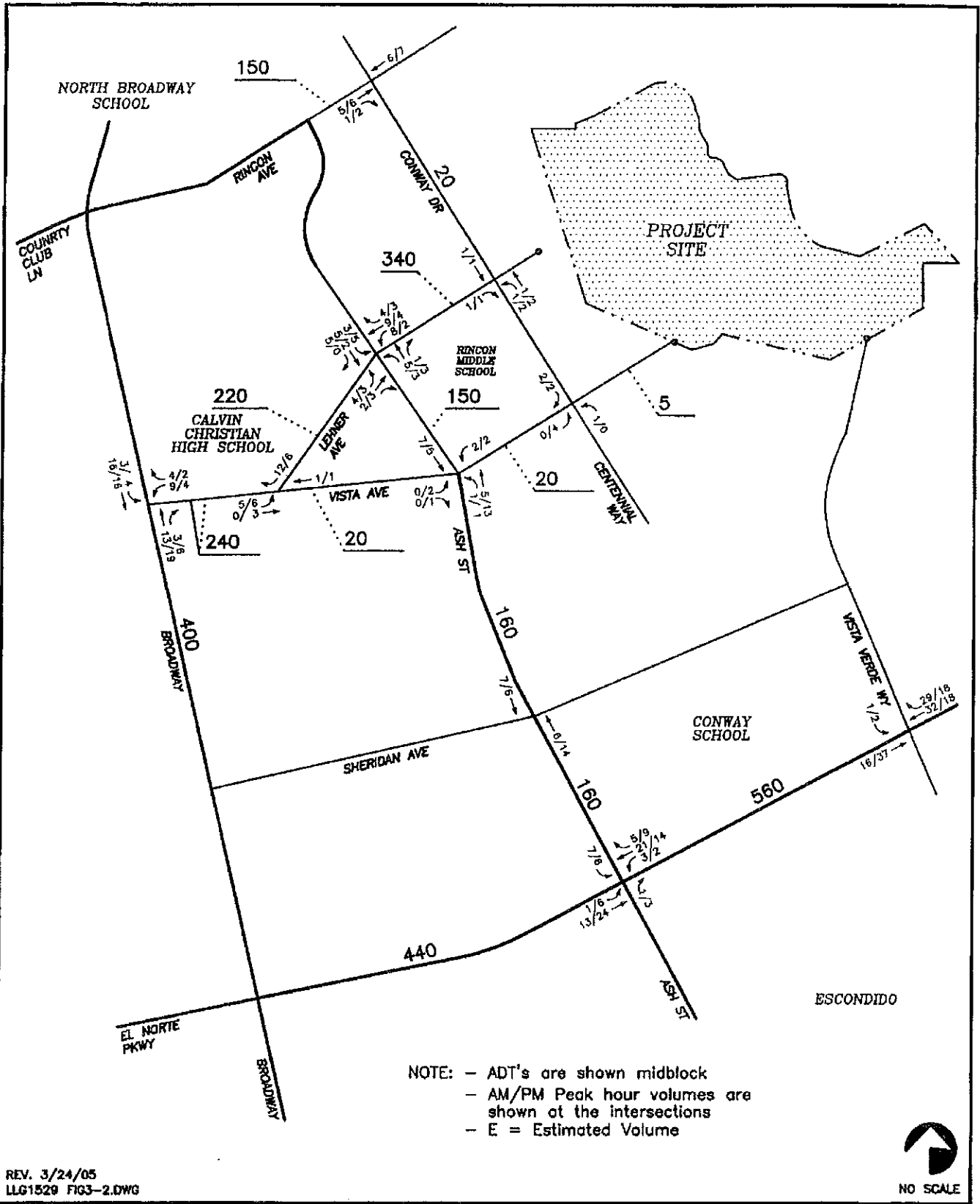
**Henry Ranch** is a proposed 125-unit single-family residential subdivision located on the north side of East Washington Avenue, west of Valley Center Road. This project is calculated to generate 1,250 daily trips, 100 AM peak hour trips (30 inbound and 70 outbound) and 125 PM peak hour trips (88 inbound and 38 outbound). Project data was obtained from the Henry Ranch Draft Traffic Study done by LLG engineers.

## 8.2 Summary Of Cumulative Projects Trips

As seen in *Table 8-1*, the 10 cumulative projects are calculated to generate a total of 4,203 daily trips, 313 AM peak hour trips and 125 PM peak hour trips.

*Figure 8-2* depicts the total AM and PM peak hour intersection and ADT volumes for the cumulative projects, while *Figure 8-3* depicts the AM and PM peak hour and ADT volumes for the existing + project + cumulative projects condition.

Individual assignments of the traffic generated by each of the cumulative projects are included in *Appendix E*.

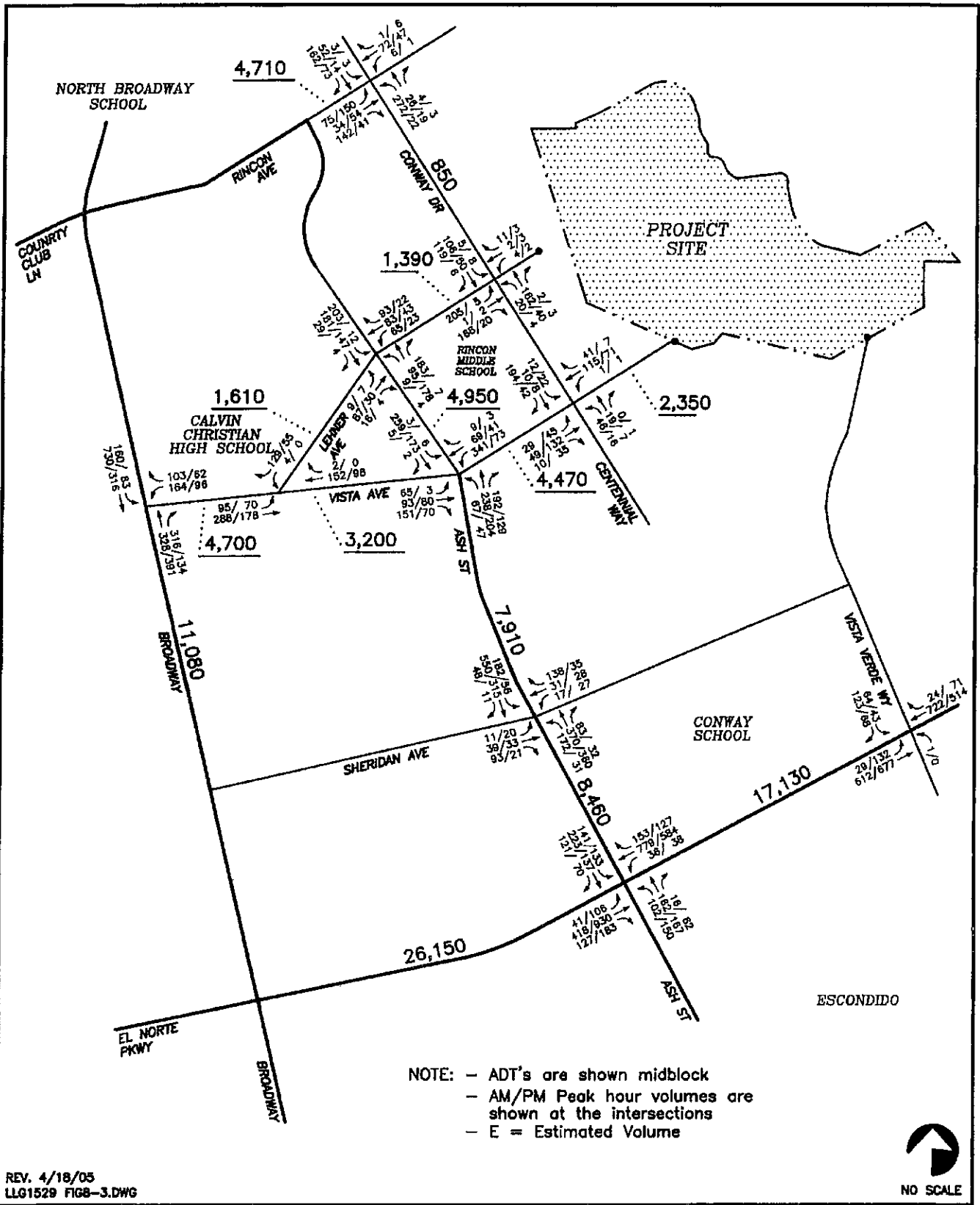


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**Figure 8-2**  
**CUMULATIVE PROJECTS TRAFFIC VOLUMES**  
**AM/PM PEAK HOURS & ADTs**

HIDDEN VALLEY RANCH





**Figure 8-3**  
**EXISTING + PROJECT+ CUMULATIVE PROJECTS TRAFFIC VOLUMES**  
**AM/PM PEAK HOURS & ADTs**

## Project Descriptions

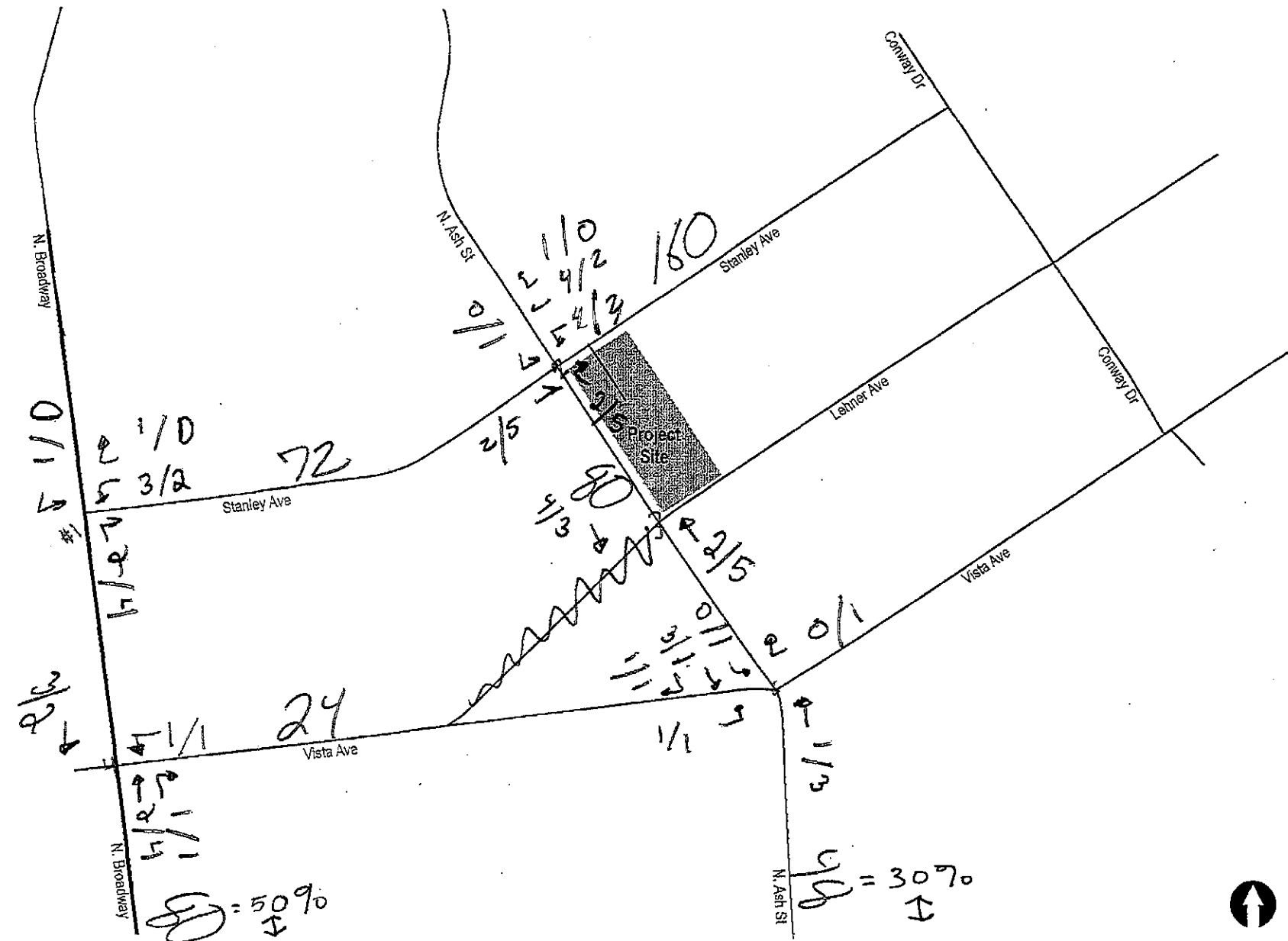
**Boer Residential** is located along Stanley Avenue and adjacent to the "Proposed Project" and east of N. Ash Street. The project proposes to construct 16 single-family residential units and 4.6-acre site. Access is to Stanley Avenue. The project is calculated to generate 160 ADT with 13 AM peak hour trips with 4 inbound and 9 outbound trips and 16 PM peak hour trips with 11 inbound and 5 outbound trips.

**Zenner Residential** is located along Lehner Avenue between Nina Place and N. Ash Street and proposes to construct 33 single-family residential units on 5.6 acres. In addition, the project, proposes the cul-de-sacing of Lehner Avenue just east of Vista Avenue. Access is proposed to N. Ash Street and Lehner Avenue. The project is calculated to generate 330 ADT with 26 AM peak hour trips with 8 inbound and 18 outbound trips and 33 PM peak hour trips with 23 inbound and 10 outbound trips.

**Pickering Residential** is located along the southeastern corner of the Stanley Avenue and N. Ash Street intersection and proposes to construct 14 single-family residential units on 4.2-acre site. Access is to Stanley Avenue. The project is calculated to generate 140 ADT with 11 AM peak hour trips with 3 inbound and 8 outbound trips and 14 PM peak hour trips with 10 inbound and 4 outbound trips.

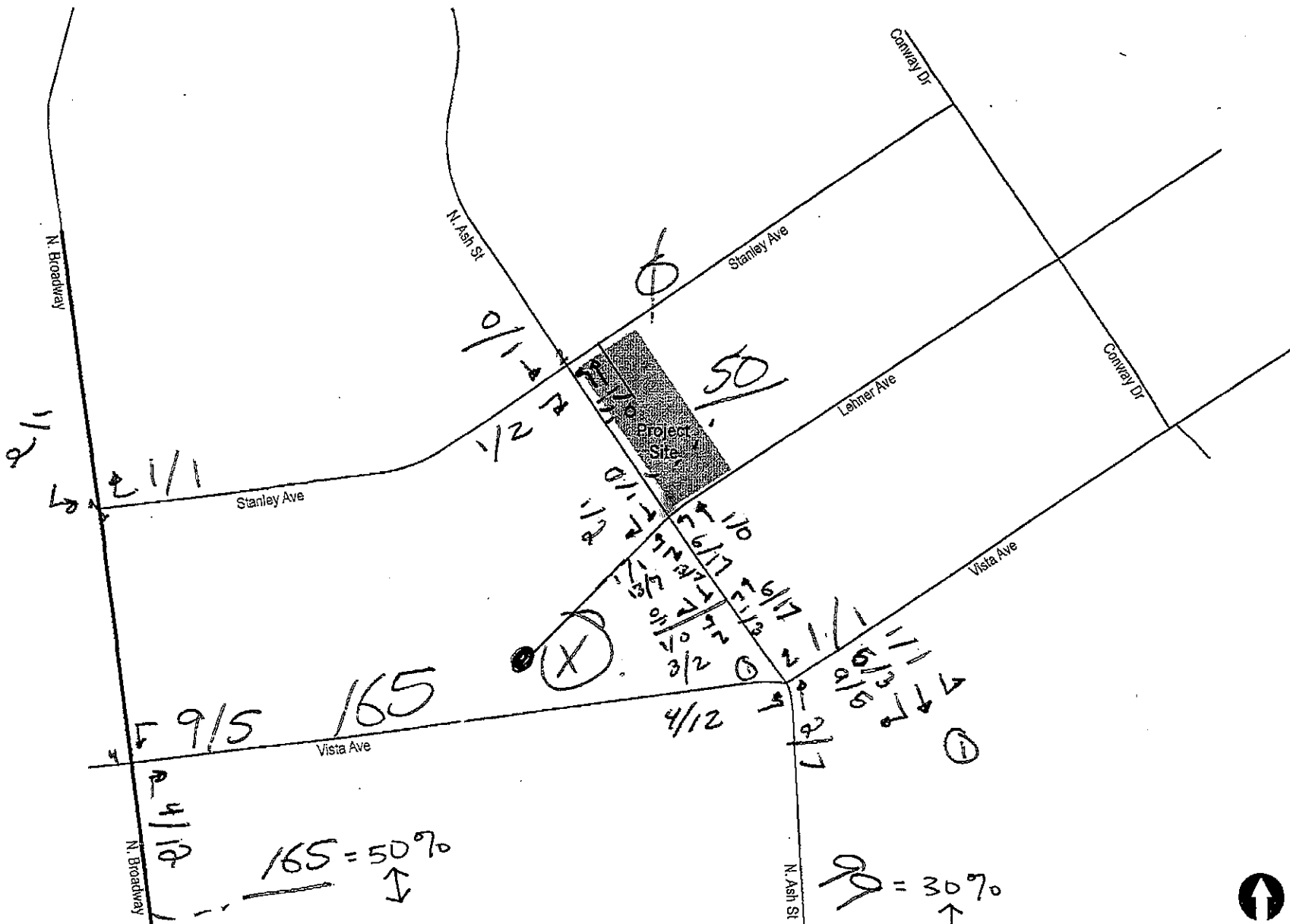
**Baker Residential** is located along Stanley Avenue and adjacent to the "Pickering" residential project east of N. Ash Street. The project proposes to construct 16 single-family residential units and 4.6-acre site. Access is to Stanley Avenue. The project is calculated to generate 160 ADT with 13 AM peak hour trips with 4 inbound and 9 outbound trips and 16 PM peak hour trips with 11 inbound and 5 outbound trips.

**Baker Conway Residential** is located along the southwestern corner of the Stanley Avenue and Conway Drive intersection and proposes to construct 14 single-family residential units on the site. Access is to Lehner Avenue. The project is calculated to generate 140 ADT with 11 AM peak hour trips with 3 inbound and 8 outbound trips and 14 PM peak hour trips with 10 inbound and 4 outbound trips.



ADT	AM		PM	
	I	O	I	O
160	4	9	11	5

Boer

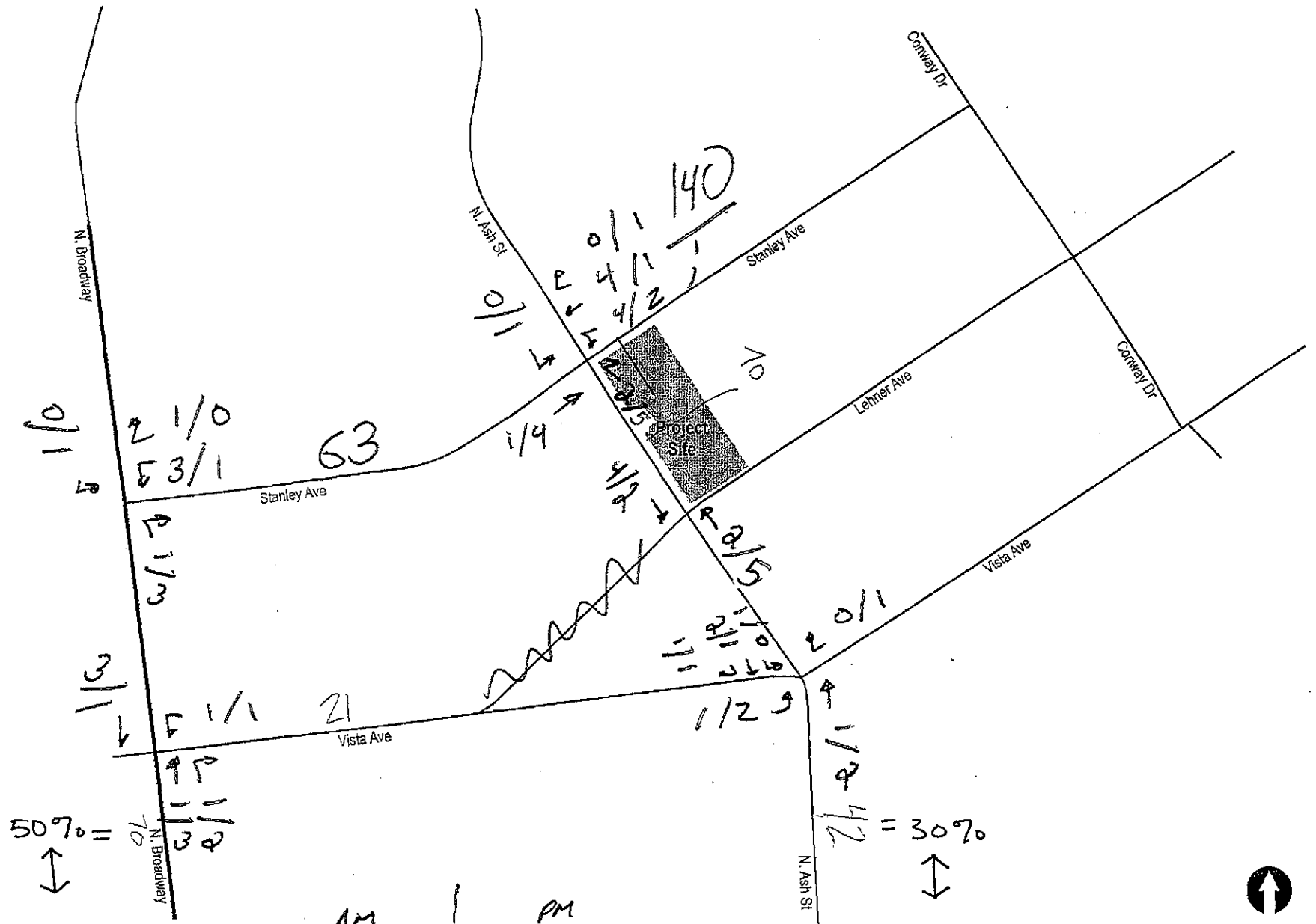


165 = 50%

90 = 30%

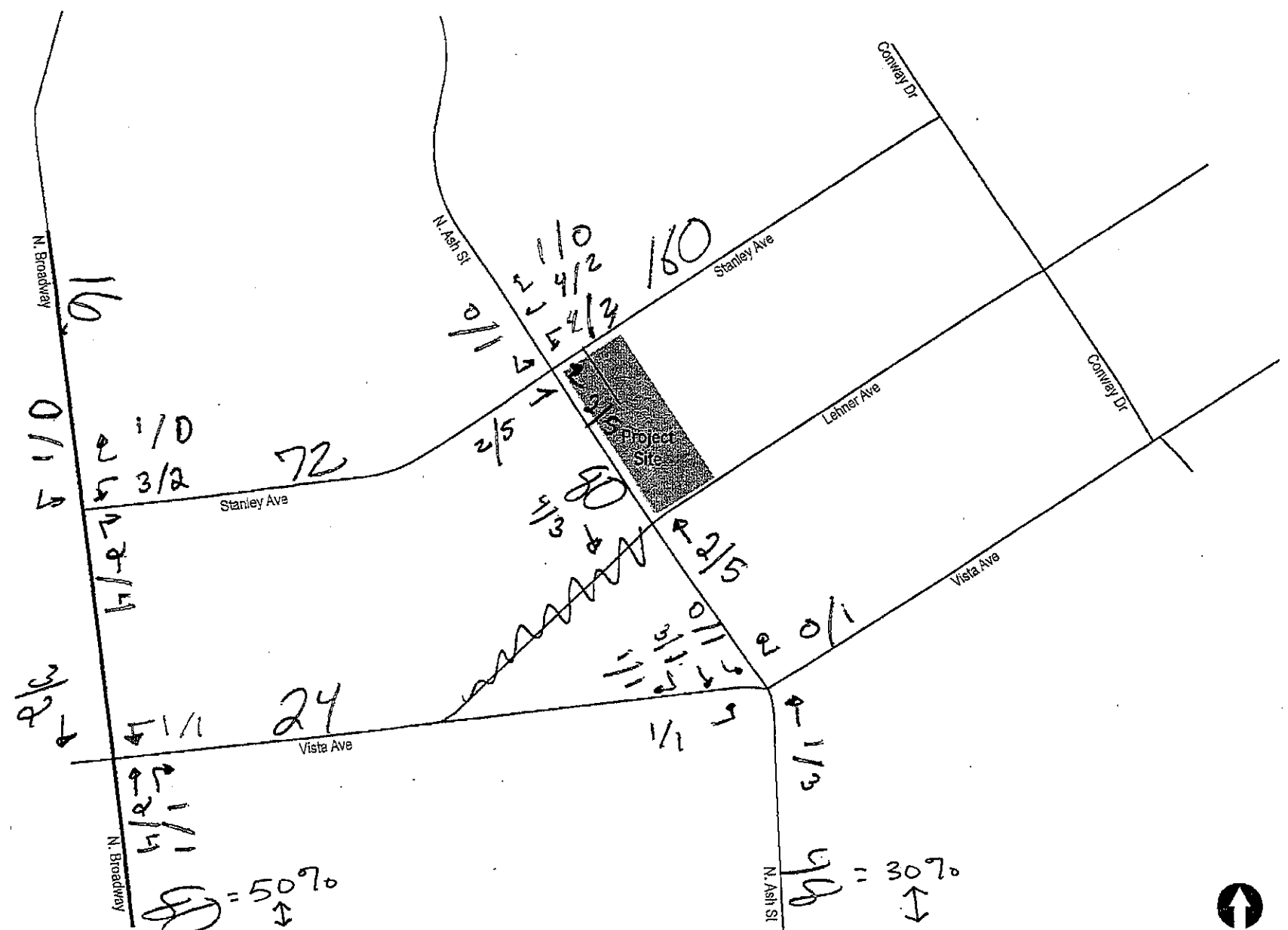
ADT	AM		PM	
	I	O	I	O
330	8	18	23	10

Zenner



ADT	AM		PM	
	I	O	I	O
140	3	8	10	4

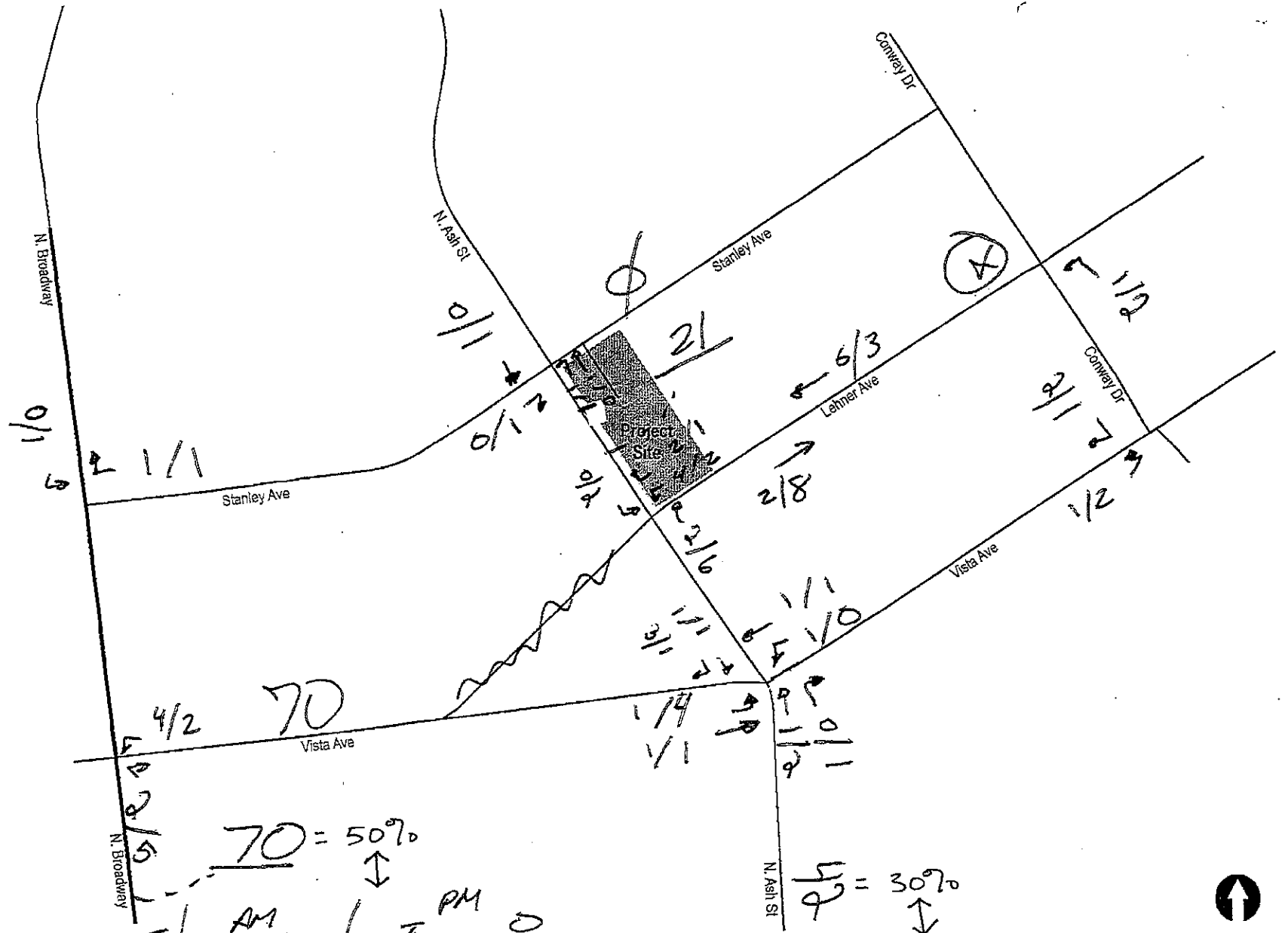
Pinkeying



ADT	AM		PM	
	I	O	I	O
160	4	9	11	5

Baker





ADT	AM		PM	
	3	8	10	4
140	3	8	10	4

Baker Conway

## **Appendix E**

Existing Plus Project Conditions  
HCM Intersection Analysis Worksheets



Existing Plus Project AM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	41	239	24	42	630	85	37	165	22	159	266	99
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	44	254	26	55	829	112	45	199	27	169	283	105
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.76	0.76	0.76	0.83	0.83	0.83	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1458	148	74	1427	193	289	892	119	405	529	450
Arrive On Green	0.04	0.45	0.45	0.04	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3245	329	1774	3134	423	992	3138	420	1150	1863	1583
Grp Volume(v), veh/h	44	138	142	55	468	473	45	111	115	169	283	105
Grp Sat Flow(s),veh/h/ln	1774	1770	1805	1774	1770	1788	992	1770	1789	1150	1863	1583
Q Serve(g_s), s	1.3	2.5	2.5	1.6	10.5	10.5	2.1	2.6	2.6	7.0	6.8	2.7
Cycle Q Clear(g_c), s	1.3	2.5	2.5	1.6	10.5	10.5	9.0	2.6	2.6	9.7	6.8	2.7
Prop In Lane	1.00		0.18	1.00		0.24	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	64	795	811	74	806	814	289	503	508	405	529	450
V/C Ratio(X)	0.69	0.17	0.18	0.74	0.58	0.58	0.16	0.22	0.23	0.42	0.53	0.23
Avail Cap(c_a), veh/h	166	795	811	166	806	814	453	795	804	595	837	711
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	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	8.8	8.8	25.3	10.8	10.8	19.9	14.6	14.6	18.3	16.1	14.7
Incr Delay (d2), s/veh	12.5	0.5	0.5	11.9	2.7	2.6	0.2	0.2	0.2	0.7	0.8	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	0.9	1.3	1.3	1.0	5.7	5.7	0.6	1.3	1.3	2.3	3.6	1.2
LnGrp Delay(d),s/veh	38.0	9.3	9.3	37.2	13.4	13.4	20.2	14.8	14.8	19.0	17.0	14.9
LnGrp LOS	D	A	A	D	B	B	C	B	B	B	B	B
Approach Vol, veh/h		324			996			271			557	
Approach Delay, s/veh		13.2			14.7			15.7			17.2	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	39.6		19.2	5.9	39.9		19.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	24.0		24.0	5.0	24.0		24.0				
Max Q Clear Time (g_c+I1), s	3.6	4.5		11.7	3.3	12.5		11.0				
Green Ext Time (p_c), s	0.0	7.9		3.5	0.0	5.9		3.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.3									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	51	505	69	91	686	43	115	16	190	40	18	42
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	55	543	74	96	722	45	147	21	244	51	23	54
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	2168	291	124	2587	805	411	33	386	242	129	304
Arrive On Green	0.04	0.48	0.48	0.07	0.51	0.51	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	4536	609	1774	5085	1583	1317	127	1475	1110	495	1162
Grp Volume(v), veh/h	55	404	213	96	722	45	147	0	265	51	0	77
Grp Sat Flow(s),veh/h/ln	1774	1695	1755	1774	1695	1583	1317	0	1602	1110	0	1658
Q Serve(g_s), s	1.9	4.4	4.5	3.3	5.1	0.9	6.1	0.0	9.2	2.7	0.0	2.3
Cycle Q Clear(g_c), s	1.9	4.4	4.5	3.3	5.1	0.9	8.4	0.0	9.2	11.9	0.0	2.3
Prop In Lane	1.00		0.35	1.00		1.00	1.00		0.92	1.00		0.70
Lane Grp Cap(c), veh/h	70	1620	839	124	2587	805	411	0	419	242	0	433
V/C Ratio(X)	0.79	0.25	0.25	0.77	0.28	0.06	0.36	0.00	0.63	0.21	0.00	0.18
Avail Cap(c_a), veh/h	197	1620	839	254	2587	805	674	0	739	464	0	764
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	9.7	9.8	28.8	8.9	7.8	21.2	0.0	20.6	25.8	0.0	18.0
Incr Delay (d2), s/veh	17.7	0.4	0.7	9.8	0.3	0.1	0.5	0.0	1.6	0.4	0.0	0.2
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	1.3	2.2	2.4	2.0	2.4	0.4	2.3	0.0	4.2	0.9	0.0	1.1
LnGrp Delay(d),s/veh	47.6	10.1	10.5	38.6	9.1	7.9	21.8	0.0	22.1	26.3	0.0	18.2
LnGrp LOS	D	B	B	D	A	A	C		C	C		B
Approach Vol, veh/h		672			863			412			128	
Approach Delay, s/veh		13.3			12.3			22.0			21.4	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	34.1		20.4	6.5	36.0		20.4				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	30.0		29.0	7.0	32.0		29.0				
Max Q Clear Time (g_c+I1), s	5.3	6.5		13.9	3.9	7.1		11.2				
Green Ext Time (p_c), s	0.1	10.2		2.6	0.0	10.5		2.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.1									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	409	72	221	867	45	104	24	102	49	23	19
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	15	487	86	254	997	52	118	27	116	73	34	28
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.88	0.88	0.88	0.67	0.67	0.67
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1216	214	302	1915	100	150	232	197	94	88	72
Arrive On Green	0.01	0.40	0.40	0.17	0.56	0.56	0.08	0.12	0.12	0.05	0.09	0.09
Sat Flow, veh/h	1774	3010	529	1774	3422	178	1774	1863	1583	1774	946	779
Grp Volume(v), veh/h	15	285	288	254	515	534	118	27	116	73	0	62
Grp Sat Flow(s),veh/h/ln	1774	1770	1769	1774	1770	1831	1774	1863	1583	1774	0	1725
Q Serve(g_s), s	0.5	7.4	7.5	8.9	11.7	11.7	4.2	0.8	4.5	2.6	0.0	2.2
Cycle Q Clear(g_c), s	0.5	7.4	7.5	8.9	11.7	11.7	4.2	0.8	4.5	2.6	0.0	2.2
Prop In Lane	1.00		0.30	1.00		0.10	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	26	715	715	302	990	1025	150	232	197	94	0	160
V/C Ratio(X)	0.58	0.40	0.40	0.84	0.52	0.52	0.79	0.12	0.59	0.78	0.00	0.39
Avail Cap(c_a), veh/h	110	715	715	358	990	1025	165	752	640	248	0	777
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(l)	0.96	0.96	0.96	0.86	0.86	0.86	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.5	13.6	13.7	25.9	8.8	8.8	28.9	25.0	26.6	30.1	0.0	27.5
Incr Delay (d2), s/veh	18.0	1.6	1.6	12.5	1.7	1.6	20.1	0.2	2.8	13.0	0.0	1.5
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	0.4	3.9	3.9	5.4	6.0	6.2	2.9	0.4	2.1	1.6	0.0	1.1
LnGrp Delay(d),s/veh	49.5	15.2	15.3	38.4	10.5	10.4	49.0	25.3	29.4	43.1	0.0	29.0
LnGrp LOS	D	B	B	D	B	B	D	C	C	D		C
Approach Vol, veh/h		588			1303			261			135	
Approach Delay, s/veh		16.1			15.9			37.8			36.6	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	55.6	9.4	10.0	4.9	65.7	7.4	12.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	26.0	6.0	29.0	4.0	35.0	9.0	26.0				
Max Q Clear Time (g_c+l1), s	10.9	9.5	6.2	4.2	2.5	13.7	4.6	6.5				
Green Ext Time (p_c), s	0.2	9.6	0.0	0.8	0.0	11.2	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			19.7									
HCM 2010 LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	441	217	230	586	118	120	204	96	171	695	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	32	525	258	250	637	128	129	219	103	186	755	43
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	905	405	312	926	186	181	1434	641	242	1497	670
Arrive On Green	0.03	0.26	0.26	0.09	0.32	0.32	0.05	0.41	0.41	0.07	0.42	0.42
Sat Flow, veh/h	3442	3539	1583	3442	2939	590	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	32	525	258	250	383	382	129	219	103	186	755	43
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1759	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.2	17.5	19.5	9.6	25.5	25.6	5.0	5.3	5.6	7.2	21.1	2.2
Cycle Q Clear(g_c), s	1.2	17.5	19.5	9.6	25.5	25.6	5.0	5.3	5.6	7.2	21.1	2.2
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	107	905	405	312	558	554	181	1434	641	242	1497	670
V/C Ratio(X)	0.30	0.58	0.64	0.80	0.69	0.69	0.71	0.15	0.16	0.77	0.50	0.06
Avail Cap(c_a), veh/h	179	1681	752	562	1037	1031	332	1434	641	434	1497	670
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.8	43.8	44.6	60.1	40.3	40.4	62.8	25.4	25.5	61.5	28.5	23.1
Incr Delay (d2), s/veh	1.5	0.6	1.7	4.8	1.5	1.5	5.1	0.2	0.5	5.0	1.2	0.2
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	0.6	8.6	8.7	4.8	12.7	12.6	2.5	2.6	2.5	3.6	10.5	1.0
LnGrp Delay(d),s/veh	65.4	44.4	46.3	64.9	41.8	41.9	68.0	25.6	26.0	66.6	29.7	23.2
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		815			1015			451			984	
Approach Delay, s/veh		45.8			47.5			37.8			36.4	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.5	61.6	17.2	40.5	13.1	64.0	9.2	48.5				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6				
Max Green Setting (Gmax), s	17.0	53.0	22.0	64.0	13.0	57.0	7.0	*79				
Max Q Clear Time (g_c+l1), s	9.2	7.6	11.6	21.5	7.0	23.1	3.2	27.6				
Green Ext Time (p_c), s	0.3	9.1	0.6	12.9	0.2	8.7	0.0	13.4				

Intersection Summary												
HCM 2010 Ctrl Delay			42.4									
HCM 2010 LOS			D									

Notes  
 \* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	115	280	89	75	482	271	97	480	41	137	755	363
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	129	315	0	86	554	0	108	533	0	159	878	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.90	0.90	0.90	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	958	429	111	854	382	180	1342	600	244	1408	630
Arrive On Green	0.09	0.27	0.00	0.06	0.24	0.00	0.05	0.38	0.00	0.07	0.40	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	129	315	0	86	554	0	108	533	0	159	878	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	5.3	5.3	0.0	3.5	10.4	0.0	2.3	8.1	0.0	3.3	14.7	0.0
Cycle Q Clear(g_c), s	5.3	5.3	0.0	3.5	10.4	0.0	2.3	8.1	0.0	3.3	14.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	163	958	429	111	854	382	180	1342	600	244	1408	630
V/C Ratio(X)	0.79	0.33	0.00	0.77	0.65	0.00	0.60	0.40	0.00	0.65	0.62	0.00
Avail Cap(c_a), veh/h	216	1390	622	216	1390	622	326	1342	600	373	1408	630
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)	0.93	0.93	0.00	0.73	0.73	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.8	21.6	0.0	34.1	25.2	0.0	34.2	16.8	0.0	33.4	17.8	0.0
Incr Delay (d2), s/veh	12.6	0.2	0.0	8.2	0.6	0.0	3.2	0.9	0.0	2.9	2.1	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	3.1	2.6	0.0	2.0	5.2	0.0	1.2	4.1	0.0	1.7	7.5	0.0
LnGrp Delay(d),s/veh	45.4	21.7	0.0	42.3	25.8	0.0	37.4	17.6	0.0	36.4	19.9	0.0
LnGrp LOS	D	C		D	C		D	B		D	B	
Approach Vol, veh/h		444			640			641			1037	
Approach Delay, s/veh		28.6			28.0			21.0			22.4	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	48.2	8.6	24.0	7.9	49.5	10.8	21.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	9.0	29.0	7.0	29.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	5.3	10.1	5.5	7.3	4.3	16.7	7.3	12.4				
Green Ext Time (p_c), s	0.1	9.4	0.0	6.1	0.1	7.4	0.0	5.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			24.4									
HCM 2010 LOS			C									

**Intersection**

Int Delay, s/veh 5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	37	504	192	481	881	15	31	1	150	3	9	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	86	86	86	66	66	66	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	573	218	559	1024	17	47	2	227	4	13	55

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	1042	0	0	791	0	0	2404	2926	395	2523	3027	521
Stage 1	-	-	-	-	-	-	766	766	-	2152	2152	-
Stage 2	-	-	-	-	-	-	1638	2160	-	371	875	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	663	-	-	825	-	-	~ 17	15	604	14	~ 13	500
Stage 1	-	-	-	-	-	-	361	410	-	49	86	-
Stage 2	-	-	-	-	-	-	105	85	-	622	365	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	663	-	-	825	-	-	~ 4	5	604	~ 4	~ 4	500
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ -26	~ -15	-	52	28	-
Stage 1	-	-	-	-	-	-	338	384	-	46	28	-
Stage 2	-	-	-	-	-	-	~ 16	27	-	362	342	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	6.3		62.3
HCM LOS				F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	+	604	663	-	-	825	-	-	32	500
HCM Lane V/C Ratio	-	0.376	0.063	-	-	0.678	-	-	0.56	0.11
HCM Control Delay (s)	-	14.5	10.8	-	-	18	-	-	213.8	13.1
HCM Lane LOS	-	B	B	-	-	C	-	-	F	B
HCM 95th %tile Q(veh)	-	1.7	0.2	-	-	5.4	-	-	1.9	0.4

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
 6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 2)

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Volume (veh/h)	37	504	192	481	881	15	31	1	150	3	9	37
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	193.7	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	42	573	218	559	1024	17	47	2	227	4	13	55
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.86	0.86	0.86	0.66	0.66	0.66	0.67	0.67	0.67
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	433	1908	724	561	2816	47	236	2	251	93	50	211
Arrive On Green	0.76	0.76	0.76	0.76	0.76	0.76	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	540	2511	953	710	3705	62	1328	14	1572	1147	312	1318
Grp Volume(v), veh/h	42	403	388	559	509	532	47	0	229	4	0	68
Grp Sat Flow(s),veh/h/ln	540	1770	1695	710	1840	1926	1328	0	1585	1147	0	1630
Q Serve(g_s), s	2.8	7.1	7.1	68.9	9.2	9.2	3.2	0.0	14.2	0.3	0.0	3.7
Cycle Q Clear(g_c), s	12.0	7.1	7.1	76.0	9.2	9.2	6.9	0.0	14.2	14.5	0.0	3.7
Prop In Lane	1.00		0.56	1.00		0.03	1.00		0.99	1.00		0.81
Lane Grp Cap(c), veh/h	433	1345	1288	561	1399	1464	236	0	254	93	0	261
V/C Ratio(X)	0.10	0.30	0.30	1.00	0.36	0.36	0.20	0.00	0.90	0.04	0.00	0.26
Avail Cap(c_a), veh/h	433	1345	1288	561	1399	1464	236	0	254	93	0	261
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.0	3.7	3.7	19.9	4.0	4.0	39.8	0.0	41.2	48.4	0.0	36.8
Incr Delay (d2), s/veh	0.1	0.1	0.1	37.0	0.2	0.2	1.9	0.0	36.1	0.9	0.0	2.4
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/ln0.4		3.4	3.3	21.1	4.6	4.8	1.3	0.0	8.8	0.1	0.0	1.8
LnGrp Delay(d),s/veh	6.1	3.9	3.9	56.9	4.1	4.1	41.7	0.0	77.3	49.2	0.0	39.2
LnGrp LOS	A	A	A	E	A	A	D		E	D		D
Approach Vol, veh/h		833			1600			276			72	
Approach Delay, s/veh		4.0			22.6			71.3			39.8	
Approach LOS		A			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		80.0		20.0		80.0		20.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		76.0		16.0		76.0		16.0
Max Q Clear Time (g_c+l1), s		14.0		16.5		78.0		16.2
Green Ext Time (p_c), s		36.2		0.0		0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		22.3
HCM 2010 LOS		C



Intersection												
Int Delay, s/veh	21.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	8	8	150	4	95	2	140	93	87	424	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	79	79	79	80	80	80	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	12	12	190	5	120	2	175	116	101	493	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	938	875	493	888	875	175	493	0	0	175	0	0
Stage 1	695	695	-	180	180	-	-	-	-	-	-	-
Stage 2	243	180	-	708	695	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	244	288	576	264	288	868	1071	-	-	1401	-	-
Stage 1	433	444	-	822	750	-	-	-	-	-	-	-
Stage 2	761	750	-	426	444	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	195	266	576	235	266	868	1071	-	-	1401	-	-
Mov Cap-2 Maneuver	195	266	-	235	266	-	-	-	-	-	-	-
Stage 1	432	412	-	820	748	-	-	-	-	-	-	-
Stage 2	649	748	-	375	412	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.4	78.3	0.1	1.3
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1071	-	-	320	326	1401	-	-
HCM Lane V/C Ratio	0.002	-	-	0.093	0.967	0.072	-	-
HCM Control Delay (s)	8.4	-	-	17.4	78.3	7.8	-	-
HCM Lane LOS	A	-	-	C	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	10.2	0.2	-	-

HCM 2010 SIGNALIZED  
7: ESCONDIDO BLVD. & LINCOLN AVE. - MITIGATION

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Volume (veh/h)	3	8	8	150	4	95	2	140	93	87	424	2
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	5	12	12	190	5	120	2	175	116	101	493	2
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.64	0.64	0.64	0.79	0.79	0.79	0.80	0.80	0.80	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	197	157	525	14	344	541	963	818	738	963	818
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	111	878	698	1381	64	1529	899	1863	1583	1084	1863	1583
Grp Volume(v), veh/h	29	0	0	190	0	125	2	175	116	101	493	2
Grp Sat Flow(s),veh/h/ln1687	0	0	0	1381	0	1593	899	1863	1583	1084	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	3.9	0.0	2.0	0.0	1.6	1.2	1.7	5.4	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	4.3	0.0	2.0	5.4	1.6	1.2	3.2	5.4	0.0
Prop In Lane	0.17		0.41	1.00		0.96	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	515	0	0	525	0	358	541	963	818	738	963	818
V/C Ratio(X)	0.06	0.00	0.00	0.36	0.00	0.35	0.00	0.18	0.14	0.14	0.51	0.00
Avail Cap(c_a), veh/h	986	0	0	928	0	823	541	963	818	738	963	818
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	11.2	0.0	10.1	6.7	4.0	3.9	4.9	4.9	3.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.6	0.0	0.4	0.4	0.4	1.9	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/ln0.2	0.0	0.0	0.0	1.5	0.0	0.9	0.0	0.9	0.6	0.6	3.3	0.0
LnGrp Delay(d),s/veh	9.5	0.0	0.0	11.6	0.0	10.7	6.7	4.4	4.3	5.2	6.9	3.6
LnGrp LOS	A			B		B	A	A	A	A	A	A
Approach Vol, veh/h		29			315			293			596	
Approach Delay, s/veh		9.5			11.2			4.4			6.6	
Approach LOS		A			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.0		20.0		11.0		20.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		2.4		7.4		6.3		7.4
Green Ext Time (p_c), s		1.2		3.3		1.0		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	89	290	84	75	484	42	163	156	66	92	288	144
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	95	309	89	90	583	51	196	188	80	111	347	173
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	817	232	115	977	85	234	854	350	142	683	335
Arrive On Green	0.07	0.30	0.30	0.07	0.30	0.30	0.13	0.35	0.35	0.08	0.30	0.30
Sat Flow, veh/h	1774	2724	772	1774	3294	288	1774	2450	1005	1774	2305	1129
Grp Volume(v), veh/h	95	199	199	90	313	321	196	134	134	111	265	255
Grp Sat Flow(s),veh/h/ln	1774	1770	1727	1774	1770	1812	1774	1770	1685	1774	1770	1664
Q Serve(g_s), s	4.1	6.9	7.1	3.9	11.7	11.8	8.4	4.1	4.4	4.8	9.6	9.9
Cycle Q Clear(g_c), s	4.1	6.9	7.1	3.9	11.7	11.8	8.4	4.1	4.4	4.8	9.6	9.9
Prop In Lane	1.00		0.45	1.00		0.16	1.00		0.60	1.00		0.68
Lane Grp Cap(c), veh/h	122	531	518	115	525	537	234	617	588	142	525	493
V/C Ratio(X)	0.78	0.37	0.38	0.78	0.60	0.60	0.84	0.22	0.23	0.78	0.50	0.52
Avail Cap(c_a), veh/h	160	531	518	160	525	537	252	617	588	229	525	493
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)	0.94	0.94	0.94	0.52	0.52	0.52	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	21.4	21.5	35.7	23.3	23.3	32.8	17.8	17.9	35.0	22.6	22.7
Incr Delay (d2), s/veh	15.6	1.9	2.0	8.3	2.6	2.5	20.2	0.8	0.9	9.0	3.4	3.8
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	2.5	3.7	3.7	2.2	6.1	6.3	5.4	2.1	2.2	2.7	5.2	5.1
LnGrp Delay(d),s/veh	51.2	23.3	23.5	44.0	25.9	25.9	53.0	18.6	18.8	44.0	26.0	26.5
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		493			724			464			631	
Approach Delay, s/veh		28.8			28.1			33.2			29.4	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	29.7	14.2	27.0	9.3	29.4	10.2	31.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	23.0	11.0	23.0	7.0	23.0	10.0	24.0				
Max Q Clear Time (g_c+I1), s	5.9	9.1	10.4	11.9	6.1	13.8	6.8	6.4				
Green Ext Time (p_c), s	0.0	5.4	0.0	3.7	0.0	4.2	0.1	4.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.6									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↑	↑		↑	↑↑		↑	↑↑	
Volume (veh/h)	6	5	12	116	16	239	57	641	88	94	791	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.73	0.80		0.73	1.00		0.91	1.00		0.58
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	11	9	21	133	18	275	66	737	101	108	909	20
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.57	0.57	0.57	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	116	188	343	29	442	83	966	132	139	1197	26
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.05	0.31	0.31	0.08	0.34	0.34
Sat Flow, veh/h	159	289	470	1105	72	1105	1774	3085	422	1774	3476	76
Grp Volume(v), veh/h	41	0	0	133	0	293	66	423	415	108	463	466
Grp Sat Flow(s),veh/h/ln	918	0	0	1105	0	1178	1774	1770	1737	1774	1770	1783
Q Serve(g_s), s	0.2	0.0	0.0	6.3	0.0	11.4	2.1	12.4	12.4	3.4	13.3	13.3
Cycle Q Clear(g_c), s	11.6	0.0	0.0	18.0	0.0	11.4	2.1	12.4	12.4	3.4	13.3	13.3
Prop In Lane	0.27		0.51	1.00		0.94	1.00		0.24	1.00		0.04
Lane Grp Cap(c), veh/h	446	0	0	343	0	471	83	554	544	139	609	614
V/C Ratio(X)	0.09	0.00	0.00	0.39	0.00	0.62	0.79	0.76	0.76	0.78	0.76	0.76
Avail Cap(c_a), veh/h	447	0	0	343	0	471	216	554	544	216	609	614
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	0.0	21.1	0.0	13.8	27.1	17.8	17.8	26.0	16.7	16.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.7	0.0	2.5	15.3	9.6	9.8	9.0	8.6	8.6
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	0.4	0.0	0.0	2.0	0.0	4.0	1.4	7.5	7.4	2.0	7.9	7.9
LnGrp Delay(d),s/veh	11.1	0.0	0.0	21.8	0.0	16.3	42.4	27.4	27.6	35.1	25.4	25.3
LnGrp LOS	B			C		B	D	C	C	D	C	C
Approach Vol, veh/h		41			426			904			1037	
Approach Delay, s/veh		11.1			18.0			28.6			26.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	22.0		27.0	6.7	23.8		27.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	5.4	14.4		13.6	4.1	15.3		20.0
Green Ext Time (p_c), s	0.0	2.9		2.2	0.0	2.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	25.5
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↗		↖↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	107	428	78	206	1001	50	86	232	144	73	392	258
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.93	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	127	510	93	242	1178	59	105	283	176	111	594	391
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.85	0.85	0.85	0.82	0.82	0.82	0.66	0.66	0.66
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	1124	204	291	1366	68	126	745	444	133	691	455
Arrive On Green	0.05	0.36	0.36	0.08	0.40	0.40	0.07	0.36	0.36	0.07	0.36	0.36
Sat Flow, veh/h	3442	3091	560	3442	3425	171	1774	2072	1235	1774	1902	1252
Grp Volume(v), veh/h	127	303	300	242	608	629	105	240	219	111	553	432
Grp Sat Flow(s),veh/h/ln	1721	1840	1811	1721	1770	1827	1774	1770	1538	1774	1770	1385
Q Serve(g_s), s	5.6	19.2	19.4	10.6	48.2	48.3	8.9	15.4	16.3	9.5	44.3	44.3
Cycle Q Clear(g_c), s	5.6	19.2	19.4	10.6	48.2	48.3	8.9	15.4	16.3	9.5	44.3	44.3
Prop In Lane	1.00		0.31	1.00		0.09	1.00		0.80	1.00		0.90
Lane Grp Cap(c), veh/h	170	669	658	291	706	729	126	636	553	133	643	503
V/C Ratio(X)	0.75	0.45	0.46	0.83	0.86	0.86	0.83	0.38	0.40	0.84	0.86	0.86
Avail Cap(c_a), veh/h	191	715	704	438	815	841	168	746	648	226	803	629
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.8	37.1	37.2	69.0	42.2	42.2	70.2	36.3	36.6	69.9	45.1	45.1
Incr Delay (d2), s/veh	12.3	0.4	0.4	6.9	8.1	7.9	20.7	0.3	0.3	9.8	7.3	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	3.0	9.8	9.7	5.3	25.1	25.9	5.1	7.6	7.0	5.0	23.0	18.2
LnGrp Delay(d),s/veh	84.1	37.5	37.5	75.9	50.2	50.1	90.9	36.6	37.0	79.7	52.5	54.3
LnGrp LOS	F	D	D	E	D	D	F	D	D	E	D	D
Approach Vol, veh/h		730			1479			564			1096	
Approach Delay, s/veh		45.6			54.4			46.9			55.9	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	59.5	17.5	60.2	15.4	60.1	12.1	65.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	64.5	19.5	59.5	14.5	69.5	8.5	70.5
Max Q Clear Time (g_c+I1), s	11.5	18.3	12.6	21.4	10.9	46.3	7.6	50.3
Green Ext Time (p_c), s	0.1	11.4	0.4	14.3	0.1	9.3	0.0	10.8

Intersection Summary	
HCM 2010 Ctrl Delay	52.1
HCM 2010 LOS	D

Intersection												
Int Delay, s/veh	47.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	16	100	24	31	25	220	407	30	27	644	92
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	68	68	68	79	79	79	79	79	79	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	24	147	30	39	32	278	515	38	32	758	108

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1709	1985	433	1545	2020	277	866	0	0	553	0	0
Stage 1	875	875	-	1091	1091	-	-	-	-	-	-	-
Stage 2	834	1110	-	454	929	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	59	61	571	78	58	720	773	-	-	1013	-	-
Stage 1	310	365	-	229	289	-	-	-	-	-	-	-
Stage 2	329	283	-	555	344	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	38	571	~ 22	~ 36	720	773	-	-	1013	-	-
Mov Cap-2 Maneuver	-	38	-	~ 22	~ 36	-	-	-	-	-	-	-
Stage 1	199	353	-	147	185	-	-	-	-	-	-	-
Stage 2	159	181	-	372	333	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 910	4.1	0.3
HCM LOS		F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	773	-	-	-	40	1013	-	-
HCM Lane V/C Ratio	0.36	-	-	-	2.532	0.031	-	-
HCM Control Delay (s)	12.3	-	-	-	\$ 910	8.7	-	-
HCM Lane LOS	B	-	-	-	F	A	-	-
HCM 95th %tile Q(veh)	1.6	-	-	-	11.1	0.1	-	-

Notes:  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

QUEUE REPORT  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↔		↖	↕		↖	↕	
Volume (veh/h)	23	16	100	24	31	25	220	407	30	27	644	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.79		0.75	0.81		0.75	1.00		0.80	1.00		0.71
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	34	24	147	30	39	32	278	515	38	32	758	108
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.68	0.68	0.68	0.79	0.79	0.79	0.79	0.79	0.79	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	182	325	156	181	119	332	1668	122	49	968	138
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.19	0.49	0.49	0.03	0.33	0.33
Sat Flow, veh/h	701	661	1182	274	659	433	1774	3411	250	1774	2936	418

Grp Volume(v), veh/h	58	0	147	101	0	0	278	276	277	32	457	409
Grp Sat Flow(s),veh/h/ln	1362	0	1182	1366	0	0	1774	1840	1820	1774	1770	1584
Q Serve(g_s), s	0.0	0.0	5.9	0.0	0.0	0.0	8.7	5.2	5.3	1.0	13.4	13.5
Cycle Q Clear(g_c), s	1.3	0.0	5.9	2.9	0.0	0.0	8.7	5.2	5.3	1.0	13.4	13.5
Prop In Lane	0.59		1.00	0.30		0.32	1.00		0.14	1.00		0.26
Lane Grp Cap(c), veh/h	474	0	325	456	0	0	332	900	890	49	584	522
V/C Ratio(X)	0.12	0.00	0.45	0.22	0.00	0.00	0.84	0.31	0.31	0.65	0.78	0.78
Avail Cap(c_a), veh/h	477	0	328	460	0	0	400	900	890	154	584	522
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	0.00	1.00	1.00	0.00	0.00	0.88	0.88	0.88	0.35	0.35	0.35
Uniform Delay (d), s/veh	15.6	0.0	17.3	16.2	0.0	0.0	22.6	8.9	8.9	27.7	17.4	17.5
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.2	0.0	0.0	11.2	0.8	0.8	5.0	3.8	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.0	1.3	0.0	0.0	5.3	2.8	2.8	0.6	7.1	6.4
LnGrp Delay(d),s/veh	15.7	0.0	18.3	16.4	0.0	0.0	33.7	9.6	9.7	32.7	21.2	21.7
LnGrp LOS	B		B	B			C	A	A	C	C	C

Approach Vol, veh/h		205			101			831			898	
Approach Delay, s/veh		17.6			16.4			17.7			21.8	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	34.6		19.8	14.8	25.4		19.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.6	27.0		16.0	13.0	19.0		16.0
Max Q Clear Time (g_c+I), s	13.0	7.3		7.9	10.7	15.5		4.9
Green Ext Time (p_c), s	0.0	9.5		1.1	0.2	2.6		1.3

Intersection Summary

HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗↗	↗	↖↖	↗↗↗	↗	↖↖	↗↗	↗	↖	↗↗	↗
Volume (veh/h)	277	632	627	127	1034	81	400	279	32	45	360	345
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.85	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	322	735	729	128	1044	82	412	288	33	58	462	442
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.99	0.99	0.99	0.97	0.97	0.97	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	373	1467	680	297	1355	406	488	1299	496	138	1115	479
Arrive On Green	0.11	0.29	0.29	0.09	0.27	0.27	0.14	0.37	0.37	0.08	0.30	0.30
Sat Flow, veh/h	3442	5085	1580	3442	5085	1525	3442	3539	1353	1774	3681	1583
Grp Volume(v), veh/h	322	735	729	128	1044	82	412	288	33	58	462	442
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1525	1721	1770	1353	1774	1840	1583
Q Serve(g_s), s	12.7	16.6	39.8	4.9	26.1	5.8	16.1	7.7	2.2	4.3	13.8	37.2
Cycle Q Clear(g_c), s	12.7	16.6	39.8	4.9	26.1	5.8	16.1	7.7	2.2	4.3	13.8	37.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	373	1467	680	297	1355	406	488	1299	496	138	1115	479
V/C Ratio(X)	0.86	0.50	1.07	0.43	0.77	0.20	0.84	0.22	0.07	0.42	0.41	0.92
Avail Cap(c_a), veh/h	419	1467	680	299	1355	406	993	1830	699	154	1161	499
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.5	40.8	39.3	59.8	46.7	39.2	57.7	30.1	28.3	60.7	38.3	46.5
Incr Delay (d2), s/veh	15.5	0.3	55.3	1.0	2.8	0.2	4.1	0.1	0.1	2.0	0.2	22.2
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	6.8	7.8	36.3	2.4	12.6	2.4	7.9	3.8	0.8	2.2	7.0	19.2
LnGrp Delay(d),s/veh	76.0	41.1	94.6	60.8	49.5	39.4	61.8	30.2	28.4	62.7	38.6	68.7
LnGrp LOS	E	D	F	E	D	D	E	C	C	E	D	E
Approach Vol, veh/h		1786			1254			733			962	
Approach Delay, s/veh		69.2			50.0			47.9			53.9	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	57.1	17.1	47.8	24.7	48.3	20.1	44.8
Change Period (Y+Rc), s* 5.1999998		6.51999998		8.01999998		6.51999998		8.0
Max Green Setting (Gmax), s	* 12	71.3	* 12	39.89799999		43.56799999		35.0
Max Q Clear Time (g_c+I1), s	6.3	9.7	6.9	41.8	18.1	39.2	14.7	28.1
Green Ext Time (p_c), s	0.0	8.6	0.1	0.0	1.4	2.5	0.3	6.1

Intersection Summary

HCM 2010 Ctrl Delay	57.7
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	277	632	627	127	1034	81	400	279	32	45	360	345
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.85	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	322	735	729	128	1044	82	412	288	33	58	673	301
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.99	0.99	0.99	0.97	0.97	0.97	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	375	1553	703	298	1410	423	480	1236	468	138	1114	628
Arrive On Green	0.11	0.31	0.31	0.09	0.28	0.28	0.14	0.35	0.35	0.08	0.29	0.29
Sat Flow, veh/h	3442	5085	1580	3442	5085	1527	3442	3539	1341	1774	3875	1583
Grp Volume(v), veh/h	322	735	729	128	1044	82	412	288	33	58	673	301
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1527	1721	1770	1341	1774	1937	1583
Q Serve(g_s), s	12.7	16.1	42.0	4.9	25.7	5.6	16.1	7.9	2.3	4.3	20.6	19.5
Cycle Q Clear(g_c), s	12.7	16.1	42.0	4.9	25.7	5.6	16.1	7.9	2.3	4.3	20.6	19.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	1553	703	298	1410	423	480	1236	468	138	1114	628
V/C Ratio(X)	0.86	0.47	1.04	0.43	0.74	0.19	0.86	0.23	0.07	0.42	0.60	0.48
Avail Cap(c_a), veh/h	455	1553	703	300	1410	423	996	1778	674	155	1164	648
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.2	38.8	38.2	59.6	45.2	37.9	57.8	31.7	29.9	60.5	42.2	30.9
Incr Delay (d2), s/veh	12.5	0.2	43.7	0.7	2.0	0.2	3.5	0.1	0.0	1.5	0.7	0.4
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	6.7	7.6	35.2	2.3	12.2	2.4	7.9	3.9	0.8	2.2	11.1	8.6
LnGrp Delay(d),s/veh	72.7	39.0	81.9	60.3	47.2	38.1	61.3	31.8	29.9	62.0	43.0	31.4
LnGrp LOS	E	D	F	E	D	D	E	C	C	E	D	C
Approach Vol, veh/h		1786			1254			733			1032	
Approach Delay, s/veh		62.6			47.9			48.3			40.6	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	54.5	17.1	50.0	24.4	46.0	21.0	46.1
Change Period (Y+Rc), s* 5.1999998		6.5.1999998		8.5.1999998		6.5	6.0	8.0
Max Green Setting (Gmax), s	* 12	69.1	* 12	42.89.7999999		41.3	18.2	35.0
Max Q Clear Time (g_c+I1), s	6.3	9.9	6.9	44.0	18.1	22.6	14.7	27.7
Green Ext Time (p_c), s	0.0	7.9	0.1	0.0	1.1	6.4	0.3	6.1

**Intersection Summary**

HCM 2010 Ctrl Delay	51.9
HCM 2010 LOS	D

**Notes**  
 User approved volume balancing among the lanes for turning movement.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	87	182	77	80	376	182	139	504	40	131	753	133
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	97	202	86	90	422	204	146	531	42	139	801	141
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	610	251	114	568	272	136	1533	121	136	1388	244
Arrive On Green	0.07	0.25	0.25	0.06	0.24	0.24	0.07	0.44	0.44	0.07	0.44	0.44
Sat Flow, veh/h	1774	2448	1007	1774	2324	1112	1845	3457	273	1845	3130	551
Grp Volume(v), veh/h	97	144	144	90	320	306	146	282	291	139	471	471
Grp Sat Flow(s),veh/h/ln	1774	1770	1685	1774	1770	1667	1845	1840	1889	1845	1840	1840
Q Serve(g_s), s	5.1	6.3	6.6	4.7	15.8	16.1	7.0	9.5	9.6	7.0	18.1	18.1
Cycle Q Clear(g_c), s	5.1	6.3	6.6	4.7	15.8	16.1	7.0	9.5	9.6	7.0	18.1	18.1
Prop In Lane	1.00		0.60	1.00		0.67	1.00		0.14	1.00		0.30
Lane Grp Cap(c), veh/h	123	441	420	114	433	408	136	816	838	136	816	816
V/C Ratio(X)	0.79	0.33	0.34	0.79	0.74	0.75	1.07	0.35	0.35	1.02	0.58	0.58
Avail Cap(c_a), veh/h	131	617	587	131	617	581	136	816	838	136	816	816
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	29.1	29.2	43.7	33.0	33.1	43.9	17.3	17.3	43.9	19.7	19.7
Incr Delay (d2), s/veh	25.8	0.4	0.5	23.7	2.9	3.3	97.2	1.2	1.1	82.3	3.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	3.1	3.1	3.1	8.1	7.8	7.2	5.1	5.3	6.6	9.8	9.8
LnGrp Delay(d),s/veh	69.2	29.5	29.7	67.3	35.8	36.4	141.1	18.5	18.5	126.3	22.7	22.7
LnGrp LOS	E	C	C	E	D	D	F	B	B	F	C	C
Approach Vol, veh/h		385			716			719			1081	
Approach Delay, s/veh		39.6			40.0			43.4			36.0	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	46.0	10.1	27.6	11.0	46.0	10.5	27.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	42.0	7.0	33.0	7.0	42.0	7.0	33.0				
Max Q Clear Time (g_c+I1), s	9.0	11.6	6.7	8.6	9.0	20.1	7.1	18.1				
Green Ext Time (p_c), s	0.0	12.2	0.0	6.2	0.0	10.5	0.0	5.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			39.3									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗↗	↖	↖	↗↗↗	↖	↖	↗		↖	↗	
Volume (veh/h)	11	667	52	18	1149	107	15	1	5	62	1	73
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	758	59	19	1197	111	20	1	7	74	1	87
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96	0.75	0.75	0.75	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2382	739	34	2414	751	35	17	118	97	2	183
Arrive On Green	0.01	0.47	0.47	0.02	0.47	0.47	0.02	0.08	0.08	0.05	0.12	0.12
Sat Flow, veh/h	1774	5085	1578	1774	5085	1582	1774	202	1412	1774	18	1544
Grp Volume(v), veh/h	12	758	59	19	1197	111	20	0	8	74	0	88
Grp Sat Flow(s),veh/h/ln	1774	1695	1578	1774	1695	1582	1774	0	1614	1774	0	1562
Q Serve(g_s), s	0.3	4.0	0.9	0.5	6.9	1.7	0.5	0.0	0.2	1.8	0.0	2.2
Cycle Q Clear(g_c), s	0.3	4.0	0.9	0.5	6.9	1.7	0.5	0.0	0.2	1.8	0.0	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		0.99
Lane Grp Cap(c), veh/h	22	2382	739	34	2414	751	35	0	135	97	0	185
V/C Ratio(X)	0.54	0.32	0.08	0.57	0.50	0.15	0.57	0.00	0.06	0.76	0.00	0.48
Avail Cap(c_a), veh/h	291	2382	739	291	2414	751	291	0	1134	291	0	1097
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	7.1	6.3	20.8	7.7	6.3	20.8	0.0	18.0	19.9	0.0	17.6
Incr Delay (d2), s/veh	19.3	0.4	0.2	14.1	0.7	0.4	13.7	0.0	0.2	11.6	0.0	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	0.3	1.9	0.4	0.3	3.4	0.8	0.4	0.0	0.1	1.2	0.0	1.1
LnGrp Delay(d),s/veh	40.2	7.4	6.5	34.9	8.4	6.7	34.5	0.0	18.2	31.5	0.0	19.5
LnGrp LOS	D	A	A	C	A	A	C		B	C		B
Approach Vol, veh/h		829			1327			28				162
Approach Delay, s/veh		7.9			8.7			29.8				25.0
Approach LOS		A			A			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	24.0	4.8	9.1	4.5	24.3	6.3	7.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0
Max Q Clear Time (g_c+l1), s	2.5	6.0	2.5	4.2	2.3	8.9	3.8	2.2
Green Ext Time (p_c), s	0.0	10.8	0.0	0.5	0.0	8.9	0.0	0.5

Intersection Summary												
HCM 2010 Ctrl Delay			9.8									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	63	528	92	63	881	11	160	202	33	8	291	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.89	1.00		0.93	1.00		0.79
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	73	614	107	66	927	12	225	285	46	10	368	94
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.71	0.71	0.71	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	960	167	84	1161	15	244	773	613	18	388	99
Arrive On Green	0.05	0.33	0.33	0.05	0.32	0.32	0.14	0.42	0.42	0.01	0.29	0.29
Sat Flow, veh/h	1774	2933	509	1774	3571	46	1774	1863	1478	1774	1350	345
Grp Volume(v), veh/h	73	369	352	66	459	480	225	285	46	10	0	462
Grp Sat Flow(s),veh/h/ln	1774	1770	1672	1774	1770	1848	1774	1863	1478	1774	0	1695
Q Serve(g_s), s	3.3	14.2	14.3	2.9	18.9	18.9	10.0	8.5	1.5	0.4	0.0	21.4
Cycle Q Clear(g_c), s	3.3	14.2	14.3	2.9	18.9	18.9	10.0	8.5	1.5	0.4	0.0	21.4
Prop In Lane	1.00		0.30	1.00		0.03	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	89	579	547	84	575	601	244	773	613	18	0	487
V/C Ratio(X)	0.82	0.64	0.64	0.78	0.80	0.80	0.92	0.37	0.07	0.57	0.00	0.95
Avail Cap(c_a), veh/h	89	579	547	111	575	601	244	773	613	89	0	487
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	22.9	22.9	37.7	24.6	24.6	34.1	16.2	14.1	39.4	0.0	27.9
Incr Delay (d2), s/veh	43.9	5.3	5.7	22.7	11.1	10.6	37.3	0.3	0.1	25.4	0.0	28.2
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	2.7	7.7	7.4	2.0	11.0	11.4	7.4	4.4	0.6	0.3	0.0	13.7
LnGrp Delay(d),s/veh	81.6	28.2	28.6	60.4	35.7	35.3	71.3	16.5	14.2	64.8	0.0	56.1
LnGrp LOS	F	C	C	E	D	D	E	B	B	E		E
Approach Vol, veh/h		794			1005			556				472
Approach Delay, s/veh		33.3			37.1			38.5				56.3
Approach LOS		C			D			D				E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	30.2	15.0	27.0	8.0	30.0	4.8	37.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	25.0	11.0	23.0	4.0	26.0	4.0	30.0
Max Q Clear Time (g_c+I1), s	4.9	16.3	12.0	23.4	5.3	20.9	2.4	10.5
Green Ext Time (p_c), s	0.0	6.1	0.0	0.0	0.0	3.9	0.0	5.0

Intersection Summary		
HCM 2010 Ctrl Delay		39.5
HCM 2010 LOS		D

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕		↖	↗		↖	↗	
Volume (veh/h)	101	262	65	30	493	75	61	191	70	76	277	211
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.83	0.94		0.89	0.98		0.86	0.92		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	138	359	89	33	542	82	75	236	86	87	318	243
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.91	0.91	0.91	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	370	782	552	391	1274	192	247	522	190	421	396	303
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	772	1863	1314	878	3032	456	826	1243	453	974	944	721
Grp Volume(v), veh/h	138	359	89	33	315	309	75	0	322	87	0	561
Grp Sat Flow(s),veh/h/ln	772	1863	1314	878	1770	1719	826	0	1696	974	0	1665
Q Serve(g_s), s	7.7	6.9	2.1	1.4	6.3	6.4	4.4	0.0	6.8	3.5	0.0	14.7
Cycle Q Clear(g_c), s	14.1	6.9	2.1	8.3	6.3	6.4	19.1	0.0	6.8	10.3	0.0	14.7
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.27	1.00		0.43
Lane Grp Cap(c), veh/h	370	782	552	391	743	722	247	0	712	421	0	699
V/C Ratio(X)	0.37	0.46	0.16	0.08	0.42	0.43	0.30	0.00	0.45	0.21	0.00	0.80
Avail Cap(c_a), veh/h	370	782	552	391	743	722	247	0	712	421	0	699
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	10.4	9.0	13.4	10.2	10.3	21.0	0.0	10.4	14.1	0.0	12.7
Incr Delay (d2), s/veh	2.9	1.9	0.6	0.4	1.8	1.9	0.7	0.0	0.4	0.2	0.0	6.7
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	1.9	3.9	0.9	0.4	3.4	3.4	1.0	0.0	3.2	1.0	0.0	8.0
LnGrp Delay(d),s/veh	18.1	12.4	9.6	13.8	12.0	12.1	21.7	0.0	10.8	14.3	0.0	19.4
LnGrp LOS	B	B	A	B	B	B	C		B	B		B
Approach Vol, veh/h		586			657			397				648
Approach Delay, s/veh		13.3			12.1			12.9				18.7
Approach LOS		B			B			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		25.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		21.0		21.0		21.0		21.0
Max Q Clear Time (g_c+I1), s		16.1		16.7		10.3		21.1
Green Ext Time (p_c), s		3.1		2.5		5.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

**Intersection**

Int Delay, s/veh      2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	100	61	67	276	36	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	109	66	73	300	39	42

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	175	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1401	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1401	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	602	-	-	1401	-
HCM Lane V/C Ratio	0.135	-	-	0.052	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	123	60	66	247	35	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	134	65	72	268	38	42

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	199	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1373	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1373	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	604	-	-	1373	-
HCM Lane V/C Ratio	0.133	-	-	0.052	-
HCM Control Delay (s)	11.9	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

**Intersection**

Int Delay, s/veh      0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	181	0	3	279	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	197	0	3	303	0	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	197	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1376	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1376	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	844	-	-	1376	-
HCM Lane V/C Ratio	0.003	-	-	0.002	-
HCM Control Delay (s)	9.3	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-





Existing Plus Project Mid-Day Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (veh/h)	87	460	69	76	469	147	54	230	36	114	156	72
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	96	505	76	85	527	165	64	271	42	128	175	81
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	1409	211	109	1190	371	346	836	128	339	506	430
Arrive On Green	0.07	0.46	0.46	0.06	0.45	0.45	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	3088	463	1774	2658	828	1119	3078	471	1062	1863	1583
Grp Volume(v), veh/h	96	289	292	85	350	342	64	154	159	128	175	81
Grp Sat Flow(s),veh/h/ln	1774	1770	1781	1774	1770	1717	1119	1770	1780	1062	1863	1583
Q Serve(g_s), s	3.0	6.0	6.1	2.7	7.8	7.8	2.8	4.0	4.1	6.2	4.3	2.2
Cycle Q Clear(g_c), s	3.0	6.0	6.1	2.7	7.8	7.8	7.1	4.0	4.1	10.3	4.3	2.2
Prop In Lane	1.00		0.26	1.00		0.48	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	124	807	813	109	793	769	346	481	483	339	506	430
V/C Ratio(X)	0.77	0.36	0.36	0.78	0.44	0.44	0.19	0.32	0.33	0.38	0.35	0.19
Avail Cap(c_a), veh/h	280	807	813	249	793	769	513	745	750	498	785	667
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	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	10.1	10.1	26.4	10.8	10.8	19.5	16.6	16.6	20.7	16.7	15.9
Incr Delay (d2), s/veh	9.8	1.2	1.2	10.3	1.6	1.7	0.3	0.4	0.4	0.7	0.4	0.2
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	1.8	3.2	3.2	1.6	4.1	4.1	0.9	2.0	2.0	1.9	2.2	1.0
LnGrp Delay(d),s/veh	35.9	11.3	11.3	36.6	12.4	12.5	19.8	16.9	17.0	21.4	17.1	16.1
LnGrp LOS	D	B	B	D	B	B	B	B	B	C	B	B
Approach Vol, veh/h		677			777			377			384	
Approach Delay, s/veh		14.8			15.1			17.4			18.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	43.0		19.5	8.0	42.5		19.5
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	26.0		24.0	9.0	25.0		24.0
Max Q Clear Time (g_c+I1), s	4.7	8.1		12.3	5.0	9.8		9.1
Green Ext Time (p_c), s	0.0	7.8		3.2	0.1	7.1		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	16.0
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	98	510	58	96	544	52	74	30	92	91	33	127
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	113	586	67	110	625	60	101	41	126	99	36	138
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.73	0.73	0.73	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	1723	195	141	1878	585	389	110	337	396	92	352
Arrive On Green	0.08	0.37	0.37	0.08	0.37	0.37	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	4636	524	1774	5085	1583	1206	404	1240	1214	338	1296
Grp Volume(v), veh/h	113	427	226	110	625	60	101	0	167	99	0	174
Grp Sat Flow(s),veh/h/ln	1774	1695	1770	1774	1695	1583	1206	0	1644	1214	0	1634
Q Serve(g_s), s	2.7	3.9	4.0	2.6	3.8	1.1	3.2	0.0	3.6	3.1	0.0	3.8
Cycle Q Clear(g_c), s	2.7	3.9	4.0	2.6	3.8	1.1	7.0	0.0	3.6	6.7	0.0	3.8
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.75	1.00		0.79
Lane Grp Cap(c), veh/h	145	1260	658	141	1878	585	389	0	447	396	0	444
V/C Ratio(X)	0.78	0.34	0.34	0.78	0.33	0.10	0.26	0.00	0.37	0.25	0.00	0.39
Avail Cap(c_a), veh/h	328	1260	658	328	1878	585	869	0	1100	879	0	1094
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.5	9.8	9.8	19.6	9.8	9.0	15.7	0.0	12.8	15.5	0.0	12.9
Incr Delay (d2), s/veh	8.6	0.7	1.4	8.9	0.5	0.4	0.3	0.0	0.5	0.3	0.0	0.6
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	2.0	2.2	1.6	1.9	0.5	1.1	0.0	1.7	1.1	0.0	1.8
LnGrp Delay(d),s/veh	28.1	10.5	11.2	28.4	10.3	9.3	16.1	0.0	13.3	15.8	0.0	13.4
LnGrp LOS	C	B	B	C	B	A	B		B	B		B
Approach Vol, veh/h		766			795			268				273
Approach Delay, s/veh		13.3			12.7			14.3				14.3
Approach LOS		B			B			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	20.1		15.8	7.6	20.0		15.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	16.0		29.0	8.0	16.0		29.0
Max Q Clear Time (g_c+I1), s	4.6	6.0		8.7	4.7	5.8		9.0
Green Ext Time (p_c), s	0.1	5.8		2.8	0.1	5.9		2.8

Intersection Summary		
HCM 2010 Ctrl Delay		13.4
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	77	500	85	137	642	38	90	64	152	167	79	39
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	96	625	106	149	698	41	96	68	162	190	90	44
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	1158	196	183	1398	82	131	278	237	231	243	119
Arrive On Green	0.07	0.38	0.38	0.10	0.41	0.41	0.07	0.15	0.15	0.13	0.21	0.21
Sat Flow, veh/h	1774	3029	513	1774	3398	199	1774	1863	1583	1774	1183	578
Grp Volume(v), veh/h	96	365	366	149	363	376	96	68	162	190	0	134
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1828	1774	1863	1583	1774	0	1761
Q Serve(g_s), s	3.6	10.9	10.9	5.6	10.3	10.4	3.6	2.2	6.6	7.1	0.0	4.5
Cycle Q Clear(g_c), s	3.6	10.9	10.9	5.6	10.3	10.4	3.6	2.2	6.6	7.1	0.0	4.5
Prop In Lane	1.00		0.29	1.00		0.11	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	131	676	677	183	728	752	131	278	237	231	0	362
V/C Ratio(X)	0.73	0.54	0.54	0.82	0.50	0.50	0.73	0.24	0.68	0.82	0.00	0.37
Avail Cap(c_a), veh/h	183	676	677	183	728	752	183	739	629	235	0	751
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)	0.93	0.93	0.93	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	16.3	16.4	29.9	14.8	14.8	30.8	25.5	27.4	28.8	0.0	23.2
Incr Delay (d2), s/veh	8.4	2.9	2.9	20.8	2.0	2.0	9.0	0.5	3.5	20.3	0.0	0.6
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	2.1	5.8	5.8	3.8	5.5	5.6	2.1	1.2	3.1	4.8	0.0	2.2
LnGrp Delay(d),s/veh	39.3	19.2	19.2	50.7	16.9	16.8	39.8	26.0	30.9	49.1	0.0	23.9
LnGrp LOS	D	B	B	D	B	B	D	C	C	D		C
Approach Vol, veh/h		827			888			326			324	
Approach Delay, s/veh		21.6			22.5			32.5			38.7	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	47.0	9.0	18.0	9.0	49.0	12.8	14.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	7.6	12.9	5.6	6.5	5.6	12.4	9.1	8.6
Green Ext Time (p_c), s	0.0	7.4	0.0	1.7	0.0	7.6	0.0	1.6

Intersection Summary		
HCM 2010 Ctrl Delay		25.8
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	484	208	139	458	97	249	347	120	105	269	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	28	569	245	167	552	117	262	365	126	111	283	37
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.85	0.85	0.85	0.83	0.83	0.83	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	98	869	389	219	817	173	321	1652	739	158	1484	664
Arrive On Green	0.03	0.25	0.25	0.06	0.28	0.28	0.09	0.47	0.47	0.05	0.42	0.42
Sat Flow, veh/h	3442	3539	1583	3442	2909	615	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	28	569	245	167	335	334	262	365	126	111	283	37
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1754	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.1	20.3	19.4	6.7	23.6	23.7	10.5	8.6	6.5	4.5	7.1	2.0
Cycle Q Clear(g_c), s	1.1	20.3	19.4	6.7	23.6	23.7	10.5	8.6	6.5	4.5	7.1	2.0
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	869	389	219	497	493	321	1652	739	158	1484	664
V/C Ratio(X)	0.29	0.65	0.63	0.76	0.67	0.68	0.82	0.22	0.17	0.70	0.19	0.06
Avail Cap(c_a), veh/h	147	1639	733	368	933	925	527	1652	739	233	1484	664
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.8	47.6	47.3	64.7	44.8	44.8	62.5	22.3	21.7	66.0	25.7	24.2
Incr Delay (d2), s/veh	1.6	0.8	1.7	5.4	1.6	1.6	5.1	0.3	0.5	5.6	0.3	0.2
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	0.6	10.0	8.7	3.4	11.8	11.7	5.2	4.3	2.9	2.2	3.5	0.9
LnGrp Delay(d),s/veh	68.4	48.4	48.9	70.1	46.4	46.5	67.6	22.6	22.2	71.6	26.0	24.4
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		842			836			753			431	
Approach Delay, s/veh		49.2			51.1			38.2			37.6	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	73.0	13.9	40.5	19.6	66.4	9.0	45.4				
Change Period (Y+Rc), s	6.5	7.5	5.0	6.0	6.5	7.5	5.0	*6				
Max Green Setting (Gmax), s	9.5	65.5	15.0	65.0	21.5	53.5	6.0	*74				
Max Q Clear Time (g_c+I1), s	6.5	10.6	8.7	22.3	12.5	9.1	3.1	25.7				
Green Ext Time (p_c), s	0.1	5.6	0.3	12.2	0.6	5.6	0.0	12.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			45.1									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	218	439	141	89	463	215	121	549	107	136	551	262
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	237	477	0	97	503	0	129	584	0	149	605	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	998	446	125	831	372	205	1315	588	230	1341	600
Arrive On Green	0.12	0.28	0.00	0.07	0.23	0.00	0.06	0.37	0.00	0.07	0.38	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	237	477	0	97	503	0	129	584	0	149	605	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	9.0	8.6	0.0	4.1	9.7	0.0	2.8	9.5	0.0	3.2	9.8	0.0
Cycle Q Clear(g_c), s	9.0	8.6	0.0	4.1	9.7	0.0	2.8	9.5	0.0	3.2	9.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	998	446	125	831	372	205	1315	588	230	1341	600
V/C Ratio(X)	1.14	0.48	0.00	0.78	0.61	0.00	0.63	0.44	0.00	0.65	0.45	0.00
Avail Cap(c_a), veh/h	209	1295	579	232	1341	600	315	1315	588	360	1341	600
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)	0.78	0.78	0.00	0.79	0.79	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.8	22.8	0.0	35.0	26.1	0.0	35.2	18.1	0.0	34.8	17.8	0.0
Incr Delay (d2), s/veh	96.9	0.3	0.0	7.9	0.6	0.0	3.2	1.1	0.0	3.0	1.1	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	10.0	4.2	0.0	2.3	4.8	0.0	1.4	4.8	0.0	1.6	5.0	0.0
LnGrp Delay(d),s/veh	130.6	23.1	0.0	42.9	26.7	0.0	38.3	19.2	0.0	37.9	18.9	0.0
LnGrp LOS	F	C		D	C		D	B		D	B	
Approach Vol, veh/h		714			600			713			754	
Approach Delay, s/veh		58.8			29.3			22.6			22.7	
Approach LOS		E			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	45.9	9.4	25.6	8.6	46.5	13.0	22.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	28.0	10.0	28.0	7.0	29.0	9.0	29.0
Max Q Clear Time (g_c+I1), s	5.2	11.5	6.1	10.6	4.8	11.8	11.0	11.7
Green Ext Time (p_c), s	0.1	7.5	0.1	6.3	0.1	7.7	0.0	6.3

Intersection Summary		
HCM 2010 Ctrl Delay		33.4
HCM 2010 LOS		C

**Intersection:**

Int Delay, s/veh 4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	29	576	119	158	592	10	78	5	190	8	4	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	93	93	93	94	94	94	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	626	129	170	637	11	83	5	202	9	4	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	647	0	0	755	0	0	1414	1741	378	1361	1800	324
Stage 1	-	-	-	-	-	-	754	754	-	982	982	-
Stage 2	-	-	-	-	-	-	660	987	-	379	818	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	934	-	-	851	-	-	98	86	620	107	79	672
Stage 1	-	-	-	-	-	-	367	415	-	267	325	-
Stage 2	-	-	-	-	-	-	418	324	-	615	388	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	934	-	-	851	-	-	~ 75	66	620	58	61	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	160	-	136	132	-
Stage 1	-	-	-	-	-	-	354	401	-	258	260	-
Stage 2	-	-	-	-	-	-	313	259	-	395	375	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.1	23	17.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	176	620	934	-	-	851	-	-	135	672
HCM Lane V/C Ratio	0.502	0.326	0.034	-	-	0.2	-	-	0.1	0.047
HCM Control Delay (s)	44.4	13.6	9	-	-	10.3	-	-	34.6	10.6
HCM Lane LOS	E	B	A	-	-	B	-	-	D	B
HCM 95th %tile Q(veh)	2.5	1.4	0.1	-	-	0.7	-	-	0.3	0.1

**Notes:**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	29	576	119	158	592	10	0	0	190	0	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	93	93	93	94	94	94	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	626	129	170	637	11	0	0	202	0	0	31

Major/Minor	Major:1			Major:2			Minor:1			Minor:2		
Conflicting Flow All	647	0	0	755	0	0	1412	1741	378	1358	1800	324
Stage 1	-	-	-	-	-	-	754	754	-	982	982	-
Stage 2	-	-	-	-	-	-	658	987	-	376	818	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	934	-	-	851	-	-	98	86	620	107	79	672
Stage 1	-	-	-	-	-	-	367	415	-	267	325	-
Stage 2	-	-	-	-	-	-	420	324	-	617	388	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	934	-	-	851	-	-	77	66	620	59	61	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	160	-	138	132	-
Stage 1	-	-	-	-	-	-	354	401	-	258	260	-
Stage 2	-	-	-	-	-	-	320	259	-	402	375	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.1	13.6	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	620	934	-	-	851	-	-	672
HCM Lane V/C Ratio	0.326	0.034	-	-	0.2	-	-	0.047
HCM Control Delay (s)	13.6	9	-	-	10.3	-	-	10.6
HCM Lane LOS	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0.7	-	-	0.1

HCM 2010 SIGNALIZED  
 6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 2)

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑		↖	↑↑		↖	↑		↖	↑	
Volume (veh/h)	29	576	119	158	592	10	78	1	190	8	4	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	193.7	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	32	626	129	170	637	11	83	1	202	9	4	31
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	1340	276	390	1696	29	637	3	570	477	67	516
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	780	2925	602	734	3702	64	1368	8	1577	1174	184	1427
Grp Volume(v), veh/h	32	378	377	170	317	331	83	0	203	9	0	35
Grp Sat Flow(s),veh/h/ln	780	1770	1757	734	1840	1926	1368	0	1585	1174	0	1611
Q Serve(g_s), s	1.2	6.5	6.6	9.2	5.0	5.0	1.9	0.0	4.2	0.3	0.0	0.6
Cycle Q Clear(g_c), s	6.2	6.5	6.6	15.8	5.0	5.0	2.5	0.0	4.2	4.4	0.0	0.6
Prop In Lane	1.00		0.34	1.00		0.03	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	432	811	805	390	843	882	637	0	572	477	0	582
V/C Ratio(X)	0.07	0.47	0.47	0.44	0.38	0.38	0.13	0.00	0.35	0.02	0.00	0.06
Avail Cap(c_a), veh/h	445	839	833	402	873	913	637	0	572	477	0	582
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.9	8.3	8.3	13.7	7.9	7.9	10.0	0.0	10.4	12.0	0.0	9.2
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.8	0.3	0.3	0.4	0.0	1.7	0.1	0.0	0.2
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/ln0.3		3.2	3.2	1.9	2.5	2.6	0.8	0.0	2.1	0.1	0.0	0.3
LnGrp Delay(d),s/veh	10.0	8.7	8.7	14.5	8.1	8.1	10.5	0.0	12.1	12.0	0.0	9.4
LnGrp LOS	A	A	A	B	A	A	B		B	B		A
Approach Vol, veh/h		787			818			286			44	
Approach Delay, s/veh		8.7			9.4			11.6			10.0	
Approach LOS		A			A			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.3		20.0		24.3		20.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		21.0		16.0		21.0		16.0
Max Q Clear Time (g_c+I1), s		8.6		6.4		17.8		6.2
Green Ext Time (p_c), s		7.8		1.2		2.5		1.2

Intersection Summary		
HCM 2010 Ctrl Delay		9.5
HCM 2010 LOS		A

HCM 2010 TWSC  
7: ESCONDIDO BLVD. & LINCOLN AVE.

1/28/2014

Intersection:

Int Delay, s/veh 166.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	200	4	144	10	332	158	98	270	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	59	59	59	92	92	92	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	6	6	339	7	244	11	361	172	113	310	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1044	919	310	925	919	361	310	0	0	361	0	0
Stage 1	536	536	-	383	383	-	-	-	-	-	-	-
Stage 2	508	383	-	542	536	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	207	271	730	~ 250	271	684	1250	-	-	1198	-	-
Stage 1	529	523	-	640	612	-	-	-	-	-	-	-
Stage 2	547	612	-	525	523	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	120	243	730	~ 224	243	684	1250	-	-	1198	-	-
Mov Cap-2 Maneuver	120	243	-	~ 224	243	-	-	-	-	-	-	-
Stage 1	524	474	-	634	607	-	-	-	-	-	-	-
Stage 2	345	607	-	465	474	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.1	\$ 443.2	0.2	2.2
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1250	-	-	217	311	1198	-	-
HCM Lane V/C Ratio	0.009	-	-	0.085	1.897	0.094	-	-
HCM Control Delay (s)	7.9	-	-	23.1	\$ 443.2	8.3	-	-
HCM Lane LOS	A	-	-	C	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	40.3	0.3	-	-

Notes:

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
7: ESCONDIDO BLVD. & LINCOLN AVE. - MITIGATION

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↑	↔	↔	↑	↔
Volume (veh/h)	5	5	5	200	4	144	10	332	158	98	270	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	6	6	6	339	7	244	11	361	172	113	310	8
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.59	0.59	0.59	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	258	251	194	576	18	612	481	750	637	406	750	637
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	347	633	490	1397	44	1546	1057	1863	1583	868	1863	1583
Grp Volume(v), veh/h	18	0	0	339	0	251	11	361	172	113	310	8
Grp Sat Flow(s),veh/h/ln	1470	0	0	1397	0	1590	1057	1863	1583	868	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	9.1	0.0	4.5	0.3	5.7	2.9	4.4	4.7	0.1
Cycle Q Clear(g_c), s	4.5	0.0	0.0	13.6	0.0	4.5	5.0	5.7	2.9	10.1	4.7	0.1
Prop In Lane	0.33		0.33	1.00		0.97	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	703	0	0	576	0	630	481	750	637	406	750	637
V/C Ratio(X)	0.03	0.00	0.00	0.59	0.00	0.40	0.02	0.48	0.27	0.28	0.41	0.01
Avail Cap(c_a), veh/h	712	0	0	585	0	640	481	750	637	406	750	637
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.3	0.0	0.0	13.5	0.0	8.6	10.3	8.8	8.0	12.5	8.5	7.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.5	0.0	0.4	0.1	2.2	1.0	1.7	1.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.7	0.0	2.0	0.1	3.4	1.4	1.2	2.8	0.1
LnGrp Delay(d),s/veh	7.3	0.0	0.0	15.0	0.0	9.0	10.4	11.0	9.0	14.3	10.2	7.2
LnGrp LOS	A			B		A	B	B	A	B	B	A
Approach Vol, veh/h		18			590			544			431	
Approach Delay, s/veh		7.3			12.5			10.4			11.2	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		19.7		20.0		19.7
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		7.7		6.5		12.1		15.6
Green Ext Time (p_c), s		3.5		2.0		2.0		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		11.3
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (veh/h)	135	370	103	101	432	54	242	297	118	71	286	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	150	411	114	116	497	62	260	319	127	85	340	152
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.93	0.93	0.93	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	899	247	147	997	124	267	769	300	110	527	231
Arrive On Green	0.10	0.33	0.33	0.08	0.31	0.31	0.15	0.31	0.31	0.06	0.22	0.22
Sat Flow, veh/h	1774	2745	754	1774	3169	394	1774	2489	972	1774	2395	1052
Grp Volume(v), veh/h	150	263	262	116	277	282	260	225	221	85	250	242
Grp Sat Flow(s),veh/h/ln	1774	1770	1730	1774	1770	1793	1774	1770	1691	1774	1770	1677
Q Serve(g_s), s	6.1	8.6	8.8	4.7	9.3	9.4	10.7	7.4	7.6	3.5	9.4	9.6
Cycle Q Clear(g_c), s	6.1	8.6	8.8	4.7	9.3	9.4	10.7	7.4	7.6	3.5	9.4	9.6
Prop In Lane	1.00		0.44	1.00		0.22	1.00		0.57	1.00		0.63
Lane Grp Cap(c), veh/h	170	580	567	147	557	564	267	546	522	110	389	369
V/C Ratio(X)	0.88	0.45	0.46	0.79	0.50	0.50	0.97	0.41	0.42	0.77	0.64	0.66
Avail Cap(c_a), veh/h	170	580	567	170	557	564	267	605	579	218	557	528
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)	0.88	0.88	0.88	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	19.4	19.5	32.9	20.3	20.4	30.9	20.0	20.1	33.8	25.9	26.0
Incr Delay (d2), s/veh	34.6	2.3	2.4	13.7	2.2	2.2	47.6	0.5	0.5	11.0	1.8	2.0
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	4.5	4.5	2.8	4.9	5.0	8.7	3.6	3.6	2.0	4.8	4.6
LnGrp Delay(d),s/veh	67.3	21.7	21.8	46.6	22.5	22.5	78.5	20.5	20.6	44.8	27.6	28.0
LnGrp LOS	E	C	C	D	C	C	E	C	C	D	C	C
Approach Vol, veh/h		675			675			706			577	
Approach Delay, s/veh		31.9			26.6			41.9			30.3	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	34.9	15.0	20.1	11.0	33.9	8.5	26.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	23.0	11.0	23.0	7.0	23.0	9.0	25.0
Max Q Clear Time (g_c+1), s	6.7	10.8	12.7	11.6	8.1	11.4	5.5	9.6
Green Ext Time (p_c), s	0.0	5.3	0.0	4.5	0.0	5.2	0.0	5.3

Intersection Summary		
HCM 2010 Ctrl Delay		32.9
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘		↙	↕		↙	↕	
Volume (veh/h)	22	11	74	42	2	82	25	603	46	95	725	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.80	0.85		0.80	1.00		0.78	1.00		0.55
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	32	16	107	74	4	144	29	693	53	117	895	7
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.69	0.69	0.69	0.57	0.57	0.57	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	89	357	470	14	494	46	1016	78	150	1324	10
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.03	0.31	0.31	0.08	0.37	0.37
Sat Flow, veh/h	179	226	903	1074	35	1250	1774	3258	249	1774	3572	28
Grp Volume(v), veh/h	155	0	0	74	0	148	29	376	370	117	443	459
Grp Sat Flow(s),veh/h/ln	1309	0	0	1074	0	1285	1774	1770	1737	1774	1770	1831
Q Serve(g_s), s	0.0	0.0	0.0	2.9	0.0	4.5	0.9	10.7	10.8	3.7	12.1	12.1
Cycle Q Clear(g_c), s	4.3	0.0	0.0	7.2	0.0	4.5	0.9	10.7	10.8	3.7	12.1	12.1
Prop In Lane	0.21		0.69	1.00		0.97	1.00		0.14	1.00		0.02
Lane Grp Cap(c), veh/h	593	0	0	470	0	508	46	552	542	150	656	679
V/C Ratio(X)	0.26	0.00	0.00	0.16	0.00	0.29	0.63	0.68	0.68	0.78	0.68	0.68
Avail Cap(c_a), veh/h	597	0	0	473	0	512	215	552	542	215	656	679
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	14.3	0.0	11.9	27.8	17.3	17.4	25.9	15.2	15.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.3	13.6	6.6	6.8	10.9	5.5	5.3
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	0.0	0.0	0.9	0.0	1.6	0.6	6.2	6.2	2.3	6.9	7.1
LnGrp Delay(d),s/veh	12.1	0.0	0.0	14.4	0.0	12.2	41.5	24.0	24.2	36.8	20.8	20.6
LnGrp LOS	B			B		B	D	C	C	D	C	C
Approach Vol, veh/h		155			222			775			1019	
Approach Delay, s/veh		12.1			13.0			24.7			22.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.9	22.0		26.8	5.5	25.4		26.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	5.7	12.8		6.3	2.9	14.1		9.2
Green Ext Time (p_c), s	0.0	4.0		2.3	0.0	3.0		2.1

Intersection Summary

HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕		↖↗	↕		↖	↕		↖	↕	
Volume (veh/h)	249	702	92	158	627	65	141	405	191	146	444	226
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.86	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	259	731	96	161	640	66	155	445	210	190	577	294
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.98	0.98	0.98	0.91	0.91	0.91	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	1065	140	222	942	97	186	773	362	223	796	405
Arrive On Green	0.10	0.33	0.33	0.06	0.30	0.30	0.10	0.33	0.33	0.13	0.35	0.35
Sat Flow, veh/h	3442	3257	427	3442	3186	328	1774	2343	1096	1774	2272	1156
Grp Volume(v), veh/h	259	413	414	161	355	351	155	335	320	190	449	422
Grp Sat Flow(s),veh/h/ln	1721	1840	1844	1721	1770	1744	1774	1770	1669	1774	1770	1659
Q Serve(g_s), s	8.7	22.9	23.0	5.4	20.8	20.9	10.1	18.4	18.7	12.4	26.0	26.1
Cycle Q Clear(g_c), s	8.7	22.9	23.0	5.4	20.8	20.9	10.1	18.4	18.7	12.4	26.0	26.1
Prop In Lane	1.00		0.23	1.00		0.19	1.00		0.66	1.00		0.70
Lane Grp Cap(c), veh/h	330	602	603	222	523	516	186	584	551	223	620	581
V/C Ratio(X)	0.78	0.69	0.69	0.72	0.68	0.68	0.83	0.57	0.58	0.85	0.72	0.73
Avail Cap(c_a), veh/h	628	914	916	395	759	748	414	879	829	475	939	880
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	34.4	34.4	54.1	36.5	36.6	51.7	32.6	32.7	50.4	33.3	33.3
Incr Delay (d2), s/veh	4.1	1.4	1.4	4.4	1.5	1.6	9.3	0.9	1.0	8.9	1.6	1.7
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	4.3	11.8	11.9	2.7	10.4	10.3	5.4	9.2	8.8	6.6	13.0	12.2
LnGrp Delay(d),s/veh	56.1	35.8	35.8	58.5	38.1	38.2	61.0	33.5	33.7	59.3	34.9	35.0
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	D
Approach Vol, veh/h		1086			867			810			1061	
Approach Delay, s/veh		40.6			41.9			38.8			39.3	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.3	43.4	12.1	43.0	16.9	45.8	15.8	39.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	31.5	58.5	13.5	58.5	27.5	62.5	21.5	50.5				
Max Q Clear Time (g_c+I1), s	14.4	20.7	7.4	25.0	12.1	28.1	10.7	22.9				
Green Ext Time (p_c), s	0.5	13.6	0.2	12.9	0.3	13.2	0.6	11.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.2									
HCM 2010 LOS			D									

**Intersection**

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	51	53	213	15	37	41	209	772	55	26	712	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	85	85	85	94	94	94	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	87	349	18	44	48	222	821	59	29	782	102

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1768	2215	442	1787	2237	440	885	0	0	880	0	0
Stage 1	891	891	-	1295	1295	-	-	-	-	-	-	-
Stage 2	877	1324	-	492	942	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 53	~ 43	563	51	~ 42	565	760	-	-	764	-	-
Stage 1	304	359	-	172	231	-	-	-	-	-	-	-
Stage 2	310	224	-	527	340	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 29	563	-	~ 29	565	760	-	-	764	-	-
Mov Cap-2 Maneuver	-	~ 29	-	-	~ 29	-	-	-	-	-	-	-
Stage 1	215	345	-	122	164	-	-	-	-	-	-	-
Stage 2	147	159	-	144	327	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	-	-	2.4	0.3
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	760	-	-	-	-	764	-	-
HCM Lane V/C Ratio	0.293	-	-	-	-	0.037	-	-
HCM Control Delay (s)	11.7	-	-	-	-	9.9	-	-
HCM Lane LOS	B	-	-	-	-	A	-	-
HCM 95th %tile Q(veh)	1.2	-	-	-	-	0.1	-	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



QUEUE REPORT  
11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/25/2014



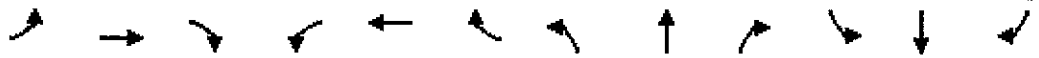
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↕		↖	↕	
Volume (veh/h)	51	53	213	15	37	41	209	772	55	26	712	93
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.76		0.69	0.86		0.69	1.00		0.71	1.00		0.60
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	84	87	349	18	44	48	222	821	59	29	782	102
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.61	0.61	0.61	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	234	309	103	182	163	273	1617	116	46	1016	132
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.15	0.48	0.48	0.03	0.35	0.35
Sat Flow, veh/h	566	827	1092	103	642	577	1774	3373	242	1774	2891	377
Grp Volume(v), veh/h	171	0	349	110	0	0	222	448	432	29	478	406
Grp Sat Flow(s),veh/h/ln	1393	0	1092	1322	0	0	1774	1840	1775	1774	1770	1498
Q Serve(g_s), s	1.4	0.0	16.0	0.0	0.0	0.0	6.9	9.5	9.5	0.9	13.6	13.6
Cycle Q Clear(g_c), s	4.8	0.0	16.0	3.4	0.0	0.0	6.9	9.5	9.5	0.9	13.6	13.6
Prop In Lane	0.49		1.00	0.16		0.44	1.00		0.14	1.00		0.25
Lane Grp Cap(c), veh/h	489	0	309	448	0	0	273	882	851	46	622	526
V/C Ratio(X)	0.35	0.00	1.13	0.25	0.00	0.00	0.81	0.51	0.51	0.63	0.77	0.77
Avail Cap(c_a), veh/h	489	0	309	448	0	0	345	910	878	125	657	556
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	0.00	1.00	1.00	0.00	0.00	0.73	0.73	0.73	0.60	0.60	0.60
Uniform Delay (d), s/veh	16.1	0.0	20.3	15.8	0.0	0.0	23.2	10.1	10.1	27.3	16.3	16.3
Incr Delay (d2), s/veh	0.4	0.0	91.1	0.3	0.0	0.0	8.4	1.5	1.6	8.4	5.5	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	12.6	1.4	0.0	0.0	4.0	5.1	4.9	0.5	7.6	6.6
LnGrp Delay(d),s/veh	16.6	0.0	111.4	16.1	0.0	0.0	31.5	11.6	11.7	35.7	21.8	22.8
LnGrp LOS	B		F	B			C	B	B	D	C	C
Approach Vol, veh/h		520			110			1102			913	
Approach Delay, s/veh		80.2			16.1			15.7			22.7	
Approach LOS		F			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	34.5		20.0	12.7	27.3		20.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	4.0	28.0		16.0	11.0	21.0		16.0
Max Q Clear Time (g_c+I1), s	2.9	11.5		18.0	8.9	15.6		5.4
Green Ext Time (p_c), s	0.0	10.6		0.0	0.1	4.3		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	558	1222	712	119	902	80	579	348	96	72	371	379
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.73	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	613	1343	782	125	949	84	643	387	107	82	422	431
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	661	1734	857	263	1145	356	698	1235	402	132	812	347
Arrive On Green	0.19	0.34	0.34	0.08	0.23	0.23	0.20	0.35	0.35	0.07	0.22	0.22
Sat Flow, veh/h	3442	5085	1574	3442	5085	1581	3442	3539	1153	1774	3681	1570
Grp Volume(v), veh/h	613	1343	782	125	949	84	643	387	107	82	422	431
Grp Sat Flow(s),veh/h/ln	1721	1695	1574	1721	1695	1581	1721	1770	1153	1774	1840	1570
Q Serve(g_s), s	27.4	37.0	53.3	5.4	27.8	6.8	28.6	12.5	10.4	7.0	15.8	34.5
Cycle Q Clear(g_c), s	27.4	37.0	53.3	5.4	27.8	6.8	28.6	12.5	10.4	7.0	15.8	34.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	661	1734	857	263	1145	356	698	1235	402	132	812	347
V/C Ratio(X)	0.93	0.77	0.91	0.48	0.83	0.24	0.92	0.31	0.27	0.62	0.52	1.24
Avail Cap(c_a), veh/h	700	1734	857	275	1145	356	766	1235	402	169	812	347
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.1	46.1	32.3	69.2	57.7	49.6	61.1	37.2	36.5	70.2	53.6	60.9
Incr Delay (d2), s/veh	18.0	2.3	13.9	1.3	5.2	0.3	15.7	0.1	0.3	4.7	0.6	131.8
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	14.7	17.6	33.8	2.6	13.6	3.0	15.2	6.2	3.4	3.6	8.1	27.7
LnGrp Delay(d),s/veh	80.1	48.4	46.2	70.5	62.9	49.9	76.8	37.4	36.9	74.9	54.2	192.7
LnGrp LOS	F	D	D	E	E	D	E	D	D	E	D	F
Approach Vol, veh/h		2738			1158			1137			935	
Approach Delay, s/veh		54.9			62.8			59.6			119.9	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	61.3	36.9	41.0	35.2	43.2	16.9	61.0
Change Period (Y+Rc), s	5.1999998	8.1999998	6.5199998	8.1999998	6.5	8.1999998	6.5	6.5
Max Green Setting (Gmax), s	* 12.5	53.34799999	34.51799999	34.0	* 14.9	54.4		
Max Q Clear Time (g_c+l1), s	7.4	55.3	30.6	36.5	29.4	29.8	9.0	14.5
Green Ext Time (p_c), s	0.1	0.0	1.1	0.0	0.7	4.0	0.1	9.6

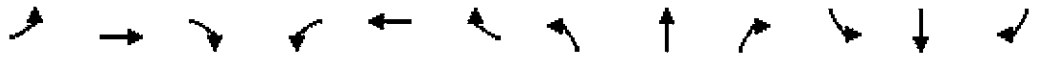
Intersection Summary	
HCM 2010 Ctrl Delay	67.5
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

QUEUE REPORT  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	558	1222	712	119	902	80	579	348	96	72	371	379
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.72	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	613	1343	782	125	949	84	643	387	107	82	358	474
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	1	2
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	684	1712	856	242	1058	329	710	1232	398	114	416	1304
Arrive On Green	0.20	0.34	0.34	0.07	0.21	0.21	0.21	0.35	0.35	0.06	0.21	0.21
Sat Flow, veh/h	3442	5085	1573	3442	5085	1581	3442	3539	1143	1774	1937	3140
Grp Volume(v), veh/h	613	1343	782	125	949	84	643	387	107	82	358	474
Grp Sat Flow(s), veh/h/ln	1721	1695	1573	1721	1695	1581	1721	1770	1143	1774	1937	1570
Q Serve(g_s), s	26.4	36.3	38.7	5.3	27.7	6.8	27.8	12.2	10.3	6.9	27.1	6.5
Cycle Q Clear(g_c), s	26.4	36.3	38.7	5.3	27.7	6.8	27.8	12.2	10.3	6.9	27.1	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	684	1712	856	242	1058	329	710	1232	398	114	416	1304
V/C Ratio(X)	0.90	0.78	0.91	0.52	0.90	0.26	0.91	0.31	0.27	0.72	0.86	0.36
Avail Cap(c_a), veh/h	744	1843	897	242	1102	343	854	1232	398	158	416	1304
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	0.96	0.96	0.96	0.83	0.83	0.83	0.73	0.73	0.73
Uniform Delay (d), s/veh	59.5	45.5	11.9	68.3	58.7	50.4	59.0	36.3	35.7	69.9	57.6	11.3
Incr Delay (d2), s/veh	12.8	2.2	13.2	1.8	9.3	0.4	10.0	0.6	1.4	6.7	15.6	0.6
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	13.8	17.4	19.7	2.6	13.9	3.0	14.2	6.1	3.4	3.6	16.3	3.3
LnGrp Delay(d),s/veh	72.3	47.7	25.1	70.1	68.0	50.8	69.0	36.9	37.1	76.6	73.2	11.8
LnGrp LOS	E	D	C	E	E	D	E	D	D	E	E	B
Approach Vol, veh/h		2738			1158			1137			914	
Approach Delay, s/veh		46.8			67.0			55.1			41.7	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	59.5	17.2	59.3	36.6	46.9	36.8	39.7
Change Period (Y+Rc), s	6.5	* 6.5	6.5	* 8.1999998	6.5	6.5	6.5	8.0
Max Green Setting (Gmax), s	13.6	* 53	10.35.2000037.7999999	10.35.2000037.7999999	30.1	32.9	33.0	33.0
Max Q Clear Time (g_c+I1), s	8.9	14.2	7.3	40.7	29.8	29.1	28.4	29.7
Green Ext Time (p_c), s	0.2	3.4	1.0	10.5	1.7	0.5	1.3	2.0

Intersection Summary

HCM 2010 Ctrl Delay	51.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	116	342	152	75	301	159	163	539	87	168	631	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	125	368	163	81	324	171	177	586	95	179	671	113
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	640	279	104	534	276	217	1075	174	219	1072	180
Arrive On Green	0.09	0.27	0.27	0.06	0.24	0.24	0.12	0.34	0.34	0.12	0.34	0.34
Sat Flow, veh/h	1774	2400	1047	1774	2259	1167	1845	3174	513	1845	3154	531
Grp Volume(v), veh/h	125	270	261	81	252	243	177	339	342	179	391	393
Grp Sat Flow(s),veh/h/ln	1774	1770	1678	1774	1770	1657	1845	1840	1847	1845	1840	1844
Q Serve(g_s), s	5.1	9.7	10.0	3.3	9.4	9.7	6.9	11.0	11.1	7.0	13.2	13.2
Cycle Q Clear(g_c), s	5.1	9.7	10.0	3.3	9.4	9.7	6.9	11.0	11.1	7.0	13.2	13.2
Prop In Lane	1.00		0.62	1.00		0.70	1.00		0.28	1.00		0.29
Lane Grp Cap(c), veh/h	158	472	448	104	419	392	217	624	626	219	626	627
V/C Ratio(X)	0.79	0.57	0.58	0.78	0.60	0.62	0.82	0.54	0.55	0.82	0.63	0.63
Avail Cap(c_a), veh/h	192	648	614	192	648	606	225	624	626	225	626	627
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	23.4	23.5	34.2	25.1	25.2	31.8	19.8	19.8	31.7	20.4	20.4
Incr Delay (d2), s/veh	16.6	1.1	1.2	11.6	1.4	1.6	19.7	3.4	3.4	20.1	4.7	4.7
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	3.2	4.9	4.7	2.0	4.7	4.6	4.7	6.1	6.2	4.8	7.4	7.5
LnGrp Delay(d),s/veh	49.5	24.5	24.7	45.9	26.5	26.8	51.5	23.2	23.2	51.8	25.1	25.1
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		656			576			858			963	
Approach Delay, s/veh		29.3			29.3			29.0			30.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	29.0	8.3	23.7	12.7	29.1	10.6	21.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	9.0	25.0	8.0	27.0	9.0	25.0	8.0	27.0
Max Q Clear Time (g_c+I1), s	9.0	13.1	5.3	12.0	8.9	15.2	7.1	11.7
Green Ext Time (p_c), s	0.0	7.0	0.0	5.7	0.0	6.1	0.0	5.8

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗↗	↖	↖	↗↗↗	↖	↖	↗	↖	↖	↗	↖
Volume (veh/h)	28	1320	24	14	984	80	49	1	13	57	3	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	29	1389	25	15	1081	88	68	1	18	64	3	49
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.72	0.72	0.72	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	2239	680	27	2179	679	89	13	232	86	13	218
Arrive On Green	0.03	0.44	0.44	0.02	0.43	0.43	0.05	0.15	0.15	0.05	0.15	0.15
Sat Flow, veh/h	1774	5085	1544	1774	5085	1583	1774	84	1512	1774	88	1440
Grp Volume(v), veh/h	29	1389	25	15	1081	88	68	0	19	64	0	52
Grp Sat Flow(s),veh/h/ln	1774	1695	1544	1774	1695	1583	1774	0	1596	1774	0	1528
Q Serve(g_s), s	0.8	9.8	0.4	0.4	7.2	1.6	1.8	0.0	0.5	1.7	0.0	1.4
Cycle Q Clear(g_c), s	0.8	9.8	0.4	0.4	7.2	1.6	1.8	0.0	0.5	1.7	0.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.94
Lane Grp Cap(c), veh/h	48	2239	680	27	2179	679	89	0	245	86	0	231
V/C Ratio(X)	0.61	0.62	0.04	0.56	0.50	0.13	0.76	0.00	0.08	0.75	0.00	0.22
Avail Cap(c_a), veh/h	266	2239	680	266	2179	679	266	0	1026	266	0	982
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	10.1	7.4	22.8	9.7	8.1	21.9	0.0	16.9	21.9	0.0	17.4
Incr Delay (d2), s/veh	11.9	1.3	0.1	16.9	0.8	0.4	12.6	0.0	0.1	12.1	0.0	0.5
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	0.5	4.8	0.2	0.3	3.5	0.8	1.2	0.0	0.2	1.1	0.0	0.6
LnGrp Delay(d),s/veh	34.4	11.4	7.5	39.7	10.5	8.5	34.5	0.0	17.1	34.0	0.0	17.9
LnGrp LOS	C	B	A	D	B	A	C		B	C		B

Approach Vol, veh/h		1443			1184			87				116
Approach Delay, s/veh		11.8			10.7			30.7				26.8
Approach LOS		B			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.7	24.5	6.3	11.1	5.3	24.0	6.3	11.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0
Max Q Clear Time (g_c+I1), s	2.4	11.8	3.8	3.4	2.8	9.2	3.7	2.5
Green Ext Time (p_c), s	0.0	7.4	0.0	0.4	0.0	9.6	0.0	0.4

Intersection Summary		
HCM 2010 Ctrl Delay		12.5
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY. - MITIGATION

2/4/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	1320	24	14	984	80	49	1	13	57	3	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	29	1389	25	15	1081	88	68	1	18	64	3	49
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.72	0.72	0.72	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	3176	971	25	3117	970	89	11	196	83	11	180
Arrive On Green	0.05	1.00	1.00	0.01	0.61	0.61	0.05	0.13	0.13	0.05	0.13	0.13
Sat Flow, veh/h	1774	5085	1555	1774	5085	1583	1774	84	1512	1774	87	1427
Grp Volume(v), veh/h	29	1389	25	15	1081	88	68	0	19	64	0	52
Grp Sat Flow(s),veh/h/ln	1774	1695	1555	1774	1695	1583	1774	0	1596	1774	0	1514
Q Serve(g_s), s	1.4	0.0	0.0	0.7	9.0	1.3	3.3	0.0	0.9	3.1	0.0	2.7
Cycle Q Clear(g_c), s	1.4	0.0	0.0	0.7	9.0	1.3	3.3	0.0	0.9	3.1	0.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.94
Lane Grp Cap(c), veh/h	45	3176	971	25	3117	970	89	0	207	83	0	191
V/C Ratio(X)	0.64	0.44	0.03	0.60	0.35	0.09	0.77	0.00	0.09	0.77	0.00	0.27
Avail Cap(c_a), veh/h	185	3176	971	164	3117	970	246	0	554	246	0	525
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	0.0	42.4	8.2	2.8	40.6	0.0	33.1	40.8	0.0	34.2
Incr Delay (d2), s/veh	9.1	0.3	0.0	21.4	0.3	0.2	12.8	0.0	0.2	14.1	0.0	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	0.8	0.1	0.0	0.5	4.3	0.9	1.9	0.0	0.4	1.8	0.0	1.2
LnGrp Delay(d),s/veh	49.8	0.3	0.0	63.7	8.5	3.0	53.3	0.0	33.3	54.8	0.0	34.9
LnGrp LOS	D	A	A	E	A	A	D		C	D		C
Approach Vol, veh/h		1443			1184			87			116	
Approach Delay, s/veh		1.3			8.8			49.0			45.9	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.7	58.0	8.3	14.9	39.7	57.0	8.0	15.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	54.0	12.0	30.0	9.0	53.0	12.0	30.0				
Max Q Clear Time (g_c+I1), s	2.7	2.0	5.3	4.7	3.4	11.0	5.1	2.9				
Green Ext Time (p_c), s	0.0	15.2	0.1	0.2	0.0	10.4	0.1	0.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.7									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	
Volume (veh/h)	50	1078	104	38	831	11	152	114	42	7	114	64
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.93	1.00		0.87	1.00		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	52	1111	107	44	966	13	179	134	49	8	127	71
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.86	0.86	0.86	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	1298	125	55	1424	19	208	686	505	14	249	139
Arrive On Green	0.04	0.40	0.40	0.03	0.40	0.40	0.12	0.37	0.37	0.01	0.26	0.26
Sat Flow, veh/h	1774	3209	308	1774	3572	48	1774	1863	1371	1774	960	537
Grp Volume(v), veh/h	52	612	606	44	479	500	179	134	49	8	0	198
Grp Sat Flow(s),veh/h/ln	1774	1770	1748	1774	1770	1850	1774	1863	1371	1774	0	1497
Q Serve(g_s), s	2.5	26.8	27.0	2.1	19.0	19.0	8.5	4.2	2.0	0.4	0.0	9.6
Cycle Q Clear(g_c), s	2.5	26.8	27.0	2.1	19.0	19.0	8.5	4.2	2.0	0.4	0.0	9.6
Prop In Lane	1.00		0.18	1.00		0.03	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	66	716	707	55	705	737	208	686	505	14	0	388
V/C Ratio(X)	0.79	0.85	0.86	0.79	0.68	0.68	0.86	0.20	0.10	0.56	0.00	0.51
Avail Cap(c_a), veh/h	146	716	707	146	705	737	208	686	505	146	0	404
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	23.1	23.2	41.1	21.2	21.2	37.0	18.3	17.6	42.2	0.0	27.0
Incr Delay (d2), s/veh	18.1	12.4	12.8	21.9	5.2	5.0	28.7	0.1	0.1	29.6	0.0	1.0
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	1.5	15.5	15.5	1.4	10.3	10.8	5.8	2.2	0.8	0.3	0.0	4.1
LnGrp Delay(d),s/veh	58.8	35.5	35.9	62.9	26.4	26.1	65.7	18.5	17.7	71.8	0.0	28.0
LnGrp LOS	E	D	D	E	C	C	E	B	B	E		C
Approach Vol, veh/h		1270			1023			362			206	
Approach Delay, s/veh		36.7			27.8			41.7			29.7	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	38.5	14.0	26.1	7.2	38.0	4.7	35.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	34.0	10.0	23.0	7.0	34.0	7.0	26.0
Max Q Clear Time (g_c+l1), s	4.1	29.0	10.5	11.6	4.5	21.0	2.4	6.2
Green Ext Time (p_c), s	0.0	4.4	0.0	0.9	0.0	10.3	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	426	145	32	396	63	63	176	52	63	197	86
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.89		0.70	0.93		0.70	0.90		0.70	0.81		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	92	490	167	38	471	75	68	189	56	68	214	93
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	785	466	300	1212	189	418	519	154	432	479	208
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	766	1863	1106	723	2876	449	961	1241	368	916	1146	498
Grp Volume(v), veh/h	92	490	167	38	286	260	68	0	245	68	0	307
Grp Sat Flow(s),veh/h/ln	766	1863	1106	723	1770	1556	961	0	1609	916	0	1644
Q Serve(g_s), s	4.7	10.3	5.1	2.2	5.6	5.8	2.7	0.0	5.2	2.7	0.0	6.7
Cycle Q Clear(g_c), s	10.5	10.3	5.1	12.5	5.6	5.8	9.4	0.0	5.2	8.0	0.0	6.7
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.23	1.00		0.30
Lane Grp Cap(c), veh/h	379	785	466	300	746	656	418	0	672	432	0	687
V/C Ratio(X)	0.24	0.62	0.36	0.13	0.38	0.40	0.16	0.00	0.36	0.16	0.00	0.45
Avail Cap(c_a), veh/h	379	785	466	300	746	656	421	0	678	435	0	693
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.7	11.3	9.8	16.2	9.9	10.0	13.7	0.0	10.0	12.7	0.0	10.4
Incr Delay (d2), s/veh	1.5	3.7	2.1	0.9	1.5	1.8	0.2	0.0	0.3	0.2	0.0	0.5
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	1.2	6.0	1.8	0.5	3.0	2.8	0.7	0.0	2.4	0.7	0.0	3.1
LnGrp Delay(d),s/veh	15.2	15.0	12.0	17.1	11.4	11.8	13.9	0.0	10.3	12.9	0.0	10.8
LnGrp LOS	B	B	B	B	B	B	B		B	B		B

Approach Vol, veh/h		749			584			313				375
Approach Delay, s/veh		14.4			12.0			11.1				11.2
Approach LOS		B			B			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.0		24.8		25.0		24.8
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		21.0		21.0		21.0		21.0
Max Q Clear Time (g_c+I1), s		12.5		10.0		14.5		11.4
Green Ext Time (p_c), s		5.1		3.3		4.2		3.1

Intersection Summary		
HCM 2010 Ctrl Delay		12.6
HCM 2010 LOS		B



**Intersection**

Int Delay, s/veh      5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	211	95	104	233	96	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	229	103	113	253	104	113

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	333	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1226	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1226	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	19
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	471	-	-	1226	-
HCM Lane V/C Ratio	0.462	-	-	0.092	-
HCM Control Delay (s)	19	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.4	-	-	0.3	-

**Intersection**

Int Delay, s/veh            5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	204	93	102	227	94	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	222	101	111	247	102	111

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	323	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1237	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1237	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	482	-	-	1237	-
HCM Lane V/C Ratio	0.442	-	-	0.09	-
HCM Control Delay (s)	18.3	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	294	0	4	316	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	320	0	4	343	0	4

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	320	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1240	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1240	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	721	-	-	1240	-
HCM Lane V/C Ratio	0.006	-	-	0.004	-
HCM Control Delay (s)	10	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Existing Plus Project PM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	↖
Volume (veh/h)	167	693	68	61	395	170	45	439	62	131	231	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	194	806	79	64	416	179	47	457	65	158	278	52
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.96	0.96	0.96	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	1434	141	81	855	364	337	1050	149	301	628	534
Arrive On Green	0.13	0.44	0.44	0.05	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	3257	319	1774	2420	1030	1046	3114	441	876	1863	1583
Grp Volume(v), veh/h	194	438	447	64	303	292	47	259	263	158	278	52
Grp Sat Flow(s),veh/h/ln	1774	1770	1806	1774	1770	1681	1046	1770	1785	876	1863	1583
Q Serve(g_s), s	7.2	12.5	12.5	2.4	9.1	9.2	2.5	7.7	7.8	11.6	7.9	1.5
Cycle Q Clear(g_c), s	7.2	12.5	12.5	2.4	9.1	9.2	10.4	7.7	7.8	19.4	7.9	1.5
Prop In Lane	1.00		0.18	1.00		0.61	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	236	779	795	81	625	594	337	597	602	301	628	534
V/C Ratio(X)	0.82	0.56	0.56	0.79	0.48	0.49	0.14	0.43	0.44	0.52	0.44	0.10
Avail Cap(c_a), veh/h	261	779	795	183	625	594	354	625	630	315	658	559
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	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	14.2	14.2	32.1	17.2	17.2	21.6	17.5	17.5	25.1	17.5	15.4
Incr Delay (d2), s/veh	17.3	2.9	2.9	14.2	2.5	2.7	0.2	0.5	0.5	1.4	0.5	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	4.7	6.7	6.8	1.5	4.8	4.7	0.7	3.8	3.9	2.9	4.1	0.7
LnGrp Delay(d),s/veh	46.0	17.1	17.0	46.3	19.7	19.9	21.8	18.0	18.0	26.5	18.0	15.5
LnGrp LOS	D	B	B	D	B	B	C	B	B	C	B	B
Approach Vol, veh/h		1079			659			569			488	
Approach Delay, s/veh		22.3			22.4			18.3			20.5	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	36.0		26.9	13.0	30.0		26.9
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	27.0		24.0	10.0	24.0		24.0
Max Q Clear Time (g_c+l1), s	4.4	14.5		21.4	9.2	11.2		12.4
Green Ext Time (p_c), s	0.0	7.3		1.5	0.0	7.4		4.8

Intersection Summary		
HCM 2010 Ctrl Delay		21.2
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	166	824	107	116	737	52	106	58	163	103	44	192
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	171	849	110	129	819	58	118	64	181	117	50	218
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.90	0.90	0.90	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	1888	243	166	2050	638	305	135	381	326	95	415
Arrive On Green	0.10	0.41	0.41	0.09	0.40	0.40	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	4561	588	1774	5085	1583	1107	430	1217	1130	304	1325
Grp Volume(v), veh/h	171	630	329	129	819	58	118	0	245	117	0	268
Grp Sat Flow(s),veh/h/ln	1774	1695	1759	1774	1695	1583	1107	0	1648	1130	0	1629
Q Serve(g_s), s	6.4	9.0	9.0	4.8	7.7	1.5	6.6	0.0	8.0	6.2	0.0	9.1
Cycle Q Clear(g_c), s	6.4	9.0	9.0	4.8	7.7	1.5	15.6	0.0	8.0	14.3	0.0	9.1
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.74	1.00		0.81
Lane Grp Cap(c), veh/h	185	1403	728	166	2050	638	305	0	516	326	0	510
V/C Ratio(X)	0.92	0.45	0.45	0.78	0.40	0.09	0.39	0.00	0.47	0.36	0.00	0.53
Avail Cap(c_a), veh/h	185	1403	728	318	2050	638	437	0	713	461	0	705
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	14.1	14.2	29.7	14.2	12.4	25.3	0.0	18.6	24.3	0.0	18.9
Incr Delay (d2), s/veh	44.6	1.0	2.0	7.6	0.6	0.3	0.8	0.0	0.7	0.7	0.0	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	5.4	4.4	4.8	2.7	3.7	0.7	2.1	0.0	3.7	2.0	0.0	4.1
LnGrp Delay(d),s/veh	74.3	15.2	16.2	37.3	14.8	12.7	26.1	0.0	19.2	25.0	0.0	19.7
LnGrp LOS	E	B	B	D	B	B	C		B	C		B
Approach Vol, veh/h		1130			1006			363				385
Approach Delay, s/veh		24.4			17.6			21.5				21.3
Approach LOS		C			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	31.7		25.0	11.0	31.0		25.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	12.0	22.0		29.0	7.0	27.0		29.0
Max Q Clear Time (g_c+I1), s	6.8	11.0		16.3	8.4	9.7		17.6
Green Ext Time (p_c), s	0.1	8.0		3.6	0.0	11.3		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	837	54	78	594	53	112	44	318	115	26	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	22	930	60	92	699	62	135	53	383	132	30	32
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.83	0.83	0.83	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	1175	76	121	1273	113	166	513	436	166	228	243
Arrive On Green	0.03	0.35	0.35	0.07	0.39	0.39	0.09	0.28	0.28	0.09	0.28	0.28
Sat Flow, veh/h	1774	3376	218	1774	3289	292	1774	1863	1583	1774	826	881
Grp Volume(v), veh/h	22	487	503	92	376	385	135	53	383	132	0	62
Grp Sat Flow(s),veh/h/ln	1774	1770	1824	1774	1770	1811	1774	1863	1583	1774	0	1707
Q Serve(g_s), s	0.9	18.5	18.5	3.8	12.3	12.4	5.6	1.6	17.3	5.4	0.0	2.0
Cycle Q Clear(g_c), s	0.9	18.5	18.5	3.8	12.3	12.4	5.6	1.6	17.3	5.4	0.0	2.0
Prop In Lane	1.00		0.12	1.00		0.16	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	52	616	635	121	685	701	166	513	436	166	0	471
V/C Ratio(X)	0.42	0.79	0.79	0.76	0.55	0.55	0.81	0.10	0.88	0.79	0.00	0.13
Avail Cap(c_a), veh/h	166	616	635	166	685	701	166	673	572	214	0	663
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)	0.81	0.81	0.81	0.94	0.94	0.94	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.6	21.9	21.9	34.2	17.8	17.8	33.2	20.2	25.9	33.1	0.0	20.3
Incr Delay (d2), s/veh	4.3	8.3	8.0	11.9	3.0	2.9	25.4	0.1	11.8	14.4	0.0	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	0.5	10.4	10.6	2.3	6.5	6.7	3.9	0.8	8.9	3.3	0.0	1.0
LnGrp Delay(d),s/veh	39.9	30.2	29.9	46.0	20.8	20.7	58.6	20.3	37.6	47.6	0.0	20.5
LnGrp LOS	D	C	C	D	C	C	E	C	D	D		C
Approach Vol, veh/h		1012			853			571			194	
Approach Delay, s/veh		30.3			23.5			41.0			38.9	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	40.3	11.0	24.6	6.2	43.2	11.0	24.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s	5.8	20.5	7.6	4.0	2.9	14.4	7.4	19.3				
Green Ext Time (p_c), s	0.0	4.3	0.0	2.1	0.0	8.0	0.0	1.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			31.0									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY. - MITIGATION

8/13/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗	↗	↖↖	↗↗		↖↖	↗↗	↗	↖↖	↗↗	↗
Volume (veh/h)	47	945	202	141	642	141	334	485	260	173	261	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	52	1050	224	155	705	155	355	516	277	197	297	44
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	1264	566	196	1101	242	404	1323	592	240	1155	517
Arrive On Green	0.03	0.36	0.36	0.06	0.38	0.38	0.12	0.37	0.37	0.07	0.33	0.33
Sat Flow, veh/h	3442	3539	1583	3442	2886	634	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	52	1050	224	155	432	428	355	516	277	197	297	44
Grp Sat Flow(s), veh/h/ln	1721	1770	1583	1721	1770	1751	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	2.5	45.7	17.9	7.5	33.7	33.7	17.1	18.0	22.4	9.5	10.4	3.2
Cycle Q Clear(g_c), s	2.5	45.7	17.9	7.5	33.7	33.7	17.1	18.0	22.4	9.5	10.4	3.2
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	1264	566	196	675	668	404	1323	592	240	1155	517
V/C Ratio(X)	0.47	0.83	0.40	0.79	0.64	0.64	0.88	0.39	0.47	0.82	0.26	0.09
Avail Cap(c_a), veh/h	123	1365	611	245	745	737	510	1323	592	327	1155	517
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.1	49.5	40.6	78.5	42.6	42.7	73.2	38.7	40.1	77.4	41.8	39.4
Incr Delay (d2), s/veh	3.0	4.2	0.5	13.0	1.6	1.6	13.6	0.9	2.6	11.3	0.5	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	1.2	23.1	7.9	3.9	16.7	16.6	8.9	9.0	10.3	4.9	5.2	1.5
LnGrp Delay(d),s/veh	83.1	53.7	41.0	91.5	44.2	44.3	86.8	39.6	42.7	88.7	42.3	39.7
LnGrp LOS	F	D	D	F	D	D	F	D	D	F	D	D
Approach Vol, veh/h		1326			1015			1148			538	
Approach Delay, s/veh		52.7			51.5			54.9			59.1	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	70.0	14.6	66.2	25.8	62.0	10.5	70.3
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6
Max Green Setting (Gmax), s	16.0	63.0	12.0	65.0	25.0	54.0	6.0	*71
Max Q Clear Time (g_c+l1), s	11.5	24.4	9.5	47.7	19.1	12.4	4.5	35.7
Green Ext Time (p_c), s	0.2	8.0	0.1	12.5	0.7	8.0	0.0	20.2

Intersection Summary

HCM 2010 Ctrl Delay	53.9
HCM 2010 LOS	D

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	300	658	106	61	409	303	75	734	48	184	577	212
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	337	739	0	67	449	0	86	844	0	192	601	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.87	0.87	0.87	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	1460	653	107	983	440	223	1018	455	259	1055	472
Arrive On Green	0.20	0.41	0.00	0.06	0.28	0.00	0.06	0.29	0.00	0.08	0.30	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	337	739	0	67	449	0	86	844	0	192	601	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	18.4	15.1	0.0	3.6	10.2	0.0	2.3	21.7	0.0	5.3	14.0	0.0
Cycle Q Clear(g_c), s	18.4	15.1	0.0	3.6	10.2	0.0	2.3	21.7	0.0	5.3	14.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	346	1460	653	107	983	440	223	1018	455	259	1055	472
V/C Ratio(X)	0.97	0.51	0.00	0.63	0.46	0.00	0.39	0.83	0.00	0.74	0.57	0.00
Avail Cap(c_a), veh/h	346	1460	653	164	1054	472	247	1018	455	283	1055	472
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.9	21.2	0.0	44.7	29.1	0.0	43.7	32.4	0.0	44.1	28.9	0.0
Incr Delay (d2), s/veh	41.1	0.3	0.0	5.9	0.3	0.0	1.1	7.8	0.0	9.2	2.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	7.4	0.0	1.9	5.0	0.0	1.1	11.7	0.0	2.9	7.2	0.0
LnGrp Delay(d),s/veh	80.0	21.5	0.0	50.6	29.4	0.0	44.7	40.2	0.0	53.3	31.1	0.0
LnGrp LOS	F	C		D	C		D	D		D	C	
Approach Vol, veh/h		1076			516			930			793	
Approach Delay, s/veh		39.8			32.2			40.6			36.5	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	32.0	9.9	44.2	10.3	33.0	23.0	31.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	28.0	9.0	39.0	7.0	29.0	19.0	29.0
Max Q Clear Time (g_c+I1), s	7.3	23.7	5.6	17.1	4.3	16.0	20.4	12.2
Green Ext Time (p_c), s	0.0	3.2	0.0	8.7	0.0	7.8	0.0	5.6

Intersection Summary	
HCM 2010 Ctrl Delay	38.1
HCM 2010 LOS	D

**Intersection**

Int Delay, s/veh 21.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NET	NBR	SBL	SBT	SBR
Vol, veh/h	76	1158	155	189	771	16	67	6	312	9	5	82
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	91	91	91	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	1206	161	208	847	18	74	7	343	10	6	93

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	865	0	0	1368	0	0	2287	2725	684	2036	2797	432
Stage 1	-	-	-	-	-	-	1445	1445	-	1271	1271	-
Stage 2	-	-	-	-	-	-	842	1280	-	765	1526	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	774	-	-	498	-	-	~ 21	20	391	33	18	572
Stage 1	-	-	-	-	-	-	138	195	-	178	237	-
Stage 2	-	-	-	-	-	-	325	235	-	362	178	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	774	-	-	498	-	-	~ 11	10	391	~ 2	9	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 47	43	-	1899	~ 85	-
Stage 1	-	-	-	-	-	-	124	175	-	160	138	-
Stage 2	-	-	-	-	-	-	152	137	-	39	160	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	3.4	143.4	-
HCM LOS	-	-	F	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	47	391	774	-	-	498	-	-	+ 572	-
HCM Lane W/C Ratio	1.707	0.877	0.102	-	-	0.417	-	-	- 0.163	-
HCM Control Delay (s)	\$ 530.7	52.8	10.2	-	-	17.3	-	-	- 12.5	-
HCM Lane LOS	F	F	B	-	-	C	-	-	- B	-
HCM 95th %tile Q(veh)	7.9	8.7	0.3	-	-	2	-	-	- 0.6	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Intersection

Int Delay, s/veh 8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	76	1158	155	189	771	16	0	0	312	0	0	82
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	91	91	91	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	1206	161	208	847	18	0	0	343	0	0	93

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	865	0	0	1368	0	0	2284	2725	684	2032	2797	432
Stage 1	-	-	-	-	-	-	1445	1445	-	1271	1271	-
Stage 2	-	-	-	-	-	-	839	1280	-	761	1526	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	774	-	-	498	-	-	21	20	391	33	18	572
Stage 1	-	-	-	-	-	-	138	195	-	178	237	-
Stage 2	-	-	-	-	-	-	326	235	-	364	178	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	774	-	-	498	-	-	11	10	391	3	9	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	49	43	-	1753	~85	-
Stage 1	-	-	-	-	-	-	124	175	-	160	138	-
Stage 2	-	-	-	-	-	-	159	137	-	40	160	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	3.4	52.8	12.5
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	391	774	-	-	498	-	-	572
HCM Lane V/C Ratio	0.877	0.102	-	-	0.417	-	-	0.163
HCM Control Delay (s)	52.8	10.2	-	-	17.3	-	-	12.5
HCM Lane LOS	F	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	8.7	0.3	-	-	2	-	-	0.6

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
 6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 2)

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↗		↖	↗	
Volume (veh/h)	76	1158	155	189	771	16	67	6	312	9	5	82
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	193.7	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	79	1206	161	208	847	18	74	7	343	10	6	93
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.91	0.91	0.91	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	495	2296	305	312	2694	57	242	6	279	81	17	269
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	637	3141	418	412	3686	78	1291	32	1556	1027	97	1501
Grp Volume(v), veh/h	79	678	689	208	423	442	74	0	350	10	0	99
Grp Sat Flow(s),veh/h/ln	637	1770	1789	412	1840	1923	1291	0	1588	1027	0	1598
Q Serve(g_s), s	4.4	14.9	15.0	39.9	7.2	7.2	4.7	0.0	16.0	0.0	0.0	4.8
Cycle Q Clear(g_c), s	11.6	14.9	15.0	54.9	7.2	7.2	9.6	0.0	16.0	16.0	0.0	4.8
Prop In Lane	1.00		0.23	1.00		0.04	1.00		0.98	1.00		0.94
Lane Grp Cap(c), veh/h	495	1293	1308	312	1345	1406	242	0	285	81	0	287
V/C Ratio(X)	0.16	0.52	0.53	0.67	0.31	0.31	0.31	0.00	1.23	0.12	0.00	0.35
Avail Cap(c_a), veh/h	501	1309	1324	316	1362	1423	242	0	285	81	0	287
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.2	5.2	5.3	17.3	4.2	4.2	36.2	0.0	36.6	44.6	0.0	32.0
Incr Delay (d2), s/veh	0.1	0.4	0.4	5.2	0.1	0.1	3.2	0.0	129.8	3.1	0.0	3.3
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	0.8	7.3	7.4	4.9	3.6	3.7	1.9	0.0	17.2	0.3	0.0	2.4
LnGrp Delay(d),s/veh	6.4	5.6	5.6	22.4	4.3	4.3	39.4	0.0	166.4	47.7	0.0	35.3
LnGrp LOS	A	A	A	C	A	A	D		F	D		D
Approach Vol, veh/h		1446			1073			424				109
Approach Delay, s/veh		5.7			7.8			144.3				36.4
Approach LOS		A			A			F				D

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		69.2		20.0		69.2		20.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		66.0		16.0		66.0		16.0
Max Q Clear Time (g_c+l1), s		17.0		18.0		56.9		18.0
Green Ext Time (p_c), s		34.5		0.0		8.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.8
HCM 2010 LOS	C

Intersection												
Int Delay, s/veh	56.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	7	5	154	4	125	22	434	170	100	251	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	83	83	83	83	83	83	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	11	8	186	5	151	27	523	205	111	279	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1155	1077	279	1087	1077	523	279	0	0	523	0	0
Stage 1	501	501	-	576	576	-	-	-	-	-	-	-
Stage 2	654	576	-	511	501	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	174	219	760	194	219	554	1284	-	-	1043	-	-
Stage 1	552	543	-	503	502	-	-	-	-	-	-	-
Stage 2	456	502	-	545	543	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	112	192	760	~ 166	192	554	1284	-	-	1043	-	-
Mov Cap-2 Maneuver	112	192	-	~ 166	192	-	-	-	-	-	-	-
Stage 1	540	485	-	492	491	-	-	-	-	-	-	-
Stage 2	322	491	-	471	485	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.6	248.2	0.3	2.4
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1284	-	-	194	241	1043	-	-
HCM Lane V/C Ratio	0.021	-	-	0.141	1.415	0.107	-	-
HCM Control Delay (s)	7.9	-	-	26.6	248.2	8.9	-	-
HCM Lane LOS	A	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	19.2	0.4	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
7: ESCONDIDO BLVD. & LINCOLN AVE. - MITIGATION

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗	↖	↗	↖	↗
Volume (veh/h)	5	7	5	154	4	125	22	434	170	100	251	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	8	11	8	186	5	151	27	523	205	111	279	14
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	209	111	530	12	349	698	961	817	469	961	817
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	238	925	490	1388	51	1540	1082	1863	1583	724	1863	1583
Grp Volume(v), veh/h	27	0	0	186	0	156	27	523	205	111	279	14
Grp Sat Flow(s),veh/h/ln	1653	0	0	1388	0	1591	1082	1863	1583	724	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	3.8	0.0	2.6	0.5	5.9	2.2	3.8	2.6	0.1
Cycle Q Clear(g_c), s	0.4	0.0	0.0	4.1	0.0	2.6	3.1	5.9	2.2	9.6	2.6	0.1
Prop In Lane	0.30		0.30	1.00		0.97	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	525	0	0	530	0	360	698	961	817	469	961	817
V/C Ratio(X)	0.05	0.00	0.00	0.35	0.00	0.43	0.04	0.54	0.25	0.24	0.29	0.02
Avail Cap(c_a), veh/h	971	0	0	931	0	821	698	961	817	469	961	817
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	11.1	0.0	10.3	5.2	5.1	4.2	8.3	4.3	3.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.8	0.1	2.2	0.7	1.2	0.8	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	0.2	0.0	0.0	1.5	0.0	1.2	0.2	3.5	1.1	0.9	1.5	0.1
LnGrp Delay(d),s/veh	9.5	0.0	0.0	11.5	0.0	11.1	5.3	7.3	4.9	9.5	5.0	3.7
LnGrp LOS	A			B		B	A	A	A	A	A	A
Approach Vol, veh/h		27			342			755			404	
Approach Delay, s/veh		9.5			11.3			6.6			6.2	
Approach LOS		A			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		11.0		20.0		11.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		7.9		2.4		11.6		6.1
Green Ext Time (p_c), s		4.2		1.4		2.6		1.2

Intersection Summary		
HCM 2010 Ctrl Delay		7.6
HCM 2010 LOS		A

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014



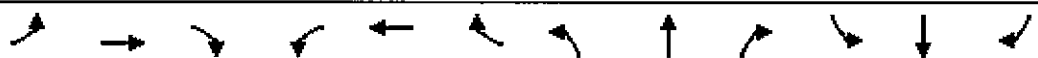
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (veh/h)	144	574	147	111	394	56	215	381	202	85	244	120
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	157	624	160	126	448	64	234	414	220	98	280	138
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	192	835	214	158	873	124	272	756	397	137	605	290
Arrive On Green	0.11	0.30	0.30	0.09	0.28	0.28	0.15	0.34	0.34	0.08	0.26	0.26
Sat Flow, veh/h	1774	2792	715	1774	3112	442	1774	2244	1180	1774	2322	1114
Grp Volume(v), veh/h	157	395	389	126	254	258	234	325	309	98	212	206
Grp Sat Flow(s),veh/h/ln	1774	1770	1737	1774	1770	1785	1774	1770	1655	1774	1770	1666
Q Serve(g_s), s	7.0	16.3	16.4	5.6	9.7	9.8	10.4	12.1	12.3	4.4	8.1	8.5
Cycle Q Clear(g_c), s	7.0	16.3	16.4	5.6	9.7	9.8	10.4	12.1	12.3	4.4	8.1	8.5
Prop In Lane	1.00		0.41	1.00		0.25	1.00		0.71	1.00		0.67
Lane Grp Cap(c), veh/h	192	530	520	158	496	500	272	596	557	137	461	434
V/C Ratio(X)	0.82	0.75	0.75	0.80	0.51	0.52	0.86	0.55	0.55	0.72	0.46	0.48
Avail Cap(c_a), veh/h	197	530	520	197	525	530	285	596	557	219	503	474
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	25.6	25.6	36.1	24.4	24.5	33.4	21.8	21.9	36.5	25.1	25.2
Incr Delay (d2), s/veh	22.6	5.7	5.9	16.3	0.8	0.8	21.9	1.0	1.2	6.9	0.7	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	4.6	8.7	8.6	3.5	4.8	4.9	6.7	6.0	5.8	2.4	4.0	4.0
LnGrp Delay(d),s/veh	57.9	31.3	31.5	52.4	25.3	25.3	55.3	22.8	23.1	43.3	25.8	26.0
LnGrp LOS	E	C	C	D	C	C	E	C	C	D	C	C
Approach Vol, veh/h		941			638			868			516	
Approach Delay, s/veh		35.8			30.6			31.7			29.2	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	28.2	16.4	25.1	12.7	26.7	10.2	31.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	9.0	24.0	13.0	23.0	9.0	24.0	10.0	26.0
Max Q Clear Time (g_c+I1), s	7.6	18.4	12.4	10.5	9.0	11.8	6.4	14.3
Green Ext Time (p_c), s	0.0	3.6	0.0	3.4	0.0	6.0	0.1	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↑	↑		↑	↑↑		↑	↑↑	
Volume (veh/h)	2	2	19	29	0	42	17	591	63	37	548	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	1.00		0.98	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	2	2	23	32	0	47	19	672	72	44	645	1
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.90	0.90	0.90	0.88	0.88	0.88	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	31	219	393	0	253	34	1537	164	69	1803	3
Arrive On Green	0.17	0.17	0.17	0.17	0.00	0.17	0.02	0.48	0.48	0.04	0.50	0.50
Sat Flow, veh/h	45	186	1327	1339	0	1532	1774	3220	345	1774	3625	6
Grp Volume(v), veh/h	27	0	0	32	0	47	19	369	375	44	315	331
Grp Sat Flow(s),veh/h/ln	1557	0	0	1339	0	1532	1774	1770	1795	1774	1770	1861
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	1.0	0.4	5.2	5.2	0.9	4.1	4.1
Cycle Q Clear(g_c), s	0.5	0.0	0.0	1.3	0.0	1.0	0.4	5.2	5.2	0.9	4.1	4.1
Prop In Lane	0.07		0.85	1.00		1.00	1.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	360	0	0	393	0	253	34	845	857	69	880	926
V/C Ratio(X)	0.07	0.00	0.00	0.08	0.00	0.19	0.56	0.44	0.44	0.63	0.36	0.36
Avail Cap(c_a), veh/h	1041	0	0	988	0	934	329	845	857	329	880	926
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	0.0	13.9	0.0	13.6	18.3	6.5	6.5	17.9	5.8	5.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.3	13.6	1.6	1.6	9.2	1.1	1.1
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	0.2	0.0	0.0	0.3	0.0	0.4	0.3	2.8	2.9	0.6	2.2	2.3
LnGrp Delay(d),s/veh	13.5	0.0	0.0	14.0	0.0	13.9	31.9	8.2	8.1	27.0	6.9	6.9
LnGrp LOS	B			B		B	C	A	A	C	A	A
Approach Vol, veh/h		27			79			763			690	
Approach Delay, s/veh		13.5			13.9			8.7			8.2	
Approach LOS		B			B			A			A	





















Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	22.0		10.2	4.7	22.8		10.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	2.9	7.2		2.5	2.4	6.1		3.3
Green Ext Time (p_c), s	0.0	6.2		0.4	0.0	6.6		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		8.8
HCM 2010 LOS		A



HCM 2010 SIGNALIZED  
 10: N. BROADWAY & EL NORTE PKY. - MITIGATION

8/13/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	264	1013	177	165	682	83	168	493	207	70	295	166
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	307	1178	206	190	784	95	191	560	235	80	335	189
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	364	1439	250	239	1344	163	216	705	295	100	476	258
Arrive On Green	0.11	0.46	0.46	0.07	0.42	0.42	0.12	0.29	0.29	0.06	0.23	0.23
Sat Flow, veh/h	3442	3124	543	3442	3168	384	1774	2406	1007	1774	2092	1134
Grp Volume(v), veh/h	307	691	693	190	438	441	191	412	383	80	281	243
Grp Sat Flow(s),veh/h/ln	1721	1840	1827	1721	1770	1783	1774	1770	1642	1774	1770	1455
Q Serve(g_s), s	13.1	48.4	49.2	8.1	28.2	28.2	15.8	31.9	32.1	6.6	21.8	23.1
Cycle Q Clear(g_c), s	13.1	48.4	49.2	8.1	28.2	28.2	15.8	31.9	32.1	6.6	21.8	23.1
Prop In Lane	1.00		0.30	1.00		0.22	1.00		0.61	1.00		0.78
Lane Grp Cap(c), veh/h	364	848	841	239	751	756	216	519	481	100	403	331
V/C Ratio(X)	0.84	0.82	0.82	0.80	0.58	0.58	0.88	0.79	0.80	0.80	0.70	0.73
Avail Cap(c_a), veh/h	542	932	925	335	789	795	351	682	633	172	504	415
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.5	34.8	35.0	68.4	32.9	32.9	64.4	48.6	48.6	69.6	52.9	53.4
Incr Delay (d2), s/veh	7.7	5.2	5.7	8.7	1.0	1.0	14.1	4.8	5.3	13.6	3.1	5.0
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	25.8	26.2	4.1	14.0	14.1	8.6	16.4	15.3	3.6	11.0	9.8
LnGrp Delay(d),s/veh	73.2	40.0	40.6	77.1	33.9	33.9	78.6	53.3	53.9	83.1	56.0	58.4
LnGrp LOS	E	D	D	E	C	C	E	D	D	F	E	E
Approach Vol, veh/h		1691			1069			986			604	
Approach Delay, s/veh		46.3			41.5			58.4			60.6	
Approach LOS		D			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	48.2	14.8	73.2	22.7	38.4	20.3	67.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.5	57.5	14.5	75.5	29.5	42.5	23.5	66.5				
Max Q Clear Time (g_c+I1), s	8.6	34.1	10.1	51.2	17.8	25.1	15.1	30.2				
Green Ext Time (p_c), s	0.1	9.6	0.2	17.5	0.4	8.3	0.7	23.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			49.9									
HCM 2010 LOS			D									

**Intersection**

Int Delay, s/veh 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	65	48	184	23	40	53	197	967	74	28	618	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	91	91	91	95	95	95	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	73	54	207	25	44	58	207	1018	78	32	702	86

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1755	2320	394	1914	2324	548	789	0	0	1096	0	0
Stage 1	809	809	-	1472	1472	-	-	-	-	-	-	-
Stage 2	946	1511	-	442	852	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 54	~ 37	605	41	~ 37	480	827	-	-	633	-	-
Stage 1	340	392	-	133	189	-	-	-	-	-	-	-
Stage 2	281	181	-	564	374	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 26	605	-	~ 26	480	827	-	-	633	-	-
Mov Cap-2 Maneuver	-	~ 26	-	-	~ 26	-	-	-	-	-	-	-
Stage 1	255	372	-	100	142	-	-	-	-	-	-	-
Stage 2	128	136	-	301	355	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	-	-	1.7	0.4
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	827	-	-	-	-	633	-	-
HCM Lane V/C Ratio	0.251	-	-	-	-	0.05	-	-
HCM Control Delay (s)	10.8	-	-	-	-	11	-	-
HCM Lane LOS	B	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	1	-	-	-	-	0.2	-	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

QUEUE REPORT  
11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (veh/h)	65	48	184	23	40	53	197	967	74	28	618	76
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	73	54	207	25	44	58	207	1018	78	32	702	86
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.95	0.95	0.95	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	195	374	127	176	179	261	1643	126	51	1128	138
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.15	0.48	0.48	0.03	0.36	0.36
Sat Flow, veh/h	757	788	1511	152	709	724	1774	3457	265	1774	3160	387
Grp Volume(v), veh/h	127	0	207	127	0	0	207	542	554	32	393	395
Grp Sat Flow(s),veh/h/ln	1545	0	1511	1584	0	0	1774	1840	1882	1774	1770	1777
Q Serve(g_s), s	0.0	0.0	5.8	0.0	0.0	0.0	5.5	10.6	10.6	0.9	8.9	8.9
Cycle Q Clear(g_c), s	2.7	0.0	5.8	3.0	0.0	0.0	5.5	10.6	10.6	0.9	8.9	8.9
Prop In Lane	0.57		1.00	0.20		0.46	1.00		0.14	1.00		0.22
Lane Grp Cap(c), veh/h	500	0	374	482	0	0	261	875	894	51	632	634
V/C Ratio(X)	0.25	0.00	0.55	0.26	0.00	0.00	0.79	0.62	0.62	0.62	0.62	0.62
Avail Cap(c_a), veh/h	620	0	499	605	0	0	367	875	894	147	632	634
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(l)	1.00	0.00	1.00	1.00	0.00	0.00	0.65	0.65	0.65	0.71	0.71	0.71
Uniform Delay (d), s/veh	14.7	0.0	15.9	14.8	0.0	0.0	19.9	9.4	9.4	23.2	12.9	12.9
Incr Delay (d2), s/veh	0.3	0.0	1.3	0.3	0.0	0.0	5.2	2.2	2.1	8.6	3.3	3.3
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	1.4	0.0	2.5	1.4	0.0	0.0	3.0	5.8	5.9	0.5	4.8	4.9
LnGrp Delay(d),s/veh	15.0	0.0	17.1	15.1	0.0	0.0	25.1	11.6	11.6	31.8	16.1	16.1
LnGrp LOS	B		B	B			C	B	B	C	B	B
Approach Vol, veh/h		334			127			1303			820	
Approach Delay, s/veh		16.3			15.1			13.7			16.8	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	33.6		16.0	11.1	27.9		16.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	23.0		16.0	10.0	17.0		16.0				
Max Q Clear Time (g_c+l1), s	2.9	12.6		7.8	7.5	10.9		5.0				
Green Ext Time (p_c), s	0.0	7.7		1.5	0.1	4.9		1.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.1									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	632	1256	554	90	881	101	626	483	108	79	329	405
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	702	1396	616	96	937	107	736	568	127	91	378	466
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	728	1744	885	255	1045	325	749	1251	551	131	771	330
Arrive On Green	0.21	0.34	0.34	0.07	0.21	0.21	0.22	0.35	0.35	0.07	0.21	0.21
Sat Flow, veh/h	3442	5085	1576	3442	5085	1579	3442	3539	1559	1774	3681	1574
Grp Volume(v), veh/h	702	1396	616	96	937	107	736	568	127	91	378	466
Grp Sat Flow(s),veh/h/ln	1721	1695	1576	1721	1695	1579	1721	1770	1559	1774	1840	1574
Q Serve(g_s), s	32.3	39.7	45.0	4.2	28.7	9.2	34.0	19.8	9.2	8.0	14.5	33.5
Cycle Q Clear(g_c), s	32.3	39.7	45.0	4.2	28.7	9.2	34.0	19.8	9.2	8.0	14.5	33.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	728	1744	885	255	1045	325	749	1251	551	131	771	330
V/C Ratio(X)	0.96	0.80	0.70	0.38	0.90	0.33	0.98	0.45	0.23	0.70	0.49	1.41
Avail Cap(c_a), veh/h	728	1744	885	258	1050	326	749	1251	551	174	771	330
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	47.6	25.3	70.5	61.8	54.1	62.2	39.8	36.4	72.3	55.7	63.2
Incr Delay (d2), s/veh	24.9	2.8	2.4	0.9	10.2	0.6	28.4	0.3	0.2	7.5	0.5	202.8
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	17.9	19.1	20.1	2.1	14.4	4.1	19.1	9.7	4.0	4.2	7.4	33.2
LnGrp Delay(d),s/veh	87.3	50.3	27.7	71.4	72.0	54.7	90.6	40.1	36.6	79.8	56.1	265.9
LnGrp LOS	F	D	C	E	E	D	F	D	D	E	E	F
Approach Vol, veh/h		2714			1140			1431			935	
Approach Delay, s/veh		54.8			70.3			65.8			163.0	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	62.8	40.0	40.0	39.0	40.9	17.0	63.0
Change Period (Y+Rc), s* 5.1999998		8.0.1999998		6.5.1999998		8.0.1999998		6.5
Max Green Setting (Gmax), s	* 12	54.84.7999999		33.53.7999999		33.0	* 15.7	52.6
Max Q Clear Time (g_c+I1), s	6.2	47.0	36.0	35.5	34.3	30.7	10.0	21.8
Green Ext Time (p_c), s	0.1	7.2	0.0	0.0	0.0	2.2	0.1	10.7

Intersection Summary

HCM 2010 Ctrl Delay	76.4
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

QUEUE REPORT  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	632	1256	554	90	881	101	626	483	108	79	329	405
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	702	1396	616	96	937	107	736	568	127	91	374	469
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	1	2
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	746	1820	920	257	1055	328	773	1145	504	132	360	1272
Arrive On Green	0.22	0.36	0.36	0.07	0.21	0.21	0.22	0.32	0.32	0.07	0.19	0.19
Sat Flow, veh/h	3442	5085	1577	3442	5085	1579	3442	3539	1557	1774	1937	3146
Grp Volume(v), veh/h	702	1396	616	96	937	107	736	568	127	91	374	469
Grp Sat Flow(s),veh/h/ln	1721	1695	1577	1721	1695	1579	1721	1770	1557	1774	1937	1573
Q Serve(g_s), s	31.8	38.5	10.9	4.2	28.4	7.3	33.5	20.5	7.3	7.9	29.5	7.2
Cycle Q Clear(g_c), s	31.8	38.5	10.9	4.2	28.4	7.3	33.5	20.5	7.3	7.9	29.5	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	746	1820	920	257	1055	328	773	1145	504	132	360	1272
V/C Ratio(X)	0.94	0.77	0.67	0.37	0.89	0.33	0.95	0.50	0.25	0.69	1.04	0.37
Avail Cap(c_a), veh/h	770	1854	930	260	1058	329	777	1145	504	134	360	1272
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	0.95	0.95	0.95	0.51	0.51	0.51	0.83	0.83	0.83
Uniform Delay (d), s/veh	61.1	45.1	8.2	69.9	61.0	34.3	60.7	43.2	22.9	71.6	64.5	12.4
Incr Delay (d2), s/veh	19.2	2.0	1.8	0.9	9.0	0.5	13.4	0.8	0.6	11.5	53.3	0.7
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	17.1	18.4	10.4	2.0	14.2	3.8	17.4	10.1	3.8	4.3	21.1	3.6
LnGrp Delay(d),s/veh	80.3	47.0	10.0	70.7	70.0	34.8	74.0	44.0	23.6	83.1	117.9	13.0
LnGrp LOS	F	D	B	E	E	C	E	D	C	F	F	B
Approach Vol, veh/h		2714			1140			1431			934	
Approach Delay, s/veh		47.2			66.8			57.6			61.8	
Approach LOS		D			E			E			E	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	59.8	17.0	64.8	42.2	36.0	40.9	40.9
Change Period (Y+Rc), s	5.2	* 8.5.1999998		8.0	5.2	* 6.5	6.5	8.0
Max Green Setting (Gmax), s	12.51.2999999		* 12	57.8	35.8	* 29.5	35.5	33.0
Max Q Clear Time (g_c+I1), s	9.9	22.5	6.2	40.5	35.5	31.5	33.8	30.4
Green Ext Time (p_c), s	0.8	4.7	0.1	15.2	0.1	0.0	0.6	2.5

Intersection Summary		
HCM 2010 Ctrl Delay		55.4
HCM 2010 LOS		E

Notes:  
 User approved volume balancing among the lanes for turning movement.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	210	535	144	83	349	198	139	815	49	204	600	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	221	563	152	86	360	204	151	886	53	222	652	68
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	861	232	111	569	317	188	1127	67	188	1075	112
Arrive On Green	0.11	0.31	0.31	0.06	0.26	0.26	0.10	0.32	0.32	0.10	0.32	0.32
Sat Flow, veh/h	1774	2759	742	1774	2194	1223	1845	3529	211	1845	3365	351
Grp Volume(v), veh/h	221	360	355	86	289	275	151	462	477	222	356	364
Grp Sat Flow(s),veh/h/ln	1774	1770	1732	1774	1770	1647	1845	1840	1900	1845	1840	1875
Q Serve(g_s), s	9.0	13.8	13.9	3.7	11.3	11.6	6.3	17.9	17.9	8.0	12.8	12.8
Cycle Q Clear(g_c), s	9.0	13.8	13.9	3.7	11.3	11.6	6.3	17.9	17.9	8.0	12.8	12.8
Prop In Lane	1.00		0.43	1.00		0.74	1.00		0.11	1.00		0.19
Lane Grp Cap(c), veh/h	204	552	540	111	459	427	188	587	606	188	588	599
V/C Ratio(X)	1.08	0.65	0.66	0.78	0.63	0.64	0.80	0.79	0.79	1.18	0.61	0.61
Avail Cap(c_a), veh/h	204	633	619	181	610	568	212	587	606	188	588	599
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	23.3	23.3	36.2	25.7	25.8	34.4	24.2	24.2	35.2	22.5	22.5
Incr Delay (d2), s/veh	87.2	2.0	2.1	11.0	1.4	1.6	17.8	10.2	9.9	121.7	4.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	7.0	6.9	2.2	5.7	5.5	4.1	10.6	10.9	10.4	7.2	7.4
LnGrp Delay(d),s/veh	121.9	25.3	25.4	47.2	27.1	27.4	52.2	34.4	34.1	156.8	27.1	27.0
LnGrp LOS	F	C	C	D	C	C	D	C	C	F	C	C
Approach Vol, veh/h		936			650			1090			942	
Approach Delay, s/veh		48.1			29.9			36.8			57.6	
Approach LOS		D			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	29.0	8.9	28.4	12.0	29.0	13.0	24.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	25.0	8.0	28.0	9.0	24.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s	10.0	19.9	5.7	15.9	8.3	14.8	11.0	13.6				
Green Ext Time (p_c), s	0.0	3.9	0.0	6.3	0.0	6.3	0.0	6.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			43.9									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	43	1337	44	6	962	113	62	1	24	73	1	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	47	1453	48	6	1023	120	79	1	31	90	1	56
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.78	0.78	0.78	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	2360	724	11	2194	683	100	6	184	115	3	194
Arrive On Green	0.04	0.46	0.46	0.01	0.43	0.43	0.06	0.12	0.12	0.06	0.13	0.13
Sat Flow, veh/h	1774	5085	1559	1774	5085	1583	1774	50	1541	1774	27	1509
Grp Volume(v), veh/h	47	1453	48	6	1023	120	79	0	32	90	0	57
Grp Sat Flow(s),veh/h/ln	1774	1695	1559	1774	1695	1583	1774	0	1591	1774	0	1536
Q Serve(g_s), s	1.2	9.9	0.8	0.2	6.6	2.2	2.0	0.0	0.8	2.3	0.0	1.6
Cycle Q Clear(g_c), s	1.2	9.9	0.8	0.2	6.6	2.2	2.0	0.0	0.8	2.3	0.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	69	2360	724	11	2194	683	100	0	190	115	0	197
V/C Ratio(X)	0.68	0.62	0.07	0.53	0.47	0.18	0.79	0.00	0.17	0.78	0.00	0.29
Avail Cap(c_a), veh/h	268	2360	724	268	2194	683	268	0	961	344	0	994
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	9.3	6.9	23.0	9.4	8.1	21.6	0.0	18.3	21.4	0.0	18.3
Incr Delay (d2), s/veh	10.9	1.2	0.2	33.0	0.7	0.6	13.1	0.0	0.4	10.9	0.0	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	0.8	4.8	0.4	0.2	3.2	1.1	1.4	0.0	0.4	1.5	0.0	0.7
LnGrp Delay(d),s/veh	32.9	10.5	7.0	55.9	10.1	8.7	34.7	0.0	18.8	32.2	0.0	19.1
LnGrp LOS	C	B	A	E	B	A	C		B	C		B
Approach Vol, veh/h		1548			1149			111				147
Approach Delay, s/veh		11.1			10.2			30.1				27.1
Approach LOS		B			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	25.5	6.6	9.9	5.8	24.0	7.0	9.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	9.0	28.0
Max Q Clear Time (g_c+I1), s	2.2	11.9	4.0	3.6	3.2	8.6	4.3	2.8
Green Ext Time (p_c), s	0.0	7.3	0.0	0.5	0.0	10.1	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY. - MITIGATION

2/4/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗↗	↖	↖	↗↗↗	↖	↖	↗		↖	↗	
Volume (veh/h)	43	1337	44	6	962	113	62	1	24	73	1	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	47	1453	48	6	1023	120	79	1	31	90	1	56
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.78	0.78	0.78	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	3348	1031	11	3128	974	106	2	66	213	3	154
Arrive On Green	0.10	1.00	1.00	0.01	0.62	0.62	0.06	0.04	0.04	0.12	0.10	0.10
Sat Flow, veh/h	1774	5085	1566	1774	5085	1583	1774	50	1541	1774	27	1497
Grp Volume(v), veh/h	47	1453	48	6	1023	120	79	0	32	90	0	57
Grp Sat Flow(s),veh/h/ln	1774	1695	1566	1774	1695	1583	1774	0	1591	1774	0	1524
Q Serve(g_s), s	2.3	0.0	0.0	0.3	9.0	2.9	4.1	0.0	1.8	4.4	0.0	3.2
Cycle Q Clear(g_c), s	2.3	0.0	0.0	0.3	9.0	2.9	4.1	0.0	1.8	4.4	0.0	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	88	3348	1031	11	3128	974	106	0	68	213	0	157
V/C Ratio(X)	0.54	0.43	0.05	0.55	0.33	0.12	0.75	0.00	0.47	0.42	0.00	0.36
Avail Cap(c_a), veh/h	211	3348	1031	134	3128	974	306	0	498	325	0	493
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	0.0	45.9	8.6	7.4	42.9	0.0	43.3	37.8	0.0	38.7
Incr Delay (d2), s/veh	3.7	0.3	0.1	36.4	0.3	0.3	10.0	0.0	5.0	1.3	0.0	1.4
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	1.2	0.1	0.0	0.3	4.2	1.3	2.3	0.0	0.9	2.2	0.0	1.4
LnGrp Delay(d),s/veh	44.4	0.3	0.1	82.3	8.9	7.7	52.8	0.0	48.4	39.1	0.0	40.1
LnGrp LOS	D	A	A	F	A	A	D		D	D		D
Approach Vol, veh/h		1548			1149			111				147
Approach Delay, s/veh		1.6			9.1			51.6				39.5
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	41.9	65.0	9.5	13.6	45.9	61.0	15.1	7.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	61.0	16.0	30.0	11.0	57.0	17.0	29.0				
Max Q Clear Time (g_c+I1), s	2.3	2.0	6.1	5.2	4.3	11.0	6.4	3.8				
Green Ext Time (p_c), s	0.0	17.0	0.3	0.3	0.0	10.0	0.3	0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			8.3									
HCM 2010 LOS			A									



HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	73	1106	84	27	768	7	190	163	43	13	135	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	78	1177	89	29	817	7	235	201	53	20	211	92
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.81	0.81	0.81	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	1345	102	42	1333	11	263	665	558	32	277	121
Arrive On Green	0.06	0.40	0.40	0.02	0.37	0.37	0.15	0.36	0.36	0.02	0.23	0.23
Sat Flow, veh/h	1774	3332	252	1774	3596	31	1774	1863	1563	1774	1219	532
Grp Volume(v), veh/h	78	624	642	29	402	422	235	201	53	20	0	303
Grp Sat Flow(s),veh/h/ln	1774	1770	1814	1774	1770	1857	1774	1863	1563	1774	0	1751
Q Serve(g_s), s	3.5	26.3	26.4	1.3	15.0	15.0	10.5	6.3	1.8	0.9	0.0	13.1
Cycle Q Clear(g_c), s	3.5	26.3	26.4	1.3	15.0	15.0	10.5	6.3	1.8	0.9	0.0	13.1
Prop In Lane	1.00		0.14	1.00		0.02	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	101	714	732	42	656	688	263	665	558	32	0	397
V/C Ratio(X)	0.78	0.87	0.88	0.69	0.61	0.61	0.89	0.30	0.09	0.63	0.00	0.76
Avail Cap(c_a), veh/h	197	714	732	153	656	688	263	665	558	153	0	497
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.7	22.2	22.3	39.2	20.8	20.8	33.9	18.8	17.3	39.5	0.0	29.3
Incr Delay (d2), s/veh	11.9	14.0	13.9	18.3	4.2	4.1	29.6	0.3	0.1	18.7	0.0	5.4
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	2.0	15.6	16.0	0.9	8.0	8.4	7.3	3.3	0.8	0.6	0.0	6.9
LnGrp Delay(d),s/veh	49.6	36.3	36.2	57.5	25.0	24.8	63.5	19.0	17.4	58.2	0.0	34.6
LnGrp LOS	D	D	D	E	C	C	E	B	B	E		C
Approach Vol, veh/h		1344			853			489			323	
Approach Delay, s/veh		37.0			26.0			40.2			36.1	
Approach LOS		D			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	36.7	16.0	22.4	8.6	34.0	5.4	32.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	32.0	12.0	23.0	9.0	30.0	7.0	28.0				
Max Q Clear Time (g_c+I1), s	3.3	28.4	12.5	15.1	5.5	17.0	2.9	8.3				
Green Ext Time (p_c), s	0.0	3.1	0.0	1.3	0.0	10.0	0.0	3.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			34.3									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙	↑↓	↗	↙	↑↓	↗	↙	↑↓	↗
Volume (veh/h)	122	568	186	42	383	57	77	251	80	73	171	113
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.91	0.99		0.91	0.97		0.89	0.95		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	131	611	200	51	461	69	84	273	87	84	197	130
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	459	895	692	284	1465	217	356	486	155	331	377	249
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	842	1863	1440	665	3047	452	1013	1309	417	963	1016	671
Grp Volume(v), veh/h	131	611	200	51	266	264	84	0	360	84	0	327
Grp Sat Flow(s),veh/h/ln	842	1863	1440	665	1770	1730	1013	0	1727	963	0	1687
Q Serve(g_s), s	6.1	13.7	4.5	3.5	5.0	5.1	3.8	0.0	9.0	4.1	0.0	8.2
Cycle Q Clear(g_c), s	11.2	13.7	4.5	17.2	5.0	5.1	12.0	0.0	9.0	13.1	0.0	8.2
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.24	1.00		0.40
Lane Grp Cap(c), veh/h	459	895	692	284	851	832	356	0	641	331	0	627
V/C Ratio(X)	0.29	0.68	0.29	0.18	0.31	0.32	0.24	0.00	0.56	0.25	0.00	0.52
Avail Cap(c_a), veh/h	459	895	692	284	851	832	373	0	670	348	0	655
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	10.9	8.5	17.5	8.6	8.6	17.9	0.0	13.5	18.7	0.0	13.3
Incr Delay (d2), s/veh	1.6	4.2	1.1	1.4	1.0	1.0	0.3	0.0	1.0	0.4	0.0	0.7
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	1.6	8.0	2.0	0.7	2.6	2.6	1.1	0.0	4.4	1.1	0.0	3.8
LnGrp Delay(d),s/veh	13.6	15.0	9.5	18.9	9.5	9.6	18.3	0.0	14.5	19.1	0.0	13.9
LnGrp LOS	B	B	A	B	A	A	B		B	B		B
Approach Vol, veh/h		942			581			444			411	
Approach Delay, s/veh		13.7			10.4			15.2			15.0	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.0		24.1		30.0		24.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		26.0		21.0		26.0		21.0				
Max Q Clear Time (g_c+I1), s		15.7		15.1		19.2		14.0				
Green Ext Time (p_c), s		6.4		2.6		4.6		3.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.4									
HCM 2010 LOS			B									

**Intersection**

Int Delay, s/veh 5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	191	95	104	207	96	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	208	103	113	225	104	113

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	311	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1249	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1249	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	499	-	-	1249	-
HCM Lane V/C Ratio	0.436	-	-	0.091	-
HCM Control Delay (s)	17.7	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.3	-

**Intersection**

Int Delay, s/veh 5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	184	93	102	201	94	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	200	101	111	218	102	111

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	301	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1260	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1260	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	510	-	-	1260	-
HCM Lane V/C Ratio	0.418	-	-	0.088	-
HCM Control Delay (s)	17	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2	-	-	0.3	-

**Intersection**

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	274	0	4	290	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	298	0	4	315	0	4

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	298	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1263	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1263	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	741	-	-	1263	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-
HCM Control Delay (s)	9.9	-	-	7.9	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

## **Appendix F**

Project Opening Year (2016) Without Project  
HCM Intersection Analysis Worksheets

Project Opening Year (2016) Without Project  
AM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	239	25	42	645	86	38	170	21	161	274	102
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	45	254	27	55	849	113	46	205	25	171	291	109
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.76	0.76	0.76	0.83	0.83	0.83	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	1445	152	74	1421	189	287	914	110	407	535	455
Arrive On Green	0.04	0.45	0.45	0.04	0.45	0.45	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1774	3232	340	1774	3141	418	981	3181	383	1146	1863	1583
Grp Volume(v), veh/h	45	138	143	55	478	484	46	113	117	171	291	109
Grp Sat Flow(s),veh/h/ln	1774	1770	1803	1774	1770	1789	981	1770	1795	1146	1863	1583
Q Serve(g_s), s	1.3	2.5	2.6	1.6	10.9	10.9	2.2	2.6	2.7	7.2	7.1	2.8
Cycle Q Clear(g_c), s	1.3	2.5	2.6	1.6	10.9	10.9	9.3	2.6	2.7	9.8	7.1	2.8
Prop In Lane	1.00		0.19	1.00		0.23	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	65	791	806	74	801	810	287	509	516	407	535	455
V/C Ratio(X)	0.70	0.17	0.18	0.74	0.60	0.60	0.16	0.22	0.23	0.42	0.54	0.24
Avail Cap(c_a), veh/h	165	791	806	165	801	810	443	791	803	590	833	708
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	8.9	8.9	25.4	11.0	11.0	20.1	14.6	14.6	18.3	16.1	14.6
Incr Delay (d2), s/veh	12.6	0.5	0.5	11.7	2.8	2.7	0.3	0.2	0.2	0.7	0.9	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	0.9	1.3	1.4	1.0	5.8	5.9	0.6	1.3	1.3	2.4	3.8	1.3
LnGrp Delay(d),s/veh	38.2	9.4	9.4	37.1	13.8	13.8	20.3	14.8	14.8	19.0	17.0	14.9
LnGrp LOS	D	A	A	D	B	B	C	B	B	B	B	B
Approach Vol, veh/h		326			1017			276			571	
Approach Delay, s/veh		13.4			15.0			15.7			17.2	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	39.3		19.4	6.0	39.6		19.4				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	24.0		24.0	5.0	24.0		24.0				
Max Q Clear Time (g_c+I1), s	3.6	4.6		11.8	3.3	12.9		11.3				
Green Ext Time (p_c), s	0.0	8.1		3.6	0.0	5.8		3.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.4									
HCM 2010 LOS			B									

























HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↗	↖	↗		↖	↗	
Volume (veh/h)	53	516	71	92	722	40	118	16	193	34	19	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	57	555	76	97	760	42	151	21	247	44	24	55
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	2173	293	125	2592	807	406	32	382	236	130	299
Arrive On Green	0.04	0.48	0.48	0.07	0.51	0.51	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	4533	612	1774	5085	1583	1314	126	1477	1107	504	1155
Grp Volume(v), veh/h	57	413	218	97	760	42	151	0	268	44	0	79
Grp Sat Flow(s),veh/h/ln	1774	1695	1755	1774	1695	1583	1314	0	1602	1107	0	1659
Q Serve(g_s), s	2.0	4.5	4.6	3.4	5.4	0.8	6.3	0.0	9.3	2.3	0.0	2.3
Cycle Q Clear(g_c), s	2.0	4.5	4.6	3.4	5.4	0.8	8.7	0.0	9.3	11.7	0.0	2.3
Prop In Lane	1.00		0.35	1.00		1.00	1.00		0.92	1.00		0.70
Lane Grp Cap(c), veh/h	72	1625	841	125	2592	807	406	0	415	236	0	429
V/C Ratio(X)	0.80	0.25	0.26	0.77	0.29	0.05	0.37	0.00	0.65	0.19	0.00	0.18
Avail Cap(c_a), veh/h	198	1625	841	254	2592	807	673	0	740	461	0	766
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	9.7	9.7	28.7	8.9	7.8	21.5	0.0	20.7	25.9	0.0	18.1
Incr Delay (d2), s/veh	17.8	0.4	0.7	9.7	0.3	0.1	0.6	0.0	1.7	0.4	0.0	0.2
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	1.3	2.2	2.4	2.0	2.6	0.4	2.4	0.0	4.3	0.7	0.0	1.1
LnGrp Delay(d),s/veh	47.6	10.1	10.5	38.4	9.2	7.9	22.0	0.0	22.4	26.3	0.0	18.3
LnGrp LOS	D	B	B	D	A	A	C		C	C		B
Approach Vol, veh/h		688			899			419			123	
Approach Delay, s/veh		13.3			12.3			22.3			21.2	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	34.1		20.2	6.5	36.0		20.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	30.0		29.0	7.0	32.0		29.0				
Max Q Clear Time (g_c+I1), s	5.4	6.6		13.7	4.0	7.4		11.3				
Green Ext Time (p_c), s	0.1	10.6		2.6	0.0	10.9		2.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.1									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	409	74	225	886	45	107	25	100	48	24	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	15	487	88	259	1018	52	122	28	114	72	36	30
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.88	0.88	0.88	0.67	0.67	0.67
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1202	216	307	1916	98	155	237	201	92	86	72
Arrive On Green	0.01	0.40	0.40	0.17	0.56	0.56	0.09	0.13	0.13	0.05	0.09	0.09
Sat Flow, veh/h	1774	2998	539	1774	3426	175	1774	1863	1583	1774	941	784
Grp Volume(v), veh/h	15	286	289	259	526	544	122	28	114	72	0	66
Grp Sat Flow(s),veh/h/ln	1774	1770	1768	1774	1770	1832	1774	1863	1583	1774	0	1724
Q Serve(g_s), s	0.5	7.5	7.6	9.2	12.1	12.1	4.4	0.9	4.4	2.6	0.0	2.3
Cycle Q Clear(g_c), s	0.5	7.5	7.6	9.2	12.1	12.1	4.4	0.9	4.4	2.6	0.0	2.3
Prop In Lane	1.00		0.30	1.00		0.10	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	26	710	709	307	990	1025	155	237	201	92	0	159
V/C Ratio(X)	0.58	0.40	0.41	0.84	0.53	0.53	0.79	0.12	0.57	0.78	0.00	0.42
Avail Cap(c_a), veh/h	109	710	709	356	990	1025	164	747	635	246	0	771
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)	0.96	0.96	0.96	0.86	0.86	0.86	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.7	13.9	13.9	26.0	9.0	9.0	29.0	25.1	26.6	30.4	0.0	27.8
Incr Delay (d2), s/veh	18.0	1.6	1.7	13.3	1.8	1.7	21.1	0.2	2.5	13.2	0.0	1.7
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	0.4	4.0	4.0	5.6	6.3	6.5	3.0	0.5	2.1	1.6	0.0	1.2
LnGrp Delay(d),s/veh	49.8	15.5	15.6	39.2	10.7	10.7	50.1	25.3	29.1	43.5	0.0	29.5
LnGrp LOS	D	B	B	D	B	B	D	C	C	D		C
Approach Vol, veh/h		590			1329			264			138	
Approach Delay, s/veh		16.4			16.2			38.4			36.8	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.2	55.2	9.7	10.0	4.9	65.4	7.4	12.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	26.0	6.0	29.0	4.0	35.0	9.0	26.0				
Max Q Clear Time (g_c+I1), s	11.2	9.6	6.4	4.3	2.5	14.1	4.6	6.4				
Green Ext Time (p_c), s	0.1	9.7	0.0	0.9	0.0	11.3	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			20.0									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	440	224	252	612	110	124	210	106	158	716	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	33	524	267	274	665	120	133	226	114	172	778	45
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	902	404	332	961	173	182	1470	658	223	1513	677
Arrive On Green	0.03	0.25	0.25	0.10	0.32	0.32	0.05	0.42	0.42	0.06	0.43	0.43
Sat Flow, veh/h	3442	3539	1583	3442	2997	540	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	524	267	274	392	393	133	226	114	172	778	45
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1767	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.3	18.5	21.6	11.2	27.6	27.7	5.4	5.7	6.5	7.0	23.0	2.4
Cycle Q Clear(g_c), s	1.3	18.5	21.6	11.2	27.6	27.7	5.4	5.7	6.5	7.0	23.0	2.4
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	902	404	332	568	567	182	1470	658	223	1513	677
V/C Ratio(X)	0.31	0.58	0.66	0.82	0.69	0.69	0.73	0.15	0.17	0.77	0.51	0.07
Avail Cap(c_a), veh/h	145	1513	677	531	955	954	289	1470	658	362	1513	677
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.7	46.5	47.6	63.3	42.3	42.3	66.6	26.0	26.3	65.7	30.0	24.1
Incr Delay (d2), s/veh	1.7	0.6	1.9	5.8	1.5	1.5	5.6	0.2	0.6	5.5	1.3	0.2
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	0.7	9.1	9.7	5.6	13.8	13.8	2.7	2.8	2.9	3.5	11.5	1.1
LnGrp Delay(d),s/veh	69.4	47.1	49.5	69.0	43.8	43.8	72.2	26.3	26.8	71.2	31.2	24.3
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		824			1059			473			995	
Approach Delay, s/veh		48.8			50.3			39.3			37.8	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	66.3	18.8	42.4	13.5	68.0	9.4	51.8				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6				
Max Green Setting (Gmax), s	15.0	58.0	22.0	61.0	12.0	61.0	6.0	*77				
Max Q Clear Time (g_c+I1), s	9.0	8.5	13.2	23.6	7.4	25.0	3.3	29.7				
Green Ext Time (p_c), s	0.3	9.7	0.6	12.8	0.1	9.2	0.0	13.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			44.7									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	118	268	92	70	484	279	100	495	30	141	778	374
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	133	301	0	80	556	0	111	550	0	164	905	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.90	0.90	0.90	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	978	437	103	851	381	184	1336	598	249	1403	628
Arrive On Green	0.12	0.37	0.00	0.06	0.24	0.00	0.05	0.38	0.00	0.07	0.40	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	133	301	0	80	556	0	111	550	0	164	905	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	5.4	4.5	0.0	3.3	10.5	0.0	2.3	8.5	0.0	3.4	15.4	0.0
Cycle Q Clear(g_c), s	5.4	4.5	0.0	3.3	10.5	0.0	2.3	8.5	0.0	3.4	15.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	978	437	103	851	381	184	1336	598	249	1403	628
V/C Ratio(X)	0.80	0.31	0.00	0.77	0.65	0.00	0.60	0.41	0.00	0.66	0.64	0.00
Avail Cap(c_a), veh/h	215	1384	619	215	1384	619	325	1336	598	371	1403	628
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.93	0.93	0.00	0.72	0.72	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.8	18.4	0.0	34.4	25.4	0.0	34.3	17.0	0.0	33.5	18.1	0.0
Incr Delay (d2), s/veh	13.8	0.2	0.0	8.6	0.6	0.0	3.2	0.9	0.0	2.9	2.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	2.2	0.0	1.9	5.2	0.0	1.2	4.3	0.0	1.7	7.9	0.0
LnGrp Delay(d),s/veh	45.5	18.6	0.0	43.1	26.0	0.0	37.5	18.0	0.0	36.5	20.4	0.0
LnGrp LOS	D	B		D	C		D	B		D	C	
Approach Vol, veh/h		434			636			661			1069	
Approach Delay, s/veh		26.8			28.2			21.2			22.9	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	47.8	8.3	24.5	8.0	49.2	11.0	21.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	9.0	29.0	7.0	29.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	5.4	10.5	5.3	6.5	4.3	17.4	7.4	12.5				
Green Ext Time (p_c), s	0.1	9.6	0.0	6.1	0.1	7.3	0.0	5.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			24.3									
HCM 2010 LOS			C									

**Intersection**

Int Delay, s/veh 5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	38	535	155	496	946	15	6	0	155	3	8	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	86	86	86	66	66	66	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	608	176	577	1100	17	9	0	235	4	12	57

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1117	0	0	784
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	621	-	-	830
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	621	-	-	830
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	6.3	-	72.5
HCM LOS	-	-	-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	+	607	621	-	-	830	-	-	26	472
HCM Lane V/C Ratio	-	0.387	0.07	-	-	0.695	-	-	0.631	0.12
HCM Control Delay (s)	-	14.6	11.2	-	-	18.6	-	-	275.5	13.7
HCM Lane LOS	-	B	B	-	-	C	-	-	F	B
HCM 95th %tile Q(veh)	-	1.8	0.2	-	-	5.8	-	-	2	0.4

**Notes**  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection**

Int Delay, s/veh 7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	7	8	112	3	70	2	144	25	41	437	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	79	79	79	80	80	80	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	11	12	142	4	89	2	180	31	48	508	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	834	788	508	800	788	180	508	0	0	180	0	0
Stage 1	603	603	-	185	185	-	-	-	-	-	-	-
Stage 2	231	185	-	615	603	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	288	323	565	303	323	863	1057	-	-	1396	-	-
Stage 1	486	488	-	817	747	-	-	-	-	-	-	-
Stage 2	772	747	-	479	488	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	249	311	565	280	311	863	1057	-	-	1396	-	-
Mov Cap-2 Maneuver	249	311	-	280	311	-	-	-	-	-	-	-
Stage 1	485	471	-	815	745	-	-	-	-	-	-	-
Stage 2	687	745	-	442	471	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.6	29	0.1	0.7
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1057	-	-	369	377	1396	-	-
HCM Lane V/C Ratio	0.002	-	-	0.076	0.621	0.034	-	-
HCM Control Delay (s)	8.4	-	-	15.6	29	7.7	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	4	0.1	-	-

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	58	299	87	77	499	36	168	141	68	91	285	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	62	318	93	93	601	43	202	170	82	110	343	154
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	803	231	119	1067	76	240	828	382	141	708	312
Arrive On Green	0.04	0.30	0.30	0.07	0.32	0.32	0.14	0.35	0.35	0.08	0.30	0.30
Sat Flow, veh/h	1774	2714	781	1774	3351	239	1774	2354	1087	1774	2391	1055
Grp Volume(v), veh/h	62	206	205	93	317	327	202	126	126	110	252	245
Grp Sat Flow(s),veh/h/ln	1774	1770	1725	1774	1770	1820	1774	1770	1671	1774	1770	1677
Q Serve(g_s), s	2.7	7.2	7.4	4.0	11.6	11.6	8.6	3.9	4.1	4.7	9.1	9.4
Cycle Q Clear(g_c), s	2.7	7.2	7.4	4.0	11.6	11.6	8.6	3.9	4.1	4.7	9.1	9.4
Prop In Lane	1.00		0.45	1.00		0.13	1.00		0.65	1.00		0.63
Lane Grp Cap(c), veh/h	79	524	510	119	563	579	240	623	588	141	524	496
V/C Ratio(X)	0.78	0.39	0.40	0.78	0.56	0.56	0.84	0.20	0.21	0.78	0.48	0.49
Avail Cap(c_a), veh/h	160	524	510	160	563	579	251	623	588	228	524	496
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)	0.94	0.94	0.94	0.51	0.51	0.51	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	21.8	21.9	35.7	22.0	22.0	32.8	17.6	17.7	35.1	22.5	22.6
Incr Delay (d2), s/veh	14.5	2.1	2.2	8.8	2.1	2.0	21.2	0.7	0.8	9.1	3.2	3.5
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	1.6	3.8	3.9	2.3	6.0	6.1	5.6	2.0	2.0	2.7	4.9	4.8
LnGrp Delay(d),s/veh	51.2	23.9	24.1	44.5	24.1	24.1	54.0	18.3	18.5	44.2	25.6	26.1
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		473			737			454			607	
Approach Delay, s/veh		27.6			26.7			34.3			29.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	29.3	14.5	27.0	7.5	31.0	10.2	31.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	23.0	11.0	23.0	7.0	23.0	10.0	24.0				
Max Q Clear Time (g_c+I1), s	6.0	9.4	10.6	11.4	4.7	13.6	6.7	6.1				
Green Ext Time (p_c), s	0.0	5.5	0.0	3.6	0.0	4.4	0.1	4.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			29.0									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	5	12	125	16	246	59	674	93	97	851	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.87		0.73	0.81		0.73	1.00		0.91	1.00		0.58
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	11	9	21	144	18	283	68	775	107	111	978	21
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.57	0.57	0.57	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	113	182	333	28	441	86	962	133	142	1198	26
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.05	0.31	0.31	0.08	0.34	0.34
Sat Flow, veh/h	152	283	457	1108	70	1106	1774	3081	425	1774	3480	75
Grp Volume(v), veh/h	41	0	0	144	0	301	68	445	437	111	497	502
Grp Sat Flow(s),veh/h/ln	892	0	0	1108	0	1176	1774	1770	1737	1774	1770	1785
Q Serve(g_s), s	0.2	0.0	0.0	7.0	0.0	11.9	2.2	13.3	13.3	3.5	14.8	14.8
Cycle Q Clear(g_c), s	12.2	0.0	0.0	19.1	0.0	11.9	2.2	13.3	13.3	3.5	14.8	14.8
Prop In Lane	0.27		0.51	1.00		0.94	1.00		0.24	1.00		0.04
Lane Grp Cap(c), veh/h	435	0	0	333	0	469	86	553	542	142	609	614
V/C Ratio(X)	0.09	0.00	0.00	0.43	0.00	0.64	0.79	0.81	0.81	0.78	0.82	0.82
Avail Cap(c_a), veh/h	435	0	0	333	0	469	216	553	542	216	609	614
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	0.0	21.8	0.0	14.0	27.1	18.2	18.2	26.0	17.2	17.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.9	0.0	2.9	14.7	11.9	12.1	9.7	11.5	11.5
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	0.4	0.0	0.0	2.2	0.0	4.2	1.4	8.2	8.1	2.1	9.1	9.2
LnGrp Delay(d),s/veh	11.2	0.0	0.0	22.7	0.0	16.9	41.9	30.1	30.3	35.7	28.8	28.7
LnGrp LOS	B			C		B	D	C	C	D	C	C
Approach Vol, veh/h		41			445			950			1110	
Approach Delay, s/veh		11.2			18.8			31.0			29.4	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	22.0		27.0	6.8	23.8		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0				
Max Q Clear Time (g_c+I1), s	5.5	15.3		14.2	4.2	16.8		21.1				
Green Ext Time (p_c), s	0.0	2.3		2.2	0.0	1.1		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			27.9									
HCM 2010 LOS			C									



HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	443	80	210	1036	52	89	241	146	75	412	299
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.94	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	148	527	95	247	1219	61	109	294	178	114	624	453
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.85	0.85	0.85	0.82	0.82	0.82	0.66	0.66	0.66
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	1064	191	289	1304	65	123	833	486	133	744	538
Arrive On Green	0.05	0.34	0.34	0.08	0.38	0.38	0.07	0.40	0.40	0.08	0.40	0.40
Sat Flow, veh/h	3442	3095	555	3442	3425	171	1774	2098	1223	1774	1846	1337
Grp Volume(v), veh/h	148	312	310	247	629	651	109	246	226	114	598	479
Grp Sat Flow(s),veh/h/ln	1721	1840	1810	1721	1770	1827	1774	1770	1552	1774	1770	1413
Q Serve(g_s), s	7.7	24.1	24.4	12.7	61.5	61.7	11.0	17.5	18.5	11.4	54.9	55.1
Cycle Q Clear(g_c), s	7.7	24.1	24.4	12.7	61.5	61.7	11.0	17.5	18.5	11.4	54.9	55.1
Prop In Lane	1.00		0.31	1.00		0.09	1.00		0.79	1.00		0.95
Lane Grp Cap(c), veh/h	163	633	622	289	673	695	123	703	616	133	713	569
V/C Ratio(X)	0.91	0.49	0.50	0.86	0.93	0.94	0.88	0.35	0.37	0.86	0.84	0.84
Avail Cap(c_a), veh/h	163	633	622	373	673	695	123	703	616	202	713	569
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	85.4	46.7	46.7	81.4	53.6	53.6	83.0	38.0	38.3	82.3	48.5	48.6
Incr Delay (d2), s/veh	45.5	2.7	2.8	14.2	21.9	21.6	47.8	1.4	1.7	19.5	11.4	14.0
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	4.7	12.8	12.7	6.6	34.1	35.3	7.0	8.8	8.2	6.3	29.0	23.8
LnGrp Delay(d),s/veh	130.9	49.4	49.6	95.6	75.4	75.3	130.9	39.4	40.0	101.7	59.9	62.6
LnGrp LOS	F	D	D	F	E	E	F	D	D	F	E	E
Approach Vol, veh/h		770			1527			581			1191	
Approach Delay, s/veh		65.1			78.6			56.8			65.0	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	76.0	19.6	66.4	17.0	77.0	13.0	73.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	64.5	19.5	57.5	12.5	72.5	8.5	68.5				
Max Q Clear Time (g_c+I1), s	13.4	20.5	14.7	26.4	13.0	57.1	9.7	63.7				
Green Ext Time (p_c), s	0.1	15.9	0.4	17.0	0.0	9.3	0.0	4.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			69.0									
HCM 2010 LOS			E									

**Intersection**

Int Delay, s/veh 8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	10	4	47	25	11	26	132	430	31	28	689	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	68	68	68	79	79	79	79	79	79	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	6	69	32	14	33	167	544	39	33	811	84

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1531	1836	447	1372	1858	292	894	0	0	584	0	0
Stage 1	918	918	-	898	898	-	-	-	-	-	-	-
Stage 2	613	918	-	474	960	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	80	75	559	105	73	704	755	-	-	987	-	-
Stage 1	292	349	-	301	356	-	-	-	-	-	-	-
Stage 2	446	349	-	540	333	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	50	56	559	69	55	704	755	-	-	987	-	-
Mov Cap-2 Maneuver	50	56	-	69	55	-	-	-	-	-	-	-
Stage 1	227	337	-	234	277	-	-	-	-	-	-	-
Stage 2	314	272	-	449	322	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.7	108.3	2.5	0.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	755	-	-	172	103	987	-	-
HCM Lane V/C Ratio	0.221	-	-	0.522	0.762	0.033	-	-
HCM Control Delay (s)	11.1	-	-	46.7	108.3	8.8	-	-
HCM Lane LOS	B	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0.8	-	-	2.6	4.1	0.1	-	-

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NET	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑↑	↗	↖↖	↑↑↑	↗	↖↖	↑↑	↗	↖	↑↑	↗
Volume (veh/h)	232	661	646	134	1089	63	412	278	34	34	370	337
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.97	1.00		0.85	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	270	769	751	135	1100	64	425	287	35	44	474	432
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.99	0.99	0.99	0.97	0.97	0.97	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	1478	691	300	1447	435	503	1293	494	126	1069	460
Arrive On Green	0.09	0.29	0.29	0.09	0.28	0.28	0.15	0.37	0.37	0.07	0.29	0.29
Sat Flow, veh/h	3442	5085	1580	3442	5085	1528	3442	3539	1352	1774	3681	1583
Grp Volume(v), veh/h	270	769	751	135	1100	64	425	287	35	44	474	432
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1528	1721	1770	1352	1774	1840	1583
Q Serve(g_s), s	10.6	17.3	39.8	5.1	27.0	4.3	16.5	7.7	2.3	3.2	14.4	36.4
Cycle Q Clear(g_c), s	10.6	17.3	39.8	5.1	27.0	4.3	16.5	7.7	2.3	3.2	14.4	36.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	1478	691	300	1447	435	503	1293	494	126	1069	460
V/C Ratio(X)	0.84	0.52	1.09	0.45	0.76	0.15	0.85	0.22	0.07	0.35	0.44	0.94
Avail Cap(c_a), veh/h	372	1478	691	302	1447	435	1063	1830	699	156	1089	468
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	40.6	38.6	59.4	44.7	36.6	56.9	30.0	28.3	60.5	39.5	47.4
Incr Delay (d2), s/veh	14.1	0.3	60.4	1.1	2.4	0.2	4.0	0.1	0.1	1.6	0.3	26.8
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	5.7	8.2	37.7	2.5	13.0	1.8	8.1	3.8	0.9	1.6	7.4	19.4
LnGrp Delay(d),s/veh	75.1	40.9	99.0	60.4	47.1	36.7	60.9	30.1	28.4	62.2	39.8	74.2
LnGrp LOS	E	D	F	E	D	D	E	C	C	E	D	E
Approach Vol, veh/h		1790			1299			747			950	
Approach Delay, s/veh		70.4			48.0			47.6			56.5	
Approach LOS		E			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	56.5	17.1	47.8	25.7	46.3	18.0	47.0
Change Period (Y+Rc), s	5.6999998	6.51999998	8.56999998	6.51999998	8.0	6.51999998	8.0	8.0
Max Green Setting (Gmax), s	* 12	70.8	* 12	39.82299999	40.5	* 14.8	37.0	
Max Q Clear Time (g_c+I1), s	5.2	9.7	7.1	41.8	18.5	38.4	12.6	29.0
Green Ext Time (p_c), s	0.0	8.7	0.2	0.0	1.5	1.3	0.2	7.1

Intersection Summary

HCM 2010 Ctrl Delay	58.0
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	90	188	76	82	387	183	138	519	41	133	783	137
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	100	209	84	92	435	206	145	546	43	141	833	146
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	631	246	117	581	272	135	1521	120	135	1378	241
Arrive On Green	0.07	0.25	0.25	0.07	0.25	0.25	0.07	0.44	0.44	0.07	0.44	0.44
Sat Flow, veh/h	1774	2492	970	1774	2340	1098	1845	3458	272	1845	3132	549
Grp Volume(v), veh/h	100	146	147	92	328	313	145	290	299	141	490	489
Grp Sat Flow(s),veh/h/ln	1774	1770	1692	1774	1770	1669	1845	1840	1889	1845	1840	1840
Q Serve(g_s), s	5.3	6.4	6.8	4.9	16.3	16.6	7.0	10.0	10.1	7.0	19.4	19.4
Cycle Q Clear(g_c), s	5.3	6.4	6.8	4.9	16.3	16.6	7.0	10.0	10.1	7.0	19.4	19.4
Prop In Lane	1.00		0.57	1.00		0.66	1.00		0.14	1.00		0.30
Lane Grp Cap(c), veh/h	126	448	429	117	439	414	135	810	831	135	810	810
V/C Ratio(X)	0.79	0.33	0.34	0.79	0.75	0.76	1.07	0.36	0.36	1.04	0.60	0.60
Avail Cap(c_a), veh/h	130	612	585	130	612	577	135	810	831	135	810	810
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	29.0	29.1	43.9	33.1	33.2	44.2	17.8	17.8	44.2	20.4	20.4
Incr Delay (d2), s/veh	27.1	0.4	0.5	24.7	3.2	3.7	97.9	1.2	1.2	89.1	3.3	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.2	3.2	3.2	8.3	8.1	7.2	5.4	5.5	6.9	10.5	10.5
LnGrp Delay(d),s/veh	70.7	29.4	29.6	68.6	36.3	36.9	142.2	19.0	19.0	133.7	23.7	23.7
LnGrp LOS	E	C	C	E	D	D	F	B	B	F	C	C
Approach Vol, veh/h		393			733			734			1120	
Approach Delay, s/veh		40.0			40.6			43.3			37.6	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	46.0	10.3	28.2	11.0	46.0	10.8	27.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	42.0	7.0	33.0	7.0	42.0	7.0	33.0				
Max Q Clear Time (g_c+I1), s	9.0	12.1	6.9	8.8	9.0	21.4	7.3	18.6				
Green Ext Time (p_c), s	0.0	12.7	0.0	6.3	0.0	10.6	0.0	5.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			40.1									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	686	54	19	1190	90	15	1	5	52	1	75
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	780	61	20	1240	94	20	1	7	62	1	89
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96	0.75	0.75	0.75	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2380	739	35	2418	752	35	18	125	87	2	182
Arrive On Green	0.01	0.47	0.47	0.02	0.48	0.48	0.02	0.09	0.09	0.05	0.12	0.12
Sat Flow, veh/h	1774	5085	1578	1774	5085	1582	1774	202	1412	1774	17	1545
Grp Volume(v), veh/h	12	780	61	20	1240	94	20	0	8	62	0	90
Grp Sat Flow(s),veh/h/ln	1774	1695	1578	1774	1695	1582	1774	0	1614	1774	0	1562
Q Serve(g_s), s	0.3	4.1	0.9	0.5	7.2	1.4	0.5	0.0	0.2	1.5	0.0	2.3
Cycle Q Clear(g_c), s	0.3	4.1	0.9	0.5	7.2	1.4	0.5	0.0	0.2	1.5	0.0	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		0.99
Lane Grp Cap(c), veh/h	22	2380	739	35	2418	752	35	0	143	87	0	184
V/C Ratio(X)	0.54	0.33	0.08	0.57	0.51	0.12	0.57	0.00	0.06	0.72	0.00	0.49
Avail Cap(c_a), veh/h	291	2380	739	291	2418	752	291	0	1133	291	0	1097
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	7.1	6.3	20.8	7.8	6.2	20.8	0.0	17.8	20.0	0.0	17.6
Incr Delay (d2), s/veh	19.3	0.4	0.2	13.7	0.8	0.3	13.7	0.0	0.2	10.5	0.0	2.0
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	0.3	2.0	0.4	0.4	3.5	0.7	0.4	0.0	0.1	1.0	0.0	1.1
LnGrp Delay(d),s/veh	40.2	7.5	6.5	34.5	8.6	6.6	34.5	0.0	18.0	30.5	0.0	19.6
LnGrp LOS	D	A	A	C	A	A	C		B	C		B
Approach Vol, veh/h		853			1354			28			152	
Approach Delay, s/veh		7.9			8.8			29.8			24.1	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	24.0	4.8	9.0	4.5	24.3	6.1	7.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0				
Max Q Clear Time (g_c+I1), s	2.5	6.1	2.5	4.3	2.3	9.2	3.5	2.2				
Green Ext Time (p_c), s	0.0	10.9	0.0	0.5	0.0	8.8	0.0	0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			9.7									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	66	537	90	65	902	11	156	208	34	8	301	79
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.90	1.00		0.93	1.00		0.80
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	77	624	105	68	949	12	220	293	48	10	381	100
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.71	0.71	0.71	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	1037	174	87	1241	16	243	786	624	17	396	104
Arrive On Green	0.05	0.35	0.35	0.05	0.35	0.35	0.14	0.42	0.42	0.01	0.29	0.29
Sat Flow, veh/h	1774	2957	496	1774	3573	45	1774	1863	1479	1774	1342	352
Grp Volume(v), veh/h	77	373	356	68	470	491	220	293	48	10	0	481
Grp Sat Flow(s),veh/h/ln	1774	1770	1683	1774	1770	1849	1774	1863	1479	1774	0	1694
Q Serve(g_s), s	4.1	16.4	16.6	3.6	22.4	22.4	11.6	10.3	1.8	0.5	0.0	26.6
Cycle Q Clear(g_c), s	4.1	16.4	16.6	3.6	22.4	22.4	11.6	10.3	1.8	0.5	0.0	26.6
Prop In Lane	1.00		0.29	1.00		0.02	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	93	621	591	87	615	642	243	786	624	17	0	499
V/C Ratio(X)	0.82	0.60	0.60	0.78	0.76	0.76	0.91	0.37	0.08	0.58	0.00	0.96
Avail Cap(c_a), veh/h	93	621	591	112	615	642	243	786	624	75	0	499
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.6	25.4	25.4	44.7	27.5	27.5	40.4	18.8	16.4	46.8	0.0	33.0
Incr Delay (d2), s/veh	42.7	4.2	4.5	22.7	8.8	8.4	33.9	0.3	0.1	26.9	0.0	31.0
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	8.7	8.5	2.3	12.5	13.0	8.0	5.4	0.8	0.4	0.0	16.7
LnGrp Delay(d),s/veh	87.2	29.6	29.9	67.4	36.3	36.0	74.3	19.1	16.5	73.7	0.0	64.0
LnGrp LOS	F	C	C	E	D	D	E	B	B	E		E
Approach Vol, veh/h		806			1029			561			491	
Approach Delay, s/veh		35.3			38.2			40.5			64.2	
Approach LOS		D			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	37.3	17.0	32.0	9.0	37.0	4.9	44.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	6.0	32.0	13.0	28.0	5.0	33.0	4.0	37.0				
Max Q Clear Time (g_c+I1), s	5.6	18.6	13.6	28.6	6.1	24.4	2.5	12.3				
Green Ext Time (p_c), s	0.0	8.6	0.0	0.0	0.0	6.1	0.0	5.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			42.3									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/28/2014

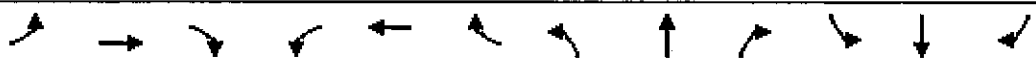
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕		↖	↗		↖	↗	
Volume (veh/h)	104	269	65	31	507	75	60	191	72	77	282	217
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.83	0.94		0.89	0.98		0.86	0.93		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	142	368	89	34	557	82	74	236	89	89	324	249
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.91	0.91	0.91	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	364	782	552	386	1279	187	238	516	195	418	395	304
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	762	1863	1314	872	3045	446	818	1229	463	972	941	723
Grp Volume(v), veh/h	142	368	89	34	322	317	74	0	325	89	0	573
Grp Sat Flow(s),veh/h/ln	762	1863	1314	872	1770	1722	818	0	1692	972	0	1664
Q Serve(g_s), s	8.1	7.1	2.1	1.5	6.5	6.5	4.4	0.0	6.9	3.6	0.0	15.2
Cycle Q Clear(g_c), s	14.7	7.1	2.1	8.6	6.5	6.5	19.6	0.0	6.9	10.5	0.0	15.2
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.27	1.00		0.43
Lane Grp Cap(c), veh/h	364	782	552	386	743	723	238	0	711	418	0	699
V/C Ratio(X)	0.39	0.47	0.16	0.09	0.43	0.44	0.31	0.00	0.46	0.21	0.00	0.82
Avail Cap(c_a), veh/h	364	782	552	386	743	723	238	0	711	418	0	699
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.5	10.5	9.0	13.6	10.3	10.3	21.5	0.0	10.4	14.2	0.0	12.8
Incr Delay (d2), s/veh	3.1	2.0	0.6	0.5	1.8	1.9	0.7	0.0	0.5	0.3	0.0	7.7
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	2.0	4.0	0.9	0.4	3.5	3.5	1.0	0.0	3.3	1.0	0.0	8.3
LnGrp Delay(d),s/veh	18.6	12.5	9.6	14.0	12.1	12.2	22.2	0.0	10.9	14.4	0.0	20.5
LnGrp LOS	B	B	A	B	B	B	C		B	B		C
Approach Vol, veh/h		599			673			399			662	
Approach Delay, s/veh		13.5			12.3			13.0			19.7	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		25.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		21.0		21.0		21.0		21.0				
Max Q Clear Time (g_c+I1), s		16.7		17.2		10.6		21.6				
Green Ext Time (p_c), s		2.8		2.3		5.6		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			14.8									
HCM 2010 LOS			B									

Project Opening Year (2016) Without Project  
Mid-Day Peak Hour



HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖	↖↗
Volume (veh/h)	90	468	71	76	477	148	56	237	35	114	161	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	99	514	78	85	536	166	66	279	41	128	181	83
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	1401	212	109	1183	365	344	851	124	339	511	434
Arrive On Green	0.07	0.45	0.45	0.06	0.44	0.44	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	3084	466	1774	2665	822	1111	3102	451	1055	1863	1583
Grp Volume(v), veh/h	99	294	298	85	355	347	66	158	162	128	181	83
Grp Sat Flow(s),veh/h/ln	1774	1770	1780	1774	1770	1718	1111	1770	1783	1055	1863	1583
Q Serve(g_s), s	3.1	6.2	6.3	2.7	8.0	8.1	2.9	4.1	4.2	6.3	4.5	2.3
Cycle Q Clear(g_c), s	3.1	6.2	6.3	2.7	8.0	8.1	7.4	4.1	4.2	10.5	4.5	2.3
Prop In Lane	1.00		0.26	1.00		0.48	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	128	804	809	109	785	762	344	485	489	339	511	434
V/C Ratio(X)	0.77	0.37	0.37	0.78	0.45	0.45	0.19	0.33	0.33	0.38	0.35	0.19
Avail Cap(c_a), veh/h	279	804	809	248	785	762	505	742	748	492	781	664
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	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	10.2	10.2	26.5	11.1	11.1	19.6	16.5	16.6	20.7	16.7	15.9
Incr Delay (d2), s/veh	9.5	1.3	1.3	10.1	1.7	1.7	0.3	0.4	0.4	0.7	0.4	0.2
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	3.3	3.4	1.6	4.2	4.1	0.9	2.0	2.1	1.9	2.3	1.0
LnGrp Delay(d),s/veh	35.6	11.5	11.5	36.5	12.7	12.8	19.9	16.9	17.0	21.4	17.1	16.1
LnGrp LOS	D	B	B	D	B	B	B	B	B	C	B	B
Approach Vol, veh/h		691			787			386			392	
Approach Delay, s/veh		15.0			15.3			17.5			18.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	42.8		19.7	8.1	42.2		19.7
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	26.0		24.0	9.0	25.0		24.0
Max Q Clear Time (g_c+I1), s	4.7	8.3		12.5	5.1	10.1		9.4
Green Ext Time (p_c), s	0.0	7.9		3.2	0.1	7.2		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	101	541	60	96	559	46	76	31	92	87	34	131
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	116	622	69	110	643	53	104	42	126	95	37	142
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.73	0.73	0.73	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	1721	189	141	1859	579	389	114	341	399	93	358
Arrive On Green	0.08	0.37	0.37	0.08	0.37	0.37	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	4652	511	1774	5085	1583	1200	411	1234	1212	338	1296
Grp Volume(v), veh/h	116	452	239	110	643	53	104	0	168	95	0	179
Grp Sat Flow(s),veh/h/ln	1774	1695	1773	1774	1695	1583	1200	0	1645	1212	0	1634
Q Serve(g_s), s	2.8	4.2	4.3	2.7	4.0	1.0	3.4	0.0	3.6	3.0	0.0	3.9
Cycle Q Clear(g_c), s	2.8	4.2	4.3	2.7	4.0	1.0	7.3	0.0	3.6	6.6	0.0	3.9
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.75	1.00		0.79
Lane Grp Cap(c), veh/h	149	1254	656	141	1859	579	389	0	454	399	0	451
V/C Ratio(X)	0.78	0.36	0.36	0.78	0.35	0.09	0.27	0.00	0.37	0.24	0.00	0.40
Avail Cap(c_a), veh/h	324	1254	656	324	1859	579	853	0	1090	868	0	1082
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	10.0	10.0	19.8	10.1	9.1	15.8	0.0	12.8	15.4	0.0	12.9
Incr Delay (d2), s/veh	8.3	0.8	1.6	8.8	0.5	0.3	0.4	0.0	0.5	0.3	0.0	0.6
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	2.1	2.3	1.6	1.9	0.5	1.1	0.0	1.7	1.0	0.0	1.8
LnGrp Delay(d),s/veh	28.0	10.8	11.6	28.6	10.6	9.4	16.2	0.0	13.3	15.7	0.0	13.4
LnGrp LOS	C	B	B	C	B	A	B		B	B		B
Approach Vol, veh/h		807			806			272				274
Approach Delay, s/veh		13.5			13.0			14.4				14.2
Approach LOS		B			B			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	20.2		16.1	7.7	20.0		16.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	8.0	16.0		29.0	8.0	16.0		29.0				
Max Q Clear Time (g_c+I1), s	4.7	6.3		8.6	4.8	6.0		9.3				
Green Ext Time (p_c), s	0.1	5.9		2.9	0.1	6.0		2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.5									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	79	504	88	136	650	37	93	66	151	170	81	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	99	630	110	148	707	40	99	70	161	193	92	45
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	1150	200	182	1395	79	132	278	236	234	244	119
Arrive On Green	0.07	0.38	0.38	0.10	0.41	0.41	0.07	0.15	0.15	0.13	0.21	0.21
Sat Flow, veh/h	1774	3014	525	1774	3406	193	1774	1863	1583	1774	1182	578
Grp Volume(v), veh/h	99	369	371	148	367	380	99	70	161	193	0	137
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1774	1770	1829	1774	1863	1583	1774	0	1761
Q Serve(g_s), s	3.7	11.1	11.2	5.6	10.5	10.5	3.7	2.3	6.6	7.2	0.0	4.6
Cycle Q Clear(g_c), s	3.7	11.1	11.2	5.6	10.5	10.5	3.7	2.3	6.6	7.2	0.0	4.6
Prop In Lane	1.00		0.30	1.00		0.11	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	132	675	675	182	725	749	132	278	236	234	0	364
V/C Ratio(X)	0.75	0.55	0.55	0.81	0.51	0.51	0.75	0.25	0.68	0.83	0.00	0.38
Avail Cap(c_a), veh/h	182	675	675	182	725	749	182	738	627	234	0	749
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(l)	0.93	0.93	0.93	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.9	16.5	16.5	29.9	15.0	15.0	30.9	25.6	27.5	28.8	0.0	23.3
Incr Delay (d2), s/veh	9.9	3.0	3.0	21.0	2.2	2.1	10.5	0.5	3.4	20.8	0.0	0.6
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	2.2	6.0	6.0	3.8	5.5	5.7	2.2	1.2	3.1	4.9	0.0	2.3
LnGrp Delay(d),s/veh	40.8	19.4	19.5	51.0	17.2	17.1	41.4	26.1	30.9	49.6	0.0	23.9
LnGrp LOS	D	B	B	D	B	B	D	C	C	D		C
Approach Vol, veh/h		839			895			330			330	
Approach Delay, s/veh		22.0			22.7			33.0			39.0	
Approach LOS		C			C			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	46.9	9.1	18.1	9.1	48.8	13.0	14.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s	7.6	13.2	5.7	6.6	5.7	12.5	9.2	8.6				
Green Ext Time (p_c), s	0.0	7.4	0.0	1.7	0.0	7.7	0.0	1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			26.1									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NET	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	504	214	151	460	82	257	358	143	91	277	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	29	593	252	182	554	99	271	377	151	96	292	38
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.85	0.85	0.85	0.83	0.83	0.83	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	97	871	390	232	856	153	327	1708	764	140	1516	678
Arrive On Green	0.03	0.25	0.25	0.07	0.29	0.29	0.10	0.48	0.48	0.04	0.43	0.43
Sat Flow, veh/h	3442	3539	1583	3442	3003	535	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	29	593	252	182	326	327	271	377	151	96	292	38
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1768	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.2	22.3	21.0	7.7	23.7	23.9	11.4	9.1	8.0	4.0	7.6	2.1
Cycle Q Clear(g_c), s	1.2	22.3	21.0	7.7	23.7	23.9	11.4	9.1	8.0	4.0	7.6	2.1
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	871	390	232	505	504	327	1708	764	140	1516	678
V/C Ratio(X)	0.30	0.68	0.65	0.79	0.65	0.65	0.83	0.22	0.20	0.69	0.19	0.06
Avail Cap(c_a), veh/h	140	1468	657	351	842	841	515	1708	764	211	1516	678
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.0	50.2	49.7	67.6	46.1	46.1	65.4	22.0	21.8	69.6	26.2	24.6
Incr Delay (d2), s/veh	1.7	0.9	1.8	6.5	1.4	1.4	6.3	0.3	0.6	5.8	0.3	0.2
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	0.6	11.1	9.4	3.8	11.8	11.8	5.7	4.5	3.6	2.0	3.8	0.9
LnGrp Delay(d),s/veh	71.7	51.2	51.5	74.1	47.5	47.5	71.7	22.3	22.3	75.4	26.5	24.8
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		874			835			799			426	
Approach Delay, s/veh		51.9			53.3			39.1			37.4	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	78.0	14.9	42.2	20.0	70.0	9.2	48.0				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6				
Max Green Setting (Gmax), s	9.0	71.0	15.0	61.0	22.0	58.0	6.0	*70				
Max Q Clear Time (g_c+I1), s	6.0	11.1	9.7	24.3	13.4	9.6	3.2	25.9				
Green Ext Time (p_c), s	0.1	6.0	0.3	11.9	0.6	5.9	0.0	12.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			46.7									
HCM 2010 LOS			D									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	225	433	145	80	457	222	125	566	99	140	568	270
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	245	471	0	87	497	0	133	602	0	154	624	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	1016	454	112	824	368	210	1316	589	236	1342	601
Arrive On Green	0.12	0.29	0.00	0.06	0.23	0.00	0.06	0.37	0.00	0.07	0.38	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	245	471	0	87	497	0	133	602	0	154	624	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	9.0	8.4	0.0	3.7	9.6	0.0	2.9	9.8	0.0	3.3	10.2	0.0
Cycle Q Clear(g_c), s	9.0	8.4	0.0	3.7	9.6	0.0	2.9	9.8	0.0	3.3	10.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	1016	454	112	824	368	210	1316	589	236	1342	601
V/C Ratio(X)	1.17	0.46	0.00	0.77	0.60	0.00	0.63	0.46	0.00	0.65	0.46	0.00
Avail Cap(c_a), veh/h	209	1296	580	232	1342	601	315	1316	589	360	1342	601
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)	0.78	0.78	0.00	0.69	0.69	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.7	22.4	0.0	35.3	26.2	0.0	35.1	18.2	0.0	34.7	17.9	0.0
Incr Delay (d2), s/veh	110.0	0.3	0.0	7.6	0.5	0.0	3.1	1.1	0.0	3.0	1.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	4.1	0.0	2.0	4.8	0.0	1.5	5.0	0.0	1.7	5.2	0.0
LnGrp Delay(d),s/veh	143.7	22.7	0.0	42.8	26.7	0.0	38.2	19.3	0.0	37.8	19.0	0.0
LnGrp LOS	F	C		D	C		D	B		D	B	
Approach Vol, veh/h		716			584			735			778	
Approach Delay, s/veh		64.1			29.1			22.7			22.7	
Approach LOS		E			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	46.0	8.8	25.9	8.7	46.5	13.0	21.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	10.0	28.0	7.0	29.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	5.3	11.8	5.7	10.4	4.9	12.2	11.0	11.6				
Green Ext Time (p_c), s	0.1	7.7	0.1	6.2	0.1	7.8	0.0	6.2				
Intersection Summary												
HCM 2010 Ctrl Delay			34.6									
HCM 2010 LOS			C									

HCM 2010 TWSC  
 6: ESCONDIDO BLVD. & EL NORTE PKY.

1/28/2014

**Intersection**

Int Delay, s/veh 3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	641	82	163	631	10	39	4	196	8	3	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	93	93	93	94	94	94	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	697	89	175	678	11	41	4	209	9	3	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	689	0	0	786	0	0	1498	1847	393	1450	1885	345
Stage 1	-	-	-	-	-	-	807	807	-	1034	1034	-
Stage 2	-	-	-	-	-	-	691	1040	-	416	851	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	901	-	-	829	-	-	85	74	606	92	70	651
Stage 1	-	-	-	-	-	-	341	392	-	248	308	-
Stage 2	-	-	-	-	-	-	401	306	-	585	375	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	901	-	-	829	-	-	64	56	606	48	53	651
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	145	-	118	120	-
Stage 1	-	-	-	-	-	-	329	378	-	239	243	-
Stage 2	-	-	-	-	-	-	296	241	-	365	361	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.1	18	18.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	160	606	901	-	-	829	-	-	119	651
HCM Lane V/C Ratio	0.286	0.344	0.036	-	-	0.211	-	-	0.104	0.05
HCM Control Delay (s)	36.3	14	9.1	-	-	10.5	-	-	38.7	10.8
HCM Lane LOS	E	B	A	-	-	B	-	-	E	B
HCM 95th %tile Q(veh)	1.1	1.5	0.1	-	-	0.8	-	-	0.3	0.2

**Intersection**

Int Delay, s/veh 9.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	3	5	95	2	73	10	342	52	26	278	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	59	59	59	92	92	92	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	4	6	161	3	124	11	372	57	30	320	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	836	772	320	777	772	372	320	0	0	372	0	0
Stage 1	379	379	-	393	393	-	-	-	-	-	-	-
Stage 2	457	393	-	384	379	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	287	330	721	314	330	674	1240	-	-	1186	-	-
Stage 1	643	615	-	632	606	-	-	-	-	-	-	-
Stage 2	583	606	-	639	615	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	226	319	721	301	319	674	1240	-	-	1186	-	-
Mov Cap-2 Maneuver	226	319	-	301	319	-	-	-	-	-	-	-
Stage 1	637	599	-	626	601	-	-	-	-	-	-	-
Stage 2	469	601	-	614	599	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.2	35.1	0.2	0.7
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1240	-	-	338	395	1186	-	-
HCM Lane V/C Ratio	0.009	-	-	0.047	0.729	0.025	-	-
HCM Control Delay (s)	7.9	-	-	16.2	35.1	8.1	-	-
HCM Lane LOS	A	-	-	C	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	5.7	0.1	-	-

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	107	381	106	104	445	48	249	287	122	66	276	100
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	119	423	118	120	511	55	268	309	131	79	329	119
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.93	0.93	0.93	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	888	246	152	1047	112	275	750	311	102	537	191
Arrive On Green	0.09	0.32	0.32	0.09	0.32	0.32	0.15	0.31	0.31	0.06	0.21	0.21
Sat Flow, veh/h	1774	2741	758	1774	3225	346	1774	2441	1013	1774	2561	910
Grp Volume(v), veh/h	119	272	269	120	280	286	268	222	218	79	226	222
Grp Sat Flow(s),veh/h/ln	1774	1770	1729	1774	1770	1802	1774	1770	1684	1774	1770	1702
Q Serve(g_s), s	4.7	8.7	8.8	4.7	9.0	9.1	10.7	7.1	7.3	3.1	8.2	8.4
Cycle Q Clear(g_c), s	4.7	8.7	8.8	4.7	9.0	9.1	10.7	7.1	7.3	3.1	8.2	8.4
Prop In Lane	1.00		0.44	1.00		0.19	1.00		0.60	1.00		0.53
Lane Grp Cap(c), veh/h	151	574	560	152	575	585	275	544	517	102	371	357
V/C Ratio(X)	0.79	0.47	0.48	0.79	0.49	0.49	0.97	0.41	0.42	0.78	0.61	0.62
Avail Cap(c_a), veh/h	175	574	560	175	575	585	275	623	593	225	574	552
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(l)	0.88	0.88	0.88	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	19.2	19.2	31.8	19.2	19.2	29.8	19.5	19.6	33.0	25.4	25.5
Incr Delay (d2), s/veh	16.6	2.5	2.6	14.1	2.1	2.1	47.1	0.5	0.5	11.8	1.6	1.8
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	4.6	2.9	4.7	4.8	8.8	3.5	3.5	1.8	4.2	4.1
LnGrp Delay(d),s/veh	48.4	21.6	21.8	45.9	21.3	21.3	77.0	20.0	20.1	44.8	27.0	27.3
LnGrp LOS	D	C	C	D	C	C	E	B	C	D	C	C
Approach Vol, veh/h		660			686			708			527	
Approach Delay, s/veh		26.5			25.6			41.6			29.8	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	36.0	15.0	18.9	10.0	36.1	8.1	25.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	23.0	11.0	23.0	7.0	23.0	9.0	25.0				
Max Q Clear Time (g_c+I1), s	6.7	10.8	12.7	10.4	6.7	11.1	5.1	9.3				
Green Ext Time (p_c), s	0.0	5.4	0.0	4.5	0.0	5.3	0.0	5.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			31.1									
HCM 2010 LOS			C									



HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↑	↑		↑	↑↑		↑	↑↑	
Volume (veh/h)	23	11	76	45	2	84	26	669	57	98	763	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.80	0.85		0.80	1.00		0.78	1.00		0.55
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	33	16	110	79	4	147	30	769	66	121	942	7
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.69	0.69	0.69	0.57	0.57	0.57	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	88	356	465	13	493	47	1000	86	155	1329	10
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.03	0.31	0.31	0.09	0.37	0.37
Sat Flow, veh/h	180	222	904	1072	34	1249	1774	3217	276	1774	3575	27
Grp Volume(v), veh/h	159	0	0	79	0	151	30	423	412	121	466	483
Grp Sat Flow(s),veh/h/ln	1306	0	0	1072	0	1283	1774	1770	1723	1774	1770	1832
Q Serve(g_s), s	0.0	0.0	0.0	3.1	0.0	4.7	1.0	12.5	12.5	3.9	13.0	13.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	7.6	0.0	4.7	1.0	12.5	12.5	3.9	13.0	13.0
Prop In Lane	0.21		0.69	1.00		0.97	1.00		0.16	1.00		0.01
Lane Grp Cap(c), veh/h	590	0	0	465	0	506	47	550	536	155	658	681
V/C Ratio(X)	0.27	0.00	0.00	0.17	0.00	0.30	0.64	0.77	0.77	0.78	0.71	0.71
Avail Cap(c_a), veh/h	594	0	0	468	0	510	215	550	536	215	658	681
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(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	0.0	14.6	0.0	12.0	27.9	18.1	18.1	25.9	15.5	15.5
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.3	13.6	9.9	10.2	11.7	6.3	6.1
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	1.8	0.0	0.0	0.9	0.0	1.7	0.6	7.6	7.5	2.4	7.5	7.7
LnGrp Delay(d),s/veh	12.2	0.0	0.0	14.7	0.0	12.4	41.5	28.0	28.3	37.6	21.9	21.6
LnGrp LOS	B			B		B	D	C	C	D	C	C
Approach Vol, veh/h		159			230			865			1070	
Approach Delay, s/veh		12.2			13.2			28.6			23.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	22.0		26.8	5.5	25.5		26.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	5.9	14.5		6.5	3.0	15.0		9.6
Green Ext Time (p_c), s	0.0	2.8		2.4	0.0	2.5		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	23.6
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	298	729	95	161	649	67	145	433	197	150	457	251
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.86	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	310	759	99	164	662	68	159	476	216	195	594	326
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.98	0.98	0.98	0.91	0.91	0.91	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	377	1094	143	219	924	95	187	797	359	225	788	432
Arrive On Green	0.11	0.34	0.34	0.06	0.29	0.29	0.11	0.34	0.34	0.13	0.36	0.36
Sat Flow, veh/h	3442	3260	425	3442	3186	327	1774	2373	1070	1774	2207	1211
Grp Volume(v), veh/h	310	428	430	164	367	363	159	354	338	195	476	444
Grp Sat Flow(s),veh/h/ln	1721	1840	1845	1721	1770	1743	1774	1770	1674	1774	1770	1649
Q Serve(g_s), s	11.5	26.2	26.3	6.1	24.2	24.3	11.5	21.6	21.9	14.0	30.8	30.8
Cycle Q Clear(g_c), s	11.5	26.2	26.3	6.1	24.2	24.3	11.5	21.6	21.9	14.0	30.8	30.8
Prop In Lane	1.00		0.23	1.00		0.19	1.00		0.64	1.00		0.73
Lane Grp Cap(c), veh/h	377	618	619	219	513	505	187	594	562	225	632	588
V/C Ratio(X)	0.82	0.69	0.69	0.75	0.72	0.72	0.85	0.60	0.60	0.87	0.75	0.75
Avail Cap(c_a), veh/h	621	841	843	357	673	663	347	795	752	416	863	804
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	37.4	37.5	59.9	41.4	41.5	57.2	35.9	36.0	55.8	36.8	36.8
Incr Delay (d2), s/veh	4.5	1.5	1.5	5.0	2.5	2.6	10.2	1.0	1.0	9.8	2.5	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	13.6	13.6	3.0	12.2	12.1	6.1	10.7	10.3	7.5	15.5	14.5
LnGrp Delay(d),s/veh	61.3	38.9	39.0	64.9	43.9	44.0	67.4	36.9	37.0	65.6	39.4	39.6
LnGrp LOS	E	D	D	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		1168			894			851			1115	
Approach Delay, s/veh		44.9			47.8			42.6			44.0	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	48.2	12.8	48.2	18.2	51.0	18.8	42.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	30.5	58.5	13.5	59.5	25.5	63.5	23.5	49.5				
Max Q Clear Time (g_c+I1), s	16.0	23.9	8.1	28.3	13.5	32.8	13.5	26.3				
Green Ext Time (p_c), s	0.4	14.3	0.2	13.1	0.3	13.6	0.8	11.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			44.8									
HCM 2010 LOS			D									

Intersection												
Int Delay, s/veh	25.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	22	71	15	5	42	67	826	57	27	747	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	85	85	85	94	94	94	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	36	116	18	6	49	71	879	61	30	821	65

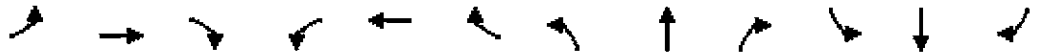
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1498	1995	443	1540	1997	470	886	0	0	939	0	0
Stage 1	913	913	-	1052	1052	-	-	-	-	-	-	-
Stage 2	585	1082	-	488	945	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	85	60	562	79	59	540	760	-	-	726	-	-
Stage 1	294	350	-	242	302	-	-	-	-	-	-	-
Stage 2	464	292	-	530	339	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	63	52	562	25	51	540	760	-	-	726	-	-
Mov Cap-2 Maneuver	63	52	-	25	51	-	-	-	-	-	-	-
Stage 1	267	336	-	219	274	-	-	-	-	-	-	-
Stage 2	374	265	-	360	325	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	237.1	167.5	0.7	0.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	760	-	-	137	80	726	-	-
HCM Lane V/C Ratio	0.094	-	-	1.292	0.912	0.041	-	-
HCM Control Delay (s)	10.2	-	-	237.1	167.5	10.2	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	11	4.8	0.1	-	-

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	502	1289	734	125	942	49	597	347	103	41	367	304
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.70	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	552	1416	807	132	992	52	663	386	114	47	417	345
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	606	1870	917	271	1375	428	736	1137	356	121	647	275
Arrive On Green	0.18	0.37	0.37	0.08	0.27	0.27	0.21	0.32	0.32	0.07	0.18	0.18
Sat Flow, veh/h	3442	5085	1574	3442	5085	1582	3442	3539	1107	1774	3681	1567
Grp Volume(v), veh/h	552	1416	807	132	992	52	663	386	114	47	417	345
Grp Sat Flow(s),veh/h/ln	1721	1695	1574	1721	1695	1582	1721	1770	1107	1774	1840	1567
Q Serve(g_s), s	23.9	37.0	55.8	5.6	26.8	3.8	28.5	12.6	11.8	3.8	16.0	26.7
Cycle Q Clear(g_c), s	23.9	37.0	55.8	5.6	26.8	3.8	28.5	12.6	11.8	3.8	16.0	26.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	606	1870	917	271	1375	428	736	1137	356	121	647	275
V/C Ratio(X)	0.91	0.76	0.88	0.49	0.72	0.12	0.90	0.34	0.32	0.39	0.64	1.25
Avail Cap(c_a), veh/h	676	1870	917	272	1375	428	925	1290	403	140	647	275
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	42.0	27.3	67.0	50.2	41.8	58.1	39.2	39.0	67.7	58.1	62.5
Incr Delay (d2), s/veh	15.5	2.9	11.8	1.4	1.9	0.1	10.1	0.2	0.5	2.0	2.2	140.2
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	12.7	17.8	31.8	2.7	12.8	1.7	14.6	6.2	3.7	2.0	8.3	22.3
LnGrp Delay(d),s/veh	76.9	45.0	39.1	68.3	52.1	41.9	68.2	39.4	39.5	69.7	60.4	202.8
LnGrp LOS	E	D	D	E	D	D	E	D	D	E	E	F
Approach Vol, veh/h		2775			1176			1163			809	
Approach Delay, s/veh		49.6			53.4			55.8			121.6	
Approach LOS		D			D			E			F	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.2	63.8	37.6	33.2	31.9	49.0	15.5	55.2
Change Period (Y+Rc), s* 5.1999998		8.5.1999998		6.5.1999998		8.5.1999998		6.5
Max Green Setting (Gmax), s	* 12	55.80.7999999		26.29.7999999		38.0	* 12	55.3
Max Q Clear Time (g_c+I1), s	7.6	57.8	30.5	28.7	25.9	28.8	5.8	14.6
Green Ext Time (p_c), s	0.1	0.0	2.0	0.0	0.9	8.6	0.0	8.8

Intersection Summary

HCM 2010 Ctrl Delay	61.4
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	352	152	77	310	161	164	562	90	170	651	109
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	129	378	163	83	333	173	178	611	98	181	693	116
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	654	278	107	543	277	218	1066	171	221	1064	178
Arrive On Green	0.09	0.27	0.27	0.06	0.24	0.24	0.12	0.34	0.34	0.12	0.34	0.34
Sat Flow, veh/h	1774	2421	1029	1774	2271	1157	1845	3179	509	1845	3157	528
Grp Volume(v), veh/h	129	275	266	83	258	248	178	353	356	181	404	405
Grp Sat Flow(s),veh/h/ln	1774	1770	1681	1774	1770	1659	1845	1840	1847	1845	1840	1844
Q Serve(g_s), s	5.3	10.0	10.2	3.4	9.7	10.0	7.0	11.8	11.8	7.1	13.9	13.9
Cycle Q Clear(g_c), s	5.3	10.0	10.2	3.4	9.7	10.0	7.0	11.8	11.8	7.1	13.9	13.9
Prop In Lane	1.00		0.61	1.00		0.70	1.00		0.28	1.00		0.29
Lane Grp Cap(c), veh/h	162	478	454	107	423	396	218	617	619	221	620	621
V/C Ratio(X)	0.79	0.57	0.59	0.78	0.61	0.63	0.82	0.57	0.57	0.82	0.65	0.65
Avail Cap(c_a), veh/h	190	641	609	190	641	600	223	617	619	223	620	621
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	23.5	23.6	34.5	25.3	25.4	32.1	20.4	20.4	32.0	21.0	21.0
Incr Delay (d2), s/veh	17.8	1.1	1.2	11.4	1.4	1.6	20.4	3.8	3.8	20.8	5.2	5.3
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	3.4	5.0	4.9	2.0	4.9	4.7	4.8	6.6	6.7	4.9	8.0	8.0
LnGrp Delay(d),s/veh	51.0	24.6	24.8	45.9	26.7	27.0	52.5	24.2	24.3	52.9	26.2	26.3
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		670			589			887			990	
Approach Delay, s/veh		29.8			29.5			29.9			31.1	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	29.0	8.5	24.2	12.8	29.1	10.8	21.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	25.0	8.0	27.0	9.0	25.0	8.0	27.0				
Max Q Clear Time (g_c+I1), s	9.1	13.8	5.4	12.2	9.0	15.9	7.3	12.0				
Green Ext Time (p_c), s	0.0	6.9	0.0	5.8	0.0	5.9	0.0	5.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			30.2									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	29	1373	25	14	1008	63	50	1	13	39	3	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	31	1445	26	15	1108	69	69	1	18	44	3	51
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.72	0.72	0.72	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	50	2250	683	27	2183	680	90	14	244	66	13	214
Arrive On Green	0.03	0.44	0.44	0.02	0.43	0.43	0.05	0.16	0.16	0.04	0.15	0.15
Sat Flow, veh/h	1774	5085	1544	1774	5085	1583	1774	84	1512	1774	85	1441
Grp Volume(v), veh/h	31	1445	26	15	1108	69	69	0	19	44	0	54
Grp Sat Flow(s),veh/h/ln	1774	1695	1544	1774	1695	1583	1774	0	1596	1774	0	1526
Q Serve(g_s), s	0.8	10.3	0.4	0.4	7.4	1.2	1.8	0.0	0.5	1.1	0.0	1.5
Cycle Q Clear(g_c), s	0.8	10.3	0.4	0.4	7.4	1.2	1.8	0.0	0.5	1.1	0.0	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.94
Lane Grp Cap(c), veh/h	50	2250	683	27	2183	680	90	0	258	66	0	226
V/C Ratio(X)	0.62	0.64	0.04	0.56	0.51	0.10	0.77	0.00	0.07	0.67	0.00	0.24
Avail Cap(c_a), veh/h	267	2250	683	267	2183	680	267	0	1028	267	0	982
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.4	10.1	7.4	22.8	9.7	7.9	21.8	0.0	16.6	22.1	0.0	17.5
Incr Delay (d2), s/veh	11.6	1.4	0.1	16.9	0.8	0.3	12.7	0.0	0.1	10.9	0.0	0.5
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	0.5	5.0	0.2	0.3	3.6	0.6	1.2	0.0	0.2	0.8	0.0	0.6
LnGrp Delay(d),s/veh	34.0	11.5	7.5	39.6	10.5	8.2	34.5	0.0	16.7	33.0	0.0	18.1
LnGrp LOS	C	B	A	D	B	A	C		B	C		B
Approach Vol, veh/h		1502			1192			88				98
Approach Delay, s/veh		11.9			10.8			30.7				24.8
Approach LOS		B			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.7	24.6	6.4	10.9	5.3	24.0	5.7	11.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0
Max Q Clear Time (g_c+I1), s	2.4	12.3	3.8	3.5	2.8	9.4	3.1	2.5
Green Ext Time (p_c), s	0.0	7.1	0.0	0.4	0.0	9.5	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	55	1112	99	39	842	11	148	118	43	7	118	67
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.94	1.00		0.86	1.00		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	57	1146	102	45	979	13	174	139	51	8	131	74
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.86	0.86	0.86	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	1376	122	57	1484	20	208	664	486	14	236	133
Arrive On Green	0.04	0.42	0.42	0.03	0.42	0.42	0.12	0.36	0.36	0.01	0.25	0.25
Sat Flow, veh/h	1774	3240	288	1774	3573	47	1774	1863	1363	1774	953	539
Grp Volume(v), veh/h	57	625	623	45	485	507	174	139	51	8	0	205
Grp Sat Flow(s),veh/h/ln	1774	1770	1758	1774	1770	1851	1774	1863	1363	1774	0	1492
Q Serve(g_s), s	2.8	28.1	28.3	2.3	19.7	19.7	8.6	4.6	2.2	0.4	0.0	10.7
Cycle Q Clear(g_c), s	2.8	28.1	28.3	2.3	19.7	19.7	8.6	4.6	2.2	0.4	0.0	10.7
Prop In Lane	1.00		0.16	1.00		0.03	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	73	751	747	57	735	769	208	664	486	14	0	369
V/C Ratio(X)	0.78	0.83	0.84	0.79	0.66	0.66	0.84	0.21	0.10	0.56	0.00	0.56
Avail Cap(c_a), veh/h	159	751	747	139	735	769	218	664	486	139	0	383
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	22.9	23.0	43.0	21.1	21.1	38.7	20.0	19.3	44.2	0.0	29.4
Incr Delay (d2), s/veh	16.1	10.4	10.7	21.0	4.6	4.4	23.3	0.2	0.1	30.0	0.0	1.6
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	15.9	15.9	1.4	10.5	10.9	5.5	2.4	0.9	0.3	0.0	4.6
LnGrp Delay(d),s/veh	58.6	33.3	33.6	64.0	25.7	25.5	61.9	20.2	19.3	74.2	0.0	31.0
LnGrp LOS	E	C	C	E	C	C	E	C	B	E		C
Approach Vol, veh/h		1305			1037			364				213
Approach Delay, s/veh		34.6			27.2			40.0				32.6
Approach LOS		C			C			D				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	42.0	14.5	26.2	7.7	41.2	4.7	35.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	38.0	11.0	23.0	8.0	37.0	7.0	27.0				
Max Q Clear Time (g_c+I1), s	4.3	30.3	10.6	12.7	4.8	21.7	2.4	6.6				
Green Ext Time (p_c), s	0.0	6.6	0.0	0.9	0.0	11.9	0.0	2.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.5									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	82	438	146	33	407	63	62	176	54	63	198	89
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.90		0.70	0.94		0.70	0.90		0.70	0.81		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	94	503	168	39	485	75	67	189	58	68	215	97
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	374	785	466	293	1219	185	414	513	157	430	472	213
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	758	1863	1106	716	2893	439	958	1227	376	916	1130	510
Grp Volume(v), veh/h	94	503	168	39	293	267	67	0	247	68	0	312
Grp Sat Flow(s),veh/h/ln	758	1863	1106	716	1770	1562	958	0	1603	916	0	1639
Q Serve(g_s), s	4.9	10.7	5.2	2.3	5.7	5.9	2.7	0.0	5.3	2.7	0.0	6.8
Cycle Q Clear(g_c), s	10.8	10.7	5.2	12.9	5.7	5.9	9.5	0.0	5.3	8.0	0.0	6.8
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.23	1.00		0.31
Lane Grp Cap(c), veh/h	374	785	466	293	746	659	414	0	670	430	0	685
V/C Ratio(X)	0.25	0.64	0.36	0.13	0.39	0.40	0.16	0.00	0.37	0.16	0.00	0.46
Avail Cap(c_a), veh/h	374	785	466	293	746	659	417	0	676	433	0	691
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.8	11.4	9.8	16.5	10.0	10.1	13.8	0.0	10.0	12.7	0.0	10.4
Incr Delay (d2), s/veh	1.6	4.0	2.2	0.9	1.6	1.8	0.2	0.0	0.3	0.2	0.0	0.5
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	1.2	6.3	1.8	0.5	3.1	2.9	0.7	0.0	2.4	0.7	0.0	3.1
LnGrp Delay(d),s/veh	15.4	15.4	12.0	17.5	11.5	11.9	14.0	0.0	10.3	12.9	0.0	10.9
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		765			599			314			380	
Approach Delay, s/veh		14.7			12.1			11.1			11.3	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		24.8		25.0		24.8				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		21.0		21.0		21.0		21.0				
Max Q Clear Time (g_c+I1), s		12.8		10.0		14.9		11.5				
Green Ext Time (p_c), s		5.0		3.3		4.0		3.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.7									
HCM 2010 LOS			B									



Project Opening Year (2016) Without Project  
PM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	172	708	70	61	401	172	46	452	62	132	238	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	200	823	81	64	422	181	48	471	65	159	287	53
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.96	0.96	0.96	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	1432	141	81	847	360	332	1061	146	296	632	537
Arrive On Green	0.14	0.44	0.44	0.05	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	3255	320	1774	2423	1028	1036	3127	430	865	1863	1583
Grp Volume(v), veh/h	200	447	457	64	307	296	48	266	270	159	287	53
Grp Sat Flow(s),veh/h/ln	1774	1770	1806	1774	1770	1681	1036	1770	1787	865	1863	1583
Q Serve(g_s), s	7.5	13.0	13.0	2.5	9.4	9.5	2.6	8.0	8.1	12.0	8.3	1.6
Cycle Q Clear(g_c), s	7.5	13.0	13.0	2.5	9.4	9.5	10.9	8.0	8.1	20.1	8.3	1.6
Prop In Lane	1.00		0.18	1.00		0.61	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	242	779	795	81	619	588	332	600	606	296	632	537
V/C Ratio(X)	0.83	0.57	0.57	0.79	0.50	0.50	0.14	0.44	0.45	0.54	0.45	0.10
Avail Cap(c_a), veh/h	259	779	795	181	619	588	343	619	625	306	651	554
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	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	14.4	14.4	32.4	17.6	17.6	22.0	17.6	17.7	25.5	17.7	15.5
Incr Delay (d2), s/veh	18.6	3.1	3.0	13.5	2.5	2.7	0.2	0.5	0.5	1.7	0.5	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	4.9	7.0	7.1	1.5	4.9	4.9	0.8	4.0	4.1	3.0	4.3	0.7
LnGrp Delay(d),s/veh	47.5	17.5	17.4	45.9	20.0	20.3	22.2	18.1	18.2	27.2	18.2	15.6
LnGrp LOS	D	B	B	D	C	C	C	B	B	C	B	B
Approach Vol, veh/h		1104			667			584			499	
Approach Delay, s/veh		22.9			22.6			18.5			20.8	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	35.6		27.3	13.3	29.4		27.3				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	27.0		24.0	10.0	24.0		24.0				
Max Q Clear Time (g_c+I1), s	4.5	15.0		22.1	9.5	11.5		12.9				
Green Ext Time (p_c), s	0.0	7.2		1.2	0.0	7.4		4.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			21.6									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	171	865	110	116	758	46	109	60	165	99	45	198
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	176	892	113	129	842	51	121	67	183	112	51	225
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.90	0.90	0.90	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	1874	236	166	2032	633	305	141	385	329	96	424
Arrive On Green	0.10	0.41	0.41	0.09	0.40	0.40	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	4574	577	1774	5085	1583	1099	442	1208	1125	301	1328
Grp Volume(v), veh/h	176	660	345	129	842	51	121	0	250	112	0	276
Grp Sat Flow(s),veh/h/ln	1774	1695	1761	1774	1695	1583	1099	0	1650	1125	0	1628
Q Serve(g_s), s	6.7	9.6	9.7	4.8	8.1	1.4	6.9	0.0	8.2	6.0	0.0	9.4
Cycle Q Clear(g_c), s	6.7	9.6	9.7	4.8	8.1	1.4	16.2	0.0	8.2	14.2	0.0	9.4
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.73	1.00		0.82
Lane Grp Cap(c), veh/h	184	1389	721	166	2032	633	305	0	527	329	0	520
V/C Ratio(X)	0.96	0.48	0.48	0.78	0.41	0.08	0.40	0.00	0.47	0.34	0.00	0.53
Avail Cap(c_a), veh/h	184	1389	721	315	2032	633	425	0	708	453	0	699
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.1	14.6	14.6	29.9	14.6	12.6	25.5	0.0	18.5	24.2	0.0	18.9
Incr Delay (d2), s/veh	54.0	1.2	2.3	7.6	0.6	0.2	0.8	0.0	0.7	0.6	0.0	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	6.0	4.7	5.1	2.7	3.9	0.6	2.2	0.0	3.8	1.9	0.0	4.3
LnGrp Delay(d),s/veh	84.1	15.8	16.9	37.6	15.2	12.8	26.3	0.0	19.1	24.8	0.0	19.7
LnGrp LOS	F	B	B	D	B	B	C		B	C		B
Approach Vol, veh/h		1181			1022			371			388	
Approach Delay, s/veh		26.3			17.9			21.5			21.2	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	31.7		25.6	11.0	31.0		25.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	12.0	22.0		29.0	7.0	27.0		29.0
Max Q Clear Time (g_c+I1), s	6.8	11.7		16.2	8.7	10.1		18.2
Green Ext Time (p_c), s	0.1	7.8		3.7	0.0	11.5		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	21	851	56	75	601	53	115	45	322	116	27	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	23	946	62	88	707	62	139	54	388	133	31	33
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.83	0.83	0.83	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1169	77	119	1263	111	166	519	441	167	231	246
Arrive On Green	0.03	0.35	0.35	0.07	0.38	0.38	0.09	0.28	0.28	0.09	0.28	0.28
Sat Flow, veh/h	1774	3372	221	1774	3293	289	1774	1863	1583	1774	827	880
Grp Volume(v), veh/h	23	496	512	88	380	389	139	54	388	133	0	64
Grp Sat Flow(s),veh/h/ln	1774	1770	1824	1774	1770	1812	1774	1863	1583	1774	0	1707
Q Serve(g_s), s	1.0	19.1	19.1	3.7	12.6	12.7	5.8	1.6	17.6	5.5	0.0	2.1
Cycle Q Clear(g_c), s	1.0	19.1	19.1	3.7	12.6	12.7	5.8	1.6	17.6	5.5	0.0	2.1
Prop In Lane	1.00		0.12	1.00		0.16	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	54	614	632	119	679	695	166	519	441	167	0	477
V/C Ratio(X)	0.43	0.81	0.81	0.74	0.56	0.56	0.84	0.10	0.88	0.79	0.00	0.13
Avail Cap(c_a), veh/h	166	614	632	166	679	695	166	671	570	213	0	660
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)	0.80	0.80	0.80	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	22.2	22.2	34.3	18.1	18.2	33.4	20.1	25.9	33.2	0.0	20.2
Incr Delay (d2), s/veh	4.2	9.0	8.7	9.9	3.2	3.1	30.0	0.1	12.2	14.8	0.0	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	0.5	10.8	11.1	2.1	6.7	6.9	4.2	0.8	9.2	3.4	0.0	1.0
LnGrp Delay(d),s/veh	39.9	31.2	31.0	44.2	21.3	21.2	63.5	20.2	38.1	48.0	0.0	20.4
LnGrp LOS	D	C	C	D	C	C	E	C	D	D		C
Approach Vol, veh/h		1031			857			581			197	
Approach Delay, s/veh		31.3			23.6			42.5			39.0	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	40.0	11.0	25.0	6.3	42.8	11.1	24.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	5.7	21.1	7.8	4.1	3.0	14.7	7.5	19.6
Green Ext Time (p_c), s	0.0	3.9	0.0	2.1	0.0	7.9	0.0	1.3

Intersection Summary		
HCM 2010 Ctrl Delay		31.8
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	48	979	208	153	650	128	344	500	287	161	269	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	53	1088	231	168	714	141	366	532	305	183	306	45
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	112	1291	577	208	1158	229	416	1364	610	226	1169	523
Arrive On Green	0.03	0.36	0.36	0.06	0.39	0.39	0.12	0.39	0.39	0.07	0.33	0.33
Sat Flow, veh/h	3442	3539	1583	3442	2948	582	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	53	1088	231	168	428	427	366	532	305	183	306	45
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1760	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	2.6	47.8	18.4	8.2	32.9	33.0	17.8	18.4	24.9	8.9	10.8	3.3
Cycle Q Clear(g_c), s	2.6	47.8	18.4	8.2	32.9	33.0	17.8	18.4	24.9	8.9	10.8	3.3
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	112	1291	577	208	695	691	416	1364	610	226	1169	523
V/C Ratio(X)	0.47	0.84	0.40	0.81	0.62	0.62	0.88	0.39	0.50	0.81	0.26	0.09
Avail Cap(c_a), veh/h	142	1377	616	243	740	737	538	1364	610	316	1169	523
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.7	49.4	40.1	78.7	41.3	41.3	73.4	37.7	39.7	78.2	41.7	39.2
Incr Delay (d2), s/veh	3.1	4.7	0.4	15.7	1.4	1.4	12.8	0.8	2.9	10.3	0.5	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	1.3	24.3	8.1	4.4	16.3	16.3	9.2	9.2	11.4	4.6	5.4	1.5
LnGrp Delay(d),s/veh	83.8	54.2	40.5	94.4	42.7	42.7	86.2	38.5	42.6	88.5	42.2	39.5
LnGrp LOS	F	D	D	F	D	D	F	D	D	F	D	D
Approach Vol, veh/h		1372			1023			1203			534	
Approach Delay, s/veh		53.0			51.2			54.1			57.9	
Approach LOS		D			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	71.9	14.3	66.9	26.0	62.5	9.5	71.6				
Change Period (Y+Rc), s	5.5	6.5	4.0	5.0	5.5	6.5	4.0	*5				
Max Green Setting (Gmax), s	15.6	65.4	12.0	66.0	26.5	54.5	7.0	*71				
Max Q Clear Time (g_c+I1), s	10.9	26.9	10.2	49.8	19.8	12.8	4.6	35.0				
Green Ext Time (p_c), s	0.2	8.4	0.1	12.0	0.8	8.5	0.0	20.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			53.5									
HCM 2010 LOS			D									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	309	658	109	52	402	312	77	756	38	190	594	218
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	347	739	0	57	442	0	89	869	0	198	619	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.87	0.87	0.87	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	1526	683	95	959	429	210	1028	460	258	1078	482
Arrive On Green	0.21	0.43	0.00	0.05	0.27	0.00	0.06	0.29	0.00	0.07	0.30	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	347	739	0	57	442	0	89	869	0	198	619	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	20.4	16.0	0.0	3.4	11.1	0.0	2.7	24.7	0.0	6.0	15.7	0.0
Cycle Q Clear(g_c), s	20.4	16.0	0.0	3.4	11.1	0.0	2.7	24.7	0.0	6.0	15.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	1526	683	95	959	429	210	1028	460	258	1078	482
V/C Ratio(X)	0.92	0.48	0.00	0.60	0.46	0.00	0.42	0.85	0.00	0.77	0.57	0.00
Avail Cap(c_a), veh/h	432	1526	683	150	962	430	226	1028	460	258	1078	482
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.0	21.8	0.0	49.4	32.4	0.0	48.3	35.6	0.0	48.5	31.3	0.0
Incr Delay (d2), s/veh	22.4	0.2	0.0	6.0	0.3	0.0	1.4	8.5	0.0	13.0	2.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	7.9	0.0	1.8	5.4	0.0	1.3	13.3	0.0	3.3	8.0	0.0
LnGrp Delay(d),s/veh	63.4	22.1	0.0	55.4	32.7	0.0	49.7	44.2	0.0	61.5	33.5	0.0
LnGrp LOS	E	C		E	C		D	D		E	C	
Approach Vol, veh/h		1086			499			958			817	
Approach Delay, s/veh		35.3			35.3			44.7			40.3	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	35.0	9.7	50.0	10.5	36.5	26.8	32.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	31.0	9.0	46.0	7.0	32.0	26.0	29.0				
Max Q Clear Time (g_c+I1), s	8.0	26.7	5.4	18.0	4.7	17.7	22.4	13.1				
Green Ext Time (p_c), s	0.0	3.3	0.0	9.5	0.0	8.5	0.4	7.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			39.2									
HCM 2010 LOS			D									

HCM 2010 TWSC  
6: ESCONDIDO BLVD. & EL NORTE PKY.

1/28/2014

Intersection

Int Delay, s/veh 13

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	78	1241	120	195	815	16	28	5	321	9	4	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	91	91	91	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	1293	125	214	896	18	31	5	353	10	5	95

Major/Minor	Major:1	Major:2	Minor:1	Minor:2
Conflicting Flow All	913	0	0	1418
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	742	-	-	476
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	742	-	-	476
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	3.5	88.8	11.6
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	36	377	742	-	-	476	-	-	+ 551	
HCM Lane V/C Ratio	1.007	0.936	0.11	-	-	0.45	-	-	- 0.173	
HCM Control Delay (s)	\$ 319.6	65.1	10.4	-	-	18.6	-	-	3.4	12.9
HCM Lane LOS	F	F	B	-	-	C	-	-	A	B
HCM 95th %tile Q(veh)	3.7	10.1	0.4	-	-	2.3	-	-	-	0.6

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 TWSC  
7: ESCONDIDO BLVD. & LINCOLN AVE.

1/28/2014

**Intersection**

Int Delay, s/veh 3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	47	2	54	23	447	64	28	259	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	83	83	83	83	83	83	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	8	8	57	2	65	28	539	77	31	288	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	978	944	288	952	944	539	288	0	0	539	0	0
Stage 1	350	350	-	594	594	-	-	-	-	-	-	-
Stage 2	628	594	-	358	350	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	230	262	751	239	262	542	1274	-	-	1029	-	-
Stage 1	666	633	-	491	493	-	-	-	-	-	-	-
Stage 2	471	493	-	660	633	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	193	249	751	222	249	542	1274	-	-	1029	-	-
Mov Cap-2 Maneuver	193	249	-	222	249	-	-	-	-	-	-	-
Stage 1	651	614	-	480	482	-	-	-	-	-	-	-
Stage 2	403	482	-	625	614	-	-	-	-	-	-	-






















Approach	EB	WB	NB	SB
HCM Control Delay, s	18.8	22.9	0.3	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1274	-	-	285	323	1029	-	-
HCM Lane V/C Ratio	0.022	-	-	0.085	0.384	0.03	-	-
HCM Control Delay (s)	7.9	-	-	18.8	22.9	8.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.7	0.1	-	-



HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	116	591	151	114	406	50	222	374	208	80	233	92
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	126	642	164	130	461	57	241	407	226	92	268	106
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	799	204	162	915	113	281	783	430	132	676	261
Arrive On Green	0.09	0.29	0.29	0.09	0.29	0.29	0.16	0.35	0.35	0.07	0.27	0.27
Sat Flow, veh/h	1774	2794	713	1774	3173	391	1774	2207	1212	1774	2498	964
Grp Volume(v), veh/h	126	406	400	130	256	262	241	325	308	92	188	186
Grp Sat Flow(s),veh/h/ln	1774	1770	1737	1774	1770	1794	1774	1770	1649	1774	1770	1693
Q Serve(g_s), s	5.8	17.6	17.7	5.9	10.0	10.1	10.9	12.0	12.2	4.2	7.2	7.5
Cycle Q Clear(g_c), s	5.8	17.6	17.7	5.9	10.0	10.1	10.9	12.0	12.2	4.2	7.2	7.5
Prop In Lane	1.00		0.41	1.00		0.22	1.00		0.73	1.00		0.57
Lane Grp Cap(c), veh/h	158	506	497	162	510	517	281	628	585	132	479	458
V/C Ratio(X)	0.80	0.80	0.80	0.80	0.50	0.51	0.86	0.52	0.53	0.70	0.39	0.41
Avail Cap(c_a), veh/h	193	556	546	193	556	564	343	628	585	214	492	471
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	27.4	27.4	36.8	24.5	24.5	33.9	21.1	21.2	37.4	24.6	24.7
Incr Delay (d2), s/veh	17.2	7.7	7.9	18.1	0.8	0.8	16.4	0.8	0.9	6.5	0.5	0.6
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	3.6	9.7	9.5	3.7	4.9	5.1	6.6	6.0	5.7	2.3	3.6	3.5
LnGrp Delay(d),s/veh	54.2	35.1	35.3	54.9	25.3	25.3	50.3	21.9	22.0	43.8	25.1	25.3
LnGrp LOS	D	D	D	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		932			648			874			466	
Approach Delay, s/veh		37.8			31.2			29.8			28.9	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	27.7	17.1	26.4	11.4	27.9	10.2	33.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	9.0	26.0	16.0	23.0	9.0	26.0	10.0	29.0				
Max Q Clear Time (g_c+l1), s	7.9	19.7	12.9	9.5	7.8	12.1	6.2	14.2				
Green Ext Time (p_c), s	0.0	4.0	0.2	4.7	0.0	7.1	0.1	5.6				
Intersection Summary												
HCM 2010 Ctrl Delay			32.5									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗		↖	↗	
Volume (veh/h)	2	2	20	32	0	43	18	657	75	38	580	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	1.00		0.98	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	2	2	24	36	0	48	20	747	85	45	682	1
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.90	0.90	0.90	0.88	0.88	0.88	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	30	223	394	0	256	36	1522	173	71	1797	3
Arrive On Green	0.17	0.17	0.17	0.17	0.00	0.17	0.02	0.48	0.48	0.04	0.50	0.50
Sat Flow, veh/h	43	180	1335	1338	0	1532	1774	3198	364	1774	3625	5
Grp Volume(v), veh/h	28	0	0	36	0	48	20	413	419	45	333	350
Grp Sat Flow(s), veh/h/ln	1557	0	0	1338	0	1532	1774	1770	1792	1774	1770	1861
Q Serve(g_s), s	0.0	0.0	0.0	0.9	0.0	1.0	0.4	6.0	6.0	0.9	4.4	4.4
Cycle Q Clear(g_c), s	0.6	0.0	0.0	1.5	0.0	1.0	0.4	6.0	6.0	0.9	4.4	4.4
Prop In Lane	0.07		0.86	1.00		1.00	1.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	362	0	0	394	0	256	36	842	853	71	877	923
V/C Ratio(X)	0.08	0.00	0.00	0.09	0.00	0.19	0.56	0.49	0.49	0.64	0.38	0.38
Avail Cap(c_a), veh/h	1038	0	0	984	0	932	328	842	853	328	877	923
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	0.0	14.0	0.0	13.5	18.4	6.8	6.8	17.9	5.9	5.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.4	13.2	2.0	2.0	9.1	1.2	1.2
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	0.3	0.0	0.0	0.3	0.0	0.5	0.3	3.3	3.4	0.6	2.4	2.5
LnGrp Delay(d),s/veh	13.5	0.0	0.0	14.1	0.0	13.9	31.5	8.8	8.8	27.0	7.2	7.1
LnGrp LOS	B			B		B	C	A	A	C	A	A
Approach Vol, veh/h		28			84			852			728	
Approach Delay, s/veh		13.5			14.0			9.3			8.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	22.0		10.3	4.8	22.7		10.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	2.9	8.0		2.6	2.4	6.4		3.5
Green Ext Time (p_c), s	0.0	6.3		0.5	0.0	7.0		0.4

Intersection Summary		
HCM 2010 Ctrl Delay		9.2
HCM 2010 LOS		A

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	313	1050	182	168	706	86	173	524	213	72	304	189
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	364	1221	212	193	811	99	197	595	242	82	345	215
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	420	1429	246	239	1279	156	221	734	298	101	470	282
Arrive On Green	0.12	0.46	0.46	0.07	0.40	0.40	0.12	0.30	0.30	0.06	0.23	0.23
Sat Flow, veh/h	3442	3128	539	3442	3165	386	1774	2431	987	1774	2004	1203
Grp Volume(v), veh/h	364	714	719	193	453	457	197	433	404	82	303	257
Grp Sat Flow(s),veh/h/ln	1721	1840	1827	1721	1770	1781	1774	1770	1648	1774	1770	1438
Q Serve(g_s), s	16.3	54.0	55.2	8.7	32.2	32.2	17.1	35.5	35.6	7.2	24.8	26.1
Cycle Q Clear(g_c), s	16.3	54.0	55.2	8.7	32.2	32.2	17.1	35.5	35.6	7.2	24.8	26.1
Prop In Lane	1.00		0.30	1.00		0.22	1.00		0.60	1.00		0.84
Lane Grp Cap(c), veh/h	420	841	835	239	715	720	221	534	497	101	415	337
V/C Ratio(X)	0.87	0.85	0.86	0.81	0.63	0.63	0.89	0.81	0.81	0.81	0.73	0.76
Avail Cap(c_a), veh/h	582	886	880	318	717	721	334	660	615	153	480	390
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.6	37.8	38.1	71.9	37.4	37.4	67.6	50.6	50.6	73.1	55.4	55.9
Incr Delay (d2), s/veh	9.9	7.6	8.4	10.8	1.8	1.8	17.6	6.2	6.7	17.2	4.8	7.4
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	8.3	29.2	29.7	4.5	16.1	16.2	9.5	18.2	17.1	4.0	12.7	11.1
LnGrp Delay(d),s/veh	77.5	45.4	46.5	82.8	39.2	39.2	85.2	56.8	57.4	90.2	60.2	63.4
LnGrp LOS	E	D	D	F	D	D	F	E	E	F	E	E
Approach Vol, veh/h		1797			1103			1034			642	
Approach Delay, s/veh		52.3			46.8			62.4			65.3	
Approach LOS		D			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	51.8	15.4	76.1	24.0	41.3	23.6	67.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.5	58.5	14.5	75.5	29.5	42.5	26.5	63.5				
Max Q Clear Time (g_c+I1), s	9.2	37.6	10.7	57.2	19.1	28.1	18.3	34.2				
Green Ext Time (p_c), s	0.1	9.8	0.2	14.5	0.4	7.8	0.8	20.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			55.1									
HCM 2010 LOS			E									

**Intersection**

Int Delay, s/veh 17.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	16	41	24	8	55	55	1027	76	29	650	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	91	91	91	95	95	95	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	18	46	26	9	60	58	1081	80	33	739	47

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1489	2105	393	1681	2088	581	785	0	0	1161	0	0
Stage 1	828	828	-	1237	1237	-	-	-	-	-	-	-
Stage 2	661	1277	-	444	851	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	86	51	606	62	52	457	829	-	-	597	-	-
Stage 1	332	384	-	186	246	-	-	-	-	-	-	-
Stage 2	418	236	-	563	375	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	58	45	606	36	46	457	829	-	-	597	-	-
Mov Cap-2 Maneuver	58	45	-	36	46	-	-	-	-	-	-	-
Stage 1	309	363	-	173	229	-	-	-	-	-	-	-
Stage 2	324	219	-	467	354	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	191	193.2	0.5	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	829	-	-	93	91	597	-	-
HCM Lane V/C Ratio	0.07	-	-	1.051	1.051	0.055	-	-
HCM Control Delay (s)	9.7	-	-	191	193.2	11.4	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	6.4	6.3	0.2	-	-

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕↕	↗	↔↔	↕↕↕	↗	↔↔	↕↕	↗	↔	↕↕	↗
Volume (veh/h)	578	1324	571	95	921	71	645	486	115	48	323	330
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	642	1471	634	101	980	76	759	572	135	55	371	379
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	688	1748	914	259	1115	346	809	1250	551	123	690	295
Arrive On Green	0.20	0.34	0.34	0.08	0.22	0.22	0.24	0.35	0.35	0.07	0.19	0.19
Sat Flow, veh/h	3442	5085	1576	3442	5085	1579	3442	3539	1559	1774	3681	1573
Grp Volume(v), veh/h	642	1471	634	101	980	76	759	572	135	55	371	379
Grp Sat Flow(s),veh/h/ln	1721	1695	1576	1721	1695	1579	1721	1770	1559	1774	1840	1573
Q Serve(g_s), s	28.9	42.0	44.6	4.4	29.3	6.2	34.0	19.6	9.6	4.7	14.3	29.5
Cycle Q.Clear(g_c), s	28.9	42.0	44.6	4.4	29.3	6.2	34.0	19.6	9.6	4.7	14.3	29.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	688	1748	914	259	1115	346	809	1250	551	123	690	295
V/C Ratio(X)	0.93	0.84	0.69	0.39	0.88	0.22	0.94	0.46	0.25	0.45	0.54	1.28
Avail Cap(c_a), veh/h	718	1772	921	263	1115	346	849	1267	558	135	690	295
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.9	47.7	23.3	69.3	59.4	50.4	59.0	39.2	36.0	70.3	57.7	63.9
Incr Delay (d2), s/veh	18.8	3.8	2.2	1.0	8.2	0.3	17.4	0.3	0.2	2.5	0.8	151.4
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	15.5	20.2	19.8	2.1	14.6	2.7	18.2	9.7	4.2	2.4	7.4	25.3
LnGrp Delay(d),s/veh	80.7	51.5	25.6	70.2	67.6	50.7	76.4	39.5	36.3	72.8	58.6	215.3
LnGrp LOS	F	D	C	E	E	D	E	D	D	E	E	F
Approach Vol, veh/h		2747			1157			1466			805	
Approach Delay, s/veh		52.3			66.7			58.3			133.3	
Approach LOS		D			E			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.1	62.1	42.2	36.0	36.6	42.5	16.1	62.1				
Change Period (Y+Rc), s	5.1999998	8.1999998	6.5199998	6.5199998	8.1999998	8.1999998	6.5	6.5				
Max Green Setting (Gmax), s	* 12	54.88799999	29.32799999	34.0	* 12	56.3						
Max Q Clear Time (g_c+I1), s	6.4	46.6	36.0	31.5	30.9	31.3	6.7	21.6				
Green Ext Time (p_c), s	0.1	7.5	0.9	0.0	0.6	2.6	0.0	10.4				
Intersection Summary												
HCM 2010 Ctrl Delay			67.0									
HCM 2010 LOS			E									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/28/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Volume (veh/h)	216	551	144	86	360	201	139	847	50	207	619	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	227	580	152	89	371	207	151	921	54	225	673	71
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	869	227	114	580	319	188	1123	66	188	1067	112
Arrive On Green	0.11	0.31	0.31	0.06	0.26	0.26	0.10	0.32	0.32	0.10	0.32	0.32
Sat Flow, veh/h	1774	2778	726	1774	2206	1212	1845	3534	207	1845	3361	354
Grp Volume(v), veh/h	227	369	363	89	296	282	151	480	495	225	368	376
Grp Sat Flow(s),veh/h/ln	1774	1770	1735	1774	1770	1649	1845	1840	1901	1845	1840	1875
Q Serve(g_s), s	9.0	14.2	14.3	3.9	11.7	11.9	6.3	18.9	18.9	8.0	13.4	13.5
Cycle Q Clear(g_c), s	9.0	14.2	14.3	3.9	11.7	11.9	6.3	18.9	18.9	8.0	13.4	13.5
Prop In Lane	1.00		0.42	1.00		0.74	1.00		0.11	1.00		0.19
Lane Grp Cap(c), veh/h	203	554	543	114	465	434	188	585	604	188	584	595
V/C Ratio(X)	1.12	0.67	0.67	0.78	0.64	0.65	0.80	0.82	0.82	1.20	0.63	0.63
Avail Cap(c_a), veh/h	203	630	617	180	607	566	211	585	604	188	584	595
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	23.5	23.5	36.3	25.7	25.8	34.6	24.8	24.8	35.3	22.9	22.9
Incr Delay (d2), s/veh	98.7	2.2	2.3	10.8	1.5	1.6	18.0	12.2	11.9	129.8	5.1	5.0
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	9.9	7.3	7.2	2.2	5.9	5.6	4.1	11.6	11.9	10.8	7.7	7.8
LnGrp Delay(d),s/veh	133.6	25.7	25.8	47.0	27.1	27.4	52.6	37.0	36.7	165.1	28.0	28.0
LnGrp LOS	F	C	C	D	C	C	D	D	D	F	C	C
Approach Vol, veh/h		959			667			1126			969	
Approach Delay, s/veh		51.3			29.9			38.9			59.8	
Approach LOS		D			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	29.0	9.1	28.6	12.0	29.0	13.0	24.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	25.0	8.0	28.0	9.0	24.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	10.0	20.9	5.9	16.3	8.3	15.5	11.0	13.9
Green Ext Time (p_c), s	0.0	3.2	0.0	6.3	0.0	6.1	0.0	6.8

Intersection Summary	
HCM 2010 Ctrl Delay	45.9
HCM 2010 LOS	D

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	44	1391	45	6	986	97	64	1	25	56	1	46
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	48	1512	49	6	1049	103	82	1	32	69	1	57
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.78	0.78	0.78	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	2359	723	11	2190	682	104	6	207	90	3	191
Arrive On Green	0.04	0.46	0.46	0.01	0.43	0.43	0.06	0.13	0.13	0.05	0.13	0.13
Sat Flow, veh/h	1774	5085	1559	1774	5085	1583	1774	48	1542	1774	26	1509
Grp Volume(v), veh/h	48	1512	49	6	1049	103	82	0	33	69	0	58
Grp Sat Flow(s),veh/h/ln	1774	1695	1559	1774	1695	1583	1774	0	1591	1774	0	1536
Q Serve(g_s), s	1.2	10.5	0.8	0.2	6.9	1.8	2.1	0.0	0.9	1.8	0.0	1.6
Cycle Q Clear(g_c), s	1.2	10.5	0.8	0.2	6.9	1.8	2.1	0.0	0.9	1.8	0.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	71	2359	723	11	2190	682	104	0	214	90	0	195
V/C Ratio(X)	0.68	0.64	0.07	0.53	0.48	0.15	0.79	0.00	0.15	0.77	0.00	0.30
Avail Cap(c_a), veh/h	267	2359	723	267	2190	682	267	0	993	306	0	992
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	9.5	6.9	23.0	9.5	8.1	21.6	0.0	17.8	21.8	0.0	18.4
Incr Delay (d2), s/veh	10.9	1.4	0.2	33.0	0.8	0.5	12.5	0.0	0.3	12.6	0.0	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	0.8	5.2	0.4	0.2	3.4	0.9	1.4	0.0	0.4	1.2	0.0	0.7
LnGrp Delay(d),s/veh	32.9	10.9	7.1	56.0	10.2	8.5	34.1	0.0	18.1	34.4	0.0	19.2
LnGrp LOS	C	B	A	E	B	A	C		B	C		B
Approach Vol, veh/h		1609			1158			115				127
Approach Delay, s/veh		11.4			10.3			29.5				27.5
Approach LOS		B			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.3	25.5	6.7	9.9	5.8	24.0	6.4	10.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	8.0	29.0				
Max Q Clear Time (g_c+I1), s	2.2	12.5	4.1	3.6	3.2	8.9	3.8	2.9				
Green Ext Time (p_c), s	0.0	6.9	0.0	0.5	0.0	10.0	0.0	0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.4									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	79	1141	78	28	778	7	188	169	44	13	140	62
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	84	1214	83	30	828	7	232	209	54	20	219	97
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.81	0.81	0.81	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1404	96	42	1369	12	266	663	557	31	271	120
Arrive On Green	0.06	0.42	0.42	0.02	0.38	0.38	0.15	0.36	0.36	0.02	0.22	0.22
Sat Flow, veh/h	1774	3358	229	1774	3596	30	1774	1863	1563	1774	1213	537
Grp Volume(v), veh/h	84	639	658	30	407	428	232	209	54	20	0	316
Grp Sat Flow(s),veh/h/ln	1774	1770	1818	1774	1770	1857	1774	1863	1563	1774	0	1750
Q Serve(g_s), s	4.0	28.5	28.6	1.5	16.1	16.1	11.1	7.1	2.0	1.0	0.0	14.8
Cycle Q Clear(g_c), s	4.0	28.5	28.6	1.5	16.1	16.1	11.1	7.1	2.0	1.0	0.0	14.8
Prop In Lane	1.00		0.13	1.00		0.02	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	108	740	760	42	674	707	266	663	557	31	0	391
V/C Ratio(X)	0.78	0.86	0.87	0.71	0.60	0.60	0.87	0.32	0.10	0.64	0.00	0.81
Avail Cap(c_a), veh/h	205	740	760	143	674	707	266	663	557	143	0	464
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	23.0	23.0	42.0	21.6	21.6	36.0	20.2	18.6	42.3	0.0	31.9
Incr Delay (d2), s/veh	11.2	12.8	12.6	19.8	4.0	3.8	25.5	0.3	0.1	19.6	0.0	8.8
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	2.3	16.5	16.9	0.9	8.6	8.9	7.3	3.6	0.9	0.6	0.0	8.1
LnGrp Delay(d),s/veh	51.3	35.7	35.7	61.9	25.6	25.4	61.5	20.5	18.7	61.9	0.0	40.6
LnGrp LOS	D	D	D	E	C	C	E	C	B	E		D
Approach Vol, veh/h		1381			865			495			336	
Approach Delay, s/veh		36.6			26.8			39.5			41.9	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	40.2	17.0	23.4	9.3	37.0	5.5	34.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	36.0	13.0	23.0	10.0	33.0	7.0	29.0
Max Q Clear Time (g_c+I1), s	3.5	30.6	13.1	16.8	6.0	18.1	3.0	9.1
Green Ext Time (p_c), s	0.0	4.6	0.0	1.0	0.1	11.3	0.0	3.3

Intersection Summary		
HCM 2010 Ctrl Delay		34.9
HCM 2010 LOS		C



HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/28/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕	↗	↖	↗		↖	↗	
Volume (veh/h)	126	584	189	43	394	57	76	253	82	73	171	116
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.91	0.99		0.91	0.97		0.89	0.95		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	135	628	203	52	475	69	83	275	89	84	197	133
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	453	895	692	274	1471	212	354	485	157	329	374	252
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	832	1863	1440	654	3062	441	1010	1303	422	960	1006	679
Grp Volume(v), veh/h	135	628	203	52	273	271	83	0	364	84	0	330
Grp Sat Flow(s),veh/h/ln	832	1863	1440	654	1770	1733	1010	0	1725	960	0	1685
Q Serve(g_s), s	6.5	14.3	4.6	3.7	5.1	5.2	3.8	0.0	9.1	4.1	0.0	8.3
Cycle Q Clear(g_c), s	11.7	14.3	4.6	18.0	5.1	5.2	12.1	0.0	9.1	13.2	0.0	8.3
Prop In Lane	1.00		1.00	1.00		0.25	1.00		0.24	1.00		0.40
Lane Grp Cap(c), veh/h	453	895	692	274	850	833	354	0	641	329	0	626
V/C Ratio(X)	0.30	0.70	0.29	0.19	0.32	0.33	0.23	0.00	0.57	0.26	0.00	0.53
Avail Cap(c_a), veh/h	453	895	692	274	850	833	370	0	669	344	0	654
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.3	11.0	8.5	18.1	8.6	8.7	18.0	0.0	13.5	18.8	0.0	13.3
Incr Delay (d2), s/veh	1.7	4.6	1.1	1.5	1.0	1.0	0.3	0.0	1.0	0.4	0.0	0.7
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	1.7	8.5	2.0	0.8	2.7	2.7	1.1	0.0	4.4	1.1	0.0	4.0
LnGrp Delay(d),s/veh	13.9	15.6	9.6	19.6	9.6	9.7	18.3	0.0	14.6	19.2	0.0	14.0
LnGrp LOS	B	B	A	B	A	A	B		B	B		B
Approach Vol, veh/h		966			596			447				414
Approach Delay, s/veh		14.1			10.5			15.3				15.1
Approach LOS		B			B			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.0		24.1		30.0		24.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		26.0		21.0		26.0		21.0				
Max Q Clear Time (g_c+I1), s		16.3		15.2		20.0		14.1				
Green Ext Time (p_c), s		6.3		2.6		4.3		3.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.6									
HCM 2010 LOS			B									

## **Appendix G**

Project Opening Year (2016) With Project  
HCM Intersection Analysis Worksheets

Project Opening Year (2016) With Project  
AM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	246	25	43	649	88	38	170	23	164	274	102
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	45	262	27	57	854	116	46	205	28	174	291	109
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.76	0.76	0.76	0.83	0.83	0.83	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	1442	147	76	1412	192	289	910	123	408	541	460
Arrive On Green	0.04	0.44	0.44	0.04	0.45	0.45	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1774	3243	331	1774	3132	425	981	3135	423	1143	1863	1583
Grp Volume(v), veh/h	45	142	147	57	483	487	46	115	118	174	291	109
Grp Sat Flow(s),veh/h/ln	1774	1770	1804	1774	1770	1788	981	1770	1788	1143	1863	1583
Q Serve(g_s), s	1.4	2.6	2.7	1.7	11.1	11.1	2.2	2.7	2.7	7.4	7.1	2.8
Cycle Q Clear(g_c), s	1.4	2.6	2.7	1.7	11.1	11.1	9.3	2.7	2.7	10.1	7.1	2.8
Prop In Lane	1.00		0.18	1.00		0.24	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	65	787	803	76	798	806	289	514	519	408	541	460
V/C Ratio(X)	0.70	0.18	0.18	0.75	0.60	0.60	0.16	0.22	0.23	0.43	0.54	0.24
Avail Cap(c_a), veh/h	164	787	803	164	798	806	441	787	795	584	829	704
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	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	9.0	9.1	25.6	11.2	11.2	20.0	14.5	14.6	18.4	16.1	14.6
Incr Delay (d2), s/veh	12.7	0.5	0.5	12.0	2.9	2.8	0.3	0.2	0.2	0.7	0.8	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	0.9	1.4	1.4	1.1	6.0	6.1	0.6	1.3	1.3	2.4	3.8	1.3
LnGrp Delay(d),s/veh	38.4	9.5	9.6	37.6	14.0	14.0	20.3	14.7	14.8	19.1	16.9	14.9
LnGrp LOS	D	A	A	D	B	B	C	B	B	B	B	B
Approach Vol, veh/h		334			1027			279			574	
Approach Delay, s/veh		13.4			15.3			15.7			17.2	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	39.0		19.7	6.0	39.4		19.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	24.0		24.0	5.0	24.0		24.0				
Max Q Clear Time (g_c+I1), s	3.7	4.7		12.1	3.4	13.1		11.3				
Green Ext Time (p_c), s	0.0	8.2		3.6	0.0	5.8		3.7				

Intersection Summary

HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B






















HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	530	71	94	730	44	118	16	196	41	19	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	57	570	76	99	768	46	151	21	251	53	24	55
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.78	0.78	0.78	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	2146	282	128	2562	798	416	33	395	242	135	308
Arrive On Green	0.04	0.47	0.47	0.07	0.50	0.50	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	4549	599	1774	5085	1583	1314	124	1478	1103	504	1155
Grp Volume(v), veh/h	57	423	223	99	768	46	151	0	272	53	0	79
Grp Sat Flow(s),veh/h/ln	1774	1695	1757	1774	1695	1583	1314	0	1602	1103	0	1659
Q Serve(g_s), s	2.0	4.8	4.9	3.5	5.6	0.9	6.3	0.0	9.5	2.8	0.0	2.3
Cycle Q Clear(g_c), s	2.0	4.8	4.9	3.5	5.6	0.9	8.7	0.0	9.5	12.4	0.0	2.3
Prop In Lane	1.00		0.34	1.00		1.00	1.00		0.92	1.00		0.70
Lane Grp Cap(c), veh/h	72	1600	829	128	2562	798	416	0	428	242	0	443
V/C Ratio(X)	0.80	0.26	0.27	0.77	0.30	0.06	0.36	0.00	0.64	0.22	0.00	0.18
Avail Cap(c_a), veh/h	195	1600	829	279	2562	798	665	0	731	451	0	757
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	10.1	10.1	29.0	9.2	8.1	21.3	0.0	20.6	26.0	0.0	17.9
Incr Delay (d2), s/veh	17.7	0.4	0.8	9.4	0.3	0.1	0.5	0.0	1.6	0.4	0.0	0.2
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	1.3	2.3	2.5	2.0	2.7	0.4	2.4	0.0	4.3	0.9	0.0	1.1
LnGrp Delay(d),s/veh	47.9	10.5	10.9	38.4	9.5	8.2	21.8	0.0	22.1	26.5	0.0	18.1
LnGrp LOS	D	B	B	D	A	A	C		C	C		B
Approach Vol, veh/h		703			913			423			132	
Approach Delay, s/veh		13.7			12.6			22.0			21.5	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	34.0		21.0	6.6	36.0		21.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	10.0	29.0		29.0	7.0	32.0		29.0				
Max Q Clear Time (g_c+I1), s	5.5	6.9		14.4	4.0	7.6		11.5				
Green Ext Time (p_c), s	0.1	10.5		2.6	0.0	11.1		2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.3									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/29/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	421	74	228	893	46	107	25	105	50	24	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	15	501	88	262	1026	53	122	28	119	75	36	30
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.88	0.88	0.88	0.67	0.67	0.67
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	1206	211	309	1918	99	155	233	198	96	86	72
Arrive On Green	0.01	0.40	0.40	0.17	0.56	0.56	0.09	0.12	0.12	0.05	0.09	0.09
Sat Flow, veh/h	1774	3013	527	1774	3424	177	1774	1863	1583	1774	941	784
Grp Volume(v), veh/h	15	293	296	262	530	549	122	28	119	75	0	66
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1774	1770	1832	1774	1863	1583	1774	0	1724
Q Serve(g_s), s	0.5	7.7	7.8	9.3	12.2	12.2	4.4	0.9	4.6	2.7	0.0	2.3
Cycle Q Clear(g_c), s	0.5	7.7	7.8	9.3	12.2	12.2	4.4	0.9	4.6	2.7	0.0	2.3
Prop In Lane	1.00		0.30	1.00		0.10	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	26	708	708	309	991	1026	155	233	198	96	0	158
V/C Ratio(X)	0.58	0.41	0.42	0.85	0.54	0.54	0.79	0.12	0.60	0.78	0.00	0.42
Avail Cap(c_a), veh/h	109	708	708	355	991	1026	164	745	634	246	0	770
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)	0.95	0.95	0.95	0.86	0.86	0.86	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	14.0	14.0	26.0	9.0	9.0	29.1	25.3	26.9	30.3	0.0	27.9
Incr Delay (d2), s/veh	18.0	1.7	1.7	13.6	1.8	1.7	21.2	0.2	2.9	12.6	0.0	1.7
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	0.4	4.1	4.1	5.7	6.4	6.6	3.0	0.5	2.2	1.7	0.0	1.2
LnGrp Delay(d),s/veh	49.8	15.7	15.8	39.5	10.8	10.7	50.2	25.5	29.8	42.9	0.0	29.6
LnGrp LOS	D	B	B	D	B	B	D	C	C	D		C
Approach Vol, veh/h		604			1341			269			141	
Approach Delay, s/veh		16.6			16.4			38.6			36.7	
Approach LOS		B			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	55.0	9.7	10.0	4.9	65.4	7.5	12.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	26.0	6.0	29.0	4.0	35.0	9.0	26.0				
Max Q Clear Time (g_c+l1), s	11.3	9.8	6.4	4.3	2.5	14.2	4.7	6.6				
Green Ext Time (p_c), s	0.1	9.8	0.0	0.9	0.0	11.4	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	464	224	252	626	121	124	210	106	176	716	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	33	552	267	274	680	132	133	226	114	191	778	45
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.84	0.84	0.84	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	918	410	331	961	186	181	1440	644	243	1503	673
Arrive On Green	0.03	0.26	0.26	0.10	0.32	0.32	0.05	0.41	0.41	0.07	0.42	0.42
Sat Flow, veh/h	3442	3539	1583	3442	2958	574	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	33	552	267	274	407	405	133	226	114	191	778	45
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1762	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.3	19.7	21.6	11.2	28.9	29.0	5.5	5.8	6.6	7.8	23.3	2.4
Cycle Q Clear(g_c), s	1.3	19.7	21.6	11.2	28.9	29.0	5.5	5.8	6.6	7.8	23.3	2.4
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	918	410	331	575	572	181	1440	644	243	1503	673
V/C Ratio(X)	0.31	0.60	0.65	0.83	0.71	0.71	0.73	0.16	0.18	0.79	0.52	0.07
Avail Cap(c_a), veh/h	144	1528	684	503	949	945	288	1440	644	383	1503	673
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.1	46.7	47.4	63.7	42.5	42.5	67.0	27.0	27.2	65.7	30.4	24.5
Incr Delay (d2), s/veh	1.7	0.6	1.7	6.9	1.6	1.6	5.6	0.2	0.6	5.6	1.3	0.2
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	0.7	9.7	9.6	5.6	14.4	14.3	2.7	2.9	3.0	3.9	11.6	1.1
LnGrp Delay(d),s/veh	69.8	47.3	49.1	70.6	44.1	44.2	72.6	27.2	27.8	71.2	31.7	24.6
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		852			1086			473			1014	
Approach Delay, s/veh		48.8			50.8			40.1			38.9	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	65.4	18.8	43.2	13.6	68.0	9.4	52.6				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6				
Max Green Setting (Gmax), s	16.0	57.0	21.0	62.0	12.0	61.0	6.0	*77				
Max Q Clear Time (g_c+I1), s	9.8	8.6	13.2	23.6	7.5	25.3	3.3	31.0				
Green Ext Time (p_c), s	0.3	9.7	0.6	13.7	0.1	9.2	0.0	14.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			45.3									
HCM 2010 LOS			D									
<b>Notes:</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	124	443	80	215	1036	52	89	249	149	75	425	299
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.94	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	148	527	95	253	1219	61	109	304	182	114	644	453
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.85	0.85	0.85	0.82	0.82	0.82	0.66	0.66	0.66
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	1059	190	295	1304	65	123	836	483	133	756	530
Arrive On Green	0.05	0.34	0.34	0.09	0.38	0.38	0.07	0.40	0.40	0.08	0.40	0.40
Sat Flow, veh/h	3442	3095	555	3442	3425	171	1774	2106	1217	1774	1876	1315
Grp Volume(v), veh/h	148	312	310	253	629	651	109	254	232	114	607	490
Grp Sat Flow(s),veh/h/ln	1721	1840	1810	1721	1770	1827	1774	1770	1553	1774	1770	1421
Q Serve(g_s), s	7.7	24.2	24.4	13.1	61.5	61.7	11.0	18.2	19.1	11.4	56.2	56.5
Cycle Q Clear(g_c), s	7.7	24.2	24.4	13.1	61.5	61.7	11.0	18.2	19.1	11.4	56.2	56.5
Prop In Lane	1.00		0.31	1.00		0.09	1.00		0.78	1.00		0.93
Lane Grp Cap(c), veh/h	163	630	619	295	673	695	123	703	617	133	713	572
V/C Ratio(X)	0.91	0.50	0.50	0.86	0.93	0.94	0.88	0.36	0.38	0.86	0.85	0.86
Avail Cap(c_a), veh/h	163	630	619	373	673	695	123	703	617	202	713	572
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	85.4	46.9	47.0	81.2	53.6	53.6	83.0	38.2	38.5	82.3	48.9	49.0
Incr Delay (d2), s/veh	45.5	2.8	2.9	14.9	21.9	21.6	47.8	1.4	1.8	19.5	12.3	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	4.7	12.8	12.7	6.8	34.1	35.3	7.0	9.2	8.5	6.3	29.9	24.6
LnGrp Delay(d),s/veh	130.9	49.7	49.9	96.2	75.4	75.3	130.9	39.6	40.2	101.7	61.2	64.1
LnGrp LOS	F	D	D	F	E	E	F	D	D	F	E	E
Approach Vol, veh/h		770			1533			595			1211	
Approach Delay, s/veh		65.4			78.8			56.6			66.2	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	76.0	19.9	66.1	17.0	77.0	13.0	73.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	64.5	19.5	57.5	12.5	72.5	8.5	68.5				
Max Q Clear Time (g_c+I1), s	13.4	21.1	15.1	26.4	13.0	58.5	9.7	63.7				
Green Ext Time (p_c), s	0.1	16.4	0.3	17.0	0.0	8.9	0.0	4.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			69.3									
HCM 2010 LOS			E									



<b>Intersection</b>												
Int Delay, s/veh	72.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	23	16	101	25	31	26	224	430	31	28	689	94
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	68	68	68	79	79	79	79	79	79	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	24	149	32	39	33	284	544	39	33	811	111

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1791	2083	461	1614	2118	292	921	0	0	584	0	0
Stage 1	932	932	-	1131	1131	-	-	-	-	-	-	-
Stage 2	859	1151	-	483	987	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	51	52	547	69	50	704	737	-	-	987	-	-
Stage 1	287	343	-	217	277	-	-	-	-	-	-	-
Stage 2	317	271	-	534	324	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	31	547	~ 14	~ 30	704	737	-	-	987	-	-
Mov Cap-2 Maneuver	-	31	-	~ 14	~ 30	-	-	-	-	-	-	-
Stage 1	176	332	-	133	170	-	-	-	-	-	-	-
Stage 2	143	167	-	349	313	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 1442.1	4.2	0.3
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	737	-	-	-	29	987	-	-
HCM Lane V/C Ratio	0.385	-	-	-	3.579	0.033	-	-
HCM Control Delay (s)	12.9	-	-	\$ 1442.1	8.8	-	-	-
HCM Lane LOS	B	-	-	-	F	A	-	-
HCM 95th %tile Q(veh)	1.8	-	-	-	12.5	0.1	-	-

**Notes:**  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

QUEUE REPORT  
11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (veh/h)	23	16	101	25	31	26	224	430	31	28	689	94
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.79		0.75	0.81		0.75	1.00		0.80	1.00		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	34	24	149	32	39	33	284	544	39	33	811	111
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.68	0.68	0.68	0.79	0.79	0.79	0.79	0.79	0.79	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	181	324	160	175	118	337	1676	120	50	971	133
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.19	0.49	0.49	0.03	0.33	0.33
Sat Flow, veh/h	702	662	1181	287	638	430	1774	3420	244	1774	2957	405
Grp Volume(v), veh/h	58	0	149	104	0	0	284	291	292	33	485	437
Grp Sat Flow(s),veh/h/ln	1364	0	1181	1354	0	0	1774	1840	1823	1774	1770	1592
Q Serve(g_s), s	0.0	0.0	6.1	0.0	0.0	0.0	8.9	5.5	5.6	1.1	14.7	14.7
Cycle Q Clear(g_c), s	1.3	0.0	6.1	3.0	0.0	0.0	8.9	5.5	5.6	1.1	14.7	14.7
Prop In Lane	0.59		1.00	0.31		0.32	1.00		0.13	1.00		0.25
Lane Grp Cap(c), veh/h	472	0	324	452	0	0	337	902	894	50	581	523
V/C Ratio(X)	0.12	0.00	0.46	0.23	0.00	0.00	0.84	0.32	0.33	0.65	0.83	0.84
Avail Cap(c_a), veh/h	476	0	327	456	0	0	399	902	894	153	581	523
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	0.00	1.00	1.00	0.00	0.00	0.89	0.89	0.89	0.38	0.38	0.38
Uniform Delay (d), s/veh	15.7	0.0	17.4	16.3	0.0	0.0	22.6	8.9	8.9	27.8	18.0	18.0
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.3	0.0	0.0	11.9	0.8	0.9	5.4	5.6	6.1
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	0.7	0.0	2.0	1.3	0.0	0.0	5.5	3.0	3.0	0.6	8.0	7.3
LnGrp Delay(d),s/veh	15.9	0.0	18.5	16.6	0.0	0.0	34.5	9.8	9.8	33.2	23.5	24.1
LnGrp LOS	B		B	B			C	A	A	C	C	C
Approach Vol, veh/h		207			104			867			955	
Approach Delay, s/veh		17.7			16.6			17.9			24.1	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	34.5		19.8	15.0	25.2		19.8				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	27.0		16.0	13.0	19.0		16.0				
Max Q Clear Time (g_c+l1), s	3.1	7.6		8.1	10.9	16.7		5.0				
Green Ext Time (p_c), s	0.0	10.0		1.1	0.2	1.8		1.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			20.6									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑	↗	↗	↑↑	↗
Volume (veh/h)	293	661	646	134	1089	83	412	290	34	46	376	373
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.86	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	341	769	751	135	1100	84	425	299	35	59	482	478
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.99	0.99	0.99	0.97	0.97	0.97	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	1445	678	286	1297	388	497	1358	523	134	1159	499
Arrive On Green	0.11	0.28	0.28	0.08	0.26	0.26	0.14	0.38	0.38	0.08	0.31	0.31
Sat Flow, veh/h	3442	5085	1580	3442	5085	1522	3442	3539	1363	1774	3681	1583
Grp Volume(v), veh/h	341	769	751	135	1100	84	425	299	35	59	482	478
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1522	1721	1770	1363	1774	1840	1583
Q Serve(g_s), s	14.0	18.3	40.8	5.4	29.5	6.2	17.3	8.2	2.3	4.6	14.8	42.5
Cycle Q Clear(g_c), s	14.0	18.3	40.8	5.4	29.5	6.2	17.3	8.2	2.3	4.6	14.8	42.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	387	1445	678	286	1297	388	497	1358	523	134	1159	499
V/C Ratio(X)	0.88	0.53	1.11	0.47	0.85	0.22	0.86	0.22	0.07	0.44	0.42	0.96
Avail Cap(c_a), veh/h	403	1445	678	288	1297	388	882	1733	667	148	1166	502
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.8	43.3	41.0	62.8	50.8	42.2	60.0	29.8	28.0	63.5	38.8	48.3
Incr Delay (d2), s/veh	19.4	0.4	68.2	1.2	5.5	0.3	4.3	0.1	0.1	2.3	0.2	29.8
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	7.7	8.6	39.6	2.6	14.5	2.7	8.6	4.0	0.9	2.3	7.6	22.8
LnGrp Delay(d),s/veh	82.2	43.7	109.2	64.0	56.3	42.5	64.3	29.9	28.0	65.7	39.0	78.1
LnGrp LOS	F	D	F	E	E	D	E	C	C	E	D	E
Approach Vol, veh/h		1861			1319			759			1019	
Approach Delay, s/veh		77.2			56.2			49.1			58.9	
Approach LOS		E			E			D			E	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.1	61.6	17.1	48.8	25.9	51.7	21.3	44.6
Change Period (Y+Rc), s* 5.1999998		6.5.1999998		8.5.1999998		6.5.1999998		8.0
Max Green Setting (Gmax), s	* 12	70.3	* 12	40.86.7999999		45.56.7999999		36.0
Max Q Clear Time (g_c+I1), s	6.6	10.2	7.4	42.8	19.3	44.5	16.0	31.5
Green Ext Time (p_c), s	0.0	9.3	0.1	0.0	1.4	0.7	0.1	4.1

Intersection Summary

HCM 2010 Ctrl Delay	63.6
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑↑	↗	↖↖	↑↑↑	↗	↖↖	↑↑	↗	↖	↑↑	↗
Volume (veh/h)	293	661	646	134	1089	83	412	290	34	46	376	373
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.85	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	341	769	751	135	1100	84	425	299	35	59	399	533
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	1	2
Peak Hour Factor	0.86	0.86	0.86	0.99	0.99	0.99	0.97	0.97	0.97	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	497	1660	900	266	1228	367	835	1288	492	127	357	1040
Arrive On Green	0.14	0.33	0.33	0.08	0.24	0.24	0.24	0.36	0.36	0.07	0.18	0.18
Sat Flow, veh/h	3442	5085	1580	3442	5085	1518	3442	3539	1351	1774	1937	3167
Grp Volume(v), veh/h	341	769	751	135	1100	84	425	299	35	59	399	533
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1518	1721	1770	1351	1774	1937	1583
Q Serve(g_s), s	14.6	18.6	15.5	5.8	32.4	5.5	16.5	9.1	2.6	4.9	28.5	0.0
Cycle Q Clear(g_c), s	14.6	18.6	15.5	5.8	32.4	5.5	16.5	9.1	2.6	4.9	28.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	497	1660	900	266	1228	367	835	1288	492	127	357	1040
V/C Ratio(X)	0.69	0.46	0.83	0.51	0.90	0.23	0.51	0.23	0.07	0.47	1.12	0.51
Avail Cap(c_a), veh/h	556	1801	944	267	1282	383	856	1288	492	138	357	1040
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	0.95	0.95	0.95	0.92	0.92	0.92	0.76	0.76	0.76
Uniform Delay (d), s/veh	62.9	41.3	9.3	68.6	56.8	29.7	50.6	34.2	32.1	69.0	63.1	41.9
Incr Delay (d2), s/veh	3.1	0.2	6.3	1.5	8.0	0.3	0.4	0.4	0.3	2.0	77.8	1.4
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	7.1	8.7	15.1	2.8	16.1	2.7	7.9	4.5	1.0	2.5	22.9	9.4
LnGrp Delay(d),s/veh	65.9	41.5	15.6	70.0	64.8	30.0	51.1	34.6	32.4	71.0	141.0	43.3
LnGrp LOS	E	D	B	E	E	C	D	C	C	E	F	D
Approach Vol, veh/h		1861			1319			759			991	
Approach Delay, s/veh		35.6			63.1			43.7			84.3	
Approach LOS		D			E			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	68.1	17.2	58.5	49.3	35.0	30.3	45.4
Change Period (Y+Rc), s	5.1999998	6.51999998	8.0	6.5	* 6.5	8.0	* 8	
Max Green Setting (Gmax), s	* 12	56.3	* 12	54.8	38.5	* 28.5	25.0	* 39
Max Q Clear Time (g_c+I1), s	6.9	11.1	7.8	20.6	18.5	30.5	16.6	34.4
Green Ext Time (p_c), s	0.0	4.0	0.1	13.2	3.6	0.0	5.8	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.0
HCM 2010 LOS	D

Notes:  
User approved volume balancing among the lanes for turning movement.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	90	188	79	82	387	187	143	523	41	135	785	137
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	100	209	88	92	435	210	151	551	43	144	835	146
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.89	0.89	0.89	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	625	255	117	580	277	135	1520	118	135	1376	241
Arrive On Green	0.07	0.25	0.25	0.07	0.25	0.25	0.07	0.44	0.44	0.07	0.44	0.44
Sat Flow, veh/h	1774	2456	1000	1774	2324	1112	1845	3461	270	1845	3133	548
Grp Volume(v), veh/h	100	149	148	92	330	315	151	293	301	144	490	491
Grp Sat Flow(s),veh/h/ln	1774	1770	1686	1774	1770	1667	1845	1840	1890	1845	1840	1841
Q Serve(g_s), s	5.3	6.5	6.9	4.9	16.5	16.7	7.0	10.1	10.2	7.0	19.5	19.5
Cycle Q Clear(g_c), s	5.3	6.5	6.9	4.9	16.5	16.7	7.0	10.1	10.2	7.0	19.5	19.5
Prop In Lane	1.00		0.59	1.00		0.67	1.00		0.14	1.00		0.30
Lane Grp Cap(c), veh/h	126	451	429	117	441	416	135	808	830	135	808	808
V/C Ratio(X)	0.79	0.33	0.35	0.79	0.75	0.76	1.12	0.36	0.36	1.07	0.61	0.61
Avail Cap(c_a), veh/h	130	611	582	130	611	575	135	808	830	135	808	808
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	29.0	29.1	44.0	33.1	33.2	44.3	17.9	17.9	44.3	20.5	20.5
Incr Delay (d2), s/veh	27.2	0.4	0.5	24.8	3.3	3.8	112.7	1.3	1.2	96.3	3.4	3.4
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	3.6	3.2	3.3	3.2	8.5	8.1	7.8	5.4	5.6	7.1	10.6	10.6
LnGrp Delay(d),s/veh	70.9	29.4	29.6	68.8	36.4	37.0	157.1	19.1	19.1	140.7	23.9	23.9
LnGrp LOS	E	C	C	E	D	D	F	B	B	F	C	C
Approach Vol, veh/h		397			737			745			1125	
Approach Delay, s/veh		39.9			40.7			47.1			38.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	46.0	10.3	28.4	11.0	46.0	10.8	27.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	42.0	7.0	33.0	7.0	42.0	7.0	33.0
Max Q Clear Time (g_c+I1), s	9.0	12.2	6.9	8.9	9.0	21.5	7.3	18.7
Green Ext Time (p_c), s	0.0	12.8	0.0	6.4	0.0	10.6	0.0	5.1

Intersection Summary		
HCM 2010 Ctrl Delay		41.5
HCM 2010 LOS		D

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	699	54	19	1210	110	15	1	5	64	1	75
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	794	61	20	1260	115	20	1	7	76	1	89
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96	0.75	0.75	0.75	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2374	737	35	2411	750	35	17	119	99	2	186
Arrive On Green	0.01	0.47	0.47	0.02	0.47	0.47	0.02	0.08	0.08	0.06	0.12	0.12
Sat Flow, veh/h	1774	5085	1578	1774	5085	1582	1774	202	1412	1774	17	1545
Grp Volume(v), veh/h	12	794	61	20	1260	115	20	0	8	76	0	90
Grp Sat Flow(s),veh/h/ln	1774	1695	1578	1774	1695	1582	1774	0	1614	1774	0	1562
Q Serve(g_s), s	0.3	4.2	0.9	0.5	7.4	1.8	0.5	0.0	0.2	1.8	0.0	2.3
Cycle Q Clear(g_c), s	0.3	4.2	0.9	0.5	7.4	1.8	0.5	0.0	0.2	1.8	0.0	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		0.99
Lane Grp Cap(c), veh/h	22	2374	737	35	2411	750	35	0	136	99	0	188
V/C Ratio(X)	0.54	0.33	0.08	0.57	0.52	0.15	0.57	0.00	0.06	0.77	0.00	0.48
Avail Cap(c_a), veh/h	290	2374	737	290	2411	750	290	0	1130	290	0	1094
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	7.2	6.3	20.8	7.9	6.4	20.8	0.0	18.0	20.0	0.0	17.6
Incr Delay (d2), s/veh	19.3	0.4	0.2	13.7	0.8	0.4	13.7	0.0	0.2	11.9	0.0	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	0.3	2.0	0.4	0.4	3.6	0.8	0.4	0.0	0.1	1.2	0.0	1.1
LnGrp Delay(d),s/veh	40.3	7.6	6.6	34.5	8.7	6.8	34.5	0.0	18.2	31.9	0.0	19.5
LnGrp LOS	D	A	A	C	A	A	C		B	C		B
Approach Vol, veh/h		867			1395			28				166
Approach Delay, s/veh		8.0			8.9			29.9				25.2
Approach LOS		A			A			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	24.0	4.8	9.1	4.5	24.3	6.4	7.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0				
Max Q Clear Time (g_c+I1), s	2.5	6.2	2.5	4.3	2.3	9.4	3.8	2.2				
Green Ext Time (p_c), s	0.0	11.0	0.0	0.5	0.0	8.7	0.0	0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			9.9									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY. - MITIGATION

2/4/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗↗	↖	↖	↗↗↗	↖	↖	↗		↖	↗	
Volume (veh/h)	11	699	54	19	1210	110	15	1	5	64	1	75
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	794	61	20	1260	115	20	1	7	76	1	89
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.96	0.96	0.96	0.75	0.75	0.75	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2384	740	22	2385	742	35	14	100	129	2	191
Arrive On Green	0.02	0.94	0.94	0.01	0.47	0.47	0.02	0.07	0.07	0.07	0.12	0.12
Sat Flow, veh/h	1774	5085	1578	1774	5085	1582	1774	202	1412	1774	17	1546
Grp Volume(v), veh/h	12	794	61	20	1260	115	20	0	8	76	0	90
Grp Sat Flow(s),veh/h/ln	1774	1695	1578	1774	1695	1582	1774	0	1614	1774	0	1563
Q Serve(g_s), s	0.3	0.6	0.1	0.5	7.5	0.9	0.5	0.0	0.2	1.8	0.0	2.3
Cycle Q Clear(g_c), s	0.3	0.6	0.1	0.5	7.5	0.9	0.5	0.0	0.2	1.8	0.0	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		0.99
Lane Grp Cap(c), veh/h	22	2384	740	22	2385	742	35	0	114	129	0	194
V/C Ratio(X)	0.54	0.33	0.08	0.89	0.53	0.16	0.57	0.00	0.07	0.59	0.00	0.47
Avail Cap(c_a), veh/h	291	2384	740	291	2385	742	291	0	1135	291	0	1099
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	0.7	0.3	21.0	8.0	1.7	20.7	0.0	18.5	19.2	0.0	17.4
Incr Delay (d2), s/veh	15.7	0.3	0.2	62.5	0.8	0.4	13.7	0.0	0.3	4.2	0.0	1.7
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	0.2	0.3	0.1	0.6	3.6	0.8	0.4	0.0	0.1	1.0	0.0	1.1
LnGrp Delay(d),s/veh	36.3	1.0	0.4	83.5	8.8	2.1	34.4	0.0	18.8	23.3	0.0	19.1
LnGrp LOS	D	A	A	F	A	A	C		B	C		B
Approach Vol, veh/h		867			1395			28				166
Approach Delay, s/veh		1.5			9.4			30.0				21.0
Approach LOS		A			A			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	41.9	24.0	4.8	9.3	4.5	61.3	7.1	7.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0
Max Q Clear Time (g_c+I1), s	2.5	2.6	2.5	4.3	2.3	9.5	3.8	2.2
Green Ext Time (p_c), s	2.6	5.4	0.0	0.7	0.0	6.4	0.2	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		7.6
HCM 2010 LOS		A

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕	↗	↖	↕	
Volume (veh/h)	67	553	95	65	929	11	165	208	34	8	301	81
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.90	1.00		0.94	1.00		0.80
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	78	643	110	68	978	12	232	293	48	10	381	103
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.71	0.71	0.71	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	1002	171	87	1204	15	261	805	640	17	392	106
Arrive On Green	0.05	0.34	0.34	0.05	0.34	0.34	0.15	0.43	0.43	0.01	0.29	0.29
Sat Flow, veh/h	1774	2945	502	1774	3575	44	1774	1863	1481	1774	1331	360
Grp Volume(v), veh/h	78	386	367	68	484	506	232	293	48	10	0	484
Grp Sat Flow(s),veh/h/ln	1774	1770	1678	1774	1770	1849	1774	1863	1481	1774	0	1691
Q Serve(g_s), s	4.1	17.5	17.6	3.6	23.7	23.7	12.2	10.1	1.8	0.5	0.0	26.9
Cycle Q Clear(g_c), s	4.1	17.5	17.6	3.6	23.7	23.7	12.2	10.1	1.8	0.5	0.0	26.9
Prop In Lane	1.00		0.30	1.00		0.02	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	93	602	571	87	596	623	261	805	640	17	0	498
V/C Ratio(X)	0.84	0.64	0.64	0.78	0.81	0.81	0.89	0.36	0.07	0.58	0.00	0.97
Avail Cap(c_a), veh/h	93	602	571	112	596	623	261	805	640	75	0	498
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.6	26.4	26.5	44.7	28.8	28.8	39.7	18.2	15.8	46.8	0.0	33.1
Incr Delay (d2), s/veh	45.1	5.2	5.5	22.7	11.5	11.1	28.6	0.3	0.0	26.9	0.0	32.9
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	3.2	9.3	8.9	2.3	13.5	14.0	8.1	5.2	0.7	0.4	0.0	17.1
LnGrp Delay(d),s/veh	89.7	31.6	32.0	67.4	40.3	39.8	68.3	18.4	15.9	73.7	0.0	66.0
LnGrp LOS	F	C	C	E	D	D	E	B	B	E		E
Approach Vol, veh/h		831			1058			573				494
Approach Delay, s/veh		37.2			41.8			38.4				66.2
Approach LOS		D			D			D				E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	36.3	18.0	32.0	9.0	36.0	4.9	45.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	31.0	14.0	28.0	5.0	32.0	4.0	38.0
Max Q Clear Time (g_c+I1), s	5.6	19.6	14.2	28.9	6.1	25.7	2.5	12.1
Green Ext Time (p_c), s	0.0	7.9	0.0	0.0	0.0	4.8	0.0	5.8

Intersection Summary		
HCM 2010 Ctrl Delay		43.9
HCM 2010 LOS		D



HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕	↗	↖	↗		↖	↗	
Volume (veh/h)	104	270	67	31	508	77	63	198	72	78	286	217
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.83	0.94		0.89	0.98		0.86	0.93		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	142	370	92	34	558	85	78	244	89	90	329	249
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.73	0.73	0.73	0.91	0.91	0.91	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	363	782	552	384	1272	193	235	522	190	413	398	301
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	759	1863	1314	869	3028	459	814	1242	453	966	948	718
Grp Volume(v), veh/h	142	370	92	34	325	318	78	0	333	90	0	578
Grp Sat Flow(s),veh/h/ln	759	1863	1314	869	1770	1718	814	0	1696	966	0	1666
Q Serve(g_s), s	8.2	7.2	2.2	1.5	6.5	6.6	4.7	0.0	7.1	3.7	0.0	15.4
Cycle Q Clear(g_c), s	14.8	7.2	2.2	8.7	6.5	6.6	20.1	0.0	7.1	10.8	0.0	15.4
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.27	1.00		0.43
Lane Grp Cap(c), veh/h	363	782	552	384	743	721	235	0	712	413	0	700
V/C Ratio(X)	0.39	0.47	0.17	0.09	0.44	0.44	0.33	0.00	0.47	0.22	0.00	0.83
Avail Cap(c_a), veh/h	363	782	552	384	743	721	235	0	712	413	0	700
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	10.5	9.0	13.6	10.3	10.3	21.8	0.0	10.5	14.4	0.0	12.9
Incr Delay (d2), s/veh	3.2	2.0	0.7	0.5	1.9	2.0	0.8	0.0	0.5	0.3	0.0	8.1
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	2.0	4.0	0.9	0.4	3.5	3.5	1.1	0.0	3.3	1.0	0.0	8.5
LnGrp Delay(d),s/veh	18.7	12.5	9.7	14.1	12.2	12.3	22.6	0.0	10.9	14.6	0.0	21.0
LnGrp LOS	B	B	A	B	B	B	C		B	B		C
Approach Vol, veh/h		604			677			411				668
Approach Delay, s/veh		13.6			12.3			13.2				20.1
Approach LOS		B			B			B				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.0		25.0		25.0		25.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		21.0		21.0		21.0		21.0
Max Q Clear Time (g_c+I1), s		16.8		17.4		10.7		22.1
Green Ext Time (p_c), s		2.8		2.2		5.6		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		15.0
HCM 2010 LOS		B

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	101	61	67	282	36	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	110	66	73	307	39	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	176	0	595	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	452	-
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	-	-	1400	-	467	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1400	-	438	905
Mov Cap-2 Maneuver	-	-	-	-	438	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	601	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	599	-	-	1400	-
HCM Lane V/C Ratio	0.136	-	-	0.052	-
HCM Control Delay (s)	12	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

**Intersection**

Int Delay, s/veh            2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	124	60	66	253	35	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	135	65	72	275	38	42

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	200	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1372	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1372	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	600	-	-	1372	-
HCM Lane V/C Ratio	0.134	-	-	0.052	-
HCM Control Delay (s)	11.9	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	182	0	3	285	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	198	0	3	310	0	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	198	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1375	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1375	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	843	-	-	1375	-
HCM Lane V/C Ratio	0.003	-	-	0.002	-
HCM Control Delay (s)	9.3	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Project Opening Year (2016) With Project  
Mid-Day Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	↖
Volume (veh/h)	90	474	71	78	483	151	56	237	37	117	161	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	99	521	78	88	543	170	66	279	44	131	181	83
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	1382	206	113	1166	364	349	854	133	342	518	441
Arrive On Green	0.07	0.45	0.45	0.06	0.44	0.44	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3090	461	1774	2657	829	1111	3069	478	1052	1863	1583
Grp Volume(v), veh/h	99	298	301	88	361	352	66	159	164	131	181	83
Grp Sat Flow(s),veh/h/ln	1774	1770	1781	1774	1770	1716	1111	1770	1778	1052	1863	1583
Q Serve(g_s), s	3.1	6.4	6.4	2.8	8.2	8.2	2.9	4.1	4.2	6.4	4.4	2.3
Cycle Q Clear(g_c), s	3.1	6.4	6.4	2.8	8.2	8.2	7.3	4.1	4.2	10.6	4.4	2.3
Prop In Lane	1.00		0.26	1.00		0.48	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	128	791	797	113	777	753	349	492	495	342	518	441
V/C Ratio(X)	0.77	0.38	0.38	0.78	0.46	0.47	0.19	0.32	0.33	0.38	0.35	0.19
Avail Cap(c_a), veh/h	280	791	797	280	777	753	508	746	749	493	785	667
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	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	10.5	10.5	26.3	11.3	11.3	19.3	16.3	16.3	20.5	16.4	15.7
Incr Delay (d2), s/veh	9.5	1.4	1.4	9.5	1.8	1.8	0.3	0.4	0.4	0.7	0.4	0.2
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	3.4	3.4	1.7	4.3	4.2	0.9	2.0	2.1	1.9	2.3	1.0
LnGrp Delay(d),s/veh	35.5	11.8	11.8	35.8	13.0	13.1	19.6	16.7	16.7	21.3	16.8	15.9
LnGrp LOS	D	B	B	D	B	B	B	B	B	C	B	B
Approach Vol, veh/h		698			801			389			395	
Approach Delay, s/veh		15.2			15.6			17.2			18.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	42.5		19.8	8.1	42.0		19.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	9.0	25.0		24.0	9.0	25.0		24.0
Max Q Clear Time (g_c+I1), s	4.8	8.4		12.6	5.1	10.2		9.3
Green Ext Time (p_c), s	0.1	7.7		3.2	0.1	7.2		3.7

Intersection Summary		
HCM 2010 Ctrl Delay		16.2
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
 2: MORNING VIEW DR. & EL NORTE PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	101	554	60	99	572	53	76	31	95	94	34	131
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	116	637	69	114	657	61	104	42	130	102	37	142
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.73	0.73	0.73	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	1709	183	147	1856	578	390	111	344	397	94	359
Arrive On Green	0.08	0.37	0.37	0.08	0.36	0.36	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	4664	501	1774	5085	1583	1200	401	1242	1208	338	1296
Grp Volume(v), veh/h	116	461	245	114	657	61	104	0	172	102	0	179
Grp Sat Flow(s),veh/h/ln	1774	1695	1774	1774	1695	1583	1200	0	1644	1208	0	1634
Q Serve(g_s), s	2.8	4.4	4.4	2.8	4.1	1.1	3.4	0.0	3.7	3.3	0.0	3.9
Cycle Q Clear(g_c), s	2.8	4.4	4.4	2.8	4.1	1.1	7.3	0.0	3.7	7.0	0.0	3.9
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.76	1.00		0.79
Lane Grp Cap(c), veh/h	149	1242	650	147	1856	578	390	0	455	397	0	453
V/C Ratio(X)	0.78	0.37	0.38	0.78	0.35	0.11	0.27	0.00	0.38	0.26	0.00	0.40
Avail Cap(c_a), veh/h	324	1242	650	324	1856	578	851	0	1087	861	0	1081
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.7	10.2	10.2	19.7	10.2	9.2	15.8	0.0	12.8	15.6	0.0	12.9
Incr Delay (d2), s/veh	8.3	0.9	1.7	8.5	0.5	0.4	0.4	0.0	0.5	0.3	0.0	0.6
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	2.2	2.5	1.7	2.0	0.5	1.1	0.0	1.7	1.1	0.0	1.8
LnGrp Delay(d),s/veh	28.0	11.0	11.9	28.2	10.7	9.6	16.2	0.0	13.3	15.9	0.0	13.4
LnGrp LOS	C	B	B	C	B	A	B		B	B		B
Approach Vol, veh/h		822			832			276				281
Approach Delay, s/veh		13.7			13.0			14.4				14.3
Approach LOS		B			B			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	20.1		16.1	7.7	20.0		16.1
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	8.0	16.0		29.0	8.0	16.0		29.0
Max Q Clear Time (g_c+I1), s	4.8	6.4		9.0	4.8	6.1		9.3
Green Ext Time (p_c), s	0.1	5.9		2.9	0.1	6.1		2.9

Intersection Summary		
HCM 2010 Ctrl Delay		13.6
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	79	515	88	141	661	39	93	66	156	172	81	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	99	644	110	153	718	42	99	70	166	195	92	45
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	1150	196	182	1387	81	132	283	241	233	248	121
Arrive On Green	0.07	0.38	0.38	0.10	0.41	0.41	0.07	0.15	0.15	0.13	0.21	0.21
Sat Flow, veh/h	1774	3025	516	1774	3399	199	1774	1863	1583	1774	1182	578
Grp Volume(v), veh/h	99	376	378	153	374	386	99	70	166	195	0	137
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1828	1774	1863	1583	1774	0	1761
Q Serve(g_s), s	3.7	11.5	11.5	5.8	10.8	10.9	3.7	2.3	6.8	7.3	0.0	4.6
Cycle Q Clear(g_c), s	3.7	11.5	11.5	5.8	10.8	10.9	3.7	2.3	6.8	7.3	0.0	4.6
Prop In Lane	1.00		0.29	1.00		0.11	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	132	673	673	182	722	746	132	283	241	233	0	369
V/C Ratio(X)	0.75	0.56	0.56	0.84	0.52	0.52	0.75	0.25	0.69	0.84	0.00	0.37
Avail Cap(c_a), veh/h	182	673	673	182	722	746	182	735	625	233	0	746
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)	0.93	0.93	0.93	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.0	16.7	16.7	30.2	15.2	15.2	31.0	25.5	27.5	29.0	0.0	23.2
Incr Delay (d2), s/veh	10.0	3.1	3.1	25.5	2.3	2.2	10.8	0.4	3.5	22.3	0.0	0.6
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	2.2	6.1	6.1	4.1	5.8	5.9	2.2	1.2	3.2	5.0	0.0	2.3
LnGrp Delay(d),s/veh	41.1	19.8	19.8	55.7	17.5	17.4	41.8	26.0	31.0	51.3	0.0	23.8
LnGrp LOS	D	B	B	E	B	B	D	C	C	D		C
Approach Vol, veh/h		853			913			335			332	
Approach Delay, s/veh		22.3			23.9			33.1			40.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	46.6	9.1	18.3	9.1	48.5	13.0	14.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	7.8	13.5	5.7	6.6	5.7	12.9	9.3	8.8
Green Ext Time (p_c), s	0.0	7.4	0.0	1.7	0.0	7.7	0.0	1.6

Intersection Summary		
HCM 2010 Ctrl Delay		26.8
HCM 2010 LOS		C



HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/14/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↗	↖↗	↕		↖↗	↕	↗	↖↗	↕	↗
Volume (veh/h)	25	526	214	151	483	99	257	358	143	108	277	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	29	619	252	182	582	119	271	377	151	114	292	38
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.85	0.85	0.85	0.83	0.83	0.83	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	96	904	404	231	862	176	326	1671	748	158	1499	670
Arrive On Green	0.03	0.26	0.26	0.07	0.29	0.29	0.09	0.47	0.47	0.05	0.42	0.42
Sat Flow, veh/h	3442	3539	1583	3442	2930	597	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	29	619	252	182	351	350	271	377	151	114	292	38
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1757	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.2	23.7	21.2	7.8	26.3	26.4	11.6	9.5	8.4	4.9	7.8	2.1
Cycle Q Clear(g_c), s	1.2	23.7	21.2	7.8	26.3	26.4	11.6	9.5	8.4	4.9	7.8	2.1
Prop In Lane	1.00		1.00	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	904	404	231	521	517	326	1671	748	158	1499	670
V/C Ratio(X)	0.30	0.68	0.62	0.79	0.67	0.68	0.83	0.23	0.20	0.72	0.19	0.06
Avail Cap(c_a), veh/h	137	1436	642	343	824	818	503	1671	748	206	1499	670
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	50.5	49.6	69.1	46.7	46.8	66.9	23.5	23.2	70.8	27.2	25.6
Incr Delay (d2), s/veh	1.7	0.9	1.6	7.2	1.5	1.6	6.9	0.3	0.6	8.3	0.3	0.2
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	0.6	11.7	9.5	4.0	13.1	13.1	5.8	4.7	3.8	2.5	3.9	1.0
LnGrp Delay(d),s/veh	73.4	51.5	51.2	76.3	48.2	48.3	73.8	23.8	23.8	79.0	27.5	25.8
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		900			883			799			444	
Approach Delay, s/veh		52.1			54.0			40.7			40.6	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	78.0	15.1	44.4	20.2	70.7	9.2	50.3
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6
Max Green Setting (Gmax), s	9.0	71.0	15.0	61.0	22.0	58.0	6.0	*70
Max Q Clear Time (g_c+I1), s	6.9	11.5	9.8	25.7	13.6	9.8	3.2	28.4
Green Ext Time (p_c), s	0.1	6.0	0.2	12.7	0.6	5.9	0.0	13.3

Intersection Summary

HCM 2010 Ctrl Delay	48.0
HCM 2010 LOS	D

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	225	452	145	91	476	222	125	566	110	140	568	270
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	245	491	0	99	517	0	133	602	0	154	624	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	1005	450	127	846	379	209	1304	583	235	1331	595
Arrive On Green	0.12	0.28	0.00	0.07	0.24	0.00	0.06	0.37	0.00	0.07	0.38	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	245	491	0	99	517	0	133	602	0	154	624	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	9.0	8.9	0.0	4.2	10.0	0.0	2.9	10.0	0.0	3.4	10.3	0.0
Cycle Q Clear(g_c), s	9.0	8.9	0.0	4.2	10.0	0.0	2.9	10.0	0.0	3.4	10.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	207	1005	450	127	846	379	209	1304	583	235	1331	595
V/C Ratio(X)	1.18	0.49	0.00	0.78	0.61	0.00	0.63	0.46	0.00	0.65	0.47	0.00
Avail Cap(c_a), veh/h	207	1285	575	230	1331	595	312	1304	583	357	1331	595
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)	0.76	0.76	0.00	0.64	0.64	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.1	23.0	0.0	35.2	26.2	0.0	35.4	18.5	0.0	35.0	18.2	0.0
Incr Delay (d2), s/veh	113.7	0.3	0.0	6.4	0.5	0.0	3.2	1.2	0.0	3.1	1.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	4.4	0.0	2.3	4.9	0.0	1.5	5.1	0.0	1.7	5.2	0.0
LnGrp Delay(d),s/veh	147.7	23.2	0.0	41.6	26.6	0.0	38.6	19.7	0.0	38.1	19.4	0.0
LnGrp LOS	F	C		D	C		D	B		D	B	
Approach Vol, veh/h		736			616			735			778	
Approach Delay, s/veh		64.7			29.0			23.1			23.1	
Approach LOS		E			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	45.3	9.5	25.9	8.7	45.9	13.0	22.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	28.0	10.0	28.0	7.0	29.0	9.0	29.0
Max Q Clear Time (g_c+l1), s	5.4	12.0	6.2	10.9	4.9	12.3	11.0	12.0
Green Ext Time (p_c), s	0.1	7.6	0.1	6.4	0.1	7.8	0.0	6.4

Intersection Summary	
HCM 2010 Ctrl Delay	35.1
HCM 2010 LOS	D

Intersection												
Int Delay, s/veh	5.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	641	121	163	631	10	79	5	196	8	4	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	93	93	93	94	94	94	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	697	132	175	678	11	84	5	209	9	4	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	689	0	0	828	0	0	1520	1868	414	1450	1927	345
Stage 1	-	-	-	-	-	-	828	828	-	1034	1034	-
Stage 2	-	-	-	-	-	-	692	1040	-	416	893	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	901	-	-	799	-	-	~ 81	72	587	92	66	651
Stage 1	-	-	-	-	-	-	332	384	-	248	308	-
Stage 2	-	-	-	-	-	-	400	306	-	585	358	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	901	-	-	799	-	-	~ 60	54	587	47	50	651
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	143	-	116	113	-
Stage 1	-	-	-	-	-	-	320	370	-	239	241	-
Stage 2	-	-	-	-	-	-	291	239	-	358	345	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	2.2	26.7	19.5
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	156	587	901	-	-	799	-	-	115	651
HCM Lane V/C Ratio	0.573	0.355	0.036	-	-	0.219	-	-	0.117	0.05
HCM Control Delay (s)	55.2	14.5	9.1	-	-	10.8	-	-	40.4	10.8
HCM Lane LOS	F	B	A	-	-	B	-	-	E	B
HCM 95th %tile Q(veh)	3	1.6	0.1	-	-	0.8	-	-	0.4	0.2

**Notes**  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection**

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	30	641	121	163	631	10	0	0	196	0	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	93	93	93	94	94	94	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	697	132	175	678	11	0	0	209	0	0	33

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	689	0	0	828	0	0	1518	1868	414	1448	1927	345
Stage 1	-	-	-	-	-	-	828	828	-	1034	1034	-
Stage 2	-	-	-	-	-	-	690	1040	-	414	893	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	901	-	-	799	-	-	82	72	587	92	66	651
Stage 1	-	-	-	-	-	-	332	384	-	248	308	-
Stage 2	-	-	-	-	-	-	401	306	-	586	358	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	901	-	-	799	-	-	63	54	587	48	50	651
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	143	-	118	113	-
Stage 1	-	-	-	-	-	-	320	370	-	239	241	-
Stage 2	-	-	-	-	-	-	297	239	-	364	345	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	2.2	14.5	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	587	901	-	-	799	-	-	651
HCM Lane V/C Ratio	0.355	0.036	-	-	0.219	-	-	0.05
HCM Control Delay (s)	14.5	9.1	-	-	10.8	-	-	10.8
HCM Lane LOS	B	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	1.6	0.1	-	-	0.8	-	-	0.2

HCM 2010 SIGNALIZED  
6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 2)

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Volume (veh/h)	30	641	121	163	631	10	79	5	196	8	4	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	193.7	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	33	697	132	175	678	11	84	5	209	9	4	33
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	1505	285	391	1878	30	576	12	510	409	57	472
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	751	2971	562	685	3707	60	1365	37	1552	1163	174	1435
Grp Volume(v), veh/h	33	415	414	175	337	352	84	0	214	9	0	37
Grp Sat Flow(s),veh/h/ln	751	1770	1764	685	1840	1927	1365	0	1589	1163	0	1609
Q Serve(g_s), s	1.4	7.4	7.4	10.8	5.4	5.4	2.2	0.0	5.1	0.3	0.0	0.8
Cycle Q Clear(g_c), s	6.7	7.4	7.4	18.1	5.4	5.4	3.0	0.0	5.1	5.4	0.0	0.8
Prop In Lane	1.00		0.32	1.00		0.03	1.00		0.98	1.00		0.89
Lane Grp Cap(c), veh/h	445	897	893	391	932	976	576	0	523	409	0	529
V/C Ratio(X)	0.07	0.46	0.46	0.45	0.36	0.36	0.15	0.00	0.41	0.02	0.00	0.07
Avail Cap(c_a), veh/h	466	946	943	411	984	1030	576	0	523	409	0	529
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	7.7	7.7	13.6	7.2	7.2	12.2	0.0	12.7	14.7	0.0	11.2
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.8	0.2	0.2	0.5	0.0	2.4	0.1	0.0	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	0.3	3.7	3.7	2.1	2.8	2.9	0.9	0.0	2.5	0.1	0.0	0.4
LnGrp Delay(d),s/veh	9.3	8.1	8.1	14.4	7.5	7.5	12.8	0.0	15.0	14.8	0.0	11.5
LnGrp LOS	A	A	A	B	A	A	B		B	B		B
Approach Vol, veh/h		862			864			298				46
Approach Delay, s/veh		8.2			8.9			14.4				12.1
Approach LOS		A			A			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		28.6		20.0		28.6		20.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		26.0		16.0		26.0		16.0
Max Q Clear Time (g_c+I1), s		9.4		7.4		20.1		7.1
Green Ext Time (p_c), s		10.3		1.2		4.5		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

Intersection												
Int Delay, s/veh	180.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	5	5	203	4	146	10	342	160	99	278	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	59	59	59	92	92	92	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	6	6	344	7	247	11	372	174	114	320	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1068	940	320	946	940	372	320	0	0	372	0	0
Stage 1	547	547	-	393	393	-	-	-	-	-	-	-
Stage 2	521	393	-	553	547	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	199	264	721	~ 241	264	674	1240	-	-	1186	-	-
Stage 1	521	517	-	632	606	-	-	-	-	-	-	-
Stage 2	539	606	-	517	517	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	113	237	721	~ 216	237	674	1240	-	-	1186	-	-
Mov Cap-2 Maneuver	113	237	-	~ 216	237	-	-	-	-	-	-	-
Stage 1	516	467	-	626	601	-	-	-	-	-	-	-
Stage 2	334	601	-	457	467	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24	\$ 484.3	0.2	2.2
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1240	-	-	208	301	1186	-	-
HCM Lane V/C Ratio	0.009	-	-	0.089	1.988	0.096	-	-
HCM Control Delay (s)	7.9	-	-	24\$	484.3	8.4	-	-
HCM Lane LOS	A	-	-	C	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	42.4	0.3	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
7: ESCONDIDO BLVD. & LINCOLN AVE. - MITIGATION

2/3/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗		↖	↗	
Volume (veh/h)	5	5	5	203	4	146	10	342	160	99	278	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	6	6	6	344	7	247	11	372	174	114	320	8
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.59	0.59	0.59	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	258	251	195	577	17	617	470	746	635	396	746	635
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	346	629	488	1397	44	1546	1048	1863	1583	857	1863	1583
Grp Volume(v), veh/h	18	0	0	344	0	254	11	372	174	114	320	8
Grp Sat Flow(s), veh/h/ln	1463	0	0	1397	0	1590	1048	1863	1583	857	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	9.3	0.0	4.6	0.3	6.0	3.0	4.6	5.0	0.1
Cycle Q Clear(g_c), s	4.6	0.0	0.0	13.9	0.0	4.6	5.3	6.0	3.0	10.6	5.0	0.1
Prop In Lane	0.33		0.33	1.00		0.97	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	704	0	0	577	0	634	470	746	635	396	746	635
V/C Ratio(X)	0.03	0.00	0.00	0.60	0.00	0.40	0.02	0.50	0.27	0.29	0.43	0.01
Avail Cap(c_a), veh/h	707	0	0	580	0	637	470	746	635	396	746	635
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.3	0.0	0.0	13.6	0.0	8.6	10.6	9.0	8.1	12.9	8.7	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.6	0.0	0.4	0.1	2.4	1.1	1.8	1.8	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	0.1	0.0	0.0	3.8	0.0	2.0	0.1	3.5	1.4	1.3	2.9	0.1
LnGrp Delay(d),s/veh	7.3	0.0	0.0	15.2	0.0	9.0	10.7	11.3	9.1	14.7	10.5	7.2
LnGrp LOS	A			B		A	B	B	A	B	B	A
Approach Vol, veh/h		18			598			557			442	
Approach Delay, s/veh		7.3			12.6			10.6			11.5	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.0		19.9		20.0		19.9
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0
Max Q Clear Time (g_c+I1), s		8.0		6.6		12.6		15.9
Green Ext Time (p_c), s		3.5		2.0		1.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	138	381	106	104	445	55	249	305	122	73	294	131
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	153	423	118	120	511	63	268	328	131	87	350	156
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.93	0.93	0.93	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	885	245	152	994	122	266	772	303	112	537	235
Arrive On Green	0.10	0.32	0.32	0.09	0.31	0.31	0.15	0.31	0.31	0.06	0.22	0.22
Sat Flow, veh/h	1774	2741	758	1774	3174	390	1774	2486	975	1774	2397	1050
Grp Volume(v), veh/h	153	272	269	120	284	290	268	232	227	87	257	249
Grp Sat Flow(s),veh/h/ln	1774	1770	1729	1774	1770	1794	1774	1770	1691	1774	1770	1677
Q Serve(g_s), s	6.3	9.0	9.2	4.9	9.7	9.7	11.0	7.6	7.9	3.5	9.7	9.9
Cycle Q Clear(g_c), s	6.3	9.0	9.2	4.9	9.7	9.7	11.0	7.6	7.9	3.5	9.7	9.9
Prop In Lane	1.00		0.44	1.00		0.22	1.00		0.58	1.00		0.63
Lane Grp Cap(c), veh/h	169	571	558	152	554	562	266	549	525	112	396	376
V/C Ratio(X)	0.90	0.48	0.48	0.79	0.51	0.52	1.01	0.42	0.43	0.77	0.65	0.66
Avail Cap(c_a), veh/h	169	571	558	169	554	562	266	602	575	217	554	525
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)	0.88	0.88	0.88	0.71	0.71	0.71	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	19.9	19.9	32.9	20.6	20.7	31.2	20.1	20.2	33.9	25.9	26.0
Incr Delay (d2), s/veh	39.3	2.5	2.6	15.0	2.4	2.4	57.5	0.5	0.6	10.8	1.8	2.0
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	4.8	4.7	3.0	5.0	5.2	9.6	3.8	3.7	2.1	4.9	4.8
LnGrp Delay(d),s/veh	72.2	22.4	22.5	48.0	23.1	23.1	88.7	20.6	20.7	44.7	27.7	28.0
LnGrp LOS	E	C	C	D	C	C	F	C	C	D	C	C
Approach Vol, veh/h		694			694			727			593	
Approach Delay, s/veh		33.4			27.4			45.8			30.3	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	34.3	15.0	20.5	11.0	33.5	8.6	26.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	23.0	11.0	23.0	7.0	23.0	9.0	25.0
Max Q Clear Time (g_c+I1), s	6.9	11.2	13.0	11.9	8.3	11.7	5.5	9.9
Green Ext Time (p_c), s	0.0	5.4	0.0	4.5	0.0	5.2	0.0	5.4

Intersection Summary		
HCM 2010 Ctrl Delay		34.5
HCM 2010 LOS		C



HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↗	↖		↗	↕		↗	↕	
Volume (veh/h)	23	11	76	49	2	84	26	678	60	98	772	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.80	0.85		0.80	1.00		0.78	1.00		0.55
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	33	16	110	86	4	147	30	779	69	121	953	7
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.69	0.69	0.69	0.57	0.57	0.57	0.87	0.87	0.87	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	88	356	465	13	493	47	996	88	155	1329	10
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.03	0.31	0.31	0.09	0.37	0.37
Sat Flow, veh/h	180	222	904	1072	34	1249	1774	3205	284	1774	3576	26
Grp Volume(v), veh/h	159	0	0	86	0	151	30	430	418	121	472	488
Grp Sat Flow(s),veh/h/ln	1306	0	0	1072	0	1283	1774	1770	1719	1774	1770	1833
Q Serve(g_s), s	0.0	0.0	0.0	3.4	0.0	4.7	1.0	12.8	12.8	3.9	13.2	13.2
Cycle Q Clear(g_c), s	4.5	0.0	0.0	7.9	0.0	4.7	1.0	12.8	12.8	3.9	13.2	13.2
Prop In Lane	0.21		0.69	1.00		0.97	1.00		0.17	1.00		0.01
Lane Grp Cap(c), veh/h	590	0	0	465	0	506	47	550	535	155	658	681
V/C Ratio(X)	0.27	0.00	0.00	0.18	0.00	0.30	0.64	0.78	0.78	0.78	0.72	0.72
Avail Cap(c_a), veh/h	594	0	0	468	0	510	214	550	535	214	658	681
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	0.0	14.7	0.0	12.0	27.9	18.2	18.2	25.9	15.6	15.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.3	13.6	10.6	10.9	11.7	6.6	6.4
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	0.0	0.0	1.0	0.0	1.7	0.6	7.8	7.7	2.4	7.6	7.9
LnGrp Delay(d),s/veh	12.2	0.0	0.0	14.8	0.0	12.4	41.5	28.7	29.1	37.6	22.2	21.9
LnGrp LOS	B			B		B	D	C	C	D	C	C
Approach Vol, veh/h		159			237			878			1081	
Approach Delay, s/veh		12.2			13.3			29.3			23.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.1	22.0		26.8	5.5	25.5		26.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	5.9	14.8		6.5	3.0	15.2		9.9
Green Ext Time (p_c), s	0.0	2.6		2.4	0.0	2.3		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/14/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗		↖↖	↗↗		↖	↗↗		↖	↗↗	
Volume (veh/h)	298	729	95	165	649	67	145	444	201	150	469	251
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.86	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	310	759	99	168	662	68	159	488	221	195	609	326
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.98	0.98	0.98	0.91	0.91	0.91	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	376	1085	141	224	919	94	187	806	363	224	803	430
Arrive On Green	0.11	0.33	0.33	0.06	0.29	0.29	0.11	0.34	0.34	0.13	0.36	0.36
Sat Flow, veh/h	3442	3260	425	3442	3186	327	1774	2374	1069	1774	2229	1193
Grp Volume(v), veh/h	310	428	430	168	367	363	159	363	346	195	483	452
Grp Sat Flow(s),veh/h/ln	1721	1840	1845	1721	1770	1743	1774	1770	1674	1774	1770	1652
Q Serve(g_s), s	11.6	26.7	26.7	6.3	24.5	24.7	11.6	22.5	22.7	14.2	31.7	31.7
Cycle Q Clear(g_c), s	11.6	26.7	26.7	6.3	24.5	24.7	11.6	22.5	22.7	14.2	31.7	31.7
Prop In Lane	1.00		0.23	1.00		0.19	1.00		0.64	1.00		0.72
Lane Grp Cap(c), veh/h	376	612	614	224	510	503	187	601	568	224	638	595
V/C Ratio(X)	0.82	0.70	0.70	0.75	0.72	0.72	0.85	0.60	0.61	0.87	0.76	0.76
Avail Cap(c_a), veh/h	614	817	819	379	665	655	343	786	743	411	853	796
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.4	38.2	38.2	60.5	42.1	42.1	57.9	36.2	36.2	56.5	37.1	37.1
Incr Delay (d2), s/veh	4.8	1.7	1.7	5.0	2.6	2.7	10.3	1.0	1.1	9.9	2.8	3.0
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	5.8	13.9	13.9	3.2	12.4	12.3	6.2	11.2	10.6	7.6	15.9	14.9
LnGrp Delay(d),s/veh	62.2	39.9	40.0	65.6	44.7	44.9	68.2	37.1	37.3	66.4	39.8	40.0
LnGrp LOS	E	D	D	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		1168			898			868			1130	
Approach Delay, s/veh		45.9			48.7			42.9			44.5	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	49.2	13.1	48.3	18.4	52.0	18.9	42.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	30.5	58.5	14.5	58.5	25.5	63.5	23.5	49.5
Max Q Clear Time (g_c+I1), s	16.2	24.7	8.3	28.7	13.6	33.7	13.6	26.7
Green Ext Time (p_c), s	0.4	14.6	0.3	12.9	0.3	13.8	0.8	11.3

Intersection Summary		
HCM 2010 Ctrl Delay		45.5
HCM 2010 LOS		D

**Intersection**

Int Delay, s/veh 1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	51	54	215	15	37	42	211	826	57	27	747	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	85	85	85	94	94	94	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	89	352	18	44	49	224	879	61	30	821	104

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1842	2320	463	1872	2343	470	925	0	0	939	0	0
Stage 1	932	932	-	1358	1358	-	-	-	-	-	-	-
Stage 2	910	1388	-	514	985	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 47	~ 37	546	44	~ 36	540	734	-	-	726	-	-
Stage 1	287	343	-	157	215	-	-	-	-	-	-	-
Stage 2	296	208	-	511	324	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 25	546	-	~ 24	540	734	-	-	726	-	-
Mov Cap-2 Maneuver	-	~ 25	-	-	~ 24	-	-	-	-	-	-	-
Stage 1	199	329	-	109	149	-	-	-	-	-	-	-
Stage 2	132	145	-	127	311	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	-	-	2.3	0.3
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	734	-	-	-	-	726	-	-
HCM Lane V/C Ratio	0.306	-	-	-	-	0.041	-	-
HCM Control Delay (s)	12.1	-	-	-	-	10.2	-	-
HCM Lane LOS	B	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	1.3	-	-	-	-	0.1	-	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↕		↖	↕	↗
Volume (veh/h)	51	54	215	15	37	42	211	826	57	27	747	95
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.76		0.69	0.86		0.69	1.00		0.70	1.00		0.62
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	84	89	352	18	44	49	224	879	61	30	821	104
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.61	0.61	0.61	0.85	0.85	0.85	0.94	0.94	0.94	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	232	301	100	175	161	275	1576	109	91	1060	134
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.15	0.47	0.47	0.05	0.36	0.36
Sat Flow, veh/h	561	840	1090	101	635	582	1774	3384	235	1774	2926	371
Grp Volume(v), veh/h	173	0	352	111	0	0	224	478	462	30	496	429
Grp Sat Flow(s),veh/h/ln	1401	0	1090	1318	0	0	1774	1840	1779	1774	1770	1527
Q Serve(g_s), s	1.4	0.0	16.0	0.0	0.0	0.0	7.1	10.9	10.9	0.9	14.4	14.4
Cycle Q Clear(g_c), s	5.0	0.0	16.0	3.6	0.0	0.0	7.1	10.9	10.9	0.9	14.4	14.4
Prop In Lane	0.49		1.00	0.16		0.44	1.00		0.13	1.00		0.24
Lane Grp Cap(c), veh/h	479	0	301	436	0	0	275	857	828	91	641	553
V/C Ratio(X)	0.36	0.00	1.17	0.25	0.00	0.00	0.82	0.56	0.56	0.33	0.77	0.77
Avail Cap(c_a), veh/h	479	0	301	436	0	0	337	857	828	153	641	553
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	0.00	1.00	1.00	0.00	0.00	0.70	0.70	0.70	0.53	0.53	0.53
Uniform Delay (d), s/veh	16.8	0.0	21.0	16.5	0.0	0.0	23.7	11.2	11.2	26.5	16.4	16.4
Incr Delay (d2), s/veh	0.5	0.0	106.4	0.3	0.0	0.0	8.7	1.8	1.9	1.1	4.9	5.6
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	0.0	13.6	1.4	0.0	0.0	4.1	5.9	5.7	0.5	7.9	6.9
LnGrp Delay(d),s/veh	17.3	0.0	127.4	16.8	0.0	0.0	32.4	13.0	13.1	27.6	21.3	22.0
LnGrp LOS	B		F	B			C	B	B	C	C	C
Approach Vol, veh/h		525			111			1164			955	
Approach Delay, s/veh		91.1			16.8			16.8			21.8	
Approach LOS		F			B			B			C	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	31.0		20.0	15.0	25.0		20.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.0	27.0		16.0	11.0	21.0		16.0
Max Q Clear Time (g_c+I1), s	2.9	12.9		18.0	9.1	16.4		5.6
Green Ext Time (p_c), s	0.2	5.4		0.0	0.1	2.4		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.7
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗↗	↗	↖↖	↗↗↗	↗	↖↖	↗↗	↗	↖	↗↗	↗
Volume (veh/h)	596	1289	734	125	942	81	597	365	103	73	385	399
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.77	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	655	1416	807	132	992	85	663	406	114	83	438	453
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	668	1659	839	259	1056	328	707	1302	451	131	869	371
Arrive On Green	0.19	0.33	0.33	0.08	0.21	0.21	0.21	0.37	0.37	0.07	0.24	0.24
Sat Flow, veh/h	3442	5085	1573	3442	5085	1581	3442	3539	1226	1774	3681	1571
Grp Volume(v), veh/h	655	1416	807	132	992	85	663	406	114	83	438	453
Grp Sat Flow(s),veh/h/ln	1721	1695	1573	1721	1695	1581	1721	1770	1226	1774	1840	1571
Q Serve(g_s), s	30.1	41.3	51.8	5.9	30.5	7.1	30.1	13.0	10.3	7.2	16.4	37.5
Cycle Q Clear(g_c), s	30.1	41.3	51.8	5.9	30.5	7.1	30.1	13.0	10.3	7.2	16.4	37.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	668	1659	839	259	1056	328	707	1302	451	131	869	371
V/C Ratio(X)	0.98	0.85	0.96	0.51	0.94	0.26	0.94	0.31	0.25	0.64	0.50	1.22
Avail Cap(c_a), veh/h	668	1659	839	260	1057	329	733	1302	451	168	869	371
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.7	50.0	35.7	70.6	61.9	52.7	62.1	35.8	35.0	71.5	52.6	60.7
Incr Delay (d2), s/veh	30.0	4.6	22.3	1.6	15.3	0.4	19.3	0.1	0.3	5.0	0.5	121.4
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	17.1	20.0	38.9	2.8	15.8	3.2	16.3	6.4	3.5	3.7	8.4	28.8
LnGrp Delay(d),s/veh	93.8	54.5	58.0	72.2	77.2	53.1	81.4	36.0	35.3	76.5	53.1	182.0
LnGrp LOS	F	D	E	E	E	D	F	D	D	E	D	F
Approach Vol, veh/h	2878				1209				1183		974	
Approach Delay, s/veh	64.4				75.0				61.3		115.0	
Approach LOS	E				E				E		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	64.9	17.2	59.8	37.8	44.0	36.0	41.0
Change Period (Y+Rc), s	5.1999998	6.51999998	8.01999998	8.01999998	6.51999998	6.51999998	8.0	8.0
Max Green Setting (Gmax), s	* 15	56.3	* 12	51.83799999	37.50799999	37.50799999	33.0	33.0
Max Q Clear Time (g_c+I1), s	9.2	15.0	7.9	53.8	32.1	39.5	32.1	32.5
Green Ext Time (p_c), s	0.1	10.2	0.1	0.0	0.5	0.0	0.0	0.5

Intersection Summary

HCM 2010 Ctrl Delay	73.8
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↖↖	↗	↖↗	↖↖↖	↗	↖↗	↖↖	↗	↖	↖↗	↗
Volume (veh/h)	596	1289	734	125	942	81	597	365	103	73	385	399
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.73	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	655	1416	807	132	992	85	663	406	114	83	375	495
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	1	2
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	700	1720	862	217	1054	328	717	1238	405	131	417	1321
Arrive On Green	0.20	0.34	0.34	0.06	0.21	0.21	0.21	0.35	0.35	0.07	0.22	0.22
Sat Flow, veh/h	3442	5085	1574	3442	5085	1581	3442	3539	1158	1774	1937	3140
Grp Volume(v), veh/h	655	1416	807	132	992	85	663	406	114	83	375	495
Grp Sat Flow(s),veh/h/ln	1721	1695	1574	1721	1695	1581	1721	1770	1158	1774	1937	1570
Q Serve(g_s), s	29.6	40.4	42.7	5.9	30.4	7.1	29.9	13.3	8.6	7.2	29.8	17.2
Cycle Q Clear(g_c), s	29.6	40.4	42.7	5.9	30.4	7.1	29.9	13.3	8.6	7.2	29.8	17.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	700	1720	862	217	1054	328	717	1238	405	131	417	1321
V/C Ratio(X)	0.94	0.82	0.94	0.61	0.94	0.26	0.93	0.33	0.28	0.63	0.90	0.37
Avail Cap(c_a), veh/h	729	1794	885	217	1061	330	779	1238	405	135	417	1321
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	0.96	0.96	0.96	0.80	0.80	0.80	0.79	0.79	0.79
Uniform Delay (d), s/veh	62.0	48.0	12.8	72.2	61.7	52.5	61.4	37.8	21.5	71.1	60.4	31.7
Incr Delay (d2), s/veh	18.9	3.1	16.7	4.6	15.0	0.4	13.5	0.6	1.4	7.2	20.9	0.6
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	15.9	19.4	22.3	3.0	15.7	3.2	15.5	6.6	3.4	3.8	18.4	7.6
LnGrp Delay(d),s/veh	80.9	51.1	29.5	76.8	76.8	52.9	74.9	38.3	22.9	78.3	81.3	32.4
LnGrp LOS	F	D	C	E	E	D	E	D	C	E	F	C
Approach Vol, veh/h		2878			1209			1183			953	
Approach Delay, s/veh		51.8			75.1			57.3			55.6	
Approach LOS		D			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	63.7	18.0	61.5	38.1	42.4	38.7	40.8
Change Period (Y+Rc), s* 5.1999998		6.5	8.0	* 8.1999998		6.5	6.5	8.0
Max Green Setting (Gmax), s	* 12	55.3	9.25.7999995	95.7999999		31.5	33.5	33.0
Max Q Clear Time (g_c+I1), s	9.2	15.3	7.9	44.7	31.9	31.8	31.6	32.4
Green Ext Time (p_c), s	0.0	9.9	0.9	8.8	1.1	0.0	0.6	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	58.0
HCM 2010 LOS	E

Notes  
 User approved volume balancing among the lanes for turning movement.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↘		↖	↗↘		↖	↗↘		↖	↗↘	
Volume (veh/h)	120	352	156	77	310	164	168	565	90	173	654	109
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	129	378	168	83	333	176	183	614	98	184	696	116
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	655	287	107	546	283	224	1039	165	225	1033	172
Arrive On Green	0.09	0.27	0.27	0.06	0.24	0.24	0.12	0.33	0.33	0.12	0.33	0.33
Sat Flow, veh/h	1774	2397	1050	1774	2257	1169	1845	3181	507	1845	3159	526
Grp Volume(v), veh/h	129	278	268	83	260	249	183	355	357	184	405	407
Grp Sat Flow(s), veh/h/ln	1774	1770	1677	1774	1770	1656	1845	1840	1848	1845	1840	1844
Q Serve(g_s), s	5.2	9.9	10.2	3.4	9.6	9.9	7.1	11.8	11.9	7.1	14.0	14.0
Cycle Q Clear(g_c), s	5.2	9.9	10.2	3.4	9.6	9.9	7.1	11.8	11.9	7.1	14.0	14.0
Prop In Lane	1.00		0.63	1.00		0.71	1.00		0.27	1.00		0.29
Lane Grp Cap(c), veh/h	163	484	459	107	428	401	224	601	603	225	602	603
V/C Ratio(X)	0.79	0.57	0.59	0.78	0.61	0.62	0.82	0.59	0.59	0.82	0.67	0.67
Avail Cap(c_a), veh/h	193	650	616	193	650	608	251	601	603	251	602	603
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	23.0	23.1	34.0	24.7	24.9	31.5	20.7	20.7	31.5	21.3	21.4
Incr Delay (d2), s/veh	17.2	1.1	1.2	11.4	1.4	1.6	17.0	4.2	4.2	17.1	5.9	5.9
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	3.3	5.0	4.8	2.0	4.9	4.7	4.7	6.7	6.8	4.7	8.1	8.1
LnGrp Delay(d),s/veh	49.9	24.1	24.3	45.4	26.1	26.4	48.5	24.9	24.9	48.6	27.3	27.3
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		675			592			895			996	
Approach Delay, s/veh		29.1			29.0			29.7			31.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	28.0	8.4	24.1	12.9	28.0	10.7	21.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	10.0	24.0	8.0	27.0	10.0	24.0	8.0	27.0
Max Q Clear Time (g_c+I1), s	9.1	13.9	5.4	12.2	9.1	16.0	7.2	11.9
Green Ext Time (p_c), s	0.0	6.4	0.0	5.9	0.0	5.3	0.0	5.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↗		↖	↗	
Volume (veh/h)	29	1393	25	14	1028	82	50	1	13	58	3	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	31	1466	26	15	1130	90	69	1	18	65	3	51
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.72	0.72	0.72	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	50	2240	680	27	2173	677	90	13	232	86	13	219
Arrive On Green	0.03	0.44	0.44	0.02	0.43	0.43	0.05	0.15	0.15	0.05	0.15	0.15
Sat Flow, veh/h	1774	5085	1544	1774	5085	1583	1774	84	1512	1774	85	1443
Grp Volume(v), veh/h	31	1466	26	15	1130	90	69	0	19	65	0	54
Grp Sat Flow(s),veh/h/ln	1774	1695	1544	1774	1695	1583	1774	0	1596	1774	0	1527
Q Serve(g_s), s	0.8	10.6	0.4	0.4	7.7	1.6	1.8	0.0	0.5	1.7	0.0	1.5
Cycle Q Clear(g_c), s	0.8	10.6	0.4	0.4	7.7	1.6	1.8	0.0	0.5	1.7	0.0	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.94
Lane Grp Cap(c), veh/h	50	2240	680	27	2173	677	90	0	245	86	0	232
V/C Ratio(X)	0.62	0.65	0.04	0.56	0.52	0.13	0.77	0.00	0.08	0.75	0.00	0.23
Avail Cap(c_a), veh/h	265	2240	680	265	2173	677	265	0	1023	265	0	979
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	10.3	7.4	22.9	9.9	8.1	21.9	0.0	17.0	22.0	0.0	17.5
Incr Delay (d2), s/veh	11.6	1.5	0.1	16.9	0.9	0.4	12.8	0.0	0.1	12.3	0.0	0.5
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	0.6	5.2	0.2	0.3	3.7	0.8	1.2	0.0	0.2	1.1	0.0	0.6
LnGrp Delay(d),s/veh	34.1	11.8	7.6	39.8	10.8	8.5	34.7	0.0	17.1	34.2	0.0	18.0
LnGrp LOS	C	B	A	D	B	A	C		B	C		B
Approach Vol, veh/h		1523			1235			88				119
Approach Delay, s/veh		12.2			11.0			30.9				26.8
Approach LOS		B			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.7	24.6	6.4	11.1	5.3	24.0	6.3	11.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	7.0	30.0
Max Q Clear Time (g_c+I1), s	2.4	12.6	3.8	3.5	2.8	9.7	3.7	2.5
Green Ext Time (p_c), s	0.0	6.8	0.0	0.4	0.0	9.4	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B



HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY. - MITIGATION

2/4/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑	↗	↙	↑↑↑	↗	↙	↑		↙	↗	
Volume (veh/h)	29	1393	25	14	1028	82	50	1	13	58	3	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	31	1466	26	15	1130	90	69	1	18	65	3	51
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.72	0.72	0.72	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	3147	963	43	3147	980	89	4	66	237	11	181
Arrive On Green	0.05	1.00	1.00	0.02	0.62	0.62	0.05	0.04	0.04	0.13	0.13	0.13
Sat Flow, veh/h	1774	5085	1555	1774	5085	1583	1774	84	1512	1774	84	1429
Grp Volume(v), veh/h	31	1466	26	15	1130	90	69	0	19	65	0	54
Grp Sat Flow(s),veh/h/ln	1774	1695	1555	1774	1695	1583	1774	0	1596	1774	0	1514
Q Serve(g_s), s	1.5	0.0	0.0	0.7	9.7	2.0	3.4	0.0	1.0	2.9	0.0	2.9
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.7	9.7	2.0	3.4	0.0	1.0	2.9	0.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.94
Lane Grp Cap(c), veh/h	43	3147	963	43	3147	980	89	0	70	237	0	192
V/C Ratio(X)	0.73	0.47	0.03	0.35	0.36	0.09	0.77	0.00	0.27	0.27	0.00	0.28
Avail Cap(c_a), veh/h	140	3147	963	140	3147	980	240	0	593	237	0	511
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.61	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.0	0.0	0.0	42.7	8.3	6.8	41.7	0.0	41.1	34.6	0.0	35.2
Incr Delay (d2), s/veh	13.3	0.3	0.0	4.9	0.3	0.2	13.0	0.0	2.1	0.6	0.0	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	0.9	0.1	0.0	0.4	4.6	0.9	2.0	0.0	0.5	1.5	0.0	1.2
LnGrp Delay(d),s/veh	55.3	0.3	0.0	47.5	8.6	7.0	54.7	0.0	43.2	35.3	0.0	35.9
LnGrp LOS	E	A	A	D	A	A	D		D	D		D
Approach Vol, veh/h		1523			1235			88				119
Approach Delay, s/veh		1.4			9.0			52.2				35.6
Approach LOS		A			A			D				D

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.3	59.0	8.5	15.2	37.3	59.0	15.8	7.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	55.0	12.0	30.0	7.0	55.0	9.0	33.0
Max Q Clear Time (g_c+I1), s	2.7	2.0	5.4	4.9	3.5	11.7	4.9	3.0
Green Ext Time (p_c), s	0.0	16.7	0.1	0.2	0.0	11.1	0.1	0.1

Intersection Summary		
HCM 2010 Ctrl Delay		7.4
HCM 2010 LOS		A

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	57	1138	107	39	867	11	156	118	43	7	118	68
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	1.00		0.94	1.00		0.86	1.00		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	59	1173	110	45	1008	13	184	139	51	8	131	76
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.86	0.86	0.86	0.85	0.85	0.85	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1379	129	57	1492	19	214	664	486	14	229	133
Arrive On Green	0.04	0.43	0.43	0.03	0.42	0.42	0.12	0.36	0.36	0.01	0.24	0.24
Sat Flow, veh/h	1774	3222	301	1774	3575	46	1774	1863	1363	1774	940	545
Grp Volume(v), veh/h	59	642	641	45	499	522	184	139	51	8	0	207
Grp Sat Flow(s),veh/h/ln	1774	1770	1754	1774	1770	1851	1774	1863	1363	1774	0	1486
Q Serve(g_s), s	3.0	29.7	30.0	2.3	20.8	20.8	9.3	4.7	2.3	0.4	0.0	11.2
Cycle Q Clear(g_c), s	3.0	29.7	30.0	2.3	20.8	20.8	9.3	4.7	2.3	0.4	0.0	11.2
Prop In Lane	1.00		0.17	1.00		0.02	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	76	757	750	57	738	772	214	664	486	14	0	362
V/C Ratio(X)	0.78	0.85	0.85	0.79	0.68	0.68	0.86	0.21	0.10	0.56	0.00	0.57
Avail Cap(c_a), veh/h	136	757	750	136	738	772	214	664	486	136	0	375
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	23.4	23.5	43.8	21.5	21.5	39.3	20.4	19.6	45.0	0.0	30.3
Incr Delay (d2), s/veh	15.6	11.4	11.9	20.9	4.9	4.7	27.7	0.2	0.1	30.1	0.0	2.0
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	1.8	16.9	16.9	1.5	11.1	11.6	6.2	2.5	0.9	0.3	0.0	4.7
LnGrp Delay(d),s/veh	58.8	34.8	35.3	64.7	26.4	26.2	66.9	20.5	19.7	75.1	0.0	32.2
LnGrp LOS	E	C	D	E	C	C	E	C	B	E		C
Approach Vol, veh/h		1342			1066			374				215
Approach Delay, s/veh		36.1			28.0			43.3				33.8
Approach LOS		D			C			D				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	43.0	15.0	26.2	7.9	42.0	4.7	36.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	38.0	11.0	23.0	7.0	38.0	7.0	27.0
Max Q Clear Time (g_c+I1), s	4.3	32.0	11.3	13.2	5.0	22.8	2.4	6.7
Green Ext Time (p_c), s	0.0	5.3	0.0	0.9	0.0	12.1	0.0	2.3

Intersection Summary		
HCM 2010 Ctrl Delay		33.9
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕	↗	↖	↗		↖	↗	
Volume (veh/h)	82	439	149	33	408	65	65	182	54	65	204	89
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.90		0.70	0.94		0.70	0.90		0.70	0.81		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	94	505	171	39	486	77	70	196	58	71	222	97
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.84	0.84	0.84	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	373	785	466	292	1213	189	409	519	154	427	478	209
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	757	1863	1106	714	2878	448	953	1242	367	913	1144	500
Grp Volume(v), veh/h	94	505	171	39	295	268	70	0	254	71	0	319
Grp Sat Flow(s),veh/h/ln	757	1863	1106	714	1770	1556	953	0	1609	913	0	1643
Q Serve(g_s), s	4.9	10.7	5.3	2.3	5.8	6.0	2.9	0.0	5.4	2.9	0.0	7.0
Cycle Q Clear(g_c), s	10.9	10.7	5.3	13.0	5.8	6.0	9.8	0.0	5.4	8.3	0.0	7.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.23	1.00		0.30
Lane Grp Cap(c), veh/h	373	785	466	292	746	656	409	0	673	427	0	687
V/C Ratio(X)	0.25	0.64	0.37	0.13	0.40	0.41	0.17	0.00	0.38	0.17	0.00	0.46
Avail Cap(c_a), veh/h	373	785	466	292	746	656	413	0	678	430	0	693
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	11.4	9.9	16.6	10.0	10.1	14.0	0.0	10.0	12.9	0.0	10.5
Incr Delay (d2), s/veh	1.6	4.0	2.2	1.0	1.6	1.9	0.2	0.0	0.4	0.2	0.0	0.5
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	1.2	6.4	1.9	0.5	3.1	2.9	0.8	0.0	2.5	0.8	0.0	3.2
LnGrp Delay(d),s/veh	15.5	15.5	12.1	17.6	11.6	12.0	14.2	0.0	10.4	13.1	0.0	11.0
LnGrp LOS	B	B	B	B	B	B	B		B	B		B
Approach Vol, veh/h		770			602			324				390
Approach Delay, s/veh		14.7			12.1			11.2				11.3
Approach LOS		B			B			B				B
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		24.8		25.0		24.8				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		21.0		21.0		21.0		21.0				
Max Q Clear Time (g_c+I1), s		12.9		10.3		15.0		11.8				
Green Ext Time (p_c), s		5.0		3.4		4.0		3.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.8									
HCM 2010 LOS			B									

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	214	95	104	237	96	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	233	103	113	258	104	113

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	336	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1223	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1223	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	467	-	-	1223	-
HCM Lane V/C Ratio	0.466	-	-	0.092	-
HCM Control Delay (s)	19.2	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.4	-	-	0.3	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	207	93	102	231	94	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	225	101	111	251	102	111

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	326
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1234
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1234
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	18.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	477	-	-	1234	-
HCM Lane V/C Ratio	0.447	-	-	0.09	-
HCM Control Delay (s)	18.5	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	297	0	4	320	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	323	0	4	348	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	323	0	680	323
Stage 1	-	-	-	-	323	-
Stage 2	-	-	-	-	357	-
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	-	-	1237	-	417	718
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	708	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1237	-	415	718
Mov Cap-2 Maneuver	-	-	-	-	415	-
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	705	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	718	-	-	1237	-
HCM Lane V/C Ratio	0.006	-	-	0.004	-
HCM Control Delay (s)	10	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Project Opening Year (2016) With Project  
PM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

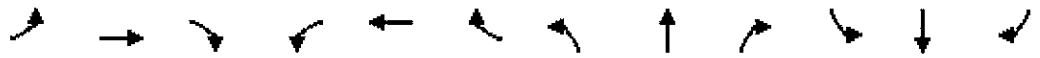
1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	172	714	70	63	407	175	46	452	64	135	238	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	200	830	81	66	428	184	48	471	67	163	287	53
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
Peak Hour Factor	0.86	0.86	0.86	0.95	0.95	0.95	0.96	0.96	0.96	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	1425	139	84	844	359	333	1062	150	297	635	540
Arrive On Green	0.14	0.44	0.44	0.05	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	3258	318	1774	2420	1030	1036	3114	441	864	1863	1583
Grp Volume(v), veh/h	200	451	460	66	312	300	48	267	271	163	287	53
Grp Sat Flow(s),veh/h/ln	1774	1770	1807	1774	1770	1681	1036	1770	1785	864	1863	1583
Q Serve(g_s), s	7.6	13.2	13.2	2.5	9.6	9.8	2.6	8.1	8.1	12.4	8.3	1.6
Cycle Q Clear(g_c), s	7.6	13.2	13.2	2.5	9.6	9.8	10.9	8.1	8.1	20.6	8.3	1.6
Prop In Lane	1.00		0.18	1.00		0.61	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	242	774	790	84	617	586	333	603	609	297	635	540
V/C Ratio(X)	0.83	0.58	0.58	0.78	0.51	0.51	0.14	0.44	0.45	0.55	0.45	0.10
Avail Cap(c_a), veh/h	258	774	790	180	617	586	341	617	622	304	649	552
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	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	14.6	14.6	32.4	17.7	17.8	21.9	17.6	17.6	25.6	17.7	15.5
Incr Delay (d2), s/veh	18.7	3.2	3.1	12.9	2.6	2.8	0.2	0.5	0.5	2.0	0.5	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	4.9	7.1	7.2	1.5	5.1	5.0	0.8	4.0	4.1	3.1	4.3	0.7
LnGrp Delay(d),s/veh	47.7	17.8	17.8	45.4	20.3	20.6	22.1	18.1	18.1	27.6	18.2	15.5
LnGrp LOS	D	B	B	D	C	C	C	B	B	C	B	B
Approach Vol, veh/h		1111			678			586			503	
Approach Delay, s/veh		23.2			22.9			18.5			21.0	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	35.3		27.5	13.4	29.2		27.5				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	27.0		24.0	10.0	24.0		24.0				
Max Q Clear Time (g_c+I1), s	4.5	15.2		22.6	9.6	11.8		12.9				
Green Ext Time (p_c), s	0.0	7.2		0.9	0.0	7.4		4.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			21.8									
HCM 2010 LOS			C									



HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙	↑↑↑	↗	↙	↗		↙	↗	
Volume (veh/h)	171	878	110	119	771	53	109	60	168	106	45	198
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	176	905	113	132	857	59	121	67	187	120	51	225
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.90	0.90	0.90	0.90	0.90	0.90	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	1866	232	169	2030	632	305	139	388	326	96	424
Arrive On Green	0.10	0.41	0.41	0.10	0.40	0.40	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	4582	570	1774	5085	1583	1099	435	1214	1121	301	1328
Grp Volume(v), veh/h	176	669	349	132	857	59	121	0	254	120	0	276
Grp Sat Flow(s),veh/h/ln	1774	1695	1762	1774	1695	1583	1099	0	1649	1121	0	1628
Q Serve(g_s), s	6.7	9.8	9.9	4.9	8.2	1.6	6.9	0.0	8.4	6.5	0.0	9.4
Cycle Q Clear(g_c), s	6.7	9.8	9.9	4.9	8.2	1.6	16.2	0.0	8.4	14.9	0.0	9.4
Prop In Lane	1.00		0.32	1.00		1.00	1.00		0.74	1.00		0.82
Lane Grp Cap(c), veh/h	184	1381	718	169	2030	632	305	0	527	326	0	521
V/C Ratio(X)	0.96	0.48	0.49	0.78	0.42	0.09	0.40	0.00	0.48	0.37	0.00	0.53
Avail Cap(c_a), veh/h	184	1381	718	315	2030	632	425	0	707	448	0	698
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	14.8	14.8	29.9	14.7	12.7	25.5	0.0	18.5	24.5	0.0	18.8
Incr Delay (d2), s/veh	54.2	1.2	2.4	7.5	0.6	0.3	0.8	0.0	0.7	0.7	0.0	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	6.0	4.8	5.2	2.8	3.9	0.7	2.2	0.0	3.9	2.1	0.0	4.3
LnGrp Delay(d),s/veh	84.4	16.0	17.2	37.4	15.3	13.0	26.3	0.0	19.2	25.2	0.0	19.7
LnGrp LOS	F	B	B	D	B	B	C		B	C		B

Approach Vol, veh/h		1194			1048			375				396
Approach Delay, s/veh		26.4			18.0			21.5				21.3
Approach LOS		C			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	31.5		25.6	11.0	31.0		25.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	12.0	22.0		29.0	7.0	27.0		29.0
Max Q Clear Time (g_c+I1), s	6.9	11.9		16.9	8.7	10.2		18.2
Green Ext Time (p_c), s	0.1	7.7		3.6	0.0	11.6		3.4

Intersection Summary		
HCM 2010 Ctrl Delay		22.2
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	21	862	56	80	612	55	115	45	327	118	27	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	23	958	62	94	720	65	139	54	394	136	31	33
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.83	0.83	0.83	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1158	75	121	1251	113	164	524	445	171	236	251
Arrive On Green	0.03	0.34	0.34	0.07	0.38	0.38	0.09	0.28	0.28	0.10	0.29	0.29
Sat Flow, veh/h	1774	3375	218	1774	3284	296	1774	1863	1583	1774	827	880
Grp Volume(v), veh/h	23	502	518	94	388	397	139	54	394	136	0	64
Grp Sat Flow(s),veh/h/ln	1774	1770	1824	1774	1770	1810	1774	1863	1583	1774	0	1707
Q Serve(g_s), s	1.0	19.7	19.7	4.0	13.2	13.2	5.8	1.6	18.0	5.7	0.0	2.1
Cycle Q Clear(g_c), s	1.0	19.7	19.7	4.0	13.2	13.2	5.8	1.6	18.0	5.7	0.0	2.1
Prop In Lane	1.00		0.12	1.00		0.16	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	54	607	626	121	674	690	164	524	445	171	0	487
V/C Ratio(X)	0.43	0.83	0.83	0.78	0.58	0.58	0.85	0.10	0.88	0.80	0.00	0.13
Avail Cap(c_a), veh/h	164	607	626	164	674	690	164	664	564	211	0	653
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)	0.79	0.79	0.79	0.94	0.94	0.94	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.1	22.8	22.8	34.7	18.6	18.6	33.9	20.2	26.1	33.5	0.0	20.1
Incr Delay (d2), s/veh	4.2	9.9	9.7	14.2	3.4	3.3	31.9	0.1	13.0	15.7	0.0	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	0.5	11.3	11.6	2.4	7.0	7.1	4.3	0.9	9.4	3.5	0.0	1.0
LnGrp Delay(d),s/veh	40.3	32.8	32.5	48.9	21.9	21.9	65.7	20.2	39.1	49.2	0.0	20.2
LnGrp LOS	D	C	C	D	C	C	E	C	D	D		C
Approach Vol, veh/h		1043			879			587			200	
Approach Delay, s/veh		32.8			24.8			43.7			40.0	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	39.2	11.0	25.6	6.3	42.1	11.3	25.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	26.0	7.0	29.0	7.0	26.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	6.0	21.7	7.8	4.1	3.0	15.2	7.7	20.0
Green Ext Time (p_c), s	0.0	3.5	0.0	2.1	0.0	7.7	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	33.1
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/14/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗	↗	↖↖	↗↗		↖↖	↗↗	↗	↖↖	↗↗	↗
Volume (veh/h)	48	1001	208	153	673	145	344	500	287	178	269	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	53	1112	231	168	740	159	366	532	305	202	306	45
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.94	0.94	0.94	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1310	586	208	1155	248	413	1268	567	245	1095	490
Arrive On Green	0.03	0.37	0.37	0.06	0.40	0.40	0.12	0.36	0.36	0.07	0.31	0.31
Sat Flow, veh/h	3442	3539	1583	3442	2900	623	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	53	1112	231	168	452	447	366	532	305	202	306	45
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1753	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	2.6	49.4	18.4	8.3	35.3	35.3	17.9	19.4	26.2	9.9	11.2	3.5
Cycle Q Clear(g_c), s	2.6	49.4	18.4	8.3	35.3	35.3	17.9	19.4	26.2	9.9	11.2	3.5
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	1310	586	208	705	698	413	1268	567	245	1095	490
V/C Ratio(X)	0.48	0.85	0.39	0.81	0.64	0.64	0.89	0.42	0.54	0.82	0.28	0.09
Avail Cap(c_a), veh/h	121	1384	619	241	754	747	502	1268	567	342	1095	490
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	81.5	49.6	39.8	79.5	41.6	41.6	74.2	41.5	43.7	78.5	44.7	42.0
Incr Delay (d2), s/veh	3.2	5.0	0.4	16.2	1.7	1.7	15.1	1.0	3.6	10.9	0.6	0.4
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	1.3	25.0	8.1	4.4	17.6	17.5	9.4	9.7	12.0	5.1	5.6	1.6
LnGrp Delay(d),s/veh	84.6	54.5	40.2	95.7	43.3	43.3	89.3	42.5	47.3	89.4	45.3	42.4
LnGrp LOS	F	D	D	F	D	D	F	D	D	F	D	D
Approach Vol, veh/h		1396			1067			1203			553	
Approach Delay, s/veh		53.3			51.6			58.0			61.2	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.2	68.4	15.3	69.4	26.6	60.0	10.5	74.2
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6
Max Green Setting (Gmax), s	17.0	61.0	12.0	67.0	25.0	53.0	6.0	*73
Max Q Clear Time (g_c+I1), s	11.9	28.2	10.3	51.4	19.9	13.2	4.6	37.3
Green Ext Time (p_c), s	0.3	8.2	0.1	12.0	0.6	8.4	0.0	21.6

Intersection Summary

HCM 2010 Ctrl Delay	55.2
HCM 2010 LOS	E

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/30/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	309	677	109	63	421	312	77	756	49	190	594	218
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	347	761	0	69	463	0	89	869	0	198	619	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.87	0.87	0.87	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	1515	678	101	961	430	209	1027	459	258	1077	482
Arrive On Green	0.21	0.43	0.00	0.06	0.27	0.00	0.06	0.29	0.00	0.07	0.30	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	347	761	0	69	463	0	89	869	0	198	619	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	20.4	16.7	0.0	4.1	11.7	0.0	2.7	24.7	0.0	6.0	15.8	0.0
Cycle Q Clear(g_c), s	20.4	16.7	0.0	4.1	11.7	0.0	2.7	24.7	0.0	6.0	15.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	1515	678	101	961	430	209	1027	459	258	1077	482
V/C Ratio(X)	0.92	0.50	0.00	0.68	0.48	0.00	0.42	0.85	0.00	0.77	0.57	0.00
Avail Cap(c_a), veh/h	432	1524	682	149	961	430	226	1027	459	258	1077	482
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.1	22.3	0.0	49.4	32.6	0.0	48.4	35.7	0.0	48.5	31.3	0.0
Incr Delay (d2), s/veh	22.4	0.3	0.0	7.8	0.4	0.0	1.4	8.6	0.0	13.1	2.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	8.2	0.0	2.2	5.8	0.0	1.3	13.3	0.0	3.3	8.0	0.0
LnGrp Delay(d),s/veh	63.5	22.5	0.0	57.2	33.0	0.0	49.7	44.2	0.0	61.6	33.6	0.0
LnGrp LOS	E	C		E	C		D	D		E	C	
Approach Vol, veh/h		1108			532			958			817	
Approach Delay, s/veh		35.3			36.1			44.7			40.4	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	35.0	10.1	49.7	10.5	36.5	26.8	33.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	31.0	9.0	46.0	7.0	32.0	26.0	29.0
Max Q Clear Time (g_c+I1), s	8.0	26.7	6.1	18.7	4.7	17.8	22.4	13.7
Green Ext Time (p_c), s	0.0	3.3	0.0	9.9	0.0	8.5	0.4	7.4

Intersection Summary												
HCM 2010 Ctrl Delay											39.3	
HCM 2010 LOS											D	

**Intersection**

Int Delay, s/veh 32.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	78	1241	159	195	815	16	68	6	321	9	5	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	91	91	91	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	1293	166	214	896	18	75	7	353	10	6	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	913	0	0	1458	0	0	2417	2880	729	2145	2954	457
Stage 1	-	-	-	-	-	-	1538	1538	-	1333	1333	-
Stage 2	-	-	-	-	-	-	879	1342	-	812	1621	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	742	-	-	460	-	-	~ 17	16	365	27	14	551
Stage 1	-	-	-	-	-	-	121	176	-	162	221	-
Stage 2	-	-	-	-	-	-	309	219	-	339	160	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	742	-	-	460	-	-	~ 8	8	365	0	7	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 34	29	-	447	~ 233	-
Stage 1	-	-	-	-	-	-	108	157	-	144	118	-
Stage 2	-	-	-	-	-	-	130	117	-	~ 10	143	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	3.7	225.2	11.7
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	34	365	742	-	-	460	-	-	+	551
HCM Lane V/C Ratio	2.392	0.966	0.11	-	-	0.466	-	-	-	0.173
HCM Control Delay (s)	\$ 884.5	73.2	10.4	-	-	19.5	-	-	4.7	12.9
HCM Lane LOS	F	F	B	-	-	C	-	-	A	B
HCM 95th %tile Q(veh)	9.2	10.8	0.4	-	-	2.4	-	-	-	0.6

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 TWSC  
 6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 1)

2/3/2014

<b>Intersection</b>												
Int Delay, s/veh	10.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	78	1241	159	195	815	16	0	0	321	0	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	91	91	91	91	91	91	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	81	1293	166	214	896	18	0	0	353	0	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	913	0	0	1458	0	0	2414	2880	729	2142	2954	457
Stage 1	-	-	-	-	-	-	1538	1538	-	1333	1333	-
Stage 2	-	-	-	-	-	-	876	1342	-	809	1621	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	742	-	-	460	-	-	17	16	365	28	14	551
Stage 1	-	-	-	-	-	-	121	176	-	162	221	-
Stage 2	-	-	-	-	-	-	310	219	-	340	160	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	742	-	-	460	-	-	8	8	365	1	7	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	37	29	-	433	~233	-
Stage 1	-	-	-	-	-	-	108	157	-	144	118	-
Stage 2	-	-	-	-	-	-	137	117	-	10	143	-





















Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	3.7	73.2	12.9
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	365	742	-	-	460	-	-	551
HCM Lane V/C Ratio	0.966	0.11	-	-	0.466	-	-	0.173
HCM Control Delay (s)	73.2	10.4	-	-	19.5	-	-	12.9
HCM Lane LOS	F	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	10.8	0.4	-	-	2.4	-	-	0.6

**Notes**  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 2)

2/3/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	78	1241	159	195	815	16	68	6	321	9	5	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	193.7	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	81	1293	166	214	896	18	75	7	353	10	6	95
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.91	0.91	0.91	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	474	2316	296	286	2706	54	238	5	277	80	17	267
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	608	3158	403	377	3690	74	1288	31	1557	1017	95	1503
Grp Volume(v), veh/h	81	722	737	214	447	467	75	0	360	10	0	101
Grp Sat Flow(s),veh/h/ln	608	1770	1792	377	1840	1924	1288	0	1588	1017	0	1598
Q Serve(g_s), s	4.9	16.5	16.8	49.2	7.7	7.7	4.9	0.0	16.0	0.0	0.0	5.0
Cycle Q Clear(g_c), s	12.6	16.5	16.8	66.0	7.7	7.7	9.9	0.0	16.0	16.0	0.0	5.0
Prop In Lane	1.00		0.23	1.00		0.04	1.00		0.98	1.00		0.94
Lane Grp Cap(c), veh/h	474	1298	1314	286	1350	1411	238	0	282	80	0	284
V/C Ratio(X)	0.17	0.56	0.56	0.75	0.33	0.33	0.32	0.00	1.28	0.12	0.00	0.36
Avail Cap(c_a), veh/h	474	1298	1314	286	1350	1411	238	0	282	80	0	284
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	5.4	5.4	21.3	4.2	4.2	36.8	0.0	37.0	45.0	0.0	32.5
Incr Delay (d2), s/veh	0.2	0.5	0.5	10.3	0.1	0.1	3.5	0.0	148.5	3.2	0.0	3.5
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	0.8	8.0	8.4	6.1	3.9	4.1	2.0	0.0	18.6	0.3	0.0	2.5
LnGrp Delay(d),s/veh	6.6	5.9	6.0	31.6	4.4	4.4	40.3	0.0	185.5	48.2	0.0	35.9
LnGrp LOS	A	A	A	C	A	A	D		F	D		D
Approach Vol, veh/h		1540			1128			435				111
Approach Delay, s/veh		6.0			9.5			160.5				37.0
Approach LOS		A			A			F				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.0		20.0		70.0		20.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		66.0		16.0		66.0		16.0				
Max Q Clear Time (g_c+11), s		18.8		18.0		68.0		18.0				
Green Ext Time (p_c), s		36.3		0.0		0.0		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				29.2								
HCM 2010 LOS				C								

Intersection												
Int Delay, s/veh	64.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	7	5	155	4	127	23	447	172	101	259	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	83	83	83	83	83	83	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	11	8	187	5	153	28	539	207	112	288	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1185	1106	288	1116	1106	539	288	0	0	539	0	0
Stage 1	512	512	-	594	594	-	-	-	-	-	-	-
Stage 2	673	594	-	522	512	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	166	210	751	~ 185	210	542	1274	-	-	1029	-	-
Stage 1	545	536	-	491	493	-	-	-	-	-	-	-
Stage 2	445	493	-	538	536	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	105	183	751	~ 157	183	542	1274	-	-	1029	-	-
Mov Cap-2 Maneuver	105	183	-	~ 157	183	-	-	-	-	-	-	-
Stage 1	533	478	-	480	482	-	-	-	-	-	-	-
Stage 2	309	482	-	463	478	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28	284.8	0.3	2.4
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1274	-	-	184	230	1029	-	-
HCM Lane V/C Ratio	0.022	-	-	0.149	1.498	0.109	-	-
HCM Control Delay (s)	7.9	-	-	28	284.8	8.9	-	-
HCM Lane LOS	A	-	-	D	F	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	20.6	0.4	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



HCM 2010 SIGNALIZED  
7: ESCONDIDO BLVD. & LINCOLN AVE. - MITIGATION

2/3/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	7	5	155	4	127	23	447	172	101	259	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	8	11	8	187	5	153	28	539	207	112	288	14
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	210	111	531	11	350	689	959	816	458	959	816
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	239	924	489	1388	50	1541	1073	1863	1583	712	1863	1583
Grp Volume(v), veh/h	27	0	0	187	0	158	28	539	207	112	288	14
Grp Sat Flow(s),veh/h/ln	1652	0	0	1388	0	1591	1073	1863	1583	712	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	3.8	0.0	2.6	0.5	6.1	2.3	4.0	2.8	0.1
Cycle Q Clear(g_c), s	0.4	0.0	0.0	4.2	0.0	2.6	3.2	6.1	2.3	10.1	2.8	0.1
Prop In Lane	0.30		0.30	1.00		0.97	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	526	0	0	531	0	362	689	959	816	458	959	816
V/C Ratio(X)	0.05	0.00	0.00	0.35	0.00	0.44	0.04	0.56	0.25	0.24	0.30	0.02
Avail Cap(c_a), veh/h	970	0	0	930	0	819	689	959	816	458	959	816
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	11.0	0.0	10.3	5.2	5.1	4.2	8.6	4.3	3.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.8	0.1	2.4	0.7	1.3	0.8	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	0.2	0.0	0.0	1.5	0.0	1.2	0.2	3.6	1.1	0.9	1.6	0.1
LnGrp Delay(d),s/veh	9.5	0.0	0.0	11.4	0.0	11.1	5.4	7.5	5.0	9.9	5.1	3.7
LnGrp LOS	A			B		B	A	A	A	A	A	A
Approach Vol, veh/h		27			345			774			414	
Approach Delay, s/veh		9.5			11.3			6.8			6.4	
Approach LOS		A			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.0		11.1		20.0		11.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0				
Max Q Clear Time (g_c+I1), s		8.1		2.4		12.1		6.2				
Green Ext Time (p_c), s		4.2		1.4		2.4		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			7.7									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	147	591	151	114	406	57	222	392	208	87	251	123
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	160	642	164	130	461	65	241	426	226	100	289	141
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	196	825	210	162	862	121	281	775	407	134	612	291
Arrive On Green	0.11	0.30	0.30	0.09	0.28	0.28	0.16	0.35	0.35	0.08	0.26	0.26
Sat Flow, veh/h	1774	2794	713	1774	3118	437	1774	2245	1179	1774	2329	1108
Grp Volume(v), veh/h	160	406	400	130	261	265	241	335	317	100	218	212
Grp Sat Flow(s),veh/h/ln	1774	1770	1737	1774	1770	1786	1774	1770	1655	1774	1770	1667
Q Serve(g_s), s	7.3	17.5	17.5	6.0	10.4	10.5	11.0	12.7	12.9	4.6	8.6	8.9
Cycle Q Clear(g_c), s	7.3	17.5	17.5	6.0	10.4	10.5	11.0	12.7	12.9	4.6	8.6	8.9
Prop In Lane	1.00		0.41	1.00		0.24	1.00		0.71	1.00		0.66
Lane Grp Cap(c), veh/h	196	522	513	162	489	494	281	611	571	134	465	438
V/C Ratio(X)	0.82	0.78	0.78	0.80	0.53	0.54	0.86	0.55	0.55	0.74	0.47	0.48
Avail Cap(c_a), veh/h	235	553	543	192	510	515	341	611	571	235	489	461
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	26.8	26.8	37.1	25.5	25.6	34.1	22.0	22.1	37.7	25.8	25.9
Incr Delay (d2), s/veh	17.2	6.6	6.8	18.3	1.0	1.0	16.7	1.0	1.2	7.9	0.7	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	4.5	9.4	9.3	3.8	5.2	5.3	6.7	6.3	6.1	2.5	4.3	4.2
LnGrp Delay(d),s/veh	53.4	33.4	33.7	55.4	26.5	26.6	50.8	23.0	23.2	45.5	26.5	26.7
LnGrp LOS	D	C	C	E	C	C	D	C	C	D	C	C
Approach Vol, veh/h		966			656			893			530	
Approach Delay, s/veh		36.8			32.3			30.6			30.2	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	28.6	17.2	25.9	13.2	27.0	10.3	32.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	9.0	26.0	16.0	23.0	11.0	24.0	11.0	28.0
Max Q Clear Time (g_c+I1), s	8.0	19.5	13.0	10.9	9.3	12.5	6.6	14.9
Green Ext Time (p_c), s	0.0	4.1	0.2	4.2	0.1	6.3	0.1	5.6

Intersection Summary		
HCM 2010 Ctrl Delay		32.9
HCM 2010 LOS		C

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↗	↖		↗	↕		↗	↕	
Volume (veh/h)	2	2	20	36	0	43	18	666	78	38	589	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.97	0.97		0.97	1.00		0.98	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	2	2	24	40	0	48	20	757	89	45	693	1
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.82	0.82	0.82	0.90	0.90	0.90	0.88	0.88	0.88	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	30	225	395	0	258	36	1513	178	71	1794	3
Arrive On Green	0.17	0.17	0.17	0.17	0.00	0.17	0.02	0.48	0.48	0.04	0.49	0.49
Sat Flow, veh/h	42	180	1335	1338	0	1533	1774	3185	374	1774	3626	5
Grp Volume(v), veh/h	28	0	0	40	0	48	20	420	426	45	338	356
Grp Sat Flow(s),veh/h/ln	1557	0	0	1338	0	1533	1774	1770	1790	1774	1770	1861
Q Serve(g_s), s	0.0	0.0	0.0	1.0	0.0	1.0	0.4	6.2	6.2	0.9	4.5	4.5
Cycle Q Clear(g_c), s	0.6	0.0	0.0	1.6	0.0	1.0	0.4	6.2	6.2	0.9	4.5	4.5
Prop In Lane	0.07		0.86	1.00		1.00	1.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	364	0	0	395	0	258	36	841	850	71	876	921
V/C Ratio(X)	0.08	0.00	0.00	0.10	0.00	0.19	0.56	0.50	0.50	0.64	0.39	0.39
Avail Cap(c_a), veh/h	1037	0	0	982	0	930	328	841	850	328	876	921
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	14.0	0.0	13.5	18.4	6.8	6.8	17.9	6.0	6.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.3	13.2	2.1	2.1	9.1	1.3	1.2
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	0.3	0.0	0.0	0.4	0.0	0.5	0.3	3.4	3.5	0.6	2.5	2.6
LnGrp Delay(d),s/veh	13.4	0.0	0.0	14.1	0.0	13.9	31.6	9.0	8.9	27.1	7.3	7.2
LnGrp LOS	B			B		B	C	A	A	C	A	A
Approach Vol, veh/h		28			88			866			739	
Approach Delay, s/veh		13.4			14.0			9.5			8.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	22.0		10.4	4.8	22.7		10.4
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	2.9	8.2		2.6	2.4	6.5		3.6
Green Ext Time (p_c), s	0.0	6.3		0.5	0.0	7.1		0.5

Intersection Summary		
HCM 2010 Ctrl Delay		9.3
HCM 2010 LOS		A

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	313	1050	182	172	706	86	173	535	217	72	316	189
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	364	1221	212	198	811	99	197	608	247	82	359	215
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	419	1409	243	243	1264	154	221	748	303	101	490	284
Arrive On Green	0.12	0.45	0.45	0.07	0.40	0.40	0.12	0.31	0.31	0.06	0.24	0.24
Sat Flow, veh/h	3442	3128	539	3442	3165	386	1774	2432	987	1774	2039	1182
Grp Volume(v), veh/h	364	715	718	198	453	457	197	442	413	82	310	264
Grp Sat Flow(s),veh/h/ln	1721	1840	1827	1721	1770	1781	1774	1770	1649	1774	1770	1451
Q Serve(g_s), s	16.4	55.0	56.1	8.9	32.6	32.6	17.2	36.4	36.5	7.2	25.4	26.6
Cycle Q Clear(g_c), s	16.4	55.0	56.1	8.9	32.6	32.6	17.2	36.4	36.5	7.2	25.4	26.6
Prop In Lane	1.00		0.30	1.00		0.22	1.00		0.60	1.00		0.81
Lane Grp Cap(c), veh/h	419	829	823	243	707	711	221	544	507	101	425	349
V/C Ratio(X)	0.87	0.86	0.87	0.81	0.64	0.64	0.89	0.81	0.81	0.81	0.73	0.76
Avail Cap(c_a), veh/h	578	870	863	317	707	711	321	668	622	152	499	410
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.0	38.9	39.2	72.2	38.2	38.2	68.0	50.4	50.4	73.5	55.2	55.6
Incr Delay (d2), s/veh	10.1	8.6	9.5	11.7	2.0	2.0	19.3	6.3	6.8	17.5	4.5	6.7
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	8.4	30.0	30.5	4.7	16.4	16.5	9.7	18.8	17.6	4.0	13.0	11.4
LnGrp Delay(d),s/veh	78.1	47.5	48.7	83.9	40.2	40.2	87.3	56.7	57.2	90.9	59.6	62.3
LnGrp LOS	E	D	D	F	D	D	F	E	E	F	E	E
Approach Vol, veh/h		1797			1108			1052			656	
Approach Delay, s/veh		54.2			48.0			62.6			64.6	
Approach LOS		D			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	53.0	15.6	75.5	24.1	42.4	23.7	67.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.5	59.5	14.5	74.5	28.5	44.5	26.5	62.5				
Max Q Clear Time (g_c+I1), s	9.2	38.5	10.9	58.1	19.2	28.6	18.4	34.6				
Green Ext Time (p_c), s	0.1	10.0	0.2	12.9	0.4	8.5	0.8	20.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			56.1									
HCM 2010 LOS			E									

Intersection												
Int Delay, s/veh	1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	66	48	185	24	40	55	199	1027	76	29	650	77
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	91	91	91	95	95	95	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	54	208	26	44	60	209	1081	80	33	739	88

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1829	2428	413	2002	2432	581	826	0	0	1161	0	0
Stage 1	848	848	-	1540	1540	-	-	-	-	-	-	-
Stage 2	981	1580	-	462	892	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 48	~ 32	588	35	~ 31	457	800	-	-	597	-	-
Stage 1	322	376	-	121	175	-	-	-	-	-	-	-
Stage 2	268	168	-	549	358	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	~ 22	588	-	~ 22	457	800	-	-	597	-	-
Mov Cap-2 Maneuver	-	~ 22	-	-	~ 22	-	-	-	-	-	-	-
Stage 1	238	355	-	89	129	-	-	-	-	-	-	-
Stage 2	113	124	-	284	338	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	-	-	1.7	0.4
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	800	-	-	-	-	597	-	-
HCM Lane V/C Ratio	0.262	-	-	-	-	0.055	-	-
HCM Control Delay (s)	11.1	-	-	-	-	11.4	-	-
HCM Lane LOS	B	-	-	-	-	B	-	-
HCM 95th %tile Q(veh)	1	-	-	-	-	0.2	-	-

Notes:  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

QUEUE REPORT  
11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (veh/h)	66	48	185	24	40	55	199	1027	76	29	650	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	74	54	208	26	44	60	209	1081	80	33	739	88
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.95	0.95	0.95	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	194	375	128	172	181	263	1645	122	53	1128	134
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.15	0.47	0.47	0.03	0.36	0.36
Sat Flow, veh/h	763	782	1511	156	695	729	1774	3467	256	1774	3171	377
Grp Volume(v), veh/h	128	0	208	130	0	0	209	573	588	33	412	415
Grp Sat Flow(s),veh/h/ln	1545	0	1511	1580	0	0	1774	1840	1883	1774	1770	1779
Q Serve(g_s), s	0.0	0.0	5.8	0.0	0.0	0.0	5.5	11.5	11.5	0.9	9.5	9.5
Cycle Q Clear(g_c), s	2.7	0.0	5.8	3.1	0.0	0.0	5.5	11.5	11.5	0.9	9.5	9.5
Prop In Lane	0.58		1.00	0.20		0.46	1.00		0.14	1.00		0.21
Lane Grp Cap(c), veh/h	501	0	375	481	0	0	263	873	894	53	629	633
V/C Ratio(X)	0.26	0.00	0.55	0.27	0.00	0.00	0.79	0.66	0.66	0.63	0.65	0.66
Avail Cap(c_a), veh/h	619	0	499	603	0	0	366	873	894	146	629	633
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	0.00	1.00	1.00	0.00	0.00	0.64	0.64	0.64	0.66	0.66	0.66
Uniform Delay (d), s/veh	14.7	0.0	15.9	14.8	0.0	0.0	19.9	9.7	9.7	23.3	13.1	13.1
Incr Delay (d2), s/veh	0.3	0.0	1.3	0.3	0.0	0.0	5.2	2.5	2.4	7.8	3.5	3.5
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	1.4	0.0	2.5	1.4	0.0	0.0	3.1	6.3	6.5	0.5	5.2	5.2
LnGrp Delay(d),s/veh	15.0	0.0	17.2	15.1	0.0	0.0	25.1	12.2	12.2	31.1	16.6	16.6
LnGrp LOS	B		B	B			C	B	B	C	B	B
Approach Vol, veh/h		336			130			1370			860	
Approach Delay, s/veh		16.3			15.1			14.2			17.2	
Approach LOS		B			B			B			B	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	33.5		16.0	11.2	27.8		16.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	4.0	23.0		16.0	10.0	17.0		16.0
Max Q Clear Time (g_c+l1), s	2.9	13.5		7.8	7.5	11.5		5.1
Green Ext Time (p_c), s	0.0	7.4		1.5	0.1	4.6		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↖↗	↗	↖↗	↖↖↗	↗	↖↗	↖↖	↗	↖	↖↖	↗
Volume (veh/h)	672	1324	571	95	921	103	645	504	115	80	341	425
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	747	1471	634	101	980	110	759	593	135	92	392	489
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	727	1744	875	255	1046	325	727	1251	551	131	794	340
Arrive On Green	0.21	0.34	0.34	0.07	0.21	0.21	0.21	0.35	0.35	0.07	0.22	0.22
Sat Flow, veh/h	3442	5085	1576	3442	5085	1579	3442	3539	1559	1774	3681	1575
Grp Volume(v), veh/h	747	1471	634	101	980	110	759	593	135	92	392	489
Grp Sat Flow(s),veh/h/ln	1721	1695	1576	1721	1695	1579	1721	1770	1559	1774	1840	1575
Q Serve(g_s), s	33.8	42.8	47.9	4.5	30.3	9.5	33.8	20.8	9.8	8.1	14.9	34.5
Cycle Q Clear(g_c), s	33.8	42.8	47.9	4.5	30.3	9.5	33.8	20.8	9.8	8.1	14.9	34.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	727	1744	875	255	1046	325	727	1251	551	131	794	340
VC Ratio(X)	1.03	0.84	0.72	0.40	0.94	0.34	1.04	0.47	0.25	0.70	0.49	1.44
Avail Cap(c_a), veh/h	727	1744	875	258	1049	326	727	1251	551	175	794	340
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	48.6	26.6	70.6	62.5	54.2	63.1	40.2	36.6	72.3	55.0	62.7
Incr Delay (d2), s/veh	40.4	4.0	3.0	1.0	14.9	0.6	45.2	0.3	0.2	7.8	0.5	213.8
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	20.0	20.7	21.6	2.2	15.7	4.2	20.5	10.3	4.3	4.3	7.7	35.2
LnGrp Delay(d),s/veh	103.4	52.5	29.6	71.6	77.4	54.8	108.3	40.4	36.8	80.2	55.5	276.5
LnGrp LOS	F	D	C	E	E	D	F	D	D	F	E	F
Approach Vol, veh/h		2852			1191			1487			973	
Approach Delay, s/veh		60.8			74.8			74.7			168.9	
Approach LOS		E			E			E			F	
Time	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	63.0	17.1	62.8	39.0	41.0	39.0	40.9				
Change Period (Y+Rc), s * 5.1999998		6.5.1999998		8.0.1999998		6.5.1999998		8.0				
Max Green Setting (Gmax), s * 15.8		52.5	* 12	54.83.7999999		34.33.7999999		33.0				
Max Q Clear Time (g_c+I1), s	10.1	22.8	6.5	49.9	35.8	36.5	35.8	32.3				
Green Ext Time (p_c), s	0.1	11.2	0.1	4.7	0.0	0.0	0.0	0.6				

Intersection Summary

HCM 2010 Ctrl Delay	82.7
HCM 2010 LOS	F

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	672	1324	571	95	921	103	645	504	115	80	341	425
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	747	1471	634	101	980	110	759	593	135	92	391	489
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	1	2
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.85	0.85	0.85	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	801	1915	966	259	1072	333	808	1112	489	104	267	1169
Arrive On Green	0.23	0.38	0.38	0.08	0.21	0.21	0.23	0.31	0.31	0.06	0.14	0.14
Sat Flow, veh/h	3442	5085	1577	3442	5085	1579	3442	3539	1556	1774	1937	3139
Grp Volume(v), veh/h	747	1471	634	101	980	110	759	593	135	92	391	489
Grp Sat Flow(s),veh/h/ln	1721	1695	1577	1721	1695	1579	1721	1770	1556	1774	1937	1570
Q Serve(g_s), s	33.5	40.0	11.5	4.4	29.7	7.4	34.1	21.8	8.0	8.1	21.7	7.6
Cycle Q Clear(g_c), s	33.5	40.0	11.5	4.4	29.7	7.4	34.1	21.8	8.0	8.1	21.7	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	801	1915	966	259	1072	333	808	1112	489	104	267	1169
V/C Ratio(X)	0.93	0.77	0.66	0.39	0.91	0.33	0.94	0.53	0.28	0.89	1.47	0.42
Avail Cap(c_a), veh/h	858	1988	988	262	1072	333	808	1112	489	104	267	1169
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	0.95	0.95	0.95	0.44	0.44	0.44	0.80	0.80	0.80
Uniform Delay (d), s/veh	59.2	43.1	5.8	69.4	60.8	33.6	59.2	44.5	24.8	73.7	68.0	14.0
Incr Delay (d2), s/veh	16.1	1.8	1.5	0.9	11.4	0.5	10.1	0.8	0.6	47.3	225.5	0.9
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	17.8	19.0	8.3	2.1	15.0	3.8	17.4	10.8	4.1	5.3	28.3	3.7
LnGrp Delay(d),s/veh	75.3	44.9	7.3	70.3	72.2	34.1	69.3	45.4	25.5	121.0	293.5	14.9
LnGrp LOS	E	D	A	E	E	C	E	D	C	F	F	B
Approach Vol, veh/h		2852			1191			1487			972	
Approach Delay, s/veh		44.5			68.5			55.8			137.0	
Approach LOS		D			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	56.0	17.1	67.3	47.4	28.2	43.2	41.2
Change Period (Y+Rc), s	8.0	* 6.5.1999998		8.0	8.0	6.5	6.5	8.0
Max Green Setting (Gmax), s	9.2	* 49.5	* 12	61.6	37.0	21.7	39.3	33.0
Max Q Clear Time (g_c+I1), s	10.1	23.8	6.4	42.0	36.1	23.7	35.5	31.7
Green Ext Time (p_c), s	0.0	4.8	0.1	17.4	0.4	0.0	1.2	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	65.3
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.



HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	216	551	148	86	360	204	143	850	50	210	622	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	227	580	156	89	371	210	155	924	54	228	676	71
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	866	232	114	579	323	192	1122	66	187	1058	111
Arrive On Green	0.11	0.31	0.31	0.06	0.26	0.26	0.10	0.32	0.32	0.10	0.31	0.31
Sat Flow, veh/h	1774	2761	741	1774	2194	1223	1845	3535	207	1845	3363	353
Grp Volume(v), veh/h	227	371	365	89	298	283	155	481	497	228	370	377
Grp Sat Flow(s),veh/h/ln	1774	1770	1732	1774	1770	1647	1845	1840	1901	1845	1840	1875
Q Serve(g_s), s	9.0	14.4	14.4	3.9	11.8	12.0	6.5	19.0	19.0	8.0	13.6	13.6
Cycle Q Clear(g_c), s	9.0	14.4	14.4	3.9	11.8	12.0	6.5	19.0	19.0	8.0	13.6	13.6
Prop In Lane	1.00		0.43	1.00		0.74	1.00		0.11	1.00		0.19
Lane Grp Cap(c), veh/h	203	555	543	114	467	435	192	584	603	187	579	590
V/C Ratio(X)	1.12	0.67	0.67	0.78	0.64	0.65	0.81	0.82	0.82	1.22	0.64	0.64
Avail Cap(c_a), veh/h	203	629	616	180	606	564	211	584	603	187	579	590
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	23.5	23.5	36.3	25.7	25.8	34.5	24.9	24.9	35.4	23.2	23.2
Incr Delay (d2), s/veh	99.2	2.3	2.4	10.8	1.5	1.7	18.8	12.5	12.1	136.3	5.3	5.2
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	9.9	7.4	7.3	2.2	5.9	5.6	4.3	11.6	12.0	11.1	7.7	7.9
LnGrp Delay(d),s/veh	134.1	25.8	25.9	47.1	27.1	27.4	53.3	37.3	37.0	171.7	28.5	28.4
LnGrp LOS	F	C	C	D	C	C	D	D	D	F	C	C
Approach Vol, veh/h		963			670			1133			975	
Approach Delay, s/veh		51.4			29.9			39.4			61.9	
Approach LOS		D			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	29.0	9.1	28.7	12.2	28.8	13.0	24.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	25.0	8.0	28.0	9.0	24.0	9.0	27.0
Max Q Clear Time (g_c+I1), s	10.0	21.0	5.9	16.4	8.5	15.6	11.0	14.0
Green Ext Time (p_c), s	0.0	3.1	0.0	6.3	0.0	6.1	0.0	6.8

Intersection Summary		
HCM 2010 Ctrl Delay		46.6
HCM 2010 LOS		D

HCM 2010 SIGNALIZED.  
14: GARRICK WY. & LINCOLN PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	44	1411	45	6	1006	116	64	1	25	75	1	46
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	48	1534	49	6	1070	123	82	1	32	93	1	57
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.78	0.78	0.78	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	2352	721	11	2183	680	104	6	186	119	3	195
Arrive On Green	0.04	0.46	0.46	0.01	0.43	0.43	0.06	0.12	0.12	0.07	0.13	0.13
Sat Flow, veh/h	1774	5085	1559	1774	5085	1583	1774	48	1542	1774	26	1510
Grp Volume(v), veh/h	48	1534	49	6	1070	123	82	0	33	93	0	58
Grp Sat Flow(s),veh/h/ln	1774	1695	1559	1774	1695	1583	1774	0	1591	1774	0	1537
Q Serve(g_s), s	1.2	10.8	0.8	0.2	7.1	2.2	2.1	0.0	0.9	2.4	0.0	1.6
Cycle Q Clear(g_c), s	1.2	10.8	0.8	0.2	7.1	2.2	2.1	0.0	0.9	2.4	0.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	70	2352	721	11	2183	680	104	0	192	119	0	199
V/C Ratio(X)	0.68	0.65	0.07	0.53	0.49	0.18	0.79	0.00	0.17	0.78	0.00	0.29
Avail Cap(c_a), veh/h	266	2352	721	266	2183	680	266	0	956	343	0	989
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	9.6	6.9	23.1	9.6	8.2	21.7	0.0	18.4	21.4	0.0	18.4
Incr Delay (d2), s/veh	11.0	1.4	0.2	33.0	0.8	0.6	12.5	0.0	0.4	10.5	0.0	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	0.8	5.3	0.4	0.2	3.4	1.1	1.4	0.0	0.4	1.5	0.0	0.7
LnGrp Delay(d),s/veh	33.0	11.1	7.1	56.1	10.4	8.8	34.2	0.0	18.8	31.8	0.0	19.2
LnGrp LOS	C	B	A	E	B	A	C		B	C		B
Approach Vol, veh/h		1631			1199			115				151
Approach Delay, s/veh		11.6			10.5			29.8				27.0
Approach LOS		B			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.3	25.6	6.7	10.0	5.9	24.0	7.1	9.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	20.0	7.0	30.0	7.0	20.0	9.0	28.0				
Max Q Clear Time (g_c+l1), s	2.2	12.8	4.1	3.6	3.2	9.1	4.4	2.9				
Green Ext Time (p_c), s	0.0	6.7	0.0	0.5	0.0	9.9	0.1	0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.6									
HCM 2010 LOS			B									

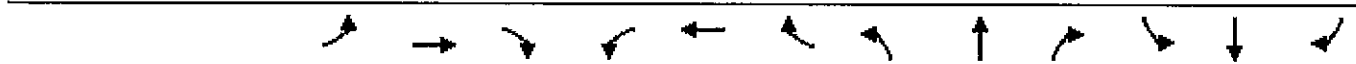
HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY. - MITIGATION

2/4/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	44	1411	45	6	1006	116	64	1	25	75	1	46
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	48	1534	49	6	1070	123	82	1	32	93	1	57
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.78	0.78	0.78	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	3364	1036	11	3151	981	109	2	65	217	3	154
Arrive On Green	0.10	1.00	1.00	0.01	0.62	0.62	0.06	0.04	0.04	0.12	0.10	0.10
Sat Flow, veh/h	1774	5085	1567	1774	5085	1583	1774	48	1542	1774	26	1497
Grp Volume(v), veh/h	48	1534	49	6	1070	123	82	0	33	93	0	58
Grp Sat Flow(s),veh/h/ln	1774	1695	1567	1774	1695	1583	1774	0	1591	1774	0	1524
Q Serve(g_s), s	2.5	0.0	0.0	0.3	9.7	3.1	4.3	0.0	1.9	4.6	0.0	3.4
Cycle Q Clear(g_c), s	2.5	0.0	0.0	0.3	9.7	3.1	4.3	0.0	1.9	4.6	0.0	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	85	3364	1036	11	3151	981	109	0	67	217	0	157
V/C Ratio(X)	0.56	0.46	0.05	0.55	0.34	0.13	0.75	0.00	0.49	0.43	0.00	0.37
Avail Cap(c_a), veh/h	205	3364	1036	130	3151	981	261	0	518	242	0	480
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.70	0.70	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.1	0.0	0.0	47.2	8.7	7.5	44.0	0.0	44.6	38.7	0.0	39.8
Incr Delay (d2), s/veh	4.0	0.3	0.1	36.6	0.3	0.3	10.0	0.0	5.5	1.3	0.0	1.4
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	1.3	0.1	0.0	0.3	4.5	1.4	2.4	0.0	1.0	2.4	0.0	1.5
LnGrp Delay(d),s/veh	46.1	0.3	0.1	83.8	9.0	7.7	54.0	0.0	50.1	40.1	0.0	41.3
LnGrp LOS	D	A	A	F	A	A	D		D	D		D
Approach Vol, veh/h		1631			1199			115				151
Approach Delay, s/veh		1.7			9.3			52.9				40.5
Approach LOS		A			A			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	39.4	67.0	9.8	13.8	43.4	63.0	15.6	8.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	63.0	14.0	30.0	11.0	59.0	13.0	31.0				
Max Q Clear Time (g_c+l1), s	2.3	2.0	6.3	5.4	4.5	11.7	6.6	3.9				
Green Ext Time (p_c), s	0.0	18.8	0.3	0.3	0.0	10.7	0.2	0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			8.4									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	81	1167	86	28	803	7	196	169	44	13	140	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	86	1241	91	30	854	7	242	209	54	20	219	98
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.81	0.81	0.81	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1398	102	42	1367	11	265	663	556	31	270	121
Arrive On Green	0.06	0.42	0.42	0.02	0.38	0.38	0.15	0.36	0.36	0.02	0.22	0.22
Sat Flow, veh/h	1774	3340	244	1774	3597	29	1774	1863	1563	1774	1208	541
Grp Volume(v), veh/h	86	656	676	30	420	441	242	209	54	20	0	317
Grp Sat Flow(s),veh/h/ln	1774	1770	1815	1774	1770	1857	1774	1863	1563	1774	0	1749
Q Serve(g_s), s	4.1	29.8	29.9	1.5	16.8	16.8	11.7	7.1	2.0	1.0	0.0	14.9
Cycle Q Clear(g_c), s	4.1	29.8	29.9	1.5	16.8	16.8	11.7	7.1	2.0	1.0	0.0	14.9
Prop In Lane	1.00		0.13	1.00		0.02	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	111	741	760	42	672	706	265	663	556	31	0	392
V/C Ratio(X)	0.78	0.89	0.89	0.71	0.62	0.62	0.91	0.32	0.10	0.64	0.00	0.81
Avail Cap(c_a), veh/h	204	741	760	143	672	706	265	663	556	143	0	463
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	23.3	23.4	42.1	21.9	21.9	36.4	20.3	18.7	42.4	0.0	32.0
Incr Delay (d2), s/veh	11.0	14.7	14.7	19.9	4.3	4.1	32.9	0.3	0.1	19.7	0.0	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	2.4	17.4	18.1	0.9	9.0	9.4	8.1	3.6	0.9	0.6	0.0	8.2
LnGrp Delay(d),s/veh	51.1	38.0	38.1	62.0	26.3	26.1	69.3	20.6	18.7	62.1	0.0	40.9
LnGrp LOS	D	D	D	E	C	C	E	C	B	E		D
Approach Vol, veh/h		1418			891			505			337	
Approach Delay, s/veh		38.8			27.4			43.7			42.2	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	40.4	17.0	23.4	9.4	37.0	5.5	34.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	36.0	13.0	23.0	10.0	33.0	7.0	29.0
Max Q Clear Time (g_c+I1), s	3.5	31.9	13.7	16.9	6.1	18.8	3.0	9.1
Green Ext Time (p_c), s	0.0	3.6	0.0	1.0	0.1	11.1	0.0	3.4

Intersection Summary		
HCM 2010 Ctrl Delay		36.7
HCM 2010 LOS		D

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕	↗	↖	↗		↖	↗	
Volume (veh/h)	126	585	192	43	395	59	79	259	82	75	177	116
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.91	0.99		0.91	0.97		0.89	0.95		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	135	629	206	52	476	71	86	282	89	86	203	133
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.83	0.83	0.83	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	450	893	691	272	1462	216	351	490	154	325	380	249
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	830	1863	1440	651	3049	451	1005	1313	414	955	1020	668
Grp Volume(v), veh/h	135	629	206	52	275	272	86	0	371	86	0	336
Grp Sat Flow(s),veh/h/ln	830	1863	1440	651	1770	1730	1005	0	1728	955	0	1688
Q Serve(g_s), s	6.5	14.4	4.7	3.7	5.2	5.3	4.0	0.0	9.3	4.3	0.0	8.5
Cycle Q Clear(g_c), s	11.8	14.4	4.7	18.1	5.2	5.3	12.4	0.0	9.3	13.6	0.0	8.5
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.24	1.00		0.40
Lane Grp Cap(c), veh/h	450	893	691	272	849	830	351	0	644	325	0	629
V/C Ratio(X)	0.30	0.70	0.30	0.19	0.32	0.33	0.25	0.00	0.58	0.26	0.00	0.53
Avail Cap(c_a), veh/h	450	893	691	272	849	830	366	0	669	339	0	654
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.3	11.1	8.6	18.2	8.7	8.7	18.2	0.0	13.6	19.0	0.0	13.3
Incr Delay (d2), s/veh	1.7	4.6	1.1	1.6	1.0	1.1	0.4	0.0	1.1	0.4	0.0	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	1.7	8.5	2.0	0.8	2.8	2.7	1.1	0.0	4.6	1.2	0.0	4.1
LnGrp Delay(d),s/veh	14.0	15.7	9.7	19.7	9.7	9.8	18.5	0.0	14.7	19.4	0.0	14.1
LnGrp LOS	B	B	A	B	A	A	B		B	B		B
Approach Vol, veh/h		970			599			457				422
Approach Delay, s/veh		14.2			10.6			15.4				15.2
Approach LOS		B			B			B				B

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		30.0		24.2		30.0		24.2
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		26.0		21.0		26.0		21.0
Max Q Clear Time (g_c+I1), s		16.4		15.6		20.1		14.4
Green Ext Time (p_c), s		6.2		2.5		4.2		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

**Intersection**

Int Delay, s/veh 5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	193	95	104	210	96	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	210	103	113	228	104	113

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	313	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1247	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1247	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	496	-	-	1247	-
HCM Lane V/C Ratio	0.438	-	-	0.091	-
HCM Control Delay (s)	17.8	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.3	-

**Intersection**

Int Delay, s/veh 5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	186	93	102	204	94	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	202	101	111	222	102	111

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	303	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1258	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1258	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	508	-	-	1258	-
HCM Lane V/C Ratio	0.419	-	-	0.088	-
HCM Control Delay (s)	17.1	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.1	-	-	0.3	-

**Intersection:**

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	276	0	4	293	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	300	0	4	318	0	4

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	300	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1261	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1261	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	740	-	-	1261	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-
HCM Control Delay (s)	9.9	-	-	7.9	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



## **Appendix H**

Year 2035 Turning Movement Volumes  
Extrapolation Worksheets

AM

Appendix C  
Year 2035 Intersection Turning Movement Growth Factor Calculations (AM Peak Hour)


Intersection	2013 <sup>1</sup>		2035 <sup>2</sup>		Growth in Volume		Growth Factor		2035 Intersection Turning Movement Growth Adjustment Factors <sup>3</sup>												
	Approach : Departure		Approach : Departure		Approach : Departure		Approach : Departure		Northbound			Southbound			Eastbound			Westbound			
	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R			
Rock Springs Road (NS) at 1. Mission Avenue (EW)										1.5838	1.0500	1.0637	1.0867	1.2418	1.6068	1.2455	1.2593	1.4143	1.3538	1.7188	1.1850
North Leg	521	331	571	306	50	-25	1.0960	1.0500													
South Leg	222	289	186	401	-36	112	1.0500	1.3875													
East Leg	750	762	990	821	240	59	1.3200	1.0774													
West Leg	297	408	428	864	131	456	1.4411	2.1176													
Morning View Drive (NS) at 2. El Norte Parkway (EW)										1.1005	1.1005	1.1005	1.0500	1.0486	1.0500	1.1199	1.1199	1.1185	1.0486	1.0500	1.0500
North Leg	93	176	93	76	0	-100	1.0500	1.0500													
South Leg	318	106	366	111	48	5	1.1509	1.0472													
East Leg	806	835	677	681	-129	-154	1.0500	1.0500													
West Leg	611	711	727	551	116	-160	1.1899	1.0500													
Quince Street (NS) at 3. Mission Avenue (EW)										1.4446	1.0500	1.0500	1.0500	2.7287	1.4446	1.2200	1.2200	2.8987	2.7456	1.4615	1.0669
North Leg	89	313	89	313	0	0	1.0500	1.0500													
South Leg	225	81	99	357	-126	276	1.0500	4.4074													
East Leg	1,122	983	1,216	561	94	-422	1.0838	1.0500													
West Leg	482	541	670	995	188	454	1.3900	1.8392													
Centre City Parkway (NS) at 4. El Norte Parkway (EW)										1.0478	1.0548	1.0612	1.0564	1.6700	1.0430	1.0379	1.0443	1.6578	1.6700	1.0430	1.0500
North Leg	888	1,142	878	372	-10	-770	1.0500	1.0500													
South Leg	420	338	445	774	25	436	1.0595	2.2899													
East Leg	909	732	560	778	-349	46	1.0500	1.0628													
West Leg	661	666	678	690	17	24	1.0257	1.0360													
Centre City Parkway (NS) at 5. Mission Avenue (EW)										2.0784	1.1422	1.1422	1.1123	1.1981	2.0485	1.1672	1.1672	1.2531	1.1359	1.9863	1.0500
North Leg	1,255	912	1,474	597	219	-315	1.1745	1.0500													
South Leg	606	866	748	1,058	142	192	1.2343	1.2217													
East Leg	809	930	659	557	-150	-373	1.0500	1.0500													
West Leg	464	426	596	1,245	132	819	1.2845	2.9225													
Escondido Boulevard (NS) at 6. El Norte Parkway (EW)										1.0500	1.0500	1.0500	1.0500	5.1500	1.0500	1.0880	1.0880	5.1880	5.1500	1.0500	1.0500
North Leg	48	639	48	639	0	0	1.0500	1.0500													
South Leg	156	52	152	481	-4	429	1.0500	9.2500													
East Leg	1,377	924	867	672	-510	-252	1.0500	1.0500													
West Leg	691	657	778	560	87	-97	1.1259	1.0500													
Escondido Boulevard (NS) at 7. Lincoln Avenue (EW)										1.2208	1.2208	9.6958	9.5250	1.6079	1.0500	1.0500	9.5250	1.6079	1.6079	1.0500	1.0500
North Leg	466	541	412	158	-54	-383	1.0500	1.0500													
South Leg	166	211	231	457	65	246	1.3916	2.1659													
East Leg	180	7	72	126	-108	119	1.0500	18.0000													
West Leg	18	71	18	71	0	0	1.0500	1.0500													
Escondido Boulevard (NS) at 8. Mission Avenue (EW)										1.2660	1.0500	1.0500	1.0500	1.6412	1.2660	1.1727	1.1727	1.7639	1.7517	1.3765	1.1605
North Leg	489	436	335	249	-154	-187	1.0500	1.0500													
South Leg	366	228	242	509	-124	281	1.0500	2.2325													
East Leg	594	771	755	502	161	-269	1.2710	1.0500													
West Leg	430	444	557	658	127	214	1.2953	1.4820													

Intersection	2013 <sup>1</sup>		2035 <sup>2</sup>		Growth in Volume		Growth Factor		2035 Intersection Turning Movement Growth Adjustment Factors <sup>3</sup>											
	Approach Departure		Approach Departure		Approach Departure		Approach Departure		Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R		
North Broadway (NS) at 9. Sheridan Avenue (EW)																				
North Leg	893	906	493	504	-400	-402	1.0500	1.0500												
South Leg	779	881	469	734	-310	-147	1.0500	1.0500												
East Leg	367	90	298	50	-69	-40	1.0500	1.0500												
West Leg	23	185	23	185	0	0	1.0500	1.0500												
North Broadway (NS) at 10. El Norte Parkway (EW)																				
North Leg	710	658	734	459	24	-189	1.0398	1.0500												
South Leg	452	382	399	882	-53	500	1.0500	2.3089												
East Leg	1,252	1,345	936	566	-316	-779	1.0500	1.0500												
West Leg	613	642	672	867	59	225	1.0962	1.3505												
North Broadway (NS) at 11. Lincoln Avenue (EW)																				
North Leg	740	714	1,048	409	308	-305	1.4162	1.0500												
South Leg	565	442	453	1,064	-112	622	1.0500	2.4072												
East Leg	60	208	142	105	82	-103	2.3667	1.0500												
West Leg	60	61	156	200	96	139	2.6000	3.2787												
North Broadway (NS) at 12. SR 78/Lincoln Parkway (EW)																				
North Leg	695	1,107	1,064	453	369	-654	1.5309	1.0500												
South Leg	700	546	1,121	847	421	301	1.6014	1.5513												
East Leg	1,222	1,743	1,620	724	398	-1,019	1.3257	1.0500												
West Leg	1,476	697	1,806	3,456	330	2,759	1.2236	4.9584												
North Broadway (NS) at 13. Mission Avenue (EW)																				
North Leg	1,013	905	719	1,193	-294	288	1.0500	1.3182												
South Leg	674	765	754	870	80	105	1.1187	1.1373												
East Leg	634	643	1,032	500	398	-143	1.6278	1.0500												
West Leg	343	351	548	748	205	397	1.5977	2.1311												
Garrick Way (NS) at 14. Lincoln Parkway (EW)																				
North Leg	124	71	74	71	0	0	1.0500	1.0500												
South Leg	21	99	74	90	0	0	1.0500	1.0500												
East Leg	1,234	1,217	1,218	792	484	-425	1.3922	1.0500												
West Leg	718	710	724	1,620	6	910	1.0084	2.2817												
Fig Street (NS) at 15. Lincoln Parkway (EW)																				
North Leg	371	441	307	147	-64	-294	1.0500	1.0500												
South Leg	386	275	284	206	-102	-69	1.0500	1.0500												
East Leg	928	1,077	1,460	851	532	-226	1.5733	1.0500												
West Leg	661	553	752	1,546	91	993	1.1377	2.7957												
Garrick Way (NS) at 16. Mission Avenue (EW)																				
North Leg	559	366	266	282	-293	-84	1.0500	1.0500												
South Leg	313	359	398	259	45	-100	1.1438	1.0500												
East Leg	595	761	678	359	83	-402	1.1395	1.0500												
West Leg	425	406	434	770	9	364	1.0212	1.8966												

<sup>1</sup> 2013 Approach/Departure volumes counted in June or December, 2013.

<sup>2</sup> 2035 Approach/Departure volumes referenced from SANDAG Series 12 2035 2011 Revenue Constrained Highway Network Peak Hour Volumes.

<sup>3</sup> Turning movement growth factors calculated by averaging the growth factors of the approach and departure legs for each individual movement. For example, a northbound left turn growth factor is calculated by averaging the growth of the south leg (approach) and west leg (departure).

 = Data not provided in SANDAG Series 12 model. Existing volume shown.

 = Negative, or "no", growth in Approach/Departure volume. Minimum growth factor increased to 5%.

Appendix C

Year 2035 Intersection Turning Movement Growth Factor Calculations (PM Peak Hour)

PM

Intersection	2013 <sup>1</sup>		2035 <sup>2</sup>		Growth in Volume		Growth Factor		2035 Intersection Turning Movement Growth Adjustment Factors <sup>3</sup>											
	Approach	Departure	Approach	Departure	Approach	Departure	Approach	Departure	Northbound			Southbound			Eastbound			Westbound		
									L	T	R	L	T	R	L	T	R	L	T	R
Rock Springs Road (NS) at 1. Mission Avenue (EW)									1.0500	1.5222	1.6508	1.6508	1.0500	1.0500	1.4988	1.6274	1.0266	1.4291	1.4291	1.9013
North Leg <sup>3</sup>	402	358	395	714	-7	356	1.0500	1.9944												
South Leg <sup>3</sup>	544	773	528	289	-16	-484	1.0500	1.0500												
East Leg	615	477	1,112	1,074	497	597	1.8081	2.2516												
West Leg	922	875	925	592	3	-283	1.0033	1.0500												
Morning View Drive (NS) at 2. El Norte Parkway (EW)									1.0500	1.0500	1.0500	1.0500	1.2815	1.0500	1.0500	1.0500	1.2815	1.2815	1.0500	1.0500
North Leg	332	264	332	264	0	0	1.0500	1.0500												
South Leg	324	269	191	407	-133	138	1.0500	1.5130												
East Leg	882	1,022	703	950	-179	-72	1.0500	1.0500												
West Leg	1,084	1,067	753	940	-331	-127	1.0500	1.0500												
Quince Street (NS) at 3. Mission Avenue (EW)									1.0500	1.0500	1.3818	1.3818	1.3380	1.0500	1.1256	1.4574	1.4136	1.3364	1.0483	1.0483
North Leg <sup>4</sup>	167	153	167	153	0	0	1.0500	1.0500												
South Leg	469	115	319	187	-150	72	1.0500	1.6261												
East Leg	707	723	740	1,239	33	516	1.0467	1.7137												
West Leg	900	1,252	1,081	799	181	-453	1.2011	1.0500												
Centre City Parkway (NS) at 4. El Norte Parkway (EW)									1.0315	1.3343	1.0315	1.0500	1.0500	1.0500	1.3528	1.0500	1.0500	1.0500	1.0500	1.3528
North Leg	456	604	336	1,000	-120	396	1.0500	1.6556												
South Leg	1,079	636	1,093	262	14	-294	1.0130	1.0500												
East Leg	884	992	809	900	-75	-92	1.0500	1.0500												
West Leg	1,171	1,338	955	698	-216	-640	1.0500	1.0500												
Centre City Parkway (NS) at 5. Mission Avenue (EW)									1.3772	1.8911	1.6373	1.3101	1.0500	1.0500	1.6317	1.3779	1.1178	1.0500	1.0500	1.5639
North Leg	973	733	928	1,523	-45	790	1.0500	2.0778												
South Leg	846	1,337	1,442	893	596	-444	1.7045	1.0500												
East Leg	743	677	532	1,063	-211	386	1.0500	1.5702												
West Leg	1,045	860	1,239	740	194	-120	1.1856	1.0500												
Escondido Boulevard (NS) at 6. El Norte Parkway (EW)									1.2227	1.2227	1.3034	1.1307	1.6848	1.0500	1.0500	1.1307	1.6848	1.6848	1.0500	1.0500
North Leg	95	309	95	309	0	0	1.0500	1.0500												
South Leg	344	97	480	225	136	128	1.3953	2.3196												
East Leg	975	880	566	1,066	-410	186	1.0500	1.2114												
West Leg	1,350	1,479	900	809	-450	-670	1.0500	1.0500												
Escondido Boulevard (NS) at 7. Lincoln Avenue (EW)									1.2895	1.7612	4.5483	4.3088	1.0500	1.0500	1.5217	4.3088	1.0500	1.2150	1.2150	1.6867
North Leg	291	302	183	602	-108	300	1.0500	1.9934												
South Leg	518	491	792	256	274	-235	1.5290	1.0500												
East Leg	100	37	138	280	38	243	1.3800	7.5676												
West Leg	15	94	15	94	0	0	1.0500	1.0500												
Escondido Boulevard (NS) at 8. Mission Avenue (EW)									1.0500	1.1541	1.2134	1.2134	1.0500	1.0500	1.2664	1.3257	1.1623	1.2064	1.2064	1.3105
North Leg	393	484	208	609	-185	125	1.0500	1.2583												
South Leg	780	525	616	273	-164	-252	1.0500	1.0500												
East Leg	554	698	755	961	201	263	1.3628	1.3768												
West Leg	834	854	1,063	532	229	-322	1.2746	1.0500												

PM

Intersection	2013 <sup>1</sup>		2035 <sup>2</sup>		Growth in Volume		Growth Factor		2035 Intersection Turning Movement Growth Adjustment Factors <sup>3</sup>																	
	Approach	Departure	Approach	Departure	Approach	Departure	Approach	Departure	Northbound			Southbound			Eastbound			Westbound								
									L	T	R	L	T	R	L	T	R	L	T	R						
North Broadway (NS) at 9. Sheridan Avenue (EW)													1.1833	1.1833	9.8250	9.6917	1.0500	1.0500	1.0500	9.6917	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
	North Leg	578	585	403	567	-175	-18	1.0500	1.0500																	
	South Leg	660	627	869	405	209	-222	1.3167	1.0500																	
	East Leg	68	18	63	330	-5	312	1.0500	18.3333																	
	West Leg	23	99		99	0	0	1.0500	1.0500																	
North Broadway (NS) at 10. El Norte Parkway (EW)													1.0500	1.2247	1.0500	1.0500	1.0500	1.0500	1.2247	1.0500	1.0500	1.0500	1.0500	1.0500	1.2247	
	North Leg	519	621	405	869	-114	248	1.0500	1.3994																	
	South Leg	852	828	768	499	-84	-329	1.0500	1.0500																	
	East Leg	926	1,016	582	902	-344	-114	1.0500	1.0500																	
	West Leg	1,454	1,286	1,066	566	-388	-720	1.0500	1.0500																	
North Broadway (NS) at 11. Lincoln Avenue (EW)													1.0500	1.1608	1.7973	1.7973	1.0500	1.0500	3.2535	3.8899	3.1426	1.0500	1.0500	1.1608		
	North Leg	686	681	560	866	-126	185	1.0500	1.2717																	
	South Leg	1,094	1,049	786	754	-308	-295	1.0500	1.0500																	
	East Leg	84	101	65	257	-19	156	1.0500	2.5446																	
	West Leg	85	118	445	91	360	-27	5.2353	1.0500																	
North Broadway (NS) at 12. SR 78/Lincoln Parkway (EW)													1.6265	1.0579	1.0579	1.0885	1.0885	1.6571	1.0391	1.0391	1.0391	1.1817	1.7503	1.1817		
	North Leg	669	955	754	786	85	-169	1.1271	1.0500																	
	South Leg	1,199	1,072	1,278	687	79	-385	1.0659	1.0500																	
	East Leg	1,040	1,818	1,366	1,222	326	-596	1.3135	1.0500																	
	West Leg	2,348	1,411	2,414	3,086	66	1,675	1.0281	2.1871																	
North Broadway (NS) at 13. Mission Avenue (EW)													1.2707	1.4588	1.6616	1.4409	1.0500	1.0500	1.2797	1.4826	1.0917	1.0500	1.0500	1.2381		
	North leg	860	819	764	1,168	-96	349	1.0500	1.4261																	
	South Leg	995	1,216	1,484	501	489	-715	1.4915	1.0500																	
	East Leg	627	547	627	1,002	0	455	1.0500	1.8318																	
	West Leg	885	785	1,003	531	116	-254	1.1333	1.0500																	
Garrick Way (NS) at 14. Lincoln Parkway (EW)													1.0500	1.0500	1.1845	1.1845	1.0500	1.0500	1.0500	1.1845	1.0500	1.2033	1.2033	1.2033		
	North Leg	100	51	100		0	0	1.0500	1.0500																	
	South Leg	87	138	87	138	0	0	1.0500	1.0500																	
	East Leg	1,043	1,050	1,415	1,385	372	335	1.3567	1.3190																	
	West Leg	1,405	1,396	1,222	1,366	-183	-30	1.0500	1.0500																	
Fig Street (NS) at 15. Lincoln Parkway (EW)													1.2587	1.1848	1.3548	1.2200	1.0500	1.1239	1.0299	1.1999	1.0299	1.3075	1.3814	1.3075		
	North leg	205	238	132	238	-73	0	1.0500	1.0500																	
	South Leg	388	241	512	142	124	-99	1.3196	1.0500																	
	East Leg	777	982	1,216	1,365	439	383	1.5650	1.3900																	
	West Leg	1,228	1,137	1,240	1,362	12	225	1.0098	1.1979																	
Fig Street (NS) at 16. Mission Avenue (EW)													1.0500	1.2494	1.1533	1.1533	1.0500	1.0500	1.2494	1.1533	1.0500	1.0500	1.0500	1.2494		
	North Leg	349	390	160	565	-189	175	1.0500	1.4487																	
	South Leg	399	422	341	219	-58	-203	1.0500	1.0500																	
	East Leg	479	569	463	715	-16	146	1.0500	1.2566																	
	West Leg	872	718	747	338	-125	-380	1.0500	1.0500																	

<sup>1</sup> 2013 Approach/Departure volumes counted in June or December, 2013.

<sup>2</sup> 2035 Approach/Departure volumes referenced from SANDAG Series 12 2035 2011 Revenue Constrained Highway Network Peak Hour Volumes.

<sup>3</sup> Turning movement growth factors calculated by averaging the growth factors of the approach and departure legs for each individual movement. For example, a northbound left turn growth factor is calculated by averaging the growth of the south leg (approach) and west leg (departure).



= Data not provided in SANDAG Series 12 model. Existing volume shown.



= Negative or 'no' growth in Approach/Departure volume. Minimum growth factor increased to 5%.

## **Appendix I**

Horizon Year (2035) Without Project  
HCM Intersection Analysis Worksheets

Horizon Year (2035) Without Project  
AM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖	↗
Volume (veh/h)	51	285	34	55	1072	96	59	173	19	167	330	159
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	54	300	36	58	1128	101	62	182	20	176	347	167
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
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	71	1381	164	75	1431	128	266	1016	110	447	588	500
Arrive On Green	0.04	0.43	0.43	0.04	0.44	0.44	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	3186	379	1774	3287	294	883	3221	350	1175	1863	1583
Grp Volume(v), veh/h	54	165	171	58	607	622	62	99	103	176	347	167
Grp Sat Flow(s),veh/h/ln	1774	1770	1796	1774	1770	1811	883	1770	1801	1175	1863	1583
Q Serve(g_s), s	1.7	3.4	3.4	1.9	16.9	17.0	3.6	2.3	2.4	7.3	9.0	4.6
Cycle Q Clear(g_c), s	1.7	3.4	3.4	1.9	16.9	17.0	12.6	2.3	2.4	9.7	9.0	4.6
Prop In Lane	1.00		0.21	1.00		0.16	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	71	767	778	75	770	788	266	558	568	447	588	500
V/C Ratio(X)	0.76	0.22	0.22	0.78	0.79	0.79	0.23	0.18	0.18	0.39	0.59	0.33
Avail Cap(c_a), veh/h	124	767	778	154	770	788	356	739	753	568	778	662
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	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	10.2	10.2	27.2	13.9	13.9	21.9	14.3	14.3	17.8	16.5	15.0
Incr Delay (d2), s/veh	14.9	0.6	0.6	11.1	5.6	5.5	0.4	0.2	0.2	0.6	0.9	0.4
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	1.1	1.7	1.8	1.1	9.3	9.5	0.9	1.2	1.2	2.4	4.8	2.1
LnGrp Delay(d),s/veh	42.2	10.8	10.8	38.4	19.5	19.4	22.3	14.4	14.4	18.4	17.5	15.4
LnGrp LOS	D	B	B	D	B	B	C	B	B	B	B	B
Approach Vol, veh/h		390			1287			264			690	
Approach Delay, s/veh		15.2			20.3			16.3			17.2	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	36.5		22.1	6.3	36.6		22.1
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.0	24.0		24.0	4.0	25.0		24.0
Max Q Clear Time (g_c+I1), s	3.9	5.4		11.7	3.7	19.0		14.6
Green Ext Time (p_c), s	0.0	10.3		4.0	0.0	4.4		3.5

Intersection Summary		
HCM 2010 Ctrl Delay		18.3
HCM 2010 LOS		B



HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	57	536	77	91	704	37	127	18	203	28	19	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	60	564	81	96	741	39	134	19	214	29	20	46
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
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	75	2272	322	124	2705	842	378	30	333	228	114	261
Arrive On Green	0.04	0.50	0.50	0.07	0.53	0.53	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	4503	638	1774	5085	1583	1330	131	1472	1143	503	1156
Grp Volume(v), veh/h	60	423	222	96	741	39	134	0	233	29	0	66
Grp Sat Flow(s),veh/h/ln	1774	1695	1750	1774	1695	1583	1330	0	1603	1143	0	1659
Q Serve(g_s), s	2.0	4.2	4.3	3.2	4.8	0.7	5.4	0.0	7.9	1.4	0.0	1.9
Cycle Q Clear(g_c), s	2.0	4.2	4.3	3.2	4.8	0.7	7.4	0.0	7.9	9.3	0.0	1.9
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.92	1.00		0.70
Lane Grp Cap(c), veh/h	75	1711	883	124	2705	842	378	0	362	228	0	375
V/C Ratio(X)	0.80	0.25	0.25	0.77	0.27	0.05	0.35	0.00	0.64	0.13	0.00	0.18
Avail Cap(c_a), veh/h	206	1711	883	265	2705	842	718	0	773	520	0	800
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.5	8.4	8.5	27.5	7.7	6.8	21.7	0.0	21.1	25.3	0.0	18.8
Incr Delay (d2), s/veh	16.9	0.3	0.7	9.8	0.3	0.1	0.6	0.0	1.9	0.2	0.0	0.2
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	1.3	2.1	2.3	1.9	2.3	0.3	2.0	0.0	3.7	0.5	0.0	0.9
LnGrp Delay(d),s/veh	45.5	8.8	9.1	37.3	8.0	6.9	22.3	0.0	23.0	25.6	0.0	19.0
LnGrp LOS	D	A	A	D	A	A	C		C	C		B
Approach Vol, veh/h		705			876			367			95	
Approach Delay, s/veh		12.0			11.1			22.7			21.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	34.4		17.6	6.6	36.0		17.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	9.0	30.0		29.0	7.0	32.0		29.0
Max Q Clear Time (g_c+I1), s	5.2	6.3		11.3	4.0	6.8		9.9
Green Ext Time (p_c), s	0.1	10.6		2.3	0.0	10.9		2.3

Intersection Summary		
HCM 2010 Ctrl Delay		14.0
HCM 2010 LOS		B

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↑	↗	↖	↗	
Volume (veh/h)	16	472	209	596	1250	46	150	25	97	47	63	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	17	497	220	627	1316	48	158	26	102	49	66	28
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	27	651	287	663	2196	80	186	282	240	63	102	43
Arrive On Green	0.02	0.27	0.27	0.37	0.63	0.63	0.10	0.15	0.15	0.04	0.08	0.08
Sat Flow, veh/h	1774	2393	1054	1774	3483	127	1774	1863	1583	1774	1243	527
Grp Volume(v), veh/h	17	367	350	627	668	696	158	26	102	49	0	94
Grp Sat Flow(s), veh/h/ln	1774	1770	1677	1774	1770	1840	1774	1863	1583	1774	0	1770
Q Serve(g_s), s	0.9	18.2	18.4	32.7	21.4	21.5	8.4	1.1	5.6	2.6	0.0	4.9
Cycle Q Clear(g_c), s	0.9	18.2	18.4	32.7	21.4	21.5	8.4	1.1	5.6	2.6	0.0	4.9
Prop In Lane	1.00		0.63	1.00		0.07	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	27	481	456	663	1116	1180	186	282	240	63	0	145
V/C Ratio(X)	0.63	0.76	0.77	0.95	0.60	0.60	0.85	0.09	0.43	0.78	0.00	0.65
Avail Cap(c_a), veh/h	93	481	456	724	1116	1180	186	604	514	148	0	537
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)	0.96	0.96	0.96	0.64	0.64	0.64	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.8	31.9	32.0	29.0	10.5	10.5	42.1	34.9	36.8	45.7	0.0	42.5
Incr Delay (d2), s/veh	21.0	10.5	11.3	14.8	1.5	1.5	29.5	0.1	1.2	18.7	0.0	4.7
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	0.6	10.3	9.9	18.7	10.9	11.3	5.6	0.6	2.5	1.6	0.0	2.6
LnGrp Delay(d),s/veh	67.8	42.4	43.3	43.8	12.0	12.0	71.6	35.0	38.0	64.4	0.0	47.3
LnGrp LOS	E	D	D	D	B	B	E	D	D	E		D
Approach Vol, veh/h		734			1991			286			143	
Approach Delay, s/veh		43.4			22.0			56.3			53.1	
Approach LOS		D			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.7	54.4	14.0	11.9	5.5	88.7	7.4	18.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	39.0	26.0	10.0	29.0	5.0	60.0	8.0	31.0
Max Q Clear Time (g_c+I1), s	34.7	20.4	10.4	6.9	2.9	23.5	4.6	7.6
Green Ext Time (p_c), s	1.0	4.8	0.0	0.9	0.0	20.9	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗	↘	↖↖	↗↗		↖↖	↗↗	↘	↖↖	↗↗	↘
Volume (veh/h)	28	411	360	384	583	101	126	215	102	144	1161	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	29	433	379	404	614	106	133	226	107	152	1222	44
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
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	91	1033	462	442	1190	205	164	1344	601	194	1374	615
Arrive On Green	0.03	0.29	0.29	0.13	0.39	0.39	0.05	0.38	0.38	0.06	0.39	0.39
Sat Flow, veh/h	3442	3539	1583	3442	3020	520	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	29	433	379	404	359	361	133	226	107	152	1222	44
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1771	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.4	16.5	37.3	19.4	25.8	25.9	6.4	7.1	7.5	7.3	54.0	2.9
Cycle Q Clear(g_c), s	1.4	16.5	37.3	19.4	25.8	25.9	6.4	7.1	7.5	7.3	54.0	2.9
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	1033	462	442	697	698	164	1344	601	194	1374	615
V/C Ratio(X)	0.32	0.42	0.82	0.91	0.52	0.52	0.81	0.17	0.18	0.78	0.89	0.07
Avail Cap(c_a), veh/h	123	1290	577	452	814	815	164	1344	601	267	1374	615
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.0	47.8	55.2	72.0	38.6	38.6	78.9	34.4	34.5	78.0	47.8	32.2
Incr Delay (d2), s/veh	2.0	0.3	7.5	22.6	0.6	0.6	25.1	0.3	0.6	9.9	8.9	0.2
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	0.7	8.1	17.2	10.6	12.8	12.8	3.6	3.5	3.4	3.7	28.0	1.3
LnGrp Delay(d),s/veh	82.0	48.1	62.6	94.6	39.2	39.2	104.0	34.7	35.2	87.8	56.7	32.4
LnGrp LOS	F	D	E	F	D	D	F	C	D	F	E	C
Approach Vol, veh/h		841			1124			466			1418	
Approach Delay, s/veh		55.8			59.1			54.6			59.3	
Approach LOS		E			E			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	70.6	26.5	54.9	14.0	72.0	9.4	71.9				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6				
Max Green Setting (Gmax), s	13.0	60.0	22.0	61.0	8.0	65.0	6.0	*77				
Max Q Clear Time (g_c+I1), s	9.3	9.5	21.4	39.3	8.4	56.0	3.4	27.9				
Green Ext Time (p_c), s	0.1	16.9	0.1	9.6	0.0	6.3	0.0	12.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			57.9									
HCM 2010 LOS			E									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	134	283	112	70	922	285	202	548	21	152	905	744
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	141	298	0	74	971	0	213	577	0	160	953	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
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	173	1250	559	95	1096	490	275	1212	542	234	1170	524
Arrive On Green	0.10	0.35	0.00	0.05	0.31	0.00	0.08	0.34	0.00	0.07	0.33	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	141	298	0	74	971	0	213	577	0	160	953	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	6.8	5.2	0.0	3.6	22.9	0.0	5.3	11.2	0.0	4.0	21.6	0.0
Cycle Q Clear(g_c), s	6.8	5.2	0.0	3.6	22.9	0.0	5.3	11.2	0.0	4.0	21.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	1250	559	95	1096	490	275	1212	542	234	1170	524
V/C Ratio(X)	0.81	0.24	0.00	0.78	0.89	0.00	0.78	0.48	0.00	0.68	0.81	0.00
Avail Cap(c_a), veh/h	182	1250	559	182	1170	524	275	1212	542	314	1170	524
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)	0.57	0.57	0.00	0.68	0.68	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.8	20.0	0.0	41.0	28.8	0.0	39.6	22.6	0.0	40.0	26.9	0.0
Incr Delay (d2), s/veh	14.3	0.1	0.0	8.8	5.8	0.0	13.0	1.3	0.0	3.8	6.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	2.5	0.0	2.0	12.1	0.0	3.0	5.7	0.0	2.0	11.6	0.0
LnGrp Delay(d),s/veh	53.1	20.1	0.0	49.8	34.6	0.0	52.6	24.0	0.0	43.7	33.2	0.0
LnGrp LOS	D	C		D	C		D	C		D	C	
Approach Vol, veh/h		439			1045			790			1113	
Approach Delay, s/veh		30.7			35.6			31.7			34.7	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	36.3	8.7	35.0	11.0	35.3	12.6	31.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	9.0	29.0	7.0	29.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	6.0	13.2	5.6	7.2	7.3	23.6	8.8	24.9				
Green Ext Time (p_c), s	0.1	9.0	0.0	9.5	0.0	4.0	0.0	2.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.8									
HCM 2010 LOS			C									

**Intersection**

Int Delay, s/veh 942.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	40	548	736	2477	925	16	0	0	158	3	40	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	577	775	2607	974	17	0	0	166	3	42	41

Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	991	0	0	1352	0	0	6771	7253	676	6570	7633	495
Stage 1	-	-	-	-	-	-	1048	1048	-	6197	6197	-
Stage 2	-	-	-	-	-	-	5723	6205	-	373	1436	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	693	-	-	~ 505	-	-	0	0	396	0	0	520
Stage 1	-	-	-	-	-	-	244	303	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	620	197	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	693	-	-	~ 505	-	-	0	0	396	0	0	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ -47	~ -45	-	0	0	-
Stage 1	-	-	-	-	-	-	229	285	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	338	185	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	\$ 1372.8	20.5	-
HCM LOS			C	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	396	693	-	-	~ 505	-	-	-	520
HCM Lane V/C Ratio	-	0.42	0.061	-	-	5.163	-	-	-	0.079
HCM Control Delay (s)	0	20.5	10.5	-	-	\$ 1894.3	-	-	-	12.5
HCM Lane LOS	A	C	B	-	-	F	-	-	-	B
HCM 95th %tile Q(veh)	-	2	0.2	-	-	266.5	-	-	-	0.3

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Intersection  
Int Delay, s/veh 476.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	66	13	134	2	44	2	171	164	334	682	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	69	14	141	2	46	2	180	173	352	718	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1629	1605	718	1647	1605	180	718	0	0	180	0	0
Stage 1	1421	1421	-	184	184	-	-	-	-	-	-	-
Stage 2	208	184	-	1463	1421	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	82	105	429	~79	105	863	883	-	-	1396	-	-
Stage 1	169	202	-	818	747	-	-	-	-	-	-	-
Stage 2	794	747	-	160	202	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	61	78	429	~15	78	863	883	-	-	1396	-	-
Mov Cap-2 Maneuver	61	78	-	~15	78	-	-	-	-	-	-	-
Stage 1	169	151	-	816	745	-	-	-	-	-	-	-
Stage 2	748	745	-	~63	151	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	171.7	\$ 4189.8	0.1	2.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	883	-	-	89	20	1396	-	-
HCM Lane V/C Ratio	0.002	-	-	0.97	9.474	0.252	-	-
HCM Control Delay (s)	9.1	-	-	171	\$ 4189.8	8.4	-	-
HCM Lane LOS	A	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0	-	-	5.5	24.1	1	-	-

Notes:  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	340	148	131	666	34	206	125	69	88	444	137
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	35	358	156	138	701	36	217	132	73	93	467	144
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	48	724	311	155	1235	63	222	776	406	120	768	235
Arrive On Green	0.03	0.30	0.30	0.09	0.36	0.36	0.13	0.35	0.35	0.07	0.29	0.29
Sat Flow, veh/h	1774	2414	1035	1774	3425	176	1774	2249	1176	1774	2670	818
Grp Volume(v), veh/h	35	261	253	138	362	375	217	102	103	93	308	303
Grp Sat Flow(s),veh/h/ln	1774	1770	1680	1774	1770	1832	1774	1770	1655	1774	1770	1718
Q Serve(g_s), s	1.6	9.7	9.9	6.2	13.2	13.2	9.8	3.2	3.5	4.1	12.0	12.2
Cycle Q Clear(g_c), s	1.6	9.7	9.9	6.2	13.2	13.2	9.8	3.2	3.5	4.1	12.0	12.2
Prop In Lane	1.00		0.62	1.00		0.10	1.00		0.71	1.00		0.48
Lane Grp Cap(c), veh/h	48	531	504	155	638	660	222	611	571	120	509	494
V/C Ratio(X)	0.73	0.49	0.50	0.89	0.57	0.57	0.98	0.17	0.18	0.78	0.61	0.61
Avail Cap(c_a), veh/h	155	531	504	155	638	660	222	611	571	200	509	494
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)	0.95	0.95	0.95	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	23.0	23.1	36.1	20.6	20.6	34.9	18.2	18.3	36.7	24.6	24.6
Incr Delay (d2), s/veh	18.2	3.1	3.4	6.1	0.3	0.3	54.1	0.6	0.7	10.3	5.3	5.6
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	1.0	5.2	5.0	3.3	6.5	6.7	8.1	1.7	1.7	2.4	6.6	6.5
LnGrp Delay(d),s/veh	56.8	26.1	26.5	42.3	20.9	20.9	89.0	18.8	19.0	47.0	29.9	30.2
LnGrp LOS	E	C	C	D	C	C	F	B	B	D	C	C
Approach Vol, veh/h		549			875			422			704	
Approach Delay, s/veh		28.2			24.3			55.0			32.3	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	28.0	14.0	27.0	6.2	32.8	9.4	31.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	10.0	23.0	7.0	24.0	9.0	24.0				
Max Q Clear Time (g_c+I1), s	8.2	11.9	11.8	14.2	3.6	15.2	6.1	5.5				
Green Ext Time (p_c), s	0.0	6.1	0.0	3.3	0.0	4.9	0.0	4.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.4									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔		↔	↔	
Volume (veh/h)	6	5	13	114	17	251	60	663	88	99	812	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.73	0.80		0.73	1.00		0.91	1.00		0.58
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	6	5	14	120	18	264	63	698	93	104	855	19
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
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	138	115	222	359	30	443	79	973	129	134	1198	27
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.04	0.31	0.31	0.08	0.34	0.34
Sat Flow, veh/h	150	286	555	1106	75	1105	1774	3098	412	1774	3474	77
Grp Volume(v), veh/h	25	0	0	120	0	282	63	398	393	104	435	439
Grp Sat Flow(s),veh/h/ln	990	0	0	1106	0	1180	1774	1770	1741	1774	1770	1782
Q Serve(g_s), s	0.1	0.0	0.0	5.5	0.0	10.8	2.0	11.4	11.5	3.3	12.3	12.3
Cycle Q Clear(g_c), s	10.9	0.0	0.0	16.4	0.0	10.8	2.0	11.4	11.5	3.3	12.3	12.3
Prop In Lane	0.24		0.56	1.00		0.94	1.00		0.24	1.00		0.04
Lane Grp Cap(c), veh/h	475	0	0	359	0	473	79	556	547	134	610	614
V/C Ratio(X)	0.05	0.00	0.00	0.33	0.00	0.60	0.80	0.72	0.72	0.78	0.71	0.71
Avail Cap(c_a), veh/h	475	0	0	360	0	474	217	556	547	217	610	614
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	0.0	20.0	0.0	13.5	27.1	17.4	17.4	26.0	16.3	16.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.5	0.0	2.0	16.2	7.7	7.9	9.4	7.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	1.7	0.0	3.7	1.3	6.7	6.7	2.0	7.1	7.2
LnGrp Delay(d),s/veh	10.7	0.0	0.0	20.5	0.0	15.5	43.3	25.1	25.3	35.4	23.3	23.3
LnGrp LOS	B			C		B	D	C	C	D	C	C
Approach Vol, veh/h		25			402			854			978	
Approach Delay, s/veh		10.7			17.0			26.5			24.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.3	22.0		27.0	6.6	23.8		27.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0
Max Q Clear Time (g_c+I1), s	5.3	13.5		12.9	4.0	14.3		18.4
Green Ext Time (p_c), s	0.0	3.5		2.1	0.0	2.9		1.2

Intersection Summary												
HCM 2010 Ctrl Delay				23.8								
HCM 2010 LOS				C								



HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	115	459	133	333	1201	53	103	229	145	76	620	308
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.94	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	121	483	140	351	1264	56	108	241	153	80	653	324
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
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	158	960	276	397	1425	63	127	795	479	98	800	397
Arrive On Green	0.05	0.34	0.34	0.12	0.41	0.41	0.07	0.38	0.38	0.06	0.37	0.37
Sat Flow, veh/h	3442	2791	803	3442	3448	153	1774	2068	1245	1774	2172	1078
Grp Volume(v), veh/h	121	317	306	351	648	672	108	204	190	80	532	445
Grp Sat Flow(s),veh/h/ln	1721	1840	1753	1721	1770	1831	1774	1770	1543	1774	1770	1480
Q Serve(g_s), s	6.2	24.3	24.7	17.9	60.3	60.5	10.7	14.3	15.3	7.9	48.3	48.3
Cycle Q Clear(g_c), s	6.2	24.3	24.7	17.9	60.3	60.5	10.7	14.3	15.3	7.9	48.3	48.3
Prop In Lane	1.00		0.46	1.00		0.08	1.00		0.81	1.00		0.73
Lane Grp Cap(c), veh/h	158	633	603	397	731	757	127	680	593	98	652	545
V/C Ratio(X)	0.77	0.50	0.51	0.88	0.89	0.89	0.85	0.30	0.32	0.82	0.82	0.82
Avail Cap(c_a), veh/h	164	633	603	493	731	757	145	680	593	145	652	545
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	83.9	46.2	46.4	77.5	48.3	48.4	81.7	38.1	38.4	83.1	50.7	50.7
Incr Delay (d2), s/veh	18.5	2.8	3.0	14.8	14.8	14.6	33.2	1.1	1.4	20.0	10.9	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	3.3	12.8	12.5	9.3	32.5	33.7	6.4	7.2	6.8	4.4	25.6	21.7
LnGrp Delay(d),s/veh	102.4	49.1	49.4	92.3	63.1	63.0	114.9	39.2	39.8	103.1	61.6	63.5
LnGrp LOS	F	D	D	F	E	E	F	D	D	F	E	E
Approach Vol, veh/h		744			1671			502			1057	
Approach Delay, s/veh		57.9			69.2			55.7			65.5	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.3	72.9	25.0	65.7	17.2	70.0	12.7	78.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.5	65.5	25.5	56.5	14.5	65.5	8.5	73.5				
Max Q Clear Time (g_c+I1), s	9.9	17.3	19.9	26.7	12.7	50.3	8.2	62.5				
Green Ext Time (p_c), s	0.1	13.3	0.6	17.1	0.0	8.2	0.0	8.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			64.4									
HCM 2010 LOS			E									

**Intersection**

Int Delay, s/veh 38.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	0	61	57	11	43	185	427	32	33	1231	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	64	60	12	45	195	449	34	35	1296	146

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2058	2311	721	1573	2368	242	1442	0	0	483	0	0
Stage 1	1438	1438	-	856	856	-	-	-	-	-	-	-
Stage 2	620	873	-	717	1512	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	32	38	370	74	35	759	466	-	-	1076	-	-
Stage 1	140	197	-	319	373	-	-	-	-	-	-	-
Stage 2	442	366	-	387	181	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	11	21	370	~ 40	20	759	466	-	-	1076	-	-
Mov Cap-2 Maneuver	11	21	-	~ 40	20	-	-	-	-	-	-	-
Stage 1	81	191	-	186	217	-	-	-	-	-	-	-
Stage 2	229	213	-	309	175	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	86.5	\$ 679.2	5.2	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	466	-	-	107	55	1076	-	-
HCM Lane V/C Ratio	0.418	-	-	0.649	2.124	0.032	-	-
HCM Control Delay (s)	18.2	-	-	86.5	679.2	8.5	-	-
HCM Lane LOS	C	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	2	-	-	3.3	11.5	0.1	-	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↗	↘	↔	↗	↘	↔	↗	↘	↔	↗	↘
Volume (veh/h)	187	718	870	183	3249	95	1312	344	42	31	537	967
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.88	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	197	756	916	193	3420	100	1381	362	44	33	565	1018
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
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	168	1297	772	258	1430	430	802	1605	634	102	1024	440
Arrive On Green	0.05	0.26	0.26	0.07	0.28	0.28	0.23	0.45	0.45	0.06	0.28	0.28
Sat Flow, veh/h	3442	5085	1580	3442	5085	1528	3442	3539	1397	1774	3681	1583
Grp Volume(v), veh/h	197	756	916	193	3420	100	1381	362	44	33	565	1018
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1528	1721	1770	1397	1774	1840	1583
Q Serve(g_s), s	7.8	20.8	40.8	8.8	45.0	8.1	37.3	10.0	2.8	2.9	20.9	44.5
Cycle Q Clear(g_c), s	7.8	20.8	40.8	8.8	45.0	8.1	37.3	10.0	2.8	2.9	20.9	44.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	1297	772	258	1430	430	802	1605	634	102	1024	440
V/C Ratio(X)	1.17	0.58	1.19	0.75	2.39	0.23	1.72	0.23	0.07	0.32	0.55	2.31
Avail Cap(c_a), veh/h	168	1297	772	340	1430	430	802	1605	634	176	1024	440
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.1	52.2	41.0	72.5	57.5	44.2	61.3	26.6	24.7	72.4	49.2	57.8
Incr Delay (d2), s/veh	124.1	0.7	96.8	6.3	628.2	0.3	329.8	0.1	0.0	1.8	0.6	597.4
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	6.6	9.8	54.8	4.4	104.2	3.4	54.5	4.9	1.1	1.5	10.8	92.6
LnGrp Delay(d),s/veh	200.2	52.8	137.8	78.8	685.7	44.5	391.2	26.7	24.7	74.2	49.9	655.1
LnGrp LOS	F	D	F	E	F	D	F	C	C	E	D	F
Approach Vol, veh/h		1869			3713			1787			1616	
Approach Delay, s/veh		110.0			636.9			308.3			431.7	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	79.1	17.2	48.8	43.0	51.0	13.0	53.0				
Change Period (Y+Rc), s * 5.6999998		65.1999998		8.06999998		6.51999998		8.0				
Max Green Setting (Gmax), s * 15.9		65.9	* 15.8	37.87299999		44.88000002		45.0				
Max Q Clear Time (g_c+I1), s	4.9	12.0	10.8	42.8	39.3	46.5	9.8	47.0				
Green Ext Time (p_c), s	0.0	18.8	0.3	0.0	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			425.0									
HCM 2010 LOS			F									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Volume (veh/h)	127	241	98	111	707	258	213	605	43	133	819	212
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	134	254	103	117	744	272	224	637	45	140	862	223
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	139	712	281	139	729	266	209	1409	99	169	1108	287
Arrive On Green	0.08	0.29	0.29	0.08	0.29	0.29	0.11	0.40	0.40	0.09	0.38	0.38
Sat Flow, veh/h	1774	2480	979	1774	2540	928	1845	3488	246	1845	2897	749
Grp Volume(v), veh/h	134	179	178	117	518	498	224	336	346	140	548	537
Grp Sat Flow(s),veh/h/ln	1774	1770	1690	1774	1770	1699	1845	1840	1894	1845	1840	1805
Q Serve(g_s), s	8.7	9.2	9.6	7.5	33.0	33.0	13.0	15.3	15.3	8.6	30.1	30.1
Cycle Q Clear(g_c), s	8.7	9.2	9.6	7.5	33.0	33.0	13.0	15.3	15.3	8.6	30.1	30.1
Prop In Lane	1.00		0.58	1.00		0.55	1.00		0.13	1.00		0.41
Lane Grp Cap(c), veh/h	139	508	485	139	508	488	209	744	765	169	704	691
V/C Ratio(X)	0.97	0.35	0.37	0.84	1.02	1.02	1.07	0.45	0.45	0.83	0.78	0.78
Avail Cap(c_a), veh/h	139	508	485	139	508	488	209	744	765	209	704	691
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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	32.5	32.7	52.3	41.0	41.0	51.0	25.0	25.0	51.3	31.2	31.2
Incr Delay (d2), s/veh	65.5	0.4	0.5	35.0	45.3	46.1	83.3	2.0	1.9	19.8	8.3	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	6.8	4.6	4.6	5.0	22.5	21.7	11.4	8.2	8.4	5.3	16.8	16.5
LnGrp Delay(d),s/veh	118.4	32.9	33.1	87.3	86.3	87.1	134.3	27.0	26.9	71.2	39.5	39.6
LnGrp LOS	F	C	C	F	F	F	F	C	C	E	D	D
Approach Vol, veh/h		491			1133			906			1225	
Approach Delay, s/veh		56.3			86.8			53.5			43.2	
Approach LOS		E			F			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.5	50.5	13.0	37.0	17.0	48.0	13.0	37.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	44.0	9.0	33.0	13.0	44.0	9.0	33.0				
Max Q Clear Time (g_c+I1), s	10.6	17.3	9.5	11.6	15.0	32.1	10.7	35.0				
Green Ext Time (p_c), s	0.1	14.1	0.0	9.6	0.0	8.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			60.5									
HCM 2010 LOS			E									























HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↖	↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	11	662	54	22	2054	86	25	1	5	41	1	122
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	697	57	23	2162	91	26	1	5	43	1	128
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
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	21	2992	929	37	3037	945	40	33	166	58	2	206
Arrive On Green	0.01	0.59	0.59	0.02	0.60	0.60	0.02	0.12	0.12	0.03	0.13	0.13
Sat Flow, veh/h	1774	5085	1579	1774	5085	1582	1774	271	1353	1774	12	1552
Grp Volume(v), veh/h	12	697	57	23	2162	91	26	0	6	43	0	129
Grp Sat Flow(s),veh/h/ln	1774	1695	1579	1774	1695	1582	1774	0	1624	1774	0	1564
Q Serve(g_s), s	0.5	4.4	1.0	0.9	20.3	1.7	1.0	0.0	0.2	1.6	0.0	5.3
Cycle Q Clear(g_c), s	0.5	4.4	1.0	0.9	20.3	1.7	1.0	0.0	0.2	1.6	0.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		0.99
Lane Grp Cap(c), veh/h	21	2992	929	37	3037	945	40	0	200	58	0	208
V/C Ratio(X)	0.57	0.23	0.06	0.63	0.71	0.10	0.64	0.00	0.03	0.74	0.00	0.62
Avail Cap(c_a), veh/h	183	2992	929	183	3037	945	183	0	717	183	0	690
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	6.7	6.0	33.0	9.6	5.9	32.9	0.0	26.3	32.6	0.0	27.9
Incr Delay (d2), s/veh	21.7	0.2	0.1	16.1	1.4	0.2	15.7	0.0	0.1	16.8	0.0	3.0
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	0.4	2.1	0.5	0.6	9.6	0.8	0.7	0.0	0.1	1.1	0.0	2.5
LnGrp Delay(d),s/veh	55.1	6.9	6.1	49.1	11.0	6.1	48.6	0.0	26.3	49.3	0.0	30.9
LnGrp LOS	E	A	A	D	B	A	D		C	D		C
Approach Vol, veh/h		766			2276			32			172	
Approach Delay, s/veh		7.6			11.2			44.4			35.5	
Approach LOS		A			B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.4	44.0	5.6	13.0	4.8	44.6	6.2	12.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	40.0	7.0	30.0	7.0	40.0	7.0	30.0				
Max Q Clear Time (g_c+I1), s	2.9	6.4	3.0	7.3	2.5	22.3	3.6	2.2				
Green Ext Time (p_c), s	0.0	28.8	0.0	0.8	0.0	16.2	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.0									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	67	544	90	83	1839	14	281	212	35	8	306	136
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	1.00		0.92	1.00		0.93	1.00		0.74
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	71	573	95	87	1936	15	296	223	37	8	322	143
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	51	1352	223	108	1747	14	253	678	533	14	250	111
Arrive On Green	0.03	0.45	0.45	0.06	0.49	0.49	0.14	0.36	0.36	0.01	0.23	0.23
Sat Flow, veh/h	1774	2982	492	1774	3597	28	1774	1863	1466	1774	1092	485
Grp Volume(v), veh/h	71	339	329	87	950	1001	296	223	37	8	0	465
Grp Sat Flow(s),veh/h/ln	1774	1770	1704	1774	1770	1855	1774	1863	1466	1774	0	1577
Q Serve(g_s), s	4.0	18.1	18.3	6.8	68.0	68.0	20.0	12.1	2.3	0.6	0.0	32.0
Cycle Q Clear(g_c), s	4.0	18.1	18.3	6.8	68.0	68.0	20.0	12.1	2.3	0.6	0.0	32.0
Prop In Lane	1.00		0.29	1.00		0.01	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	51	802	773	108	860	901	253	678	533	14	0	360
V/C Ratio(X)	1.40	0.42	0.43	0.80	1.11	1.11	1.17	0.33	0.07	0.59	0.00	1.29
Avail Cap(c_a), veh/h	51	802	773	165	860	901	253	678	533	51	0	360
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	68.0	25.9	25.9	64.9	36.0	36.0	60.0	32.2	29.1	69.2	0.0	54.0
Incr Delay (d2), s/veh	264.9	1.6	1.7	15.2	63.9	65.0	109.6	0.3	0.1	34.8	0.0	149.9
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	5.7	9.2	9.0	3.8	48.5	51.1	17.5	6.3	0.9	0.4	0.0	28.9
LnGrp Delay(d),s/veh	332.9	27.5	27.6	80.1	99.9	101.0	169.6	32.5	29.1	104.0	0.0	203.9
LnGrp LOS	F	C	C	F	F	F	F	C	C	F		F
Approach Vol, veh/h		739			2038			556			473	
Approach Delay, s/veh		56.9			99.6			105.3			202.2	
Approach LOS		E			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	67.5	24.0	36.0	8.0	72.0	5.1	54.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	59.0	20.0	32.0	4.0	68.0	4.0	48.0				
Max Q Clear Time (g_c+I1), s	8.8	20.3	22.0	34.0	6.0	70.0	2.6	14.1				
Green Ext Time (p_c), s	0.1	30.1	0.0	0.0	0.0	0.0	0.0	5.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			104.9									
HCM 2010 LOS			F									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	269	63	33	746	78	85	197	77	78	283	311
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.82	0.91		0.89	0.99		0.87	0.92		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	111	283	66	35	785	82	89	207	81	82	298	327
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
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	271	745	520	419	1276	133	217	535	209	470	342	376
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	623	1863	1300	939	3191	333	785	1216	476	1004	778	854
Grp Volume(v), veh/h	111	283	66	35	435	432	89	0	288	82	0	625
Grp Sat Flow(s),veh/h/ln	623	1863	1300	939	1770	1755	785	0	1692	1004	0	1632
Q Serve(g_s), s	8.6	5.4	1.6	1.4	9.8	9.8	4.6	0.0	5.7	3.0	0.0	17.4
Cycle Q Clear(g_c), s	18.4	5.4	1.6	6.7	9.8	9.8	22.0	0.0	5.7	8.7	0.0	17.4
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.28	1.00		0.52
Lane Grp Cap(c), veh/h	271	745	520	419	708	702	217	0	745	470	0	718
V/C Ratio(X)	0.41	0.38	0.13	0.08	0.61	0.62	0.41	0.00	0.39	0.17	0.00	0.87
Avail Cap(c_a), veh/h	271	745	520	419	708	702	217	0	745	470	0	718
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	10.6	9.5	13.0	11.9	11.9	23.1	0.0	9.4	12.4	0.0	12.7
Incr Delay (d2), s/veh	4.5	1.5	0.5	0.4	4.0	4.0	1.2	0.0	0.3	0.2	0.0	11.2
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	1.8	3.1	0.6	0.4	5.5	5.5	1.3	0.0	2.7	0.8	0.0	9.9
LnGrp Delay(d),s/veh	23.8	12.1	10.0	13.4	15.9	15.9	24.4	0.0	9.8	12.6	0.0	23.9
LnGrp LOS	C	B	A	B	B	B	C		A	B		C
Approach Vol, veh/h		460			902			377			707	
Approach Delay, s/veh		14.6			15.8			13.2			22.6	
Approach LOS		B			B			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.0		26.0		24.0		26.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		20.0		22.0		20.0		22.0				
Max Q Clear Time (g_c+I1), s		20.4		19.4		11.8		24.0				
Green Ext Time (p_c), s		0.0		1.7		5.1		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			17.2									
HCM 2010 LOS			B									

Horizon Year (2035) Without Project  
PM Peak Hour



HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	250	1112	70	82	550	315	47	668	97	208	243	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	263	1171	74	86	579	332	49	703	102	219	256	47
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
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	230	1233	78	104	638	366	455	1351	196	266	811	689
Arrive On Green	0.13	0.36	0.36	0.06	0.29	0.29	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1774	3381	213	1774	2169	1243	1072	3103	450	674	1863	1583
Grp Volume(v), veh/h	263	612	633	86	472	439	49	401	404	219	256	47
Grp Sat Flow(s),veh/h/ln	1774	1770	1825	1774	1770	1643	1072	1770	1783	674	1863	1583
Q Serve(g_s), s	11.0	28.6	28.6	4.1	21.8	21.9	2.7	14.0	14.1	22.9	7.6	1.5
Cycle Q Clear(g_c), s	11.0	28.6	28.6	4.1	21.8	21.9	10.3	14.0	14.1	37.0	7.6	1.5
Prop In Lane	1.00		0.12	1.00		0.76	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	230	645	666	104	520	483	455	770	776	266	811	689
V/C Ratio(X)	1.15	0.95	0.95	0.82	0.91	0.91	0.11	0.52	0.52	0.82	0.32	0.07
Avail Cap(c_a), veh/h	230	645	666	104	520	483	455	770	776	266	811	689
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	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	26.2	26.3	39.6	28.9	28.9	19.1	17.5	17.5	33.0	15.7	14.0
Incr Delay (d2), s/veh	104.3	24.9	24.6	36.1	20.4	21.6	0.1	0.6	0.6	18.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	18.4	19.0	3.1	13.6	12.8	0.8	6.9	7.0	6.5	4.0	0.6
LnGrp Delay(d),s/veh	141.3	51.1	50.9	75.6	49.3	50.5	19.2	18.1	18.2	51.3	15.9	14.0
LnGrp LOS	F	D	D	E	D	D	B	B	B	D	B	B
Approach Vol, veh/h		1508			997			854			522	
Approach Delay, s/veh		66.7			52.1			18.2			30.6	
Approach LOS		E			D			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	35.0		41.0	15.0	29.0		41.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	31.0		37.0	11.0	25.0		37.0				
Max Q Clear Time (g_c+I1), s	6.1	30.6		39.0	13.0	23.9		16.1				
Green Ext Time (p_c), s	0.0	0.3		0.0	0.0	1.1		9.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			47.4									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	174	839	137	142	747	40	111	61	165	94	56	202
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	183	883	144	149	786	42	117	64	174	99	59	213
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
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	223	1863	302	186	2043	636	285	136	370	315	109	393
Arrive On Green	0.13	0.42	0.42	0.10	0.40	0.40	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	4411	716	1774	5085	1583	1103	444	1206	1138	355	1282
Grp Volume(v), veh/h	183	678	349	149	786	42	117	0	238	99	0	272
Grp Sat Flow(s),veh/h/ln	1774	1695	1736	1774	1695	1583	1103	0	1650	1138	0	1637
Q Serve(g_s), s	7.3	10.4	10.5	5.9	7.9	1.2	7.1	0.0	8.4	5.6	0.0	10.0
Cycle Q Clear(g_c), s	7.3	10.4	10.5	5.9	7.9	1.2	17.1	0.0	8.4	14.0	0.0	10.0
Prop In Lane	1.00		0.41	1.00		1.00	1.00		0.73	1.00		0.78
Lane Grp Cap(c), veh/h	223	1432	734	186	2043	636	285	0	506	315	0	502
V/C Ratio(X)	0.82	0.47	0.48	0.80	0.38	0.07	0.41	0.00	0.47	0.31	0.00	0.54
Avail Cap(c_a), veh/h	246	1432	734	221	2043	636	390	0	663	424	0	657
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	15.0	15.1	31.6	15.3	13.3	27.9	0.0	20.3	26.0	0.0	20.8
Incr Delay (d2), s/veh	18.2	1.1	2.2	16.2	0.6	0.2	0.9	0.0	0.7	0.6	0.0	0.9
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	4.7	5.0	5.4	3.7	3.7	0.5	2.3	0.0	3.9	1.8	0.0	4.6
LnGrp Delay(d),s/veh	49.0	16.2	17.3	47.8	15.8	13.5	28.9	0.0	21.0	26.5	0.0	21.7
LnGrp LOS	D	B	B	D	B	B	C		C	C		C
Approach Vol, veh/h		1210			977			355			371	
Approach Delay, s/veh		21.5			20.6			23.6			23.0	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	34.5		26.1	13.1	33.0		26.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	30.0		29.0	10.0	29.0		29.0				
Max Q Clear Time (g_c+l1), s	7.9	12.5		16.0	9.3	9.9		19.1				
Green Ext Time (p_c), s	0.0	11.6		3.5	0.0	12.3		3.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			21.6									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	1193	76	93	600	51	118	46	428	154	35	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	24	1256	80	98	632	54	124	48	451	162	37	31
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	35	1316	84	112	1429	122	131	529	450	168	286	240
Arrive On Green	0.02	0.39	0.39	0.06	0.43	0.43	0.07	0.28	0.28	0.09	0.31	0.31
Sat Flow, veh/h	1774	3379	215	1774	3301	282	1774	1863	1583	1774	938	786
Grp Volume(v), veh/h	24	657	679	98	338	348	124	48	451	162	0	68
Grp Sat Flow(s),veh/h/ln	1774	1770	1825	1774	1770	1813	1774	1863	1583	1774	0	1724
Q Serve(g_s), s	1.3	34.2	34.4	5.2	12.7	12.8	6.6	1.8	27.0	8.6	0.0	2.7
Cycle Q Clear(g_c), s	1.3	34.2	34.4	5.2	12.7	12.8	6.6	1.8	27.0	8.6	0.0	2.7
Prop In Lane	1.00		0.12	1.00		0.16	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	35	689	711	112	766	785	131	529	450	168	0	526
V/C Ratio(X)	0.68	0.95	0.96	0.87	0.44	0.44	0.95	0.09	1.00	0.96	0.00	0.13
Avail Cap(c_a), veh/h	93	689	711	112	766	785	131	529	450	168	0	526
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)	0.12	0.12	0.12	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	28.2	28.2	44.1	18.9	18.9	43.8	25.0	34.0	42.8	0.0	23.9
Incr Delay (d2), s/veh	2.7	5.0	5.1	42.9	1.6	1.5	62.9	0.1	43.0	58.6	0.0	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	0.7	17.6	18.2	3.9	6.5	6.7	5.5	0.9	17.1	7.0	0.0	1.3
LnGrp Delay(d),s/veh	49.0	33.1	33.3	87.0	20.4	20.4	106.7	25.1	77.0	101.4	0.0	24.0
LnGrp LOS	D	C	C	F	C	C	F	C	F	F		C
Approach Vol, veh/h		1360			784			623			230	
Approach Delay, s/veh		33.5			28.8			78.9			78.5	
Approach LOS		C			C			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	41.0	11.0	33.0	5.9	45.1	13.0	31.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	6.0	37.0	7.0	29.0	5.0	38.0	9.0	27.0				
Max Q Clear Time (g_c+I1), s	7.2	36.4	8.6	4.7	3.3	14.8	10.6	29.0				
Green Ext Time (p_c), s	0.0	0.6	0.0	2.4	0.0	15.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			45.1									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/13/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗	↗	↖↖	↖↖		↖↖	↗↗	↗	↖↖	↗↗	↗
Volume (veh/h)	64	945	212	148	627	151	345	647	268	147	274	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	67	995	223	156	660	159	363	681	282	155	288	43
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
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	118	1212	542	198	1035	249	415	1414	633	197	1191	533
Arrive On Green	0.03	0.34	0.34	0.06	0.37	0.37	0.12	0.40	0.40	0.06	0.34	0.34
Sat Flow, veh/h	3442	3539	1583	3442	2831	681	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	67	995	223	156	412	407	363	681	282	155	288	43
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1743	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	3.2	43.1	18.1	7.5	32.3	32.4	17.4	24.0	21.8	7.5	9.9	3.1
Cycle Q Clear(g_c), s	3.2	43.1	18.1	7.5	32.3	32.4	17.4	24.0	21.8	7.5	9.9	3.1
Prop In Lane	1.00		1.00	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	118	1212	542	198	647	637	415	1414	633	197	1191	533
V/C Ratio(X)	0.57	0.82	0.41	0.79	0.64	0.64	0.88	0.48	0.45	0.79	0.24	0.08
Avail Cap(c_a), veh/h	144	1330	595	267	728	717	554	1414	633	267	1191	533
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.7	50.4	42.2	78.0	44.0	44.0	72.5	37.4	36.8	78.0	40.2	37.9
Incr Delay (d2), s/veh	4.3	3.9	0.5	10.6	1.5	1.6	11.6	1.2	2.3	10.5	0.5	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	1.6	21.8	8.0	3.9	16.1	15.9	8.9	12.0	9.9	3.8	4.9	1.4
LnGrp Delay(d),s/veh	84.0	54.3	42.7	88.6	45.5	45.6	84.1	38.6	39.0	88.5	40.7	38.2
LnGrp LOS	F	D	D	F	D	D	F	D	D	F	D	D
Approach Vol, veh/h		1285			975			1326			486	
Approach Delay, s/veh		53.9			52.4			51.1			55.7	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	74.0	14.6	63.4	26.2	63.4	10.7	67.3
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6
Max Green Setting (Gmax), s	13.0	67.0	13.0	63.0	27.0	53.0	7.0	*69
Max Q Clear Time (g_c+I1), s	9.5	26.0	9.5	45.1	19.4	11.9	5.2	34.4
Green Ext Time (p_c), s	0.1	9.9	0.1	12.3	0.8	9.9	0.0	18.7

Intersection Summary

HCM 2010 Ctrl Delay	52.9
HCM 2010 LOS	D

Notes

\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	490	861	118	42	391	474	103	1388	50	241	606	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	516	906	0	44	412	0	108	1461	0	254	638	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
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	435	1376	615	57	621	278	156	1420	635	205	1470	657
Arrive On Green	0.25	0.39	0.00	0.03	0.18	0.00	0.05	0.40	0.00	0.06	0.42	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	516	906	0	44	412	0	108	1461	0	254	638	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	33.0	28.3	0.0	3.3	14.6	0.0	4.2	54.0	0.0	8.0	17.3	0.0
Cycle Q Clear(g_c), s	33.0	28.3	0.0	3.3	14.6	0.0	4.2	54.0	0.0	8.0	17.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	435	1376	615	57	621	278	156	1420	635	205	1470	657
VC Ratio(X)	1.19	0.66	0.00	0.78	0.66	0.00	0.69	1.03	0.00	1.24	0.43	0.00
Avail Cap(c_a), veh/h	435	1393	623	119	762	341	205	1420	635	205	1470	657
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)	0.20	0.20	0.00	0.68	0.68	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.8	33.8	0.0	64.7	51.8	0.0	63.3	40.3	0.0	63.3	28.1	0.0
Incr Delay (d2), s/veh	89.0	0.2	0.0	14.1	1.1	0.0	6.5	31.7	0.0	143.2	0.9	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	26.8	13.9	0.0	1.8	7.2	0.0	2.1	32.5	0.0	7.8	8.6	0.0
LnGrp Delay(d),s/veh	139.9	34.0	0.0	78.8	52.9	0.0	69.8	72.0	0.0	206.5	29.0	0.0
LnGrp LOS	F	C		E	D		E	F		F	C	
Approach Vol, veh/h		1422			456			1569			892	
Approach Delay, s/veh		72.4			55.4			71.8			79.6	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	63.4	8.3	56.3	10.1	65.3	37.0	27.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	54.0	9.0	53.0	8.0	54.0	33.0	29.0				
Max Q Clear Time (g_c+I1), s	10.0	56.0	5.3	30.3	6.2	19.3	35.0	16.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	10.0	0.0	22.1	0.0	7.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			71.9									
HCM 2010 LOS			E									

**Intersection**

Int Delay, s/veh 4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	80	1309	156	318	810	17	0	5	407	10	6	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	1378	164	335	853	18	0	5	428	11	6	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	871	0	0	1542	0	0	2727	3168	771	2391	3242	435
Stage 1	-	-	-	-	-	-	1628	1628	-	1531	1531	-
Stage 2	-	-	-	-	-	-	1099	1540	-	860	1711	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	770	-	-	427	-	-	10	10	~ 343	18	9	569
Stage 1	-	-	-	-	-	-	106	159	-	122	177	-
Stage 2	-	-	-	-	-	-	227	175	-	317	144	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	770	-	-	427	-	-	2	~ 2	~ 343	-	~ 2	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ -107	~ -65	-	149	42	-
Stage 1	-	-	-	-	-	-	94	142	-	109	38	-
Stage 2	-	-	-	-	-	-	34	38	-	-	128	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	10.5	-	-
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	+ 343	770	-	-	-	427	-	-	-	569
HCM Lane V/C Ratio	- 1.249	0.109	-	-	-	0.784	-	-	-	0.159
HCM Control Delay (s)	- 166.6	10.2	-	-	-	37.9	-	-	-	12.5
HCM Lane LOS	- F	B	-	-	-	E	-	-	-	B
HCM 95th %tile Q(veh)	- 19.1	0.4	-	-	-	6.8	-	-	-	0.6

**Notes**

--: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection:**

Int Delay, s/veh 1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	20	5	0	0	15	28	764	174	43	264	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	21	5	0	0	16	29	804	183	45	278	15






















Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1239	1231	278	1245	1231	804	278	0	0	804	0	0
Stage 1	368	368	-	863	863	-	-	-	-	-	-	-
Stage 2	871	863	-	382	368	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	152	177	761	151	177	383	1285	-	-	820	-	-
Stage 1	652	621	-	349	372	-	-	-	-	-	-	-
Stage 2	346	372	-	640	621	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	137	164	761	127	164	383	1285	-	-	820	-	-
Mov Cap-2 Maneuver	137	164	-	127	164	-	-	-	-	-	-	-
Stage 1	637	587	-	341	364	-	-	-	-	-	-	-
Stage 2	324	364	-	579	587	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.2	14.8	0.2	1.3
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1285	-	-	177	383	820	-	-
HCM Lane V/C Ratio	0.023	-	-	0.196	0.041	0.055	-	-
HCM Control Delay (s)	7.9	-	-	30.2	14.8	9.6	-	-
HCM Lane LOS	A	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.1	0.2	-	-

HCM 2010 SIGNALIZED  
8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	112	761	171	134	475	57	226	401	245	88	219	62
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	118	801	180	141	500	60	238	422	258	93	231	65
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	149	928	209	158	1046	125	272	726	440	119	703	193
Arrive On Green	0.08	0.32	0.32	0.09	0.33	0.33	0.15	0.34	0.34	0.07	0.26	0.26
Sat Flow, veh/h	1774	2873	646	1774	3184	381	1774	2121	1285	1774	2744	755
Grp Volume(v), veh/h	118	493	488	141	277	283	238	351	329	93	147	149
Grp Sat Flow(s),veh/h/ln	1774	1770	1749	1774	1770	1796	1774	1770	1636	1774	1770	1730
Q Serve(g_s), s	5.9	23.5	23.5	7.1	11.2	11.3	11.8	14.6	14.8	4.6	6.1	6.3
Cycle Q Clear(g_c), s	5.9	23.5	23.5	7.1	11.2	11.3	11.8	14.6	14.8	4.6	6.1	6.3
Prop In Lane	1.00		0.37	1.00		0.21	1.00		0.79	1.00		0.44
Lane Grp Cap(c), veh/h	149	572	565	158	581	590	272	606	560	119	453	443
V/C Ratio(X)	0.79	0.86	0.86	0.89	0.48	0.48	0.88	0.58	0.59	0.78	0.32	0.34
Avail Cap(c_a), veh/h	217	572	565	158	581	590	277	606	560	198	453	443
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)	0.66	0.66	0.66	0.61	0.61	0.61	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	28.5	28.5	40.4	24.0	24.0	37.2	24.2	24.3	41.2	27.1	27.2
Incr Delay (d2), s/veh	8.0	11.1	11.2	29.6	1.7	1.7	25.1	4.0	4.5	10.5	1.9	2.0
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	3.2	13.1	13.0	4.7	5.7	5.9	7.6	7.8	7.4	2.6	3.2	3.2
LnGrp Delay(d),s/veh	48.4	39.6	39.7	70.1	25.7	25.7	62.2	28.2	28.7	51.7	29.0	29.2
LnGrp LOS	D	D	D	E	C	C	E	C	C	D	C	C
Approach Vol, veh/h		1099			701			918			389	
Approach Delay, s/veh		40.6			34.6			37.2			34.5	
Approach LOS		D			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	33.2	17.8	27.0	11.5	33.7	10.0	34.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	29.0	14.0	23.0	11.0	26.0	10.0	27.0				
Max Q Clear Time (g_c+I1), s	9.1	25.5	13.8	8.3	7.9	13.3	6.6	16.8				
Green Ext Time (p_c), s	0.0	2.7	0.0	5.4	0.1	7.7	0.1	4.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			37.5									
HCM 2010 LOS			D									
























HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	19	20	24	0	44	20	682	587	359	559	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.70		0.65	0.69		0.65	1.00		0.94	1.00		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	2	20	21	25	0	46	21	718	618	378	588	1
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
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	36	135	132	231	0	211	30	816	683	407	2438	4
Arrive On Green	0.20	0.20	0.20	0.20	0.00	0.20	0.02	0.46	0.46	0.23	0.67	0.67
Sat Flow, veh/h	15	664	648	943	0	1033	1774	1772	1482	1774	3624	6
Grp Volume(v), veh/h	43	0	0	25	0	46	21	717	619	378	287	302
Grp Sat Flow(s),veh/h/ln	1328	0	0	943	0	1033	1774	1770	1484	1774	1770	1861
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	4.2	1.3	41.5	43.6	23.6	7.2	7.2
Cycle Q Clear(g_c), s	3.0	0.0	0.0	5.5	0.0	4.2	1.3	41.5	43.6	23.6	7.2	7.2
Prop In Lane	0.05		0.49	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	304	0	0	231	0	211	30	815	684	407	1191	1252
V/C Ratio(X)	0.14	0.00	0.00	0.11	0.00	0.22	0.69	0.88	0.91	0.93	0.24	0.24
Avail Cap(c_a), veh/h	304	0	0	231	0	211	110	815	684	440	1191	1252
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	0.0	39.2	0.0	37.5	55.2	27.6	28.2	42.6	7.2	7.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.5	24.5	13.0	17.8	25.3	0.5	0.5
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	1.1	0.0	0.0	0.7	0.0	1.2	0.9	23.1	21.1	14.4	3.6	3.8
LnGrp Delay(d),s/veh	37.2	0.0	0.0	39.4	0.0	38.0	79.7	40.6	45.9	67.9	7.7	7.7
LnGrp LOS	D			D		D	E	D	D	E	A	A
Approach Vol, veh/h		43			71			1357			967	
Approach Delay, s/veh		37.2			38.5			43.6			31.2	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.9	56.0		27.0	5.9	80.0		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	28.0	52.0		23.0	7.0	73.0		23.0				
Max Q Clear Time (g_c+I1), s	25.6	45.6		5.0	3.3	9.2		7.5				
Green Ext Time (p_c), s	0.3	5.3		0.6	0.0	25.1		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			38.4									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/13/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	323	1064	186	165	716	102	176	577	209	74	285	174
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	340	1120	196	174	754	107	185	607	220	78	300	183
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
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	1345	234	216	1182	168	207	861	311	96	565	324
Arrive On Green	0.11	0.43	0.43	0.06	0.38	0.38	0.12	0.35	0.35	0.05	0.28	0.28
Sat Flow, veh/h	3442	3116	543	3442	3101	440	1774	2491	901	1774	1995	1144
Grp Volume(v), veh/h	340	659	657	174	430	431	185	431	396	78	264	219
Grp Sat Flow(s),veh/h/ln	1721	1840	1819	1721	1770	1771	1774	1770	1622	1774	1770	1370
Q Serve(g_s), s	16.5	53.9	54.6	8.5	33.8	33.8	17.5	35.8	35.9	7.4	21.4	23.2
Cycle Q Clear(g_c), s	16.5	53.9	54.6	8.5	33.8	33.8	17.5	35.8	35.9	7.4	21.4	23.2
Prop In Lane	1.00		0.30	1.00		0.25	1.00		0.56	1.00		0.84
Lane Grp Cap(c), veh/h	389	794	785	216	674	675	207	611	561	96	501	388
V/C Ratio(X)	0.87	0.83	0.84	0.81	0.64	0.64	0.89	0.70	0.71	0.81	0.53	0.56
Avail Cap(c_a), veh/h	517	794	785	294	674	675	308	611	561	162	501	388
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.1	42.8	43.0	78.6	43.0	43.0	74.0	48.1	48.1	79.5	51.3	52.0
Incr Delay (d2), s/veh	12.2	9.8	10.3	11.0	4.6	4.6	19.5	6.7	7.3	14.7	3.9	5.8
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	8.5	29.5	29.6	4.4	17.3	17.4	9.7	18.6	17.2	4.0	11.0	9.4
LnGrp Delay(d),s/veh	86.3	52.6	53.3	89.6	47.6	47.6	93.5	54.8	55.5	94.2	55.2	57.8
LnGrp LOS	F	D	D	F	D	D	F	D	E	F	E	E
Approach Vol, veh/h		1656			1035			1012			561	
Approach Delay, s/veh		59.8			54.6			62.1			61.6	
Approach LOS		E			D			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.7	63.2	15.2	77.8	24.3	52.6	23.7	69.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	58.7	14.5	73.3	29.5	44.7	25.5	62.3				
Max Q Clear Time (g_c+I1), s	9.4	37.9	10.5	56.6	19.5	25.2	18.5	35.8				
Green Ext Time (p_c), s	0.1	9.1	0.2	12.7	0.3	8.8	0.7	17.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			59.3									
HCM 2010 LOS			E									

**Intersection**

Int Delay, s/veh 28.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	58	30	0	24	0	62	0	1122	133	50	649	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	61	32	0	25	0	65	0	1181	140	53	683	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1383	2113	345	1714	2046	661	689	0	0	1321	0	0
Stage 1	792	792	-	1251	1251	-	-	-	-	-	-	-
Stage 2	591	1321	-	463	795	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	103	50	651	58	55	405	901	-	-	519	-	-
Stage 1	349	399	-	183	242	-	-	-	-	-	-	-
Stage 2	460	224	-	548	398	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	80	45	651	~ 23	49	405	901	-	-	519	-	-
Mov Cap-2 Maneuver	80	45	-	~ 23	49	-	-	-	-	-	-	-
Stage 1	349	358	-	183	242	-	-	-	-	-	-	-
Stage 2	386	224	-	449	357	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 389.3	290.8	0	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	901	-	-	63	72	519	-	-
HCM Lane V/C Ratio	-	-	-	1.47	1.257	0.101	-	-
HCM Control Delay (s)	0	-	-	\$ 389.3	290.8	12.7	-	-
HCM Lane LOS	A	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	8	7.1	0.3	-	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NET	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	465	1305	576	106	1542	50	1018	474	114	19	321	421
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.88	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	489	1374	606	112	1623	53	1072	499	120	20	338	443
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
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	297	1363	817	256	1303	390	856	1620	640	78	932	401
Arrive On Green	0.09	0.27	0.27	0.07	0.26	0.26	0.25	0.46	0.46	0.04	0.25	0.25
Sat Flow, veh/h	3442	5085	1580	3442	5085	1522	3442	3539	1399	1774	3681	1583
Grp Volume(v), veh/h	489	1374	606	112	1623	53	1072	499	120	20	338	443
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1522	1721	1770	1399	1774	1840	1583
Q Serve(g_s), s	13.8	42.9	42.9	5.0	41.0	4.3	39.8	14.2	8.1	1.7	12.1	40.5
Cycle Q Clear(g_c), s	13.8	42.9	42.9	5.0	41.0	4.3	39.8	14.2	8.1	1.7	12.1	40.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	297	1363	817	256	1303	390	856	1620	640	78	932	401
V/C Ratio(X)	1.65	1.01	0.74	0.44	1.25	0.14	1.25	0.31	0.19	0.26	0.36	1.11
Avail Cap(c_a), veh/h	297	1363	817	290	1303	390	856	1620	640	155	932	401
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.1	58.6	30.3	70.8	59.5	45.8	60.1	27.4	25.7	73.9	49.1	59.8
Incr Delay (d2), s/veh	306.0	26.4	3.6	1.2	117.1	0.2	123.1	0.1	0.1	1.7	0.2	76.6
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	19.2	23.4	21.8	2.4	33.3	1.8	33.5	7.0	3.2	0.9	6.2	26.3
LnGrp Delay(d),s/veh	379.1	84.9	33.9	72.0	176.6	46.0	183.2	27.5	25.9	75.6	49.4	136.3
LnGrp LOS	F	F	C	E	F	D	F	C	C	E	D	F
Approach Vol, veh/h		2469			1788			1691			801	
Approach Delay, s/veh		130.7			166.2			126.1			98.1	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	79.7	17.1	50.9	45.0	47.0	19.0	49.0				
Change Period (Y+Rc), s* 5.1999998		6.5.1999998		8.5.1999998		6.5.1999998		8.0				
Max Green Setting (Gmax), s	* 14	66.3	* 13.5	41.39.7999999		40.5	* 13.8	41.0				
Max Q Clear Time (g_c+I1), s	3.7	16.2	7.0	44.9	41.8	42.5	15.8	43.0				
Green Ext Time (p_c), s	0.0	10.2	0.1	0.0	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			135.1									
HCM 2010 LOS			F									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	269	793	149	87	366	238	168	1179	81	287	622	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	283	835	157	92	385	251	177	1241	85	302	655	69
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	247	955	180	115	510	328	204	1231	84	242	1252	132
Arrive On Green	0.14	0.32	0.32	0.06	0.25	0.25	0.11	0.35	0.35	0.13	0.37	0.37
Sat Flow, veh/h	1774	2974	559	1774	2067	1330	1845	3496	239	1845	3362	354
Grp Volume(v), veh/h	283	497	495	92	329	307	177	652	674	302	358	366
Grp Sat Flow(s),veh/h/ln	1774	1770	1764	1774	1770	1628	1845	1840	1895	1845	1840	1875
Q Serve(g_s), s	17.0	32.4	32.4	6.2	21.0	21.4	11.5	43.0	43.0	16.0	18.5	18.6
Cycle Q Clear(g_c), s	17.0	32.4	32.4	6.2	21.0	21.4	11.5	43.0	43.0	16.0	18.5	18.6
Prop In Lane	1.00		0.32	1.00		0.82	1.00		0.13	1.00		0.19
Lane Grp Cap(c), veh/h	247	568	566	115	436	401	204	648	667	242	686	698
V/C Ratio(X)	1.15	0.87	0.87	0.80	0.75	0.77	0.87	1.01	1.01	1.25	0.52	0.52
Avail Cap(c_a), veh/h	247	594	592	131	478	440	212	648	667	242	686	698
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	39.1	39.1	56.3	42.6	42.7	53.4	39.6	39.6	53.1	29.8	29.9
Incr Delay (d2), s/veh	102.3	13.3	13.3	26.3	6.1	7.2	28.8	37.0	37.2	141.7	2.8	2.8
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	15.3	17.8	17.8	3.9	11.0	10.4	7.5	28.4	29.3	17.6	9.9	10.2
LnGrp Delay(d),s/veh	154.9	52.4	52.4	82.6	48.7	49.9	82.2	76.5	76.8	194.7	32.7	32.7
LnGrp LOS	F	D	D	F	D	D	F	F	F	F	C	C
Approach Vol, veh/h		1275			728			1503			1026	
Approach Delay, s/veh		75.1			53.5			77.3			80.4	
Approach LOS		E			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	47.0	11.9	43.2	17.5	49.5	21.0	34.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	16.0	43.0	9.0	41.0	14.0	45.0	17.0	33.0				
Max Q Clear Time (g_c+I1), s	18.0	45.0	8.2	34.4	13.5	20.6	19.0	23.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.9	0.0	15.9	0.0	6.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			73.6									
HCM 2010 LOS			E									

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	45	1542	46	7	1116	94	65	1	28	45	1	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	47	1623	48	7	1175	99	68	1	29	47	1	49
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
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	66	2901	901	13	2750	855	86	5	149	66	3	130
Arrive On Green	0.04	0.57	0.57	0.01	0.54	0.54	0.05	0.10	0.10	0.04	0.09	0.09
Sat Flow, veh/h	1774	5085	1579	1774	5085	1582	1774	53	1538	1774	31	1524
Grp Volume(v), veh/h	47	1623	48	7	1175	99	68	0	30	47	0	50
Grp Sat Flow(s),veh/h/ln	1774	1695	1579	1774	1695	1582	1774	0	1591	1774	0	1555
Q Serve(g_s), s	1.5	11.2	0.7	0.2	7.7	1.7	2.1	0.0	1.0	1.5	0.0	1.7
Cycle Q Clear(g_c), s	1.5	11.2	0.7	0.2	7.7	1.7	2.1	0.0	1.0	1.5	0.0	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	66	2901	901	13	2750	855	86	0	154	66	0	133
V/C Ratio(X)	0.71	0.56	0.05	0.54	0.43	0.12	0.79	0.00	0.20	0.71	0.00	0.38
Avail Cap(c_a), veh/h	224	2901	901	224	2750	855	224	0	860	224	0	841
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	7.5	5.3	27.4	7.6	6.2	26.1	0.0	23.1	26.4	0.0	24.0
Incr Delay (d2), s/veh	13.3	0.8	0.1	29.9	0.5	0.3	14.9	0.0	0.6	13.3	0.0	1.8
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	0.9	5.3	0.3	0.2	3.6	0.8	1.4	0.0	0.5	0.9	0.0	0.8
LnGrp Delay(d),s/veh	39.7	8.3	5.4	57.4	8.1	6.5	41.0	0.0	23.7	39.7	0.0	25.7
LnGrp LOS	D	A	A	E	A	A	D		C	D		C
Approach Vol, veh/h		1718			1281			98			97	
Approach Delay, s/veh		9.1			8.2			35.7			32.5	
Approach LOS		A			A			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	35.7	6.7	8.7	6.1	34.0	6.1	9.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	30.0	7.0	30.0	7.0	30.0	7.0	30.0
Max Q Clear Time (g_c+I1), s	2.2	13.2	4.1	3.7	3.5	9.7	3.5	3.0
Green Ext Time (p_c), s	0.0	15.2	0.0	0.4	0.0	18.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.3
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	1272	70	35	1001	9	221	193	58	16	142	62
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	1.00		0.92	1.00		0.92	1.00		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	75	1339	74	37	1054	9	233	203	61	17	149	65
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	96	1579	87	48	1576	13	268	585	455	27	188	82
Arrive On Green	0.05	0.47	0.47	0.03	0.44	0.44	0.15	0.31	0.31	0.02	0.18	0.18
Sat Flow, veh/h	1774	3387	187	1774	3593	31	1774	1863	1450	1774	1055	460
Grp Volume(v), veh/h	75	698	715	37	519	544	233	203	61	17	0	214
Grp Sat Flow(s),veh/h/ln	1774	1770	1803	1774	1770	1854	1774	1863	1450	1774	0	1515
Q Serve(g_s), s	3.8	31.3	31.6	1.9	21.0	21.0	11.6	7.6	2.7	0.9	0.0	12.2
Cycle Q Clear(g_c), s	3.8	31.3	31.6	1.9	21.0	21.0	11.6	7.6	2.7	0.9	0.0	12.2
Prop In Lane	1.00		0.10	1.00		0.02	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	96	825	841	48	776	813	268	585	455	27	0	270
V/C Ratio(X)	0.78	0.85	0.85	0.78	0.67	0.67	0.87	0.35	0.13	0.62	0.00	0.79
Avail Cap(c_a), veh/h	138	825	841	79	776	813	295	703	547	79	0	387
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.1	21.2	21.3	43.6	20.1	20.1	37.4	23.8	22.1	44.1	0.0	35.4
Incr Delay (d2), s/veh	16.1	10.4	10.6	23.2	4.5	4.3	21.7	0.4	0.1	20.9	0.0	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	2.3	17.5	18.2	1.2	11.2	11.7	7.2	3.9	1.1	0.6	0.0	5.6
LnGrp Delay(d),s/veh	58.2	31.6	31.9	66.8	24.6	24.4	59.1	24.1	22.3	65.0	0.0	42.5
LnGrp LOS	E	C	C	E	C	C	E	C	C	E		D
Approach Vol, veh/h		1488			1100			497			231	
Approach Delay, s/veh		33.1			26.0			40.3			44.2	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	46.0	17.6	20.1	8.9	43.5	5.4	32.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	42.0	15.0	23.0	7.0	39.0	4.0	34.0				
Max Q Clear Time (g_c+I1), s	3.9	33.6	13.6	14.2	5.8	23.0	2.9	9.6				
Green Ext Time (p_c), s	0.0	7.4	0.1	1.9	0.0	13.3	0.0	2.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.6									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕	↗	↖	↗	↕	↖	↗	↕
Volume (veh/h)	152	653	189	44	400	67	75	300	92	80	167	119
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.86	1.00		0.91	0.95		0.83	0.93		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	160	687	199	46	421	71	79	316	97	84	176	125
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
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	502	964	706	267	1547	258	329	453	139	247	339	240
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	873	1863	1364	624	2990	499	1022	1298	399	904	970	689
Grp Volume(v), veh/h	160	687	199	46	247	245	79	0	413	84	0	301
Grp Sat Flow(s), veh/h/ln	873	1863	1364	624	1770	1720	1022	0	1697	904	0	1658
Q Serve(g_s), s	7.6	16.9	4.9	3.6	4.7	4.8	4.0	0.0	12.5	5.3	0.0	8.6
Cycle Q Clear(g_c), s	12.4	16.9	4.9	20.5	4.7	4.8	12.6	0.0	12.5	17.8	0.0	8.6
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.23	1.00		0.42
Lane Grp Cap(c), veh/h	502	964	706	267	915	890	329	0	593	247	0	579
V/C Ratio(X)	0.32	0.71	0.28	0.17	0.27	0.28	0.24	0.00	0.70	0.34	0.00	0.52
Avail Cap(c_a), veh/h	502	964	706	267	915	890	331	0	595	248	0	581
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.6	11.1	8.2	18.9	8.1	8.1	20.5	0.0	16.8	24.4	0.0	15.5
Incr Delay (d2), s/veh	1.7	4.5	1.0	1.4	0.7	0.8	0.4	0.0	3.5	0.8	0.0	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	2.1	9.8	2.0	0.7	2.5	2.4	1.2	0.0	6.4	1.4	0.0	4.1
LnGrp Delay(d),s/veh	13.3	15.5	9.2	20.3	8.8	8.9	20.9	0.0	20.3	25.2	0.0	16.3
LnGrp LOS	B	B	A	C	A	A	C		C	C		B
Approach Vol, veh/h		1046			538			492			385	
Approach Delay, s/veh		14.0			9.9			20.4			18.3	
Approach LOS		B			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		35.0		24.9		35.0		24.9
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		31.0		21.0		31.0		21.0
Max Q Clear Time (g_c+I1), s		18.9		19.8		22.5		14.6
Green Ext Time (p_c), s		7.5		0.7		5.7		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	15.0
HCM 2010 LOS	B



## **Appendix J**

Horizon Year (2035) With Project  
HCM Intersection Analysis Worksheets

Horizon Year (2035) With Project  
AM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖	↖↗
Volume (veh/h)	51	292	34	56	1076	98	59	173	21	170	330	159
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	54	307	36	59	1133	103	62	182	22	179	347	167
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
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	71	1383	161	75	1428	130	266	1006	120	446	588	500
Arrive On Green	0.04	0.43	0.43	0.04	0.44	0.44	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	3195	372	1774	3282	298	883	3185	380	1173	1863	1583
Grp Volume(v), veh/h	54	169	174	59	610	626	62	100	104	179	347	167
Grp Sat Flow(s),veh/h/ln	1774	1770	1797	1774	1770	1810	883	1770	1796	1173	1863	1583
Q Serve(g_s), s	1.7	3.4	3.5	1.9	17.1	17.1	3.6	2.4	2.4	7.5	9.0	4.6
Cycle Q Clear(g_c), s	1.7	3.4	3.5	1.9	17.1	17.1	12.6	2.4	2.4	9.9	9.0	4.6
Prop In Lane	1.00		0.21	1.00		0.16	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	71	766	778	75	770	788	266	559	567	446	588	500
V/C Ratio(X)	0.76	0.22	0.22	0.78	0.79	0.79	0.23	0.18	0.18	0.40	0.59	0.33
Avail Cap(c_a), veh/h	124	766	778	154	770	788	356	739	750	566	778	661
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	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	10.2	10.2	27.2	14.0	14.0	21.8	14.3	14.3	17.9	16.5	15.0
Incr Delay (d2), s/veh	14.9	0.7	0.7	11.3	5.7	5.6	0.4	0.2	0.2	0.6	0.9	0.4
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	1.1	1.8	1.8	1.2	9.5	9.7	0.9	1.2	1.2	2.5	4.8	2.1
LnGrp Delay(d),s/veh	42.2	10.9	10.9	38.5	19.7	19.6	22.3	14.4	14.4	18.5	17.5	15.4
LnGrp LOS	D	B	B	D	B	B	C	B	B	B	B	B
Approach Vol, veh/h		397			1295			266			693	
Approach Delay, s/veh		15.1			20.5			16.3			17.2	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	36.4		22.1	6.3	36.5		22.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	24.0		24.0	4.0	25.0		24.0				
Max Q Clear Time (g_c+I1), s	3.9	5.5		11.9	3.7	19.1		14.6				
Green Ext Time (p_c), s	0.0	10.4		4.0	0.0	4.3		3.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			18.4									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/29/2014























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↖	↖	↖		↖	↖	
Volume (veh/h)	57	550	77	93	712	41	127	18	206	35	19	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	60	579	81	98	749	43	134	19	217	37	20	46
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
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	75	2249	310	127	2679	834	386	30	344	233	117	270
Arrive On Green	0.04	0.50	0.50	0.07	0.53	0.53	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	4519	624	1774	5085	1583	1330	129	1474	1140	503	1156
Grp Volume(v), veh/h	60	432	228	98	749	43	134	0	236	37	0	66
Grp Sat Flow(s),veh/h/ln	1774	1695	1753	1774	1695	1583	1330	0	1603	1140	0	1659
Q Serve(g_s), s	2.0	4.5	4.6	3.3	5.0	0.8	5.4	0.0	8.0	1.8	0.0	1.9
Cycle Q Clear(g_c), s	2.0	4.5	4.6	3.3	5.0	0.8	7.4	0.0	8.0	9.9	0.0	1.9
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.92	1.00		0.70
Lane Grp Cap(c), veh/h	75	1687	872	127	2679	834	386	0	374	233	0	387
V/C Ratio(X)	0.79	0.26	0.26	0.77	0.28	0.05	0.35	0.00	0.63	0.16	0.00	0.17
Avail Cap(c_a), veh/h	204	1687	872	292	2679	834	711	0	765	512	0	792
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.8	8.8	8.8	27.7	8.0	7.0	21.5	0.0	20.9	25.4	0.0	18.6
Incr Delay (d2), s/veh	16.9	0.4	0.7	9.5	0.3	0.1	0.5	0.0	1.8	0.3	0.0	0.2
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	1.3	2.1	2.4	1.9	2.4	0.4	2.0	0.0	3.7	0.6	0.0	0.9
LnGrp Delay(d),s/veh	45.7	9.2	9.5	37.2	8.2	7.1	22.1	0.0	22.7	25.7	0.0	18.8
LnGrp LOS	D	A	A	D	A	A	C		C	C		B
Approach Vol, veh/h		720			890			370				103
Approach Delay, s/veh		12.3			11.4			22.5				21.3
Approach LOS		B			B			C				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.3	34.2		18.2	6.6	36.0		18.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	10.0	29.0		29.0	7.0	32.0		29.0
Max Q Clear Time (g_c+I1), s	5.3	6.6		11.9	4.0	7.0		10.0
Green Ext Time (p_c), s	0.1	10.6		2.3	0.0	11.1		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/29/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	484	209	599	1257	47	150	25	102	49	63	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	17	509	220	631	1323	49	158	26	107	52	66	28
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	27	654	281	666	2198	81	185	277	236	67	102	43
Arrive On Green	0.02	0.27	0.27	0.38	0.63	0.63	0.10	0.15	0.15	0.04	0.08	0.08
Sat Flow, veh/h	1774	2412	1038	1774	3481	129	1774	1863	1583	1774	1243	527
Grp Volume(v), veh/h	17	373	356	631	672	700	158	26	107	52	0	94
Grp Sat Flow(s),veh/h/ln	1774	1770	1680	1774	1770	1840	1774	1863	1583	1774	0	1770
Q Serve(g_s), s	0.9	18.7	18.8	33.1	21.6	21.7	8.4	1.2	5.9	2.8	0.0	4.9
Cycle Q Clear(g_c), s	0.9	18.7	18.8	33.1	21.6	21.7	8.4	1.2	5.9	2.8	0.0	4.9
Prop In Lane	1.00		0.62	1.00		0.07	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	27	480	455	666	1117	1162	185	277	236	67	0	146
V/C Ratio(X)	0.63	0.78	0.78	0.95	0.60	0.60	0.85	0.09	0.45	0.78	0.00	0.65
Avail Cap(c_a), veh/h	92	480	455	721	1117	1162	185	583	495	166	0	535
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(l)	0.96	0.96	0.96	0.63	0.63	0.63	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.0	32.3	32.3	29.0	10.5	10.5	42.2	35.2	37.2	45.8	0.0	42.6
Incr Delay (d2), s/veh	21.0	11.3	12.1	15.0	1.5	1.5	30.1	0.1	1.4	17.5	0.0	4.7
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	0.6	10.6	10.2	18.9	10.9	11.4	5.7	0.6	2.7	1.7	0.0	2.6
LnGrp Delay(d),s/veh	67.9	43.6	44.4	44.0	12.0	12.0	72.4	35.4	38.6	63.2	0.0	47.4
LnGrp LOS	E	D	D	D	B	B	E	D	D	E		D
Approach Vol, veh/h		746			2003			291			146	
Approach Delay, s/veh		44.5			22.1			56.6			53.0	
Approach LOS		D			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.0	54.1	14.0	11.9	5.5	88.7	7.6	18.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	39.0	26.0	10.0	29.0	5.0	60.0	9.0	30.0				
Max Q Clear Time (g_c+I1), s	35.1	20.8	10.4	6.9	2.9	23.7	4.8	7.9				
Green Ext Time (p_c), s	0.9	4.5	0.0	1.0	0.0	21.1	0.0	1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			31.9									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	435	360	384	597	112	126	215	102	162	1161	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	29	458	379	404	628	118	133	226	107	171	1222	44
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
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	91	1036	464	444	1177	221	162	1326	593	214	1378	617
Arrive On Green	0.03	0.29	0.29	0.13	0.40	0.40	0.05	0.37	0.37	0.06	0.39	0.39
Sat Flow, veh/h	3442	3539	1583	3442	2976	558	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	29	458	379	404	373	373	133	226	107	171	1222	44
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1764	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	1.4	17.8	37.7	19.6	27.4	27.5	6.5	7.2	7.7	8.3	54.6	3.0
Cycle Q Clear(g_c), s	1.4	17.8	37.7	19.6	27.4	27.5	6.5	7.2	7.7	8.3	54.6	3.0
Prop In Lane	1.00		1.00	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	1036	464	444	700	698	162	1326	593	214	1378	617
V/C Ratio(X)	0.32	0.44	0.82	0.91	0.53	0.53	0.82	0.17	0.18	0.80	0.89	0.07
Avail Cap(c_a), veh/h	122	1274	570	467	814	812	162	1326	593	305	1378	617
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	81.0	48.7	55.7	72.8	39.2	39.3	80.0	35.4	35.6	78.5	48.3	32.5
Incr Delay (d2), s/veh	2.0	0.3	7.6	21.2	0.6	0.6	26.9	0.3	0.7	9.6	8.7	0.2
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	0.7	8.8	17.5	10.7	13.5	13.5	3.7	3.6	3.5	4.2	28.3	1.3
LnGrp Delay(d),s/veh	83.0	49.0	63.3	94.0	39.9	39.9	107.0	35.7	36.2	88.0	57.0	32.7
LnGrp LOS	F	D	E	F	D	D	F	D	D	F	E	C
Approach Vol, veh/h		866			1150			466			1437	
Approach Delay, s/veh		56.4			58.9			56.2			59.9	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	70.5	26.9	55.6	14.0	73.0	9.5	73.0				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	* 6				
Max Green Setting (Gmax), s	15.0	59.0	23.0	61.0	8.0	66.0	6.0	* 78				
Max Q Clear Time (g_c+I1), s	10.3	9.7	21.6	39.7	8.5	56.6	3.4	29.5				
Green Ext Time (p_c), s	0.2	16.8	0.2	9.9	0.0	6.6	0.0	13.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			58.4									
HCM 2010 LOS			E									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	134	303	112	77	934	285	202	548	33	152	905	744
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	141	319	0	81	983	0	213	577	0	160	953	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
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	173	1239	554	104	1102	493	274	1209	541	233	1167	522
Arrive On Green	0.10	0.35	0.00	0.06	0.31	0.00	0.08	0.34	0.00	0.07	0.33	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	141	319	0	81	983	0	213	577	0	160	953	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	6.9	5.7	0.0	4.0	23.3	0.0	5.3	11.3	0.0	4.0	21.7	0.0
Cycle Q Clear(g_c), s	6.9	5.7	0.0	4.0	23.3	0.0	5.3	11.3	0.0	4.0	21.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	1239	554	104	1102	493	274	1209	541	233	1167	522
V/C Ratio(X)	0.82	0.26	0.00	0.78	0.89	0.00	0.78	0.48	0.00	0.69	0.82	0.00
Avail Cap(c_a), veh/h	182	1239	554	182	1167	522	274	1209	541	313	1167	522
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)	0.53	0.53	0.00	0.62	0.62	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.9	20.4	0.0	40.8	28.9	0.0	39.7	22.8	0.0	40.1	27.0	0.0
Incr Delay (d2), s/veh	13.5	0.1	0.0	7.5	5.7	0.0	13.2	1.4	0.0	3.8	6.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	2.8	0.0	2.2	12.2	0.0	3.0	5.8	0.0	2.0	11.6	0.0
LnGrp Delay(d),s/veh	52.4	20.5	0.0	48.3	34.6	0.0	52.9	24.1	0.0	43.9	33.4	0.0
LnGrp LOS	D	C		D	C		D	C		D	C	
Approach Vol, veh/h		460			1064			790			1113	
Approach Delay, s/veh		30.3			35.6			31.9			34.9	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	36.1	9.2	34.8	11.0	35.0	12.6	31.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	28.0	9.0	29.0	7.0	29.0	9.0	29.0				
Max Q Clear Time (g_c+I1), s	6.0	13.3	6.0	7.7	7.3	23.7	8.9	25.3				
Green Ext Time (p_c), s	0.1	9.0	0.0	9.7	0.0	4.0	0.0	2.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.8									
HCM 2010 LOS			C									

HCM 2010 TWSC  
6: ESCONDIDO BLVD. & EL NORTE PKY.

1/29/2014

Intersection

Int Delay, s/veh 977.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	40	548	778	2477	925	16	6	0	158	3	41	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	577	819	2607	974	17	6	0	166	3	43	41

Major/Minor	Major:1	Major:2	Minor:1	Minor:2
Conflicting Flow All	991	0	0	1396
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	693	-	-	~ 486
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	693	-	-	~ 486
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	\$ 1439	-	-
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	+	383	693	-	-	~ 486	-	-	-	520
HCM Lane V/C Ratio	-	0.434	0.061	-	-	5.365	-	-	-	0.079
HCM Control Delay (s)	-	21.4	10.5	-	-	\$ 1985.7	-	-	-	12.5
HCM Lane LOS	-	C	B	-	-	F	-	-	-	B
HCM 95th %tile Q(veh)	-	2.1	0.2	-	-	268.8	-	-	-	0.3

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



**Intersection**

Int Delay, s/veh 988.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	40	548	778	2477	925	16	0	0	158	0	0	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	577	819	2607	974	17	0	0	166	0	0	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	991	0	0	1396	0	0	6773	7276	698	6570	7677	495
Stage 1	-	-	-	-	-	-	1071	1071	-	6197	6197	-
Stage 2	-	-	-	-	-	-	5702	6205	-	373	1480	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	693	-	-	~ 486	-	-	0	0	383	0	0	520
Stage 1	-	-	-	-	-	-	236	295	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	620	188	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	693	-	-	~ 486	-	-	0	0	383	0	0	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	~-47	~-45	-	0	0	-
Stage 1	-	-	-	-	-	-	222	277	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	330	177	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	\$ 1439	21.4	12.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	383	693	-	-	~ 486	-	-	520
HCM Lane V/C Ratio	0.434	0.061	-	-	5.365	-	-	0.079
HCM Control Delay (s)	21.4	10.5	-	-	\$ 1985.7	-	-	12.5
HCM Lane LOS	C	B	-	-	F	-	-	B
HCM 95th %tile Q(veh)	2.1	0.2	-	-	268.8	-	-	0.3

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
 6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 2)

2/3/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Volume (veh/h)	40	548	778	2477	925	16	6	0	158	3	41	39
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	193.7	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	42	577	819	2607	974	17	6	0	166	3	43	41
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
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	235	430	385	1079	2866	50	141	0	181	64	100	96
Arrive On Green	0.03	0.24	0.24	0.56	0.77	0.77	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1774	1770	1583	1845	3702	65	1308	0	1583	1215	878	837
Grp Volume(v), veh/h	42	577	819	2607	484	507	6	0	166	3	0	84
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1845	1840	1926	1308	0	1583	1215	0	1715
Q Serve(g_s), s	2.5	34.0	34.0	78.0	11.3	11.3	0.6	0.0	14.5	0.3	0.0	6.4
Cycle Q Clear(g_c), s	2.5	34.0	34.0	78.0	11.3	11.3	7.0	0.0	14.5	14.9	0.0	6.4
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	235	430	385	1079	1425	1491	141	0	181	64	0	196
V/C Ratio(X)	0.18	1.34	2.13	2.42	0.34	0.34	0.04	0.00	0.92	0.05	0.00	0.43
Avail Cap(c_a), veh/h	252	430	385	1079	1425	1491	141	0	181	64	0	196
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.4	53.0	53.0	27.9	4.8	4.8	61.0	0.0	61.3	68.7	0.0	57.7
Incr Delay (d2), s/veh	0.4	169.1	517.1	639.7	0.1	0.1	0.6	0.0	48.1	1.4	0.0	6.7
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	1.2	36.8	70.1	233.2	5.7	6.0	0.2	0.0	8.8	0.1	0.0	3.4
LnGrp Delay(d),s/veh	38.7	222.1	570.1	667.6	5.0	5.0	61.6	0.0	109.5	70.1	0.0	64.5
LnGrp LOS	D	F	F	F	A	A	E		F	E		E
Approach Vol, veh/h		1438			3598			172				87
Approach Delay, s/veh		415.0			485.1			107.8				64.6
Approach LOS		F			F			F				E

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	82.0	38.0		20.0	7.6	112.4		20.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	78.0	34.0		16.0	5.0	107.0		16.0
Max Q Clear Time (g_c+I1), s	80.0	36.0		16.9	4.5	13.3		16.5
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	42.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		446.9
HCM 2010 LOS		F

**Intersection**

Int Delay, s/veh 13.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	67	13	175	3	71	2	171	233	381	682	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	71	14	184	3	75	2	180	245	401	718	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1743	1704	718	1746	1704	180	718	0	0	180	0	0
Stage 1	1520	1520	-	184	184	-	-	-	-	-	-	-
Stage 2	223	184	-	1562	1520	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	68	91	429	~ 68	91	863	883	-	-	1396	-	-
Stage 1	148	181	-	818	747	-	-	-	-	-	-	-
Stage 2	780	747	-	~ 140	181	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	47	~ 65	429	-	65	863	883	-	-	1396	-	-
Mov Cap-2 Maneuver	47	~ 65	-	-	65	-	-	-	-	-	-	-
Stage 1	148	129	-	816	745	-	-	-	-	-	-	-
Stage 2	708	745	-	~ 44	129	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	260.1	-	0	3.1
HCM LOS	F	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	883	-	-	74	-	1396	-	-
HCM Lane V/C Ratio	0.002	-	-	1.181	-	0.287	-	-
HCM Control Delay (s)	9.1	-	-	260.1	-	8.6	-	-
HCM Lane LOS	A	-	-	F	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	6.6	-	1.2	-	-

**Notes:**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
 7: ESCONDIDO BLVD. & LINCOLN AVE. - MITIGATION

2/3/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↕	↕		↕	↑	↕	↕	↑	↕
Volume (veh/h)	3	67	13	175	3	71	2	171	233	381	682	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	3	71	14	184	3	75	2	180	245	401	718	2
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
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	88	348	67	415	14	356	402	1094	930	683	1094	930
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.59	0.59	0.59	0.59	0.59	0.59
Sat Flow, veh/h	18	1499	287	1307	61	1531	729	1863	1583	958	1863	1583
Grp Volume(v), veh/h	88	0	0	184	0	78	2	180	245	401	718	2
Grp Sat Flow(s),veh/h/ln	1805	0	0	1307	0	1593	729	1863	1583	958	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	5.9	0.0	1.8	0.1	2.0	3.3	14.6	11.5	0.0
Cycle Q Clear(g_c), s	1.7	0.0	0.0	7.6	0.0	1.8	11.6	2.0	3.3	16.5	11.5	0.0
Prop In Lane	0.03		0.16	1.00		0.96	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	503	0	0	415	0	370	402	1094	930	683	1094	930
V/C Ratio(X)	0.17	0.00	0.00	0.44	0.00	0.21	0.00	0.16	0.26	0.59	0.66	0.00
Avail Cap(c_a), veh/h	734	0	0	584	0	575	402	1094	930	683	1094	930
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	0.0	0.0	16.8	0.0	13.7	10.0	4.2	4.5	8.0	6.1	3.8
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	0.0	0.3	0.0	0.3	0.7	3.7	3.1	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	0.9	0.0	0.0	2.2	0.0	0.8	0.0	1.1	1.6	4.5	6.7	0.0
LnGrp Delay(d),s/veh	13.9	0.0	0.0	17.5	0.0	14.0	10.0	4.5	5.2	11.6	9.2	3.8
LnGrp LOS	B			B		B	B	A	A	B	A	A
Approach Vol, veh/h		88			262			427			1121	
Approach Delay, s/veh		13.9			16.5			4.9			10.1	
Approach LOS		B			B			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.0		14.3		30.0		14.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		26.0		16.0		26.0		16.0				
Max Q Clear Time (g_c+I1), s		13.6		3.7		18.5		9.6				
Green Ext Time (p_c), s		7.3		1.2		5.0		0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			10.0									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
 8: ESCONDIDO BLVD. & MISSION AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	66	340	148	131	666	41	206	144	69	92	455	157
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	69	358	156	138	701	43	217	152	73	97	479	165
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	89	724	311	155	1144	70	222	808	370	124	745	255
Arrive On Green	0.05	0.30	0.30	0.09	0.34	0.34	0.13	0.34	0.34	0.07	0.29	0.29
Sat Flow, veh/h	1774	2414	1035	1774	3388	208	1774	2360	1082	1774	2590	886
Grp Volume(v), veh/h	69	261	253	138	366	378	217	112	113	97	326	318
Grp Sat Flow(s),veh/h/ln	1774	1770	1680	1774	1770	1826	1774	1770	1672	1774	1770	1706
Q Serve(g_s), s	3.1	9.7	9.9	6.2	13.8	13.8	9.8	3.6	3.8	4.3	12.9	13.0
Cycle Q Clear(g_c), s	3.1	9.7	9.9	6.2	13.8	13.8	9.8	3.6	3.8	4.3	12.9	13.0
Prop In Lane	1.00		0.62	1.00		0.11	1.00		0.65	1.00		0.52
Lane Grp Cap(c), veh/h	89	531	504	155	597	616	222	606	572	124	509	491
V/C Ratio(X)	0.78	0.49	0.50	0.89	0.61	0.61	0.98	0.19	0.20	0.78	0.64	0.65
Avail Cap(c_a), veh/h	155	531	504	155	597	616	222	606	572	200	509	491
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)	0.95	0.95	0.95	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	23.0	23.1	36.1	22.1	22.1	34.9	18.5	18.6	36.6	24.9	25.0
Incr Delay (d2), s/veh	13.0	3.1	3.4	6.1	0.4	0.4	54.1	0.7	0.8	10.0	6.1	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	1.8	5.2	5.0	3.3	6.8	7.0	8.1	1.9	1.9	2.4	7.1	7.0
LnGrp Delay(d),s/veh	50.6	26.1	26.5	42.3	22.6	22.6	89.0	19.1	19.3	46.6	31.0	31.4
LnGrp LOS	D	C	C	D	C	C	F	B	B	D	C	C
Approach Vol, veh/h		583			882			442			741	
Approach Delay, s/veh		29.1			25.6			53.5			33.2	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	28.0	14.0	27.0	8.0	31.0	9.6	31.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	24.0	10.0	23.0	7.0	24.0	9.0	24.0				
Max Q Clear Time (g_c+I1), s	8.2	11.9	11.8	15.0	5.1	15.8	6.3	5.8				
Green Ext Time (p_c), s	0.0	6.1	0.0	3.3	0.0	4.7	0.0	5.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.2									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗		↖	↗	
Volume (veh/h)	6	5	13	118	17	251	60	668	90	99	821	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.73	0.80		0.73	1.00		0.91	1.00		0.58
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	6	5	14	124	18	264	63	703	95	104	864	19
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
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	138	115	222	359	30	443	79	971	131	134	1198	26
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.04	0.31	0.31	0.08	0.34	0.34
Sat Flow, veh/h	150	286	555	1106	75	1105	1774	3092	417	1774	3476	76
Grp Volume(v), veh/h	25	0	0	124	0	282	63	402	396	104	440	443
Grp Sat Flow(s),veh/h/ln	990	0	0	1106	0	1180	1774	1770	1739	1774	1770	1783
Q Serve(g_s), s	0.1	0.0	0.0	5.7	0.0	10.8	2.0	11.6	11.6	3.3	12.4	12.4
Cycle Q Clear(g_c), s	10.9	0.0	0.0	16.6	0.0	10.8	2.0	11.6	11.6	3.3	12.4	12.4
Prop In Lane	0.24		0.56	1.00		0.94	1.00		0.24	1.00		0.04
Lane-Grp Cap(c), veh/h	475	0	0	359	0	473	79	556	546	134	610	615
V/C Ratio(X)	0.05	0.00	0.00	0.34	0.00	0.60	0.80	0.72	0.72	0.78	0.72	0.72
Avail Cap(c_a), veh/h	475	0	0	360	0	474	217	556	546	217	610	615
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	0.0	20.1	0.0	13.5	27.1	17.4	17.5	26.0	16.4	16.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	2.0	16.2	8.0	8.1	9.4	7.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	1.8	0.0	3.7	1.3	6.8	6.7	2.0	7.2	7.3
LnGrp Delay(d),s/veh	10.7	0.0	0.0	20.6	0.0	15.5	43.3	25.4	25.6	35.4	23.6	23.5
LnGrp LOS	B			C		B	D	C	C	D	C	C
Approach Vol, veh/h		25			406			861			987	
Approach Delay, s/veh		10.7			17.1			26.8			24.8	
Approach LOS		B			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	22.0		27.0	6.6	23.8		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	18.0		23.0	7.0	18.0		23.0				
Max Q Clear Time (g_c+l1), s	5.3	13.6		12.9	4.0	14.4		18.6				
Green Ext Time (p_c), s	0.0	3.4		2.1	0.0	2.8		1.2				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			24.0									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↕↗		↖↖	↕↗		↖	↕↗		↖	↕↗	
Volume (veh/h)	115	459	133	338	1201	53	103	236	148	76	633	308
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.94	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	121	483	140	356	1264	56	108	248	156	80	666	324
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
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	158	955	275	403	1425	63	127	797	477	98	806	392
Arrive On Green	0.05	0.34	0.34	0.12	0.41	0.41	0.07	0.38	0.38	0.06	0.37	0.37
Sat Flow, veh/h	3442	2791	802	3442	3448	153	1774	2074	1240	1774	2189	1065
Grp Volume(v), veh/h	121	317	306	356	648	672	108	210	194	80	538	452
Grp Sat Flow(s),veh/h/ln	1721	1840	1753	1721	1770	1831	1774	1770	1544	1774	1770	1484
Q Serve(g_s), s	6.2	24.4	24.7	18.1	60.3	60.5	10.7	14.7	15.8	7.9	49.1	49.1
Cycle Q Clear(g_c), s	6.2	24.4	24.7	18.1	60.3	60.5	10.7	14.7	15.8	7.9	49.1	49.1
Prop In Lane	1.00		0.46	1.00		0.08	1.00		0.80	1.00		0.72
Lane Grp Cap(c), veh/h	158	630	600	403	731	757	127	680	594	98	652	547
V/C Ratio(X)	0.77	0.50	0.51	0.88	0.89	0.89	0.85	0.31	0.33	0.82	0.83	0.83
Avail Cap(c_a), veh/h	164	630	600	513	731	757	145	680	594	155	652	547
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	83.9	46.5	46.6	77.3	48.3	48.4	81.7	38.2	38.5	83.1	51.0	51.0
Incr Delay (d2), s/veh	18.5	2.9	3.1	13.9	14.8	14.6	33.2	1.2	1.5	16.7	11.4	13.4
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	3.3	12.9	12.5	9.4	32.5	33.7	6.4	7.4	7.0	4.3	26.1	22.2
LnGrp Delay(d),s/veh	102.4	49.4	49.7	91.3	63.1	63.0	114.9	39.4	40.0	99.8	62.5	64.4
LnGrp LOS	F	D	D	F	E	E	F	D	D	F	E	E
Approach Vol, veh/h		744			1676			512			1070	
Approach Delay, s/veh		58.1			69.1			55.6			66.1	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.3	72.9	25.3	65.4	17.2	70.0	12.7	78.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	64.5	26.5	55.5	14.5	65.5	8.5	73.5				
Max Q Clear Time (g_c+I1), s	9.9	17.8	20.1	26.7	12.7	51.1	8.2	62.5				
Green Ext Time (p_c), s	0.1	13.5	0.7	16.8	0.0	8.0	0.0	8.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			64.5									
HCM 2010 LOS			E									

Intersection												
Int Delay, s/veh	318.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	7	115	57	31	43	277	427	32	33	1231	162
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	7	121	60	33	45	292	449	34	35	1296	171

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2275	2517	733	1770	2585	242	1466	0	0	483	0	0
Stage 1	1451	1451	-	1049	1049	-	-	-	-	-	-	-
Stage 2	824	1066	-	721	1536	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	22	28	363	~ 53	~ 25	759	456	-	-	1076	-	-
Stage 1	137	194	-	243	303	-	-	-	-	-	-	-
Stage 2	333	297	-	385	176	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	10	363	~ 7	~ 9	759	456	-	-	1076	-	-
Mov Cap-2 Maneuver	-	10	-	~ 7	~ 9	-	-	-	-	-	-	-
Stage 1	49	188	-	87	109	-	-	-	-	-	-	-
Stage 2	79	107	-	239	170	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 5857.6	9.7	0.2
HCM LOS		F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	456	-	-	-	11	1076	-	-
HCM Lane V/C Ratio	0.639	-	-	-	12.536	0.032	-	-
HCM Control Delay (s)	25.9	-	-	\$ 5857.6	8.5	-	-	-
HCM Lane LOS	D	-	-	F	A	-	-	-
HCM 95th %tile Q(veh)	4.4	-	-	18.6	0.1	-	-	-

Notes:  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



HCM 2010 Signalized Intersection Summary  
 11: N. BROADWAY & LINCOLN AVE.

8/25/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (veh/h)	18	7	115	57	31	43	277	427	32	33	1231	162
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.80		0.68	0.75		0.68	1.00		0.86	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	19	7	121	60	33	45	292	449	34	35	1296	171
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
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	198	62	197	133	71	70	322	2245	169	46	1530	199
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.36	1.00	1.00	0.03	0.50	0.50
Sat Flow, veh/h	700	344	1082	408	388	385	1774	3425	258	1774	3059	398
Grp Volume(v), veh/h	26	0	121	138	0	0	292	240	243	35	742	725
Grp Sat Flow(s),veh/h/ln	1044	0	1082	1182	0	0	1774	1840	1842	1774	1770	1687
Q Serve(g_s), s	0.0	0.0	9.1	6.5	0.0	0.0	13.8	0.0	0.0	1.7	31.7	33.1
Cycle Q Clear(g_c), s	1.4	0.0	9.1	9.1	0.0	0.0	13.8	0.0	0.0	1.7	31.7	33.1
Prop In Lane	0.73		1.00	0.43		0.33	1.00		0.14	1.00		0.24
Lane Grp Cap(c), veh/h	261	0	197	274	0	0	322	1207	1208	46	885	844
V/C Ratio(X)	0.10	0.00	0.62	0.50	0.00	0.00	0.91	0.20	0.20	0.75	0.84	0.86
Avail Cap(c_a), veh/h	261	0	197	274	0	0	363	1207	1208	121	885	844
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	0.00	1.00	1.00	0.00	0.00	0.80	0.80	0.80	0.41	0.41	0.41
Uniform Delay (d), s/veh	29.9	0.0	33.1	32.9	0.0	0.0	27.3	0.0	0.0	42.5	18.9	19.2
Incr Delay (d2), s/veh	0.2	0.0	5.6	1.5	0.0	0.0	20.4	0.3	0.3	9.7	4.1	4.9
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	0.5	0.0	3.0	3.2	0.0	0.0	8.5	0.1	0.1	1.0	16.5	16.5
LnGrp Delay(d),s/veh	30.1	0.0	38.7	34.4	0.0	0.0	47.8	0.3	0.3	52.2	23.0	24.2
LnGrp LOS	C		D	C			D	A	A	D	C	C
Approach Vol, veh/h		147			138			775			1502	
Approach Delay, s/veh		37.2			34.4			18.2			24.2	
Approach LOS		D			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	63.7		20.0	19.9	50.1		20.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	56.0		16.0	18.0	44.0		16.0
Max Q Clear Time (g_c+I1), s	3.7	2.0		11.1	15.8	35.1		11.1
Green Ext Time (p_c), s	0.0	24.1		0.8	0.2	7.1		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	247	718	870	183	3249	115	1312	355	42	43	544	1003
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.97	1.00		0.89	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	260	756	916	193	3420	121	1381	374	44	45	573	1056
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
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	130	1290	760	232	1441	433	780	1702	677	106	1155	497
Arrive On Green	0.04	0.25	0.25	0.07	0.28	0.28	0.23	0.48	0.48	0.06	0.31	0.31
Sat Flow, veh/h	3442	5085	1580	3442	5085	1528	3442	3539	1408	1774	3681	1583
Grp Volume(v), veh/h	260	756	916	193	3420	121	1381	374	44	45	573	1056
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1528	1721	1770	1408	1774	1840	1583
Q Serve(g_s), s	6.8	23.5	45.7	10.0	51.0	11.1	40.8	11.0	3.0	4.4	22.8	56.5
Cycle Q Clear(g_c), s	6.8	23.5	45.7	10.0	51.0	11.1	40.8	11.0	3.0	4.4	22.8	56.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	130	1290	760	232	1441	433	780	1702	677	106	1155	497
V/C Ratio(X)	2.00	0.59	1.21	0.83	2.37	0.28	1.77	0.22	0.07	0.43	0.50	2.12
Avail Cap(c_a), veh/h	130	1290	760	283	1441	433	780	1740	692	118	1155	497
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	86.6	58.9	46.8	82.9	64.5	50.2	69.6	27.1	25.0	81.7	50.2	61.8
Incr Delay (d2), s/veh	476.0	0.7	104.9	15.9	620.3	0.3	351.8	0.1	0.0	2.7	0.3	512.9
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	11.8	11.1	59.8	5.3	106.6	4.7	57.5	5.4	1.2	2.2	11.7	95.6
LnGrp Delay(d),s/veh	562.6	59.6	151.7	98.8	684.8	50.5	421.4	27.2	25.1	84.3	50.5	574.7
LnGrp LOS	F	E	F	F	F	D	F	C	C	F	D	F
Approach Vol, veh/h		1932			3734			1799			1674	
Approach Delay, s/veh		170.9			633.9			329.8			382.1	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.9	93.1	17.3	53.7	46.0	63.0	12.0	59.0				
Change Period (Y+Rc), s* 5.1999998		6.51999998		8.01999998		6.51999998		8.0				
Max Green Setting (Gmax), s	* 12	88.5	* 14.8	43.00799999		56.68000002		51.0				
Max Q Clear Time (g_c+I1), s	6.4	13.0	12.0	47.7	42.8	58.5	8.8	53.0				
Green Ext Time (p_c), s	0.0	21.5	0.2	0.0	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			430.1									
HCM 2010 LOS			F									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - Mitigation

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↖↗	↗	↖↗	↖↖↗	↗	↖↗	↖↖	↗	↖	↖↖	↗
Volume (veh/h)	247	718	870	183	3249	115	1312	355	42	43	544	1003
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.97	1.00		0.87	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	260	756	916	193	3420	121	1381	374	44	45	573	1056
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	1	2
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	220	1627	873	233	1610	486	799	1466	571	106	468	968
Arrive On Green	0.06	0.32	0.32	0.07	0.32	0.32	0.23	0.41	0.41	0.02	0.08	0.08
Sat Flow, veh/h	3442	5085	1580	3442	5085	1534	3442	3539	1379	1774	1937	3167
Grp Volume(v), veh/h	260	756	916	193	3420	121	1381	374	44	45	573	1056
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1534	1721	1770	1379	1774	1937	1583
Q Serve(g_s), s	11.5	21.4	57.6	10.0	57.0	10.5	41.8	12.5	3.5	4.5	43.5	43.5
Cycle Q Clear(g_c), s	11.5	21.4	57.6	10.0	57.0	10.5	41.8	12.5	3.5	4.5	43.5	43.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	220	1627	873	233	1610	486	799	1466	571	106	468	968
V/C Ratio(X)	1.18	0.46	1.05	0.83	2.12	0.25	1.73	0.26	0.08	0.43	1.22	1.09
Avail Cap(c_a), veh/h	220	1627	873	315	1610	486	799	1466	571	118	468	968
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)	1.00	1.00	1.00	0.79	0.79	0.79	0.85	0.85	0.85	0.32	0.32	0.32
Uniform Delay (d), s/veh	84.3	48.9	40.3	82.9	61.5	45.6	69.1	34.5	31.9	85.2	82.8	74.6
Incr Delay (d2), s/veh	118.8	0.2	44.1	10.1	507.4	0.2	332.0	0.4	0.2	0.9	107.1	47.3
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	9.1	10.0	54.0	5.1	102.3	4.5	56.7	6.1	1.4	2.2	37.3	30.4
LnGrp Delay(d),s/veh	203.0	49.1	84.4	92.9	568.9	45.8	401.1	34.9	32.1	86.0	189.9	121.9
LnGrp LOS	F	D	F	F	F	D	F	C	C	F	F	F
Approach Vol, veh/h		1932			3734			1799			1674	
Approach Delay, s/veh		86.5			527.3			316.0			144.2	
Approach LOS		F			F			F			F	

Time	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	81.1	17.4	65.6	47.0	50.0	18.0	65.0
Change Period (Y+Rc), s* 5.1999998		6.5.1999998		8.0.1999998		6.5	6.5	8.0
Max Green Setting (Gmax), s	* 12	73.3	* 16.5	53.0.1.7999999		43.5	11.5	57.0
Max Q Clear Time (g_c+I1), s	6.5	14.5	12.0	59.6	43.8	45.5	13.5	59.0
Green Ext Time (p_c), s	0.0	18.9	0.2	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay 322.4  
 HCM 2010 LOS F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	127	241	101	111	707	262	218	609	43	135	821	212
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	134	254	106	117	744	276	229	641	45	142	864	223
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	139	727	295	123	726	269	225	1408	99	170	1084	280
Arrive On Green	0.08	0.30	0.30	0.07	0.29	0.29	0.12	0.40	0.40	0.09	0.37	0.37
Sat Flow, veh/h	1774	2458	998	1774	2529	938	1845	3490	245	1845	2898	748
Grp Volume(v), veh/h	134	181	179	117	521	499	229	338	348	142	548	539
Grp Sat Flow(s),veh/h/ln	1774	1770	1687	1774	1770	1697	1845	1840	1894	1845	1840	1805
Q Serve(g_s), s	8.7	9.2	9.6	7.6	33.0	33.0	14.0	15.4	15.5	8.7	30.6	30.6
Cycle Q Clear(g_c), s	8.7	9.2	9.6	7.6	33.0	33.0	14.0	15.4	15.5	8.7	30.6	30.6
Prop In Lane	1.00		0.59	1.00		0.55	1.00		0.13	1.00		0.41
Lane Grp Cap(c), veh/h	139	523	499	123	508	487	225	743	764	170	688	675
V/C Ratio(X)	0.97	0.35	0.36	0.95	1.03	1.03	1.02	0.45	0.46	0.83	0.80	0.80
Avail Cap(c_a), veh/h	139	523	499	123	508	487	225	743	764	176	688	675
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	31.8	31.9	53.3	41.0	41.0	50.5	25.1	25.1	51.3	32.1	32.1
Incr Delay (d2), s/veh	65.5	0.4	0.4	64.8	46.5	47.4	65.2	2.0	2.0	27.2	9.3	9.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	4.6	4.5	5.9	22.6	21.8	11.2	8.2	8.4	5.7	17.3	17.0
LnGrp Delay(d),s/veh	118.4	32.2	32.4	118.1	87.5	88.4	115.8	27.1	27.0	78.5	41.4	41.6
LnGrp LOS	F	C	C	F	F	F	F	C	C	E	D	D
Approach Vol, veh/h		494			1137			915			1229	
Approach Delay, s/veh		55.6			91.0			49.3			45.8	
Approach LOS		E			F			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.6	50.4	12.0	38.0	18.0	47.0	13.0	37.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	11.0	46.0	8.0	34.0	14.0	43.0	9.0	33.0				
Max Q Clear Time (g_c+I1), s	10.7	17.5	9.6	11.6	16.0	32.6	10.7	35.0				
Green Ext Time (p_c), s	0.0	14.7	0.0	9.9	0.0	7.4	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			61.6									
HCM 2010 LOS			E									
























HCM 2010 SIGNALIZED  
14: GARRICK WY. & LINCOLN PKY.

1/29/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	11	674	54	22	2074	106	25	1	5	53	1	122
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	709	57	23	2183	112	26	1	5	56	1	128
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
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	21	2989	928	37	3034	944	40	32	158	71	2	207
Arrive On Green	0.01	0.59	0.59	0.02	0.60	0.60	0.02	0.12	0.12	0.04	0.13	0.13
Sat Flow, veh/h	1774	5085	1579	1774	5085	1582	1774	271	1353	1774	12	1552
Grp Volume(v), veh/h	12	709	57	23	2183	112	26	0	6	56	0	129
Grp Sat Flow(s),veh/h/ln	1774	1695	1579	1774	1695	1582	1774	0	1624	1774	0	1564
Q Serve(g_s), s	0.5	4.5	1.1	0.9	20.6	2.1	1.0	0.0	0.2	2.1	0.0	5.3
Cycle Q Clear(g_c), s	0.5	4.5	1.1	0.9	20.6	2.1	1.0	0.0	0.2	2.1	0.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		0.99
Lane Grp Cap(c), veh/h	21	2989	928	37	3034	944	40	0	189	71	0	209
V/C Ratio(X)	0.57	0.24	0.06	0.63	0.72	0.12	0.64	0.00	0.03	0.79	0.00	0.62
Avail Cap(c_a), veh/h	182	2989	928	182	3034	944	182	0	716	182	0	690
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	6.7	6.0	33.1	9.7	6.0	33.0	0.0	26.7	32.4	0.0	27.8
Incr Delay (d2), s/veh	21.7	0.2	0.1	16.1	1.5	0.3	15.7	0.0	0.1	17.7	0.0	3.0
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	0.4	2.2	0.5	0.6	9.9	1.0	0.7	0.0	0.1	1.4	0.0	2.5
LnGrp Delay(d),s/veh	55.1	6.9	6.1	49.2	11.2	6.2	48.7	0.0	26.7	50.1	0.0	30.8
LnGrp LOS	E	A	A	D	B	A	D		C	D		C
Approach Vol, veh/h		778			2318			32				185
Approach Delay, s/veh		7.6			11.3			44.6				36.6
Approach LOS		A			B			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.4	44.0	5.6	13.1	4.8	44.6	6.7	11.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	40.0	7.0	30.0	7.0	40.0	7.0	30.0				
Max Q Clear Time (g_c+I1), s	2.9	6.5	3.0	7.3	2.5	22.6	4.1	2.2				
Green Ext Time (p_c), s	0.0	29.0	0.0	0.8	0.0	16.0	0.0	0.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			12.2									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY. - MITIGATION

2/5/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	674	54	22	2074	106	25	1	5	53	1	122
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	12	709	57	23	2183	112	26	1	5	56	1	128
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
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	37	2983	927	37	2983	928	40	15	76	181	2	210
Arrive On Green	0.02	0.59	0.59	0.02	0.59	0.59	0.02	0.06	0.06	0.10	0.14	0.14
Sat Flow, veh/h	1774	5085	1579	1774	5085	1582	1774	271	1353	1774	12	1552
Grp Volume(v), veh/h	12	709	57	23	2183	112	26	0	6	56	0	129
Grp Sat Flow(s),veh/h/ln	1774	1695	1579	1774	1695	1582	1774	0	1624	1774	0	1564
Q Serve(g_s), s	0.5	4.6	0.7	0.9	21.2	2.1	1.0	0.0	0.2	2.0	0.0	5.3
Cycle Q Clear(g_c), s	0.5	4.6	0.7	0.9	21.2	2.1	1.0	0.0	0.2	2.0	0.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		0.99
Lane Grp Cap(c), veh/h	37	2983	927	37	2983	928	40	0	91	181	0	211
V/C Ratio(X)	0.33	0.24	0.06	0.63	0.73	0.12	0.64	0.00	0.07	0.31	0.00	0.61
Avail Cap(c_a), veh/h	182	2983	927	182	2983	928	182	0	715	182	0	688
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)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.9	6.8	2.6	33.1	10.2	6.3	33.0	0.0	30.5	28.4	0.0	27.8
Incr Delay (d2), s/veh	4.1	0.2	0.1	16.1	1.6	0.3	15.7	0.0	0.3	1.0	0.0	2.8
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	0.3	2.1	0.5	0.6	10.2	1.0	0.7	0.0	0.1	1.0	0.0	2.5
LnGrp Delay(d),s/veh	37.0	6.9	2.7	49.3	11.8	6.5	48.8	0.0	30.8	29.3	0.0	30.6
LnGrp LOS	D	A	A	D	B	A	D		C	C		C
Approach Vol, veh/h		778			2318			32			185	
Approach Delay, s/veh		7.1			11.9			45.4			30.2	
Approach LOS		A			B			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.2	44.0	5.6	13.2	37.2	44.0	11.0	7.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	40.0	7.0	30.0	7.0	40.0	7.0	30.0				
Max Q Clear Time (g_c+I1), s	2.9	6.6	3.0	7.3	2.5	23.2	4.0	2.2				
Green Ext Time (p_c), s	0.0	5.8	0.0	0.9	0.0	13.9	0.2	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				12.1								
HCM 2010 LOS				B								

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	
Volume (veh/h)	68	560	95	83	1866	14	290	212	35	8	306	138
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	1.00		0.92	1.00		0.93	1.00		0.75
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	72	589	100	87	1964	15	305	223	37	8	322	145
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	51	1346	227	108	1747	13	241	678	533	14	257	116
Arrive On Green	0.03	0.45	0.45	0.06	0.49	0.49	0.14	0.36	0.36	0.01	0.24	0.24
Sat Flow, veh/h	1774	2969	502	1774	3597	27	1774	1863	1466	1774	1090	491
Grp Volume(v), veh/h	72	350	339	87	964	1015	305	223	37	8	0	467
Grp Sat Flow(s),veh/h/ln	1774	1770	1701	1774	1770	1855	1774	1863	1466	1774	0	1581
Q Serve(g_s), s	4.0	18.9	19.0	6.8	68.0	68.0	19.0	12.1	2.3	0.6	0.0	33.0
Cycle Q Clear(g_c), s	4.0	18.9	19.0	6.8	68.0	68.0	19.0	12.1	2.3	0.6	0.0	33.0
Prop In Lane	1.00		0.29	1.00		0.01	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	51	802	771	108	860	901	241	678	533	14	0	373
V/C Ratio(X)	1.42	0.44	0.44	0.80	1.12	1.13	1.27	0.33	0.07	0.59	0.00	1.25
Avail Cap(c_a), veh/h	51	802	771	165	860	901	241	678	533	51	0	373
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	68.0	26.1	26.1	64.9	36.0	36.0	60.5	32.2	29.1	69.2	0.0	53.5
Incr Delay (d2), s/veh	272.5	1.7	1.8	15.2	69.9	71.1	148.7	0.3	0.1	34.8	0.0	134.2
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	5.8	9.6	9.3	3.8	49.9	52.6	19.2	6.3	0.9	0.4	0.0	28.3
LnGrp Delay(d),s/veh	340.5	27.8	27.9	80.1	105.9	107.1	209.2	32.5	29.1	104.0	0.0	187.7
LnGrp LOS	F	C	C	F	F	F	F	C	C	F		F
Approach Vol, veh/h		761			2066			565				475
Approach Delay, s/veh		57.5			105.4			127.7				186.3
Approach LOS		E			F			F				F

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	67.5	23.0	37.0	8.0	72.0	5.1	54.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	13.0	59.0	19.0	33.0	4.0	68.0	4.0	48.0
Max Q Clear Time (g_c+I1), s	8.8	21.0	21.0	35.0	6.0	70.0	2.6	14.1
Green Ext Time (p_c), s	0.1	30.1	0.0	0.0	0.0	0.0	0.0	5.5

Intersection Summary		
HCM 2010 Ctrl Delay		109.1
HCM 2010 LOS		F

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE. - MITIGATION

2/3/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	560	95	83	1866	14	290	212	35	8	306	138
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	1.00		0.92	1.00		0.92	1.00		0.76
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	72	589	100	87	1964	15	305	223	37	8	322	145
Adj No. of Lanes	1	2	0	1	2	0	2	1	0	1	1	0
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	76	1454	246	108	1824	14	295	504	84	14	275	124
Arrive On Green	0.04	0.49	0.49	0.06	0.51	0.51	0.09	0.33	0.33	0.01	0.25	0.25
Sat Flow, veh/h	1774	2973	503	1774	3597	27	3442	1536	255	1774	1098	495
Grp Volume(v), veh/h	72	350	339	87	964	1015	305	0	260	8	0	467
Grp Sat Flow(s),veh/h/ln	1774	1770	1706	1774	1770	1855	1721	0	1791	1774	0	1593
Q Serve(g_s), s	5.7	17.6	17.8	6.8	71.0	71.0	12.0	0.0	16.0	0.6	0.0	35.0
Cycle Q Clear(g_c), s	5.7	17.6	17.8	6.8	71.0	71.0	12.0	0.0	16.0	0.6	0.0	35.0
Prop In Lane	1.00		0.29	1.00		0.01	1.00		0.14	1.00		0.31
Lane Grp Cap(c), veh/h	76	865	834	108	897	941	295	0	588	14	0	398
V/C Ratio(X)	0.95	0.40	0.41	0.80	1.07	1.08	1.03	0.00	0.44	0.59	0.00	1.17
Avail Cap(c_a), veh/h	76	865	834	165	897	941	295	0	588	51	0	398
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.8	22.8	22.8	64.9	34.5	34.5	64.0	0.0	37.0	69.2	0.0	52.5
Incr Delay (d2), s/veh	85.0	1.4	1.5	15.2	52.1	52.9	61.5	0.0	0.5	34.8	0.0	101.2
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	4.6	8.9	8.7	3.8	47.4	49.9	8.2	0.0	8.0	0.4	0.0	26.6
LnGrp Delay(d),s/veh	151.8	24.2	24.3	80.1	86.6	87.4	125.5	0.0	37.5	104.0	0.0	153.7
LnGrp LOS	F	C	C	F	F	F	F		D	F		F
Approach Vol, veh/h		761			2066			565			475	
Approach Delay, s/veh		36.3			86.7			85.0			152.9	
Approach LOS		D			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	72.5	16.0	39.0	10.0	75.0	5.1	49.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	64.0	12.0	35.0	6.0	71.0	4.0	43.0				
Max Q Clear Time (g_c+1), s	8.8	19.8	14.0	37.0	7.7	73.0	2.6	18.0				
Green Ext Time (p_c), s	0.1	34.0	0.0	0.0	0.0	0.0	0.0	5.3				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			84.7									
HCM 2010 LOS			F									



HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/29/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕	↗	↖	↗		↖	↗	
Volume (veh/h)	105	270	65	33	747	80	88	203	77	79	287	311
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.82	0.91		0.89	0.99		0.87	0.92		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	111	284	68	35	786	84	93	214	81	83	302	327
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
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	270	745	520	418	1273	136	214	541	205	466	345	374
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	622	1863	1300	937	3182	340	782	1230	466	999	784	849
Grp Volume(v), veh/h	111	284	68	35	437	433	93	0	295	83	0	629
Grp Sat Flow(s),veh/h/ln	622	1863	1300	937	1770	1753	782	0	1696	999	0	1633
Q Serve(g_s), s	8.7	5.4	1.7	1.4	9.8	9.8	4.5	0.0	5.9	3.1	0.0	17.5
Cycle Q Clear(g_c), s	18.5	5.4	1.7	6.8	9.8	9.8	22.0	0.0	5.9	9.0	0.0	17.5
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.27	1.00		0.52
Lane Grp Cap(c), veh/h	270	745	520	418	708	701	214	0	746	466	0	719
V/C Ratio(X)	0.41	0.38	0.13	0.08	0.62	0.62	0.43	0.00	0.40	0.18	0.00	0.88
Avail Cap(c_a), veh/h	270	745	520	418	708	701	214	0	746	466	0	719
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	10.6	9.5	13.0	12.0	12.0	23.3	0.0	9.5	12.5	0.0	12.7
Incr Delay (d2), s/veh	4.6	1.5	0.5	0.4	4.0	4.1	1.4	0.0	0.3	0.2	0.0	11.7
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	1.8	3.1	0.7	0.4	5.5	5.5	1.3	0.0	2.8	0.9	0.0	10.0
LnGrp Delay(d),s/veh	23.9	12.1	10.0	13.4	16.0	16.0	24.7	0.0	9.8	12.7	0.0	24.4
LnGrp LOS	C	B	B	B	B	B	C		A	B		C
Approach Vol, veh/h		463			905			388				712
Approach Delay, s/veh		14.6			15.9			13.4				23.1
Approach LOS		B			B			B				C

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.0		26.0		24.0		26.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		20.0		22.0		20.0		22.0
Max Q Clear Time (g_c+I1), s		20.5		19.5		11.8		24.0
Green Ext Time (p_c), s		0.0		1.6		5.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Intersection:

Int Delay, s/veh 2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	106	61	67	403	36	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	112	64	71	424	38	41

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	176	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1400	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1400	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	539	-	-	1400	-
HCM Lane V/C Ratio	0.146	-	-	0.05	-
HCM Control Delay (s)	12.8	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

**Intersection**

Int Delay, s/veh      2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	129	60	66	374	35	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	63	69	394	37	41

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	199	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1373	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1373	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	541	-	-	1373	-
HCM Lane V/C Ratio	0.144	-	-	0.051	-
HCM Control Delay (s)	12.8	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

**Intersection**

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	187	0	3	406	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	197	0	3	427	0	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	197	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1376	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1376	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	844	-	-	1376	-
HCM Lane V/C Ratio	0.002	-	-	0.002	-
HCM Control Delay (s)	9.3	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Horizon Year (2035) With Project  
PM Peak Hour

HCM 2010 SIGNALIZED  
1: ROCK SPRINGS RD. & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖	↖↗
Volume (veh/h)	250	1118	70	84	556	318	47	668	99	211	243	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3
Adj Flow Rate, veh/h	263	1177	74	88	585	335	49	703	104	222	256	47
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	1	1
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	230	1234	77	104	638	365	455	1347	199	266	811	689
Arrive On Green	0.13	0.36	0.36	0.06	0.29	0.29	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1774	3382	212	1774	2170	1243	1072	3094	457	672	1863	1583
Grp Volume(v), veh/h	263	615	636	88	477	443	49	402	405	222	256	47
Grp Sat Flow(s),veh/h/ln	1774	1770	1825	1774	1770	1643	1072	1770	1782	672	1863	1583
Q Serve(g_s), s	11.0	28.8	28.9	4.2	22.1	22.1	2.7	14.1	14.1	22.9	7.6	1.5
Cycle Q Clear(g_c), s	11.0	28.8	28.9	4.2	22.1	22.1	10.3	14.1	14.1	37.0	7.6	1.5
Prop In Lane	1.00		0.12	1.00		0.76	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	230	645	666	104	520	483	455	770	776	266	811	689
V/C Ratio(X)	1.15	0.95	0.95	0.84	0.92	0.92	0.11	0.52	0.52	0.84	0.32	0.07
Avail Cap(c_a), veh/h	230	645	666	104	520	483	455	770	776	266	811	689
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	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	26.3	26.3	39.6	29.0	29.0	19.1	17.5	17.5	33.2	15.7	14.0
Incr Delay (d2), s/veh	104.3	25.7	25.4	40.3	21.7	23.0	0.1	0.6	0.6	20.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	18.6	19.2	3.2	13.9	13.1	0.8	6.9	7.0	6.7	4.0	0.6
LnGrp Delay(d),s/veh	141.3	52.0	51.7	79.9	50.7	52.0	19.2	18.2	18.2	53.3	15.9	14.0
LnGrp LOS	F	D	D	E	D	D	B	B	B	D	B	B
Approach Vol, veh/h		1514			1008			856			525	
Approach Delay, s/veh		67.4			53.8			18.2			31.5	
Approach LOS		E			D			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	35.0		41.0	15.0	29.0		41.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	31.0		37.0	11.0	25.0		37.0				
Max Q Clear Time (g_c+I1), s	6.2	30.9		39.0	13.0	24.1		16.1				
Green Ext Time (p_c), s	0.0	0.1		0.0	0.0	0.8		9.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			48.3									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
2: MORNING VIEW DR. & EL NORTE PKY.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖	↗	↖	↗		↖	↗	
Volume (veh/h)	174	852	137	145	760	47	111	61	168	101	56	202
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	183	897	144	153	800	49	117	64	177	106	59	213
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
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	223	1854	296	191	2041	636	286	134	372	313	109	393
Arrive On Green	0.13	0.42	0.42	0.11	0.40	0.40	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	4421	707	1774	5085	1583	1103	438	1211	1134	355	1282
Grp Volume(v), veh/h	183	687	354	153	800	49	117	0	241	106	0	272
Grp Sat Flow(s),veh/h/ln	1774	1695	1738	1774	1695	1583	1103	0	1649	1134	0	1637
Q Serve(g_s), s	7.3	10.7	10.7	6.1	8.1	1.4	7.1	0.0	8.6	6.0	0.0	10.0
Cycle Q Clear(g_c), s	7.3	10.7	10.7	6.1	8.1	1.4	17.1	0.0	8.6	14.6	0.0	10.0
Prop In Lane	1.00		0.41	1.00		1.00	1.00		0.73	1.00		0.78
Lane Grp Cap(c), veh/h	223	1422	729	191	2041	636	286	0	506	313	0	502
V/C Ratio(X)	0.82	0.48	0.49	0.80	0.39	0.08	0.41	0.00	0.48	0.34	0.00	0.54
Avail Cap(c_a), veh/h	246	1422	729	246	2041	636	390	0	662	421	0	657
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	15.3	15.3	31.5	15.4	13.4	27.9	0.0	20.3	26.3	0.0	20.8
Incr Delay (d2), s/veh	18.2	1.2	2.3	13.5	0.6	0.2	0.9	0.0	0.7	0.6	0.0	0.9
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	4.7	5.2	5.6	3.7	3.9	0.6	2.3	0.0	4.0	1.9	0.0	4.6
LnGrp Delay(d),s/veh	49.0	16.5	17.6	45.0	15.9	13.6	28.9	0.0	21.0	26.9	0.0	21.7
LnGrp LOS	D	B	B	D	B	B	C		C	C		C
Approach Vol, veh/h		1224			1002			358			378	
Approach Delay, s/veh		21.7			20.2			23.6			23.2	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	34.3		26.2	13.1	33.0		26.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	10.0	29.0		29.0	10.0	29.0		29.0				
Max Q Clear Time (g_c+I1), s	8.1	12.7		16.6	9.3	10.1		19.1				
Green Ext Time (p_c), s	0.1	11.1		3.5	0.0	12.4		3.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				21.6								
HCM 2010 LOS				C								

HCM 2010 SIGNALIZED  
3: QUINCE ST. & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↖	↗	↖	↗
Volume (veh/h)	23	1204	76	98	611	53	118	46	433	156	35	29
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	24	1267	80	103	643	56	124	48	456	164	37	31
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	35	1317	83	112	1426	124	131	510	433	187	286	240
Arrive On Green	0.02	0.39	0.39	0.06	0.43	0.43	0.07	0.27	0.27	0.11	0.31	0.31
Sat Flow, veh/h	1774	3382	213	1774	3295	287	1774	1863	1583	1774	938	786
Grp Volume(v), veh/h	24	662	685	103	345	354	124	48	456	164	0	68
Grp Sat Flow(s),veh/h/ln	1774	1770	1825	1774	1770	1812	1774	1863	1583	1774	0	1724
Q Serve(g_s), s	1.3	34.7	34.8	5.5	13.0	13.1	6.6	1.8	26.0	8.7	0.0	2.7
Cycle Q Clear(g_c), s	1.3	34.7	34.8	5.5	13.0	13.1	6.6	1.8	26.0	8.7	0.0	2.7
Prop In Lane	1.00		0.12	1.00		0.16	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	35	689	711	112	766	784	131	510	433	187	0	526
V/C Ratio(X)	0.68	0.96	0.96	0.92	0.45	0.45	0.95	0.09	1.05	0.88	0.00	0.13
Avail Cap(c_a), veh/h	93	689	711	112	766	784	131	510	433	187	0	526
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)	0.10	0.10	0.10	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	28.3	28.3	44.3	19.0	19.0	43.8	25.7	34.5	41.9	0.0	23.9
Incr Delay (d2), s/veh	2.3	4.9	5.0	58.2	1.8	1.8	62.9	0.1	57.7	34.5	0.0	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	0.6	17.9	18.5	4.5	6.7	6.9	5.5	0.9	18.3	6.0	0.0	1.3
LnGrp Delay(d),s/veh	48.6	33.2	33.4	102.4	20.8	20.8	106.7	25.8	92.2	76.4	0.0	24.0
LnGrp LOS	D	C	C	F	C	C	F	C	F	E		C
Approach Vol, veh/h		1371			802			628			232	
Approach Delay, s/veh		33.6			31.3			90.0			61.0	
Approach LOS		C			C			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	41.0	11.0	33.0	5.9	45.1	14.0	30.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	6.0	37.0	7.0	29.0	5.0	38.0	10.0	26.0				
Max Q Clear Time (g_c+l1), s	7.5	36.8	8.6	4.7	3.3	15.1	10.7	28.0				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.4	0.0	15.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			46.7									
HCM 2010 LOS			D									



HCM 2010 SIGNALIZED  
4: CENTRE CITY PKY. & EL NORTE PKY.

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	968	212	148	650	168	345	647	268	164	274	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	67	1019	223	156	684	177	363	681	282	173	288	43
Adj No. of Lanes	2	2	1	2	2	0	2	2	1	2	2	1
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	117	1246	557	198	1045	270	413	1365	611	214	1161	519
Arrive On Green	0.03	0.35	0.35	0.06	0.38	0.38	0.12	0.39	0.39	0.06	0.33	0.33
Sat Flow, veh/h	3442	3539	1583	3442	2785	720	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	67	1019	223	156	434	427	363	681	282	173	288	43
Grp Sat Flow(s),veh/h/ln	1721	1770	1583	1721	1770	1736	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	3.2	44.1	17.9	7.5	34.2	34.3	17.5	24.7	22.4	8.4	10.0	3.2
Cycle Q Clear(g_c), s	3.2	44.1	17.9	7.5	34.2	34.3	17.5	24.7	22.4	8.4	10.0	3.2
Prop In Lane	1.00		1.00	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	1246	557	198	664	652	413	1365	611	214	1161	519
V/C Ratio(X)	0.57	0.82	0.40	0.79	0.65	0.65	0.88	0.50	0.46	0.81	0.25	0.08
Avail Cap(c_a), veh/h	123	1365	611	266	756	742	531	1365	611	266	1161	519
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.2	49.7	41.2	78.4	43.6	43.6	72.9	39.3	38.7	78.0	41.4	39.1
Incr Delay (d2), s/veh	5.7	3.7	0.5	10.8	1.7	1.7	12.9	1.3	2.5	13.8	0.5	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	1.6	22.2	7.9	3.9	17.1	16.8	9.1	12.3	10.3	4.4	5.0	1.4
LnGrp Delay(d),s/veh	85.9	53.4	41.6	89.2	45.2	45.3	85.8	40.7	41.2	91.8	41.9	39.4
LnGrp LOS	F	D	D	F	D	D	F	D	D	F	D	D
Approach Vol, veh/h		1309			1017			1326			504	
Approach Delay, s/veh		53.1			52.0			53.1			58.8	
Approach LOS		D			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	72.0	14.7	65.3	26.2	62.3	10.7	69.2				
Change Period (Y+Rc), s	6.0	7.0	5.0	6.0	6.0	7.0	5.0	*6				
Max Green Setting (Gmax), s	13.0	65.0	13.0	65.0	26.0	52.0	6.0	*72				
Max Q Clear Time (g_c+I1), s	10.4	26.7	9.5	46.1	19.5	12.0	5.2	36.3				
Green Ext Time (p_c), s	0.1	9.8	0.1	13.2	0.7	9.9	0.0	19.9				

Intersection Summary												
HCM 2010 Ctrl Delay			53.5									
HCM 2010 LOS			D									

Notes  
\* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 SIGNALIZED  
5: CENTRE CITY PKY. & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	490	880	118	53	410	474	103	1388	61	241	606	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	516	926	0	56	432	0	108	1461	0	254	638	0
Adj No. of Lanes	1	2	1	1	2	1	2	2	1	2	2	1
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	433	1355	606	72	635	284	156	1413	632	204	1462	654
Arrive On Green	0.24	0.38	0.00	0.04	0.18	0.00	0.05	0.40	0.00	0.06	0.41	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	3539	1583	3442	3539	1583
Grp Volume(v), veh/h	516	926	0	56	432	0	108	1461	0	254	638	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	1770	1583	1721	1770	1583
Q Serve(g_s), s	33.0	29.6	0.0	4.2	15.4	0.0	4.2	54.0	0.0	8.0	17.5	0.0
Cycle Q Clear(g_c), s	33.0	29.6	0.0	4.2	15.4	0.0	4.2	54.0	0.0	8.0	17.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	433	1355	606	72	635	284	156	1413	632	204	1462	654
V/C Ratio(X)	1.19	0.68	0.00	0.78	0.68	0.00	0.69	1.03	0.00	1.25	0.44	0.00
Avail Cap(c_a), veh/h	433	1360	609	131	759	339	204	1413	632	204	1462	654
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)	0.23	0.23	0.00	0.67	0.67	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	51.1	34.9	0.0	64.3	51.9	0.0	63.7	40.6	0.0	63.6	28.4	0.0
Incr Delay (d2), s/veh	92.3	0.3	0.0	11.4	1.3	0.0	6.6	33.2	0.0	145.7	1.0	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	27.2	14.5	0.0	2.3	7.7	0.0	2.1	32.8	0.0	7.9	8.7	0.0
LnGrp Delay(d),s/veh	143.4	35.2	0.0	75.6	53.2	0.0	70.3	73.9	0.0	209.4	29.4	0.0
LnGrp LOS	F	D		E	D		E	F		F	C	
Approach Vol, veh/h		1442			488			1569			892	
Approach Delay, s/veh		73.9			55.7			73.6			80.6	
Approach LOS		E			E			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	62.7	9.5	55.8	10.1	64.6	37.0	28.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	54.0	10.0	52.0	8.0	54.0	33.0	29.0				
Max Q Clear Time (g_c+l1), s	10.0	56.0	6.2	31.6	6.2	19.5	35.0	17.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	9.8	0.0	22.0	0.0	6.9				

Intersection Summary	
HCM 2010 Ctrl Delay	73.2
HCM 2010 LOS	E

Intersection												
Int Delay, s/veh	4.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	80	1309	195	318	810	17	33	6	407	10	7	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	5	-	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	1378	205	335	853	18	35	6	428	11	7	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	871	0	0	1583	0	0	2748	3189	792	2392	3283	435
Stage 1	-	-	-	-	-	-	1649	1649	-	1531	1531	-
Stage 2	-	-	-	-	-	-	1099	1540	-	861	1752	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	770	-	-	411	-	-	~ 9	10	~ 332	18	9	569
Stage 1	-	-	-	-	-	-	103	155	-	122	177	-
Stage 2	-	-	-	-	-	-	227	175	-	317	138	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	770	-	-	411	-	-	~ 2	~ 2	~ 332	-	~ 1	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ -155	~ -80	-	149	35	-
Stage 1	-	-	-	-	-	-	92	138	-	109	33	-
Stage 2	-	-	-	-	-	-	~ 27	32	-	-	123	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	11.8	-	-
HCM LOS	-	-	-	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	+	332	770	-	-	411	-	-	-	569
HCM Lane V/C Ratio	-	1.29	0.109	-	-	0.814	-	-	-	0.159
HCM Control Delay (s)	-	184	10.2	-	-	42.4	-	-	-	12.5
HCM Lane LOS	-	F	B	-	-	E	-	-	-	B
HCM 95th %tile Q(veh)	-	20.1	0.4	-	-	7.4	-	-	-	0.6

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection**

Int Delay, s/veh 28

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	80	1309	195	318	810	17	0	0	407	0	0	86
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	40	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	1378	205	335	853	18	0	0	428	0	0	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	871	0	0	1583	0	0	2745	3189	792	2388	3283	435
Stage 1	-	-	-	-	-	-	1649	1649	-	1531	1531	-
Stage 2	-	-	-	-	-	-	1096	1540	-	857	1752	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	770	-	-	411	-	-	9	10	~ 332	18	9	569
Stage 1	-	-	-	-	-	-	103	155	-	122	177	-
Stage 2	-	-	-	-	-	-	228	175	-	318	138	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	770	-	-	411	-	-	2	2	~ 332	-	1	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ -106	~ -80	-	149	35	-
Stage 1	-	-	-	-	-	-	92	138	-	109	33	-
Stage 2	-	-	-	-	-	-	35	32	-	-	123	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	11.8	184	12.5
HCM LOS			F	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	332	770	-	-	411	-	-	569
HCM Lane V/C Ratio	1.29	0.109	-	-	0.814	-	-	0.159
HCM Control Delay (s)	184	10.2	-	-	42.4	-	-	12.5
HCM Lane LOS	F	B	-	-	E	-	-	B
HCM 95th %tile Q(veh)	20.1	0.4	-	-	7.4	-	-	0.6

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
6: ESCONDIDO BLVD. & EL NORTE PKY. - MITIGATION (OPTION 2)

2/3/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↗		↖	↗	
Volume (veh/h)	80	1309	195	318	810	17	33	6	407	10	7	86
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	193.7	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	84	1378	205	335	853	18	35	6	428	11	7	91
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
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	446	1614	238	364	2322	49	305	5	381	55	28	362
Arrive On Green	0.04	0.52	0.52	0.14	0.63	0.63	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1774	3096	456	1845	3686	78	1292	22	1565	951	114	1486
Grp Volume(v), veh/h	84	782	801	335	426	445	35	0	434	11	0	98
Grp Sat Flow(s),veh/h/ln	1774	1770	1782	1845	1840	1924	1292	0	1587	951	0	1600
Q Serve(g_s), s	2.9	49.8	51.4	16.4	14.7	14.7	3.0	0.0	32.0	0.0	0.0	6.5
Cycle Q Clear(g_c), s	2.9	49.8	51.4	16.4	14.7	14.7	9.4	0.0	32.0	32.0	0.0	6.5
Prop In Lane	1.00		0.26	1.00		0.04	1.00		0.99	1.00		0.93
Lane Grp Cap(c), veh/h	446	923	929	364	1159	1212	305	0	386	55	0	389
V/C Ratio(X)	0.19	0.85	0.86	0.92	0.37	0.37	0.11	0.00	1.12	0.20	0.00	0.25
Avail Cap(c_a), veh/h	451	969	976	435	1274	1331	305	0	386	55	0	389
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	27.0	27.3	39.3	11.7	11.7	43.9	0.0	49.7	65.7	0.0	40.1
Incr Delay (d2), s/veh	0.2	6.9	7.7	22.4	0.2	0.2	0.8	0.0	83.9	8.1	0.0	1.5
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	1.4	26.1	27.1	14.2	7.5	7.9	1.1	0.0	22.9	0.5	0.0	3.0
LnGrp Delay(d),s/veh	13.7	33.8	35.1	61.8	11.9	11.9	44.7	0.0	133.7	73.8	0.0	41.6
LnGrp LOS	B	C	D	E	B	B	D		F	E		D
Approach Vol, veh/h		1667			1206			469			109	
Approach Delay, s/veh		33.4			25.8			127.0			44.9	
Approach LOS		C			C			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.9	72.6		36.0	8.7	86.8		36.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	24.0	72.0		32.0	5.0	91.0		32.0				
Max Q Clear Time (g_c+I1), s	18.4	53.4		34.0	4.9	16.7		34.0				
Green Ext Time (p_c), s	0.5	15.2		0.0	0.0	39.3		0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			43.8									
HCM 2010 LOS			D									

Intersection												
Int Delay, s/veh	11.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	22	5	56	2	88	28	764	282	116	264	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	60	-	0	75	-	5
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	23	5	59	2	93	29	804	297	122	278	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1433	1385	278	1399	1385	804	278	0	0	804	0	0
Stage 1	522	522	-	863	863	-	-	-	-	-	-	-
Stage 2	911	863	-	536	522	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	112	143	761	118	143	383	1285	-	-	820	-	-
Stage 1	538	531	-	349	372	-	-	-	-	-	-	-
Stage 2	328	372	-	529	531	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	73	119	761	87	119	383	1285	-	-	820	-	-
Mov Cap-2 Maneuver	73	119	-	87	119	-	-	-	-	-	-	-
Stage 1	526	452	-	341	364	-	-	-	-	-	-	-
Stage 2	242	364	-	424	452	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	49.9	110	0.2	3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1285	-	-	116	164	820	-	-
HCM Lane V/C Ratio	0.023	-	-	0.318	0.937	0.149	-	-
HCM Control Delay (s)	7.9	-	-	49.9	110	10.2	-	-
HCM Lane LOS	A	-	-	E	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	7	0.5	-	-





















HCM 2010 SIGNALIZED  
 7: ESCONDIDO BLVD. & LINCOLN AVE. - MITIGATION

2/3/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	22	5	56	2	88	28	764	282	116	264	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Adj Flow Rate, veh/h	8	23	5	59	2	93	29	804	297	122	278	15
Adj No. of Lanes	0	1	0	1	1	0	1	1	1	1	1	1
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	109	145	27	232	4	182	875	1346	1144	409	1346	1144
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	179	1240	229	1377	33	1555	1082	1863	1583	510	1863	1583
Grp Volume(v), veh/h	36	0	0	59	0	95	29	804	297	122	278	15
Grp Sat Flow(s),veh/h/ln	1648	0	0	1377	0	1588	1082	1863	1583	510	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	2.8	0.4	10.5	3.2	7.6	2.4	0.1
Cycle Q Clear(g_c), s	3.0	0.0	0.0	4.7	0.0	2.8	2.8	10.5	3.2	17.8	2.4	0.1
Prop In Lane	0.22		0.14	1.00		0.98	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	0	0	232	0	186	875	1346	1144	409	1346	1144
V/C Ratio(X)	0.13	0.00	0.00	0.25	0.00	0.51	0.03	0.60	0.26	0.30	0.21	0.01
Avail Cap(c_a), veh/h	620	0	0	513	0	510	875	1346	1144	409	1346	1144
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	0.0	0.0	22.8	0.0	20.7	2.7	3.4	2.4	7.6	2.3	1.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	2.2	0.1	2.0	0.6	1.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.8	0.0	1.3	0.1	5.9	1.5	1.3	1.4	0.1
LnGrp Delay(d),s/veh	20.0	0.0	0.0	23.4	0.0	22.8	2.8	5.3	2.9	9.5	2.6	2.0
LnGrp LOS	C			C		C	A	A	A	A	A	A
Approach Vol, veh/h		36			154			1130			415	
Approach Delay, s/veh		20.0			23.0			4.6			4.6	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		10.3		40.0		10.3				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		36.0		16.0		36.0		16.0				
Max Q Clear Time (g_c+I1), s		12.5		5.0		19.8		6.7				
Green Ext Time (p_c), s		11.6		0.6		9.4		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			6.6									
HCM 2010 LOS			A									

HCM 2010 SIGNALIZED  
 8: ESCONDIDO BLVD. & MISSION AVE.

1/30/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	143	761	171	134	475	64	226	419	245	95	237	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	151	801	180	141	500	67	238	441	258	100	249	98
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	184	928	209	158	968	129	272	728	423	128	642	246
Arrive On Green	0.10	0.32	0.32	0.09	0.31	0.31	0.15	0.34	0.34	0.07	0.26	0.26
Sat Flow, veh/h	1774	2873	646	1774	3139	419	1774	2158	1253	1774	2504	959
Grp Volume(v), veh/h	151	493	488	141	281	286	238	361	338	100	174	173
Grp Sat Flow(s),veh/h/ln	1774	1770	1749	1774	1770	1789	1774	1770	1642	1774	1770	1693
Q Serve(g_s), s	7.5	23.5	23.5	7.1	11.7	11.8	11.8	15.2	15.4	5.0	7.3	7.6
Cycle Q Clear(g_c), s	7.5	23.5	23.5	7.1	11.7	11.8	11.8	15.2	15.4	5.0	7.3	7.6
Prop In Lane	1.00		0.37	1.00		0.23	1.00		0.76	1.00		0.57
Lane Grp Cap(c), veh/h	184	572	565	158	546	552	272	597	554	128	453	434
V/C Ratio(X)	0.82	0.86	0.86	0.89	0.51	0.52	0.88	0.60	0.61	0.78	0.38	0.40
Avail Cap(c_a), veh/h	217	572	565	158	546	552	277	597	554	217	453	434
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)	0.64	0.64	0.64	0.60	0.60	0.60	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	28.5	28.5	40.4	25.5	25.6	37.2	24.7	24.8	41.0	27.5	27.7
Incr Delay (d2), s/veh	12.8	10.8	10.9	29.1	2.1	2.1	25.1	4.5	4.9	10.0	2.4	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	13.1	13.0	4.7	6.0	6.1	7.6	8.2	7.7	2.8	3.8	3.9
LnGrp Delay(d),s/veh	52.2	39.3	39.4	69.5	27.6	27.6	62.2	29.2	29.7	50.9	30.0	30.4
LnGrp LOS	D	D	D	E	C	C	E	C	C	D	C	C
Approach Vol, veh/h		1132			708			937			447	
Approach Delay, s/veh		41.1			36.0			37.8			34.8	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	33.2	17.8	27.0	13.3	31.9	10.5	34.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	29.0	14.0	23.0	11.0	26.0	11.0	26.0				
Max Q Clear Time (g_c+I1), s	9.1	25.5	13.8	9.6	9.5	13.8	7.0	17.4				
Green Ext Time (p_c), s	0.0	2.7	0.0	5.5	0.1	7.5	0.1	4.2				
Intersection Summary												
HCM 2010 Ctrl Delay			38.1									
HCM 2010 LOS			D									



HCM 2010 SIGNALIZED  
 9: N. BROADWAY & BUD QUADE WY./SHERIDAN AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↕	↕		↕	↕↔		↕	↕↔	
Volume (veh/h)	2	19	20	27	0	44	20	690	590	359	567	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.70		0.65	0.69		0.65	1.00		0.94	1.00		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	2	20	21	28	0	46	21	726	621	378	597	1
Adj No. of Lanes	0	1	0	1	1	0	1	2	0	1	2	0
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	36	135	132	231	0	211	30	819	680	407	2438	4
Arrive On Green	0.20	0.20	0.20	0.20	0.00	0.20	0.02	0.46	0.46	0.23	0.67	0.67
Sat Flow, veh/h	15	664	648	943	0	1033	1774	1779	1476	1774	3624	6
Grp Volume(v), veh/h	43	0	0	28	0	46	21	722	625	378	291	307
Grp Sat Flow(s),veh/h/ln	1328	0	0	943	0	1033	1774	1770	1486	1774	1770	1861
Q Serve(g_s), s	0.0	0.0	0.0	2.8	0.0	4.2	1.3	42.0	44.2	23.6	7.3	7.3
Cycle Q Clear(g_c), s	3.0	0.0	0.0	5.8	0.0	4.2	1.3	42.0	44.2	23.6	7.3	7.3
Prop In Lane	0.05		0.49	1.00		1.00	1.00		0.99	1.00		0.00
Lane Grp Cap(c), veh/h	304	0	0	231	0	211	30	815	684	407	1191	1252
V/C Ratio(X)	0.14	0.00	0.00	0.12	0.00	0.22	0.69	0.89	0.91	0.93	0.24	0.24
Avail Cap(c_a), veh/h	304	0	0	231	0	211	110	815	684	440	1191	1252
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	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	0.0	39.4	0.0	37.5	55.2	27.7	28.3	42.6	7.2	7.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.5	24.5	13.6	18.7	25.3	0.5	0.5
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	1.1	0.0	0.0	0.8	0.0	1.2	0.9	23.5	21.6	14.4	3.7	3.9
LnGrp Delay(d),s/veh	37.2	0.0	0.0	39.6	0.0	38.0	79.7	41.3	47.0	67.9	7.7	7.7
LnGrp LOS	D			D		D	E	D	D	E	A	A
Approach Vol, veh/h		43			74			1368			976	
Approach Delay, s/veh		37.2			38.6			44.5			31.0	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.9	56.0		27.0	5.9	80.0		27.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	28.0	52.0		23.0	7.0	73.0		23.0				
Max Q Clear Time (g_c+I1), s	25.6	46.2		5.0	3.3	9.3		7.8				
Green Ext Time (p_c), s	0.3	4.9		0.6	0.0	25.5		0.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			38.8									
HCM 2010 LOS			D									

HCM 2010 SIGNALIZED  
10: N. BROADWAY & EL NORTE PKY.

8/14/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↗	↖↖		↗↗	↖↖		↖	↖↖		↖	↖↖	
Volume (veh/h)	323	1064	186	169	716	102	176	589	213	74	297	174
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	193.7	197.6	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	340	1120	196	178	754	107	185	620	224	78	313	183
Adj No. of Lanes	2	2	0	2	2	0	1	2	0	1	2	0
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	388	1320	230	220	1162	165	206	882	318	96	592	328
Arrive On Green	0.11	0.42	0.42	0.06	0.37	0.37	0.12	0.35	0.35	0.05	0.29	0.29
Sat Flow, veh/h	3442	3116	543	3442	3100	440	1774	2495	900	1774	2033	1126
Grp Volume(v), veh/h	340	659	657	178	430	431	185	440	404	78	270	226
Grp Sat Flow(s),veh/h/ln	1721	1840	1818	1721	1770	1771	1774	1770	1625	1774	1770	1389
Q Serve(g_s), s	16.7	55.1	55.8	8.7	34.4	34.4	17.6	36.6	36.7	7.4	21.9	23.6
Cycle Q Clear(g_c), s	16.7	55.1	55.8	8.7	34.4	34.4	17.6	36.6	36.7	7.4	21.9	23.6
Prop In Lane	1.00		0.30	1.00		0.25	1.00		0.55	1.00		0.81
Lane Grp Cap(c), veh/h	388	779	770	220	663	663	206	625	574	96	515	404
V/C Ratio(X)	0.88	0.85	0.85	0.81	0.65	0.65	0.90	0.70	0.70	0.81	0.52	0.56
Avail Cap(c_a), veh/h	493	779	770	292	663	663	295	625	574	150	515	404
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.8	44.3	44.5	79.1	44.2	44.2	74.6	47.6	47.6	80.1	50.8	51.4
Incr Delay (d2), s/veh	13.7	11.0	11.5	12.0	4.9	4.9	21.3	6.5	7.1	16.6	3.8	5.5
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	8.7	30.4	30.4	4.5	17.7	17.8	9.9	19.0	17.6	4.1	11.3	9.7
LnGrp Delay(d),s/veh	88.5	55.3	56.0	91.1	49.1	49.1	96.0	54.1	54.7	96.7	54.5	56.8
LnGrp LOS	F	E	E	F	D	D	F	D	D	F	D	E
Approach Vol, veh/h		1656			1039			1029			574	
Approach Delay, s/veh		62.4			56.3			61.9			61.2	
Approach LOS		E			E			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	65.0	15.4	77.0	24.4	54.3	23.8	68.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.5	60.5	14.5	72.5	28.5	46.5	24.5	62.5				
Max Q Clear Time (g_c+I1), s	9.4	38.7	10.7	57.8	19.6	25.6	18.7	36.4				
Green Ext Time (p_c), s	0.1	9.6	0.2	11.4	0.3	9.4	0.6	17.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			60.6									
HCM 2010 LOS			E									

Intersection												
Int Delay, s/veh	177.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	94	62	126	24	8	62	56	1122	133	50	649	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	65	133	25	8	65	59	1181	140	53	683	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1524	2250	364	1848	2202	661	727	0	0	1321	0	0
Stage 1	811	811	-	1369	1369	-	-	-	-	-	-	-
Stage 2	713	1439	-	479	833	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 81	~ 41	633	46	44	405	872	-	-	519	-	-
Stage 1	339	391	-	154	213	-	-	-	-	-	-	-
Stage 2	389	197	-	537	382	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 49	~ 34	633	-	37	405	872	-	-	519	-	-
Mov Cap-2 Maneuver	~ 49	~ 34	-	-	37	-	-	-	-	-	-	-
Stage 1	316	351	-	144	199	-	-	-	-	-	-	-
Stage 2	291	184	-	310	343	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 1523.4	-	0.4	0.9
HCM LOS	F	-	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	872	-	-	72	-	519	-	-
HCM Lane V/C Ratio	0.068	-	-	4.123	-	0.101	-	-
HCM Control Delay (s)	9.4	-	-	\$ 1523.4	-	12.7	-	-
HCM Lane LOS	A	-	-	F	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	31.6	-	0.3	-	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 SIGNALIZED  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (veh/h)	94	62	126	24	8	62	56	1122	133	50	649	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	186.3	193.7	197.6	186.3	186.3	190.0
Adj Flow Rate, veh/h	99	65	133	25	8	65	59	1181	140	53	683	44
Adj No. of Lanes	0	1	1	0	1	0	1	2	0	1	2	0
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	244	138	343	111	57	179	75	1749	207	70	1774	114
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.04	0.53	0.53	0.04	0.53	0.53
Sat Flow, veh/h	643	604	1504	149	251	787	1774	3306	391	1774	3371	217
Grp Volume(v), veh/h	164	0	133	98	0	0	59	656	665	53	358	369
Grp Sat Flow(s),veh/h/ln	1247	0	1504	1187	0	0	1774	1840	1857	1774	1770	1818
Q Serve(g_s), s	0.0	0.0	4.4	0.2	0.0	0.0	1.9	15.4	15.5	1.7	7.1	7.1
Cycle Q Clear(g_c), s	7.9	0.0	4.4	8.1	0.0	0.0	1.9	15.4	15.5	1.7	7.1	7.1
Prop In Lane	0.60		1.00	0.26		0.66	1.00		0.21	1.00		0.12
Lane Grp Cap(c), veh/h	382	0	343	347	0	0	75	974	982	70	932	957
V/C Ratio(X)	0.43	0.00	0.39	0.28	0.00	0.00	0.79	0.67	0.68	0.76	0.38	0.39
Avail Cap(c_a), veh/h	446	0	409	409	0	0	120	974	982	120	932	957
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	0.00	1.00	1.00	0.00	0.00	0.41	0.41	0.41	0.79	0.79	0.79
Uniform Delay (d), s/veh	20.2	0.0	19.3	18.8	0.0	0.0	28.0	10.1	10.2	28.0	8.3	8.3
Incr Delay (d2), s/veh	0.8	0.0	0.7	0.4	0.0	0.0	7.4	1.5	1.5	12.4	1.0	0.9
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	2.5	0.0	1.9	1.3	0.0	0.0	1.1	8.1	8.2	1.1	3.6	3.7
LnGrp Delay(d),s/veh	21.0	0.0	20.0	19.2	0.0	0.0	35.4	11.7	11.7	40.4	9.2	9.2
LnGrp LOS	C		B	B			D	B	B	D	A	A
Approach Vol, veh/h		297			98			1380			780	
Approach Delay, s/veh		20.5			19.2			12.7			11.3	
Approach LOS		C			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	39.3		17.4	6.5	39.1		17.4				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	31.0		16.0	4.0	31.0		16.0				
Max Q Clear Time (g_c+I1), s	3.7	17.5		9.9	3.9	9.1		10.1				
Green Ext Time (p_c), s	0.0	10.2		1.1	0.0	14.7		1.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.5									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗↗↗	↖	↖↖	↗↗↗	↖	↖↖	↗↗	↖	↖	↗↗	↖
Volume (veh/h)	559	1305	576	106	1542	82	1018	492	114	51	339	515
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.88	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	588	1374	606	112	1623	86	1072	518	120	54	357	542
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	2	1
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	340	1395	817	256	1271	380	835	1513	592	121	932	401
Arrive On Green	0.10	0.27	0.27	0.07	0.25	0.25	0.24	0.43	0.43	0.07	0.25	0.25
Sat Flow, veh/h	3442	5085	1580	3442	5085	1521	3442	3539	1386	1774	3681	1583
Grp Volume(v), veh/h	588	1374	606	112	1623	86	1072	518	120	54	357	542
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1521	1721	1770	1386	1774	1840	1583
Q Serve(g_s), s	15.8	43.0	43.9	5.0	40.0	7.2	38.8	15.7	8.7	4.7	12.8	40.5
Cycle Q Clear(g_c), s	15.8	43.0	43.9	5.0	40.0	7.2	38.8	15.7	8.7	4.7	12.8	40.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	340	1395	817	256	1271	380	835	1513	592	121	932	401
V/C Ratio(X)	1.73	0.99	0.74	0.44	1.28	0.23	1.28	0.34	0.20	0.45	0.38	1.35
Avail Cap(c_a), veh/h	340	1395	817	290	1271	380	835	1513	592	155	932	401
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.1	57.7	30.3	70.8	60.0	47.7	60.6	30.7	28.7	71.6	49.4	59.8
Incr Delay (d2), s/veh	340.7	20.5	3.6	1.2	130.7	0.3	137.1	0.1	0.2	2.6	0.3	174.2
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	23.6	22.8	21.8	2.4	34.1	3.1	34.3	7.7	3.3	2.4	6.6	37.2
LnGrp Delay(d),s/veh	412.8	78.3	33.9	72.0	190.7	48.0	197.7	30.9	28.9	74.2	49.7	234.0
LnGrp LOS	F	E	C	E	F	D	F	C	C	E	D	F
Approach Vol, veh/h		2568			1821			1710			953	
Approach Delay, s/veh		144.4			176.7			135.3			155.9	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	74.9	17.1	51.9	44.0	47.0	21.0	48.0				
Change Period (Y+Rc), s* 5.1999998		6.51999998		8.01999998		6.51999998		8.0				
Max Green Setting (Gmax), s	* 14	65.3	* 13.5	42.38799999		40.5	* 15.8	40.0				
Max Q Clear Time (g_c+I1), s	6.7	17.7	7.0	45.9	40.8	42.5	17.8	42.0				
Green Ext Time (p_c), s	0.0	11.5	0.1	0.0	0.0	0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			152.1									
HCM 2010 LOS			F									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/25/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↖↖↖	↖	↖↖	↖↖↖	↖	↖↖	↖↖	↖	↖	↖↖	↖
Volume (veh/h)	559	1305	576	106	1542	82	1018	492	114	51	339	515
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.96	1.00		0.87	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	193.7	186.3
Adj Flow Rate, veh/h	588	1374	606	112	1623	86	1072	518	120	54	357	542
Adj No. of Lanes	2	3	1	2	3	1	2	2	1	1	1	2
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	407	1658	915	232	1318	395	869	1428	554	112	415	1052
Arrive On Green	0.12	0.33	0.33	0.09	0.34	0.34	0.25	0.40	0.40	0.06	0.21	0.21
Sat Flow, veh/h	3442	5085	1580	3442	5085	1523	3442	3539	1374	1774	1937	3167
Grp Volume(v), veh/h	588	1374	606	112	1623	86	1072	518	120	54	357	542
Grp Sat Flow(s),veh/h/ln	1721	1695	1580	1721	1695	1523	1721	1770	1374	1774	1937	1583
Q Serve(g_s), s	21.0	44.3	46.5	5.5	46.0	5.8	44.8	18.2	10.1	5.2	31.5	10.3
Cycle Q Clear(g_c), s	21.0	44.3	46.5	5.5	46.0	5.8	44.8	18.2	10.1	5.2	31.5	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	407	1658	915	232	1318	395	869	1428	554	112	415	1052
V/C Ratio(X)	1.44	0.83	0.66	0.48	1.23	0.22	1.23	0.36	0.22	0.48	0.86	0.52
Avail Cap(c_a), veh/h	407	1658	915	233	1318	395	869	1462	567	120	442	1097
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	0.11	0.11	0.11	0.95	0.95	0.95
Uniform Delay (d), s/veh	78.2	55.2	25.6	77.8	58.1	30.1	66.3	37.0	34.6	80.4	67.2	18.4
Incr Delay (d2), s/veh	213.2	3.7	1.8	1.5	110.5	0.3	106.4	0.1	0.1	3.1	19.5	1.7
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	22.0	21.3	20.6	2.7	34.9	2.8	34.1	8.9	3.9	2.7	19.1	5.1
LnGrp Delay(d),s/veh	291.4	58.9	27.4	79.3	168.7	30.4	172.8	37.1	34.7	83.4	86.7	20.1
LnGrp LOS	F	E	C	E	F	C	F	D	C	F	F	C
Approach Vol, veh/h		2568			1821			1710			953	
Approach Delay, s/veh		104.7			156.7			122.0			48.7	
Approach LOS		F			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	80.6	17.2	65.8	50.0	47.0	29.0	54.0
Change Period (Y+Rc), s* 5.1999998		6.51999998		8.01999998		6.5	8.0	* 8
Max Green Setting (Gmax), s	* 12	73.3	* 12	57.41999999		40.5	21.0	* 46
Max Q Clear Time (g_c+l1), s	7.2	20.2	7.5	48.5	46.8	33.5	23.0	48.0
Green Ext Time (p_c), s	0.0	11.8	0.1	7.8	0.0	4.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	114.7
HCM 2010 LOS	F

Notes:  
 User approved volume balancing among the lanes for turning movement.

HCM 2010 SIGNALIZED  
13: N. BROADWAY & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	269	793	153	87	366	241	172	1183	81	290	626	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	193.7	193.7	197.6	193.7	193.7	190.0
Adj Flow Rate, veh/h	283	835	161	92	385	254	181	1245	85	305	659	69
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
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	247	952	184	115	508	331	208	1231	84	242	1245	130
Arrive On Green	0.14	0.32	0.32	0.06	0.25	0.25	0.11	0.35	0.35	0.13	0.37	0.37
Sat Flow, veh/h	1774	2961	571	1774	2057	1339	1845	3497	238	1845	3364	352
Grp Volume(v), veh/h	283	499	497	92	331	308	181	654	676	305	360	368
Grp Sat Flow(s),veh/h/ln	1774	1770	1762	1774	1770	1626	1845	1840	1895	1845	1840	1875
Q Serve(g_s), s	17.0	32.6	32.6	6.3	21.1	21.5	11.8	43.0	43.0	16.0	18.7	18.8
Cycle Q Clear(g_c), s	17.0	32.6	32.6	6.3	21.1	21.5	11.8	43.0	43.0	16.0	18.7	18.8
Prop In Lane	1.00		0.32	1.00		0.82	1.00		0.13	1.00		0.19
Lane Grp Cap(c), veh/h	247	569	567	115	437	402	208	648	667	242	681	694
V/C Ratio(X)	1.15	0.88	0.88	0.80	0.76	0.77	0.87	1.01	1.01	1.26	0.53	0.53
Avail Cap(c_a), veh/h	247	594	591	131	478	439	211	648	667	242	681	694
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	39.2	39.2	56.4	42.6	42.7	53.3	39.6	39.6	53.1	30.1	30.2
Incr Delay (d2), s/veh	102.7	13.6	13.6	26.3	6.2	7.4	29.8	38.0	38.2	147.0	2.9	2.9
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	15.3	18.1	18.0	3.9	11.1	10.5	7.8	28.6	29.5	18.0	10.1	10.3
LnGrp Delay(d),s/veh	155.3	52.7	52.8	82.7	48.8	50.1	83.1	77.6	77.8	200.1	33.1	33.0
LnGrp LOS	F	D	D	F	D	D	F	F	F	F	C	C
Approach Vol, veh/h		1279			731			1511			1033	
Approach Delay, s/veh		75.4			53.6			78.3			82.4	
Approach LOS		E			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	47.0	11.9	43.3	17.8	49.2	21.0	34.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	16.0	43.0	9.0	41.0	14.0	45.0	17.0	33.0				
Max Q Clear Time (g_c+I1), s	18.0	45.0	8.3	34.6	13.8	20.8	19.0	23.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.7	0.0	15.8	0.0	6.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			74.5									
HCM 2010 LOS			E									

HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (veh/h)	45	1561	46	7	1135	113	65	1	28	64	1	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	47	1643	48	7	1195	119	68	1	29	67	1	49
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
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	66	2893	898	13	2742	853	86	5	136	84	3	134
Arrive On Green	0.04	0.57	0.57	0.01	0.54	0.54	0.05	0.09	0.09	0.05	0.09	0.09
Sat Flow, veh/h	1774	5085	1579	1774	5085	1582	1774	53	1538	1774	31	1525
Grp Volume(v), veh/h	47	1643	48	7	1195	119	68	0	30	67	0	50
Grp Sat Flow(s),veh/h/ln	1774	1695	1579	1774	1695	1582	1774	0	1591	1774	0	1556
Q Serve(g_s), s	1.5	11.5	0.8	0.2	7.9	2.1	2.1	0.0	1.0	2.1	0.0	1.7
Cycle Q Clear(g_c), s	1.5	11.5	0.8	0.2	7.9	2.1	2.1	0.0	1.0	2.1	0.0	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	66	2893	898	13	2742	853	86	0	141	84	0	137
V/C Ratio(X)	0.71	0.57	0.05	0.54	0.44	0.14	0.79	0.00	0.21	0.79	0.00	0.37
Avail Cap(c_a), veh/h	223	2893	898	223	2742	853	223	0	858	223	0	839
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	7.6	5.3	27.5	7.7	6.4	26.2	0.0	23.6	26.2	0.0	23.9
Incr Delay (d2), s/veh	13.3	0.8	0.1	30.0	0.5	0.3	14.9	0.0	0.7	15.2	0.0	1.6
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	0.9	5.4	0.3	0.2	3.8	1.0	1.4	0.0	0.5	1.4	0.0	0.8
LnGrp Delay(d),s/veh	39.8	8.5	5.4	57.5	8.2	6.7	41.1	0.0	24.3	41.4	0.0	25.5
LnGrp LOS	D	A	A	E	A	A	D		C	D		C
Approach Vol, veh/h		1738			1321			98				117
Approach Delay, s/veh		9.2			8.4			36.0				34.6
Approach LOS		A			A			D				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.4	35.7	6.7	8.9	6.1	34.0	6.6	8.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	30.0	7.0	30.0	7.0	30.0	7.0	30.0				
Max Q Clear Time (g_c+I1), s	2.2	13.5	4.1	3.7	3.5	9.9	4.1	3.0				
Green Ext Time (p_c), s	0.0	15.0	0.0	0.4	0.0	18.0	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				10.6								
HCM 2010 LOS				B								

























HCM 2010 SIGNALIZED  
 14: GARRICK WY. & LINCOLN PKY. - MITIGATION

2/5/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖	↗	↖	↖↖↖	↗	↖	↗		↖	↗	
Volume (veh/h)	45	1561	46	7	1135	113	65	1	28	64	1	47
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	47	1643	48	7	1195	119	68	1	29	67	1	49
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	1	1	0
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	66	2893	898	13	2742	853	86	5	136	84	3	134
Arrive On Green	0.04	0.57	0.57	0.01	0.54	0.54	0.05	0.09	0.09	0.05	0.09	0.09
Sat Flow, veh/h	1774	5085	1579	1774	5085	1582	1774	53	1538	1774	31	1525
Grp Volume(v), veh/h	47	1643	48	7	1195	119	68	0	30	67	0	50
Grp Sat Flow(s),veh/h/ln	1774	1695	1579	1774	1695	1582	1774	0	1591	1774	0	1556
Q Serve(g_s), s	1.5	11.5	0.8	0.2	7.9	2.1	2.1	0.0	1.0	2.1	0.0	1.7
Cycle Q Clear(g_c), s	1.5	11.5	0.8	0.2	7.9	2.1	2.1	0.0	1.0	2.1	0.0	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.98
Lane Grp Cap(c), veh/h	66	2893	898	13	2742	853	86	0	141	84	0	137
V/C Ratio(X)	0.71	0.57	0.05	0.54	0.44	0.14	0.79	0.00	0.21	0.79	0.00	0.37
Avail Cap(c_a), veh/h	223	2893	898	223	2742	853	223	0	858	223	0	839
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)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	7.6	5.3	27.5	7.7	6.4	26.2	0.0	23.6	26.2	0.0	23.9
Incr Delay (d2), s/veh	10.7	0.6	0.1	30.0	0.5	0.3	14.9	0.0	0.7	15.2	0.0	1.6
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	0.9	5.3	0.3	0.2	3.8	1.0	1.4	0.0	0.5	1.4	0.0	0.8
LnGrp Delay(d),s/veh	37.2	8.3	5.4	57.5	8.2	6.7	41.1	0.0	24.3	41.4	0.0	25.5
LnGrp LOS	D	A	A	E	A	A	D		C	D		C
Approach Vol, veh/h		1738			1321			98				117
Approach Delay, s/veh		9.0			8.4			36.0				34.6
Approach LOS		A			A			D				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.4	70.0	6.7	8.9	6.1	68.4	6.6	8.9				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	7.0	30.0	7.0	30.0	7.0	30.0	7.0	30.0				
Max Q Clear Time (g_c+I1), s	2.2	13.5	4.1	3.7	3.5	9.9	4.1	3.0				
Green Ext Time (p_c), s	0.0	15.0	0.0	0.4	0.0	18.0	0.0	0.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			10.5									
HCM 2010 LOS			B									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE.

1/30/2014

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	73	1297	78	35	1026	9	229	193	58	16	142	64
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	1.00		0.92	1.00		0.92	1.00		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Adj Flow Rate, veh/h	77	1365	82	37	1080	9	241	203	61	17	149	67
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	0
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	99	1576	94	47	1578	13	270	588	458	27	186	84
Arrive On Green	0.06	0.47	0.47	0.03	0.44	0.44	0.15	0.32	0.32	0.02	0.18	0.18
Sat Flow, veh/h	1774	3367	201	1774	3594	30	1774	1863	1451	1774	1042	468
Grp Volume(v), veh/h	77	715	732	37	532	557	241	203	61	17	0	216
Grp Sat Flow(s), veh/h/ln	1774	1770	1799	1774	1770	1854	1774	1863	1451	1774	0	1510
Q Serve(g_s), s	3.9	33.1	33.6	1.9	22.1	22.1	12.2	7.7	2.8	0.9	0.0	12.6
Cycle Q Clear(g_c), s	3.9	33.1	33.6	1.9	22.1	22.1	12.2	7.7	2.8	0.9	0.0	12.6
Prop In Lane	1.00		0.11	1.00		0.02	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	99	828	842	47	777	814	270	588	458	27	0	270
V/C Ratio(X)	0.78	0.86	0.87	0.78	0.68	0.68	0.89	0.34	0.13	0.63	0.00	0.80
Avail Cap(c_a), veh/h	135	828	842	77	777	814	270	669	521	77	0	378
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.8	21.8	21.9	44.5	20.7	20.7	38.2	24.1	22.4	45.0	0.0	36.1
Incr Delay (d2), s/veh	17.8	11.5	11.9	24.0	4.9	4.6	28.6	0.3	0.1	21.2	0.0	8.0
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	2.4	18.7	19.3	1.2	11.8	12.4	8.1	4.0	1.1	0.6	0.0	5.8
LnGrp Delay(d),s/veh	60.6	33.3	33.8	68.4	25.5	25.3	66.8	24.5	22.6	66.2	0.0	44.2
LnGrp LOS	E	C	C	E	C	C	E	C	C	E		D
Approach Vol, veh/h		1524			1126			505			233	
Approach Delay, s/veh		34.9			26.8			44.5			45.8	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	47.0	18.0	20.4	9.1	44.3	5.4	33.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	43.0	14.0	23.0	7.0	40.0	4.0	33.0				
Max Q Clear Time (g_c+I1), s	3.9	35.6	14.2	14.6	5.9	24.1	2.9	9.7				
Green Ext Time (p_c), s	0.0	6.7	0.0	1.8	0.0	13.4	0.0	2.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			34.4									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
15: FIG ST. & LINCOLN AVE. - MITIGATION

2/3/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	73	1297	78	35	1026	9	229	193	58	16	142	64
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	1.00		0.92	1.00		0.90	1.00		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	77	1365	82	37	1080	9	241	203	61	17	149	67
Adj No. of Lanes	1	2	0	1	2	0	2	1	0	1	1	0
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	99	1774	106	47	1787	15	313	342	103	27	188	85
Arrive On Green	0.06	0.53	0.53	0.03	0.50	0.50	0.09	0.26	0.26	0.02	0.18	0.18
Sat Flow, veh/h	1774	3370	202	1774	3594	30	3442	1337	402	1774	1043	469
Grp Volume(v), veh/h	77	714	733	37	532	557	241	0	264	17	0	216
Grp Sat Flow(s),veh/h/ln	1774	1770	1802	1774	1770	1855	1721	0	1739	1774	0	1513
Q Serve(g_s), s	3.9	29.2	29.6	1.9	19.7	19.7	6.2	0.0	12.1	0.9	0.0	12.4
Cycle Q Clear(g_c), s	3.9	29.2	29.6	1.9	19.7	19.7	6.2	0.0	12.1	0.9	0.0	12.4
Prop In Lane	1.00		0.11	1.00		0.02	1.00		0.23	1.00		0.31
Lane Grp Cap(c), veh/h	99	932	949	47	880	922	313	0	445	27	0	273
V/C Ratio(X)	0.78	0.77	0.77	0.78	0.60	0.60	0.77	0.00	0.59	0.62	0.00	0.79
Avail Cap(c_a), veh/h	195	932	949	78	880	922	340	0	534	78	0	382
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	17.1	17.2	44.1	16.5	16.5	40.5	0.0	29.8	44.6	0.0	35.7
Incr Delay (d2), s/veh	12.1	6.0	6.1	23.7	3.1	2.9	9.6	0.0	1.3	21.1	0.0	7.4
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	2.2	15.6	16.3	1.2	10.4	10.8	3.4	0.0	5.9	0.6	0.0	5.8
LnGrp Delay(d),s/veh	54.5	23.1	23.3	67.8	19.5	19.4	50.1	0.0	31.0	65.7	0.0	43.2
LnGrp LOS	D	C	C	E	B	B	D		C	E		D
Approach Vol, veh/h		1524			1126			505			233	
Approach Delay, s/veh		24.8			21.1			40.1			44.8	
Approach LOS		C			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.4	52.0	12.3	20.4	9.1	49.3	5.4	27.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	48.0	9.0	23.0	10.0	42.0	4.0	28.0				
Max Q Clear Time (g_c+I1), s	3.9	31.6	8.2	14.4	5.9	21.7	2.9	14.1				
Green Ext Time (p_c), s	0.0	13.8	0.1	2.0	0.0	16.5	0.0	2.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			27.2									
HCM 2010 LOS			C									

HCM 2010 SIGNALIZED  
16: FIG ST. & MISSION AVE.

1/30/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↕	↗	↖	↗	↕	↖	↗	↕
Volume (veh/h)	152	654	192	44	401	69	78	306	92	82	173	119
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.86	1.00		0.91	0.95		0.83	0.93		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	190.0
Adj Flow Rate, veh/h	160	688	202	46	422	73	82	322	97	86	182	125
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
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	500	963	705	266	1539	263	326	456	137	243	344	236
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	870	1863	1364	622	2977	509	1017	1306	393	901	985	677
Grp Volume(v), veh/h	160	688	202	46	249	246	82	0	419	86	0	307
Grp Sat Flow(s),veh/h/ln	870	1863	1364	622	1770	1716	1017	0	1699	901	0	1662
Q Serve(g_s), s	7.6	17.0	5.0	3.7	4.7	4.8	4.2	0.0	12.8	5.5	0.0	8.8
Cycle Q Clear(g_c), s	12.5	17.0	5.0	20.6	4.7	4.8	13.0	0.0	12.8	18.2	0.0	8.8
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.23	1.00		0.41
Lane Grp Cap(c), veh/h	500	963	705	266	915	888	326	0	594	243	0	581
V/C Ratio(X)	0.32	0.71	0.29	0.17	0.27	0.28	0.25	0.00	0.71	0.35	0.00	0.53
Avail Cap(c_a), veh/h	500	963	705	266	915	888	326	0	595	244	0	582
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.7	11.1	8.2	19.0	8.1	8.2	20.8	0.0	16.8	24.7	0.0	15.6
Incr Delay (d2), s/veh	1.7	4.5	1.0	1.4	0.7	0.8	0.4	0.0	3.8	0.9	0.0	0.9
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	2.1	9.8	2.1	0.7	2.5	2.4	1.2	0.0	6.6	1.4	0.0	4.2
LnGrp Delay(d),s/veh	13.4	15.6	9.2	20.4	8.9	8.9	21.2	0.0	20.6	25.6	0.0	16.5
LnGrp LOS	B	B	A	C	A	A	C		C	C		B
Approach Vol, veh/h		1050			541			501			393	
Approach Delay, s/veh		14.0			9.9			20.7			18.5	
Approach LOS		B			A			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.0		25.0		35.0		25.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		31.0		21.0		31.0		21.0				
Max Q Clear Time (g_c+I1), s		19.0		20.2		22.6		15.0				
Green Ext Time (p_c), s		7.5		0.4		5.7		2.8				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			15.2									
HCM 2010 LOS			B									

**Intersection**

Int Delay, s/veh 5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	236	95	104	234	96	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	248	100	109	246	101	109

**Major/Minor**

	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	348	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1211	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1211	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach**

	EB	WB	NB
HCM Control Delay, s	0	2.5	18.9
HCM LOS			C

**Minor Lane/Major Mvmt**

	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	467	-	-	1211	-
HCM Lane V/C Ratio	0.451	-	-	0.09	-
HCM Control Delay (s)	18.9	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.3	-	-	0.3	-

**Intersection**

Int Delay, s/veh 5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	229	93	102	228	94	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	241	98	107	240	99	107

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	339	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1220	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1220	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	18.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	478	-	-	1220	-
HCM Lane V/C Ratio	0.432	-	-	0.088	-
HCM Control Delay (s)	18.1	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.1	-	-	0.3	-

**Intersection**

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	319	0	4	317	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	336	0	4	334	0	4

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	336
Stage 1	-	-	336
Stage 2	-	-	342
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1223
Stage 1	-	-	724
Stage 2	-	-	719
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1223
Mov Cap-2 Maneuver	-	-	416
Stage 1	-	-	724
Stage 2	-	-	716

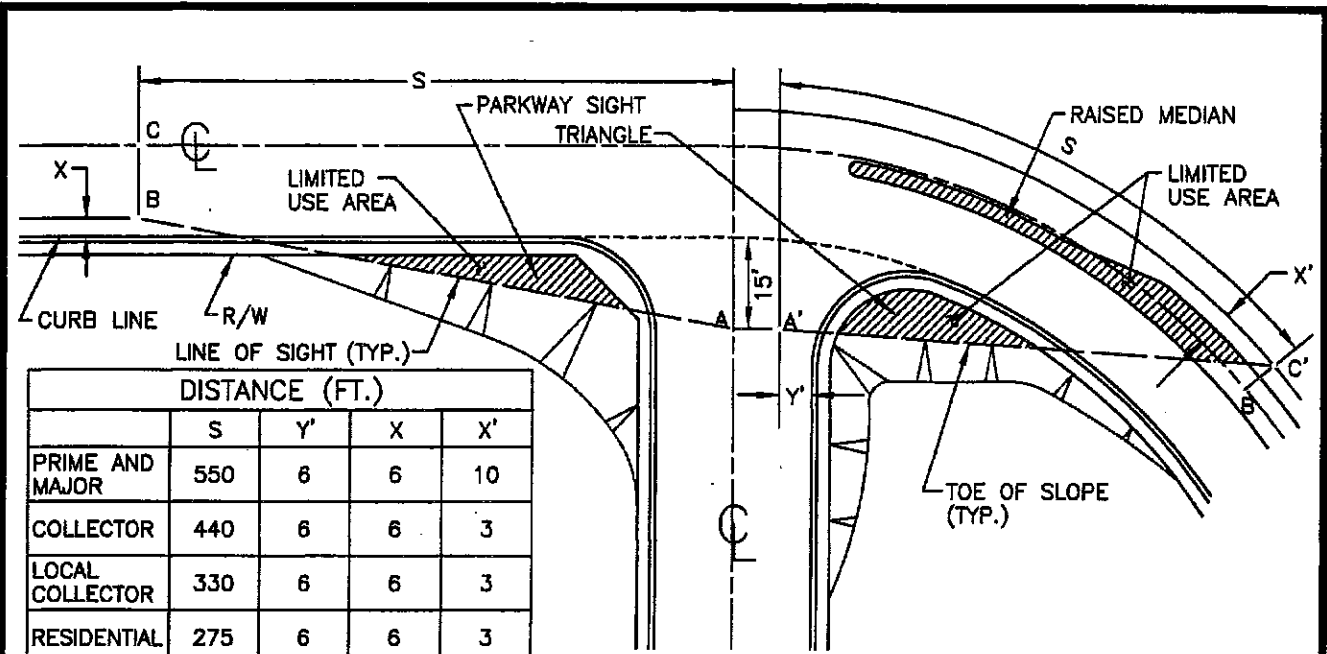
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	706	-	-	1223	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-
HCM Control Delay (s)	10.1	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

## **Appendix K**

Sight Distance References





**NOTES:**

1. THE LIMITED USE AREA IS DETERMINED BY THE GRAPHICAL METHOD USING THE APPROPRIATE DISTANCES GIVEN IN THE ABOVE TABLE. IT SHALL BE USED FOR THE PURPOSE OF PROHIBITING OR CLEARING OBSTRUCTIONS IN ORDER TO MAINTAIN ADEQUATE SIGHT DISTANCE AT INTERSECTIONS. VERTICAL CURVE OR STEEP SLOPES ON THE STREETS MAY REQUIRE CHANGES TO THE SIGHT DISTANCE RESTRICTIONS.
2. THE LINE OF SIGHT SHALL BE SHOWN AT INTERSECTIONS ON ALL LANDSCAPING PLANS, PLOT PLANS, GRADING PLANS AND TENTATIVE TRACT PLANS WHERE SIGHT DISTANCE IS QUESTIONABLE. IN CASES WHERE AN INTERSECTION IS LOCATED ON A VERTICAL CURVE, A PROFILE OF THE SIGHT LINE MAY BE REQUIRED.
3. WALLS, SIGNS, SLOPES, OR ANY OTHER OBSTRUCTIONS THAT COULD RESTRICT THE VIEW WITHIN THE LIMITED USE AREA SHALL NOT BE PERMITTED.
4. THE LIMITED USE AREA SHALL BE AS NEAR LEVEL AS POSSIBLE YET MAINTAIN PROPER DRAINAGE.
5. PLANTS AND SHRUBS SHALL BE OF THE TYPE THAT WILL GROW NO HIGHER THAN 24 INCHES ABOVE THE GROUND WITHIN THE LIMITED USE AREA.
6. POINTS A AND A' ARE THE LOCATIONS OF A DRIVER'S LINE OF SIGHT WHILE IN A VEHICLE AT AN INTERSECTION 15 FEET BACK FROM THE PROJECTION OF THE CURB LINE. THE DISTANCE Y' IS THE DISTANCE MEASURED FROM THE CURB LINE OF THE ROAD. THE DISTANCE Y' IS EQUAL TO ONE HALF OF THE STREET FOR T-INTERSECTIONS AND FOR VEHICLES MAKING A LEFT TURN.
7. THE DISTANCE S REPRESENTS THE STOPPING SIGHT DISTANCE MEASURED ALONG THE CENTERLINE OF THE ROAD.
8. POINTS C AND C' ARE LOCATIONS WHERE THE DRIVER OF A VEHICLE, TRAVELING AT A GIVEN SPEED, HAS THE MINIMUM STOPPING SIGHT DISTANCE REQUIRED TO BRING HIS VEHICLE TO A SAFE STOP.
9. THE PARKWAY SIGHT TRIANGLE SHALL BE DEDICATED TO THE CITY AS SIGHT DISTANCE EASEMENT BY THE PROPOSED DEVELOPMENTS.
10. TREES THAT ARE OF THE SIZE AND SPACING THAT WILL NOT CONFLICT WITH THE SIGHT DISTANCE WILL BE ALLOWED ON A CASE BY CASE BASIS.
11. THIS SIGHT DISTANCE DETAIL APPLIES TO INTERSECTIONS WITHOUT TRAFFIC SIGNALS OR WITHOUT FOUR WAY STOP SIGNS.
12. USE THIS SIGHT DISTANCE STANDARDS ON PUBLIC AND PRIVATE ROADS.

APPROVED:	DATE: 5/9/09
<i>[Signature]</i>	
DIRECTOR OF ENGINEERING SERVICES	
REVISED	APPROVED

**CITY OF ESCONDIDO**  
DEPARTMENT OF ENGINEERING SERVICES

**SIGHT DISTANCE  
DETAIL**

SCALE:  
NOT TO SCALE

FIGURE NO.  
**14**

## SUMMARY OF MINIMUM STREET DESIGN STANDARDS

Design Criteria	Prime Arterial	Major Road	Collector	Local Collector	Residential Street (Public & Private)
1) Estimated Ultimate 24 Hr. Traffic (Volume)	28,000+	20,000 to 28,000	10,000 to 20,000	2,000 to 10,000	Less Than 2,000
2) Design Speed (MPH)	50	50	40	35	30
3) Spacing of Four-Way Intersections (Feet)	1,200	750	600	300	200
4) Spacing of Median Openings (Feet)	600	500	400	N/A	N/A
5) Right-of-Way (Feet)	136-126	110-102	84(80)***	66(62)***	56(60)***
6) Access to Adjoining Property	Intersection Only	Intersection Only	Avoid (No Vehicle Backing )	Avoid (No Vehicle Backing	OK
7) Curb to Curb (Feet)	106 14' Median	82 14' Median	64	42	36
8) Traffic Index	9	8.5	8	6	4.5
9) Min. Thickness of Pavement (Inches)	5AC/8AB	5AC/8AB	4AC/8AB	3AC/6AB*	3AC/6AB*
10) Stopping Sight Distance (Summits) (Feet)	430	430	300	250	200
11) Headlight Distance (Sags) (Feet)	430	430	300	250	200
12) Min. Horizontal Radius (Feet) for standard crown	1400	1400	825	610	435
13) Min. Tangent Between Reversing Horizontal Curves (Feet) ( 2 Sec. Recovery Time)	150	150	120	100	90
14) Maximum Grade (%)					
A.C.	7	7	7	12	15
P.C.C.	7	7	7	12	20
15) Minimum Grade (%)	0.5	0.5	0.5	0.5	0.5
16) Street Lights					
Type (Watts)	180	180	180	135	135
Spacing** (Feet)	150	180	200	200	200

\* NOTE: Add 1/2" of AC for each 2% of fraction thereof in grade added over 12%, up to 15%.

\*\* NOTE: Spacing intervals are staggered for Residential, Local Collector, Industrial, Commercial and Collector streets. Spacing intervals are on both sides for Major and Prime Arterial roadways. Additional lighting at intersections, high use driveways or other geometric features may be required by the Director of Engineering Services.

\*\*\* NOTE: Width identified in parentheses subject to approval by Director of Engineering Services.

## CHAPTER 200 GEOMETRIC DESIGN AND STRUCTURE STANDARDS

### Topic 201 - Sight Distance

#### Index 201.1 - General

Sight distance is the continuous length of highway ahead, visible to the highway user. Four types of sight distance are considered herein: passing, stopping, decision, and corner. Passing sight distance is used where use of an opposing lane can provide passing opportunities (see Index 201.2). Stopping sight distance is the minimum sight distance for a given design speed to be provided on multilane highways and on 2-lane roads when passing sight distance is not economically obtainable. Stopping sight distance also is to be provided for all users, including motorists and bicyclists, at all elements of interchanges and intersections at grade, including private road connections (see Topic 504, Index 405.1, & Figure 405.7). Decision sight distance is used at major decision points (see Indexes 201.7 and 504.2). Corner sight distance is used at intersections (see Index 405.1, Figure 405.7, and Figure 504.3J).

**Table 201.1 shows the minimum standards for stopping sight distance related to design speed for motorists.** Stopping sight distances given in the table are suitable for Class II and Class III bikeways. Also shown in Table 201.1 are the values for use in providing passing sight distance.

See Chapter 1000 for Class I bikeway sight distance guidance.

Chapter 3 of "A Policy on Geometric Design of Highways and Streets," AASHTO, contains a thorough discussion of the derivation of stopping sight distance.

#### 201.2 Passing Sight Distance

Passing sight distance is the minimum sight distance required for the driver of one vehicle to pass another vehicle safely and comfortably. Passing must be accomplished assuming an oncoming vehicle comes into view and maintains

the design speed, without reduction, after the overtaking maneuver is started.

**Table 201.1  
Sight Distance Standards**

Design Speed <sup>(1)</sup> (mph)	Stopping <sup>(2)</sup> (ft)	Passing (ft)
20	125	800
25	150	950
30	200	1,100
35	250	1,300
40	300	1,500
45	360	1,650
50	430	1,800
55	500	1,950
60	580	2,100
65	660	2,300
70	750	2,500
75	840	2,600
80	930	2,700

(1) See Topic 101 for selection of design speed.

(2) For sustained downgrades, refer to advisory standard in Index 201.3

The sight distance available for passing at any place is the longest distance at which a driver whose eyes are 3 ½ feet above the pavement surface can see the top of an object 4 ¼ feet high on the road. See Table 201.1 for the calculated values that are associated with various design speeds.

In general, 2-lane highways should be designed to provide for passing where possible, especially those routes with high volumes of trucks or recreational vehicles. Passing should be done on tangent horizontal alignments with constant grades or a slight sag vertical curve. Not only are drivers reluctant to pass on a long crest vertical curve, but it is impracticable to design crest vertical curves to provide for passing sight distance because of high cost where crest cuts are involved. Passing sight distance for crest vertical curves is 7 to 17 times longer than the stopping sight distance.

Ordinarily, passing sight distance is provided at locations where combinations of alignment and profile do not require the use of crest vertical curves.

Passing sight distance is considered only on 2-lane roads. At critical locations, a stretch of 3- or 4-lane passing section with stopping sight distance is sometimes more economical than two lanes with passing sight distance.

Passing on sag vertical curves can be accomplished both day and night because headlights can be seen through the entire curve.

See Part 3 of the California Manual on Uniform Traffic Control Devices (California MUTCD) for criteria relating to the placement of barrier striping for no-passing zones. Note, that the passing sight distances shown in the California MUTCD are based on traffic operational criteria. Traffic operational criteria are different from the design characteristics used to develop the values provided in Table 201.1 and Chapter 3 of AASHTO, A Policy on Geometric Design of Highways and Streets. The aforementioned table and AASHTO reference are also used to design the vertical profile and horizontal alignment of the highway. Consult the Headquarters (HQ) Traffic Liaison when using the California MUTCD criteria for traffic operating-control needs.

Other means for providing passing opportunities, such as climbing lanes or turnouts, are discussed in Index 204.5. Chapter 3 of AASHTO, A Policy on Geometric Design of Highways and Streets, contains a thorough discussion of the derivation of passing sight distance.

### 201.3 Stopping Sight Distance

The minimum stopping sight distance is the distance required by the user, traveling at a given speed, to bring the vehicle or bicycle to a stop after an object ½-foot high on the road becomes visible. Stopping sight distance for motorists is measured from the driver's eyes, which are assumed to be 3 ½ feet above the pavement surface, to an object ½-foot high on the road. See Index 1003.1(10) for Class I bikeway stopping sight distance guidance.

The stopping sight distances in Table 201.1 should be increased by 20 percent on sustained

downgrades steeper than 3 percent and longer than one mile.

### 201.4 Stopping Sight Distance at Grade Crests

Figure 201.4 shows graphically the relationships between length of highway crest vertical curve, design speed, and algebraic difference in grades. Any one factor can be determined when the other two are known.

### 201.5 Stopping Sight Distance at Grade Sags

From the curves in Figure 201.5, the minimum length of vertical curve which provides headlight sight distance in grade sags for a given design speed can be obtained.

If headlight sight distance is not obtainable at grade sags, lighting may be considered. The Design Coordinator and the HQ Traffic Liaison shall be contacted to review proposed grade sag lighting to determine if such use is appropriate.

### 201.6 Stopping Sight Distance on Horizontal Curves

Where an object off the pavement such as a bridge pier, building, cut slope, or natural growth restricts sight distance, the minimum radius of curvature is determined by the stopping sight distance.

Available stopping sight distance on horizontal curves is obtained from Figure 201.6. It is assumed that the driver's eye is 3 ½ feet above the center of the inside lane (inside with respect to curve) and the object is ½-foot high. The line of sight is assumed to intercept the view obstruction at the midpoint of the sight line and 2 feet above the center of the inside lane when the road profile is flat (i.e. no vertical curve). Crest vertical curves can cause additional reductions in sight distance. The clear distance ( $m$ ) is measured from the center of the inside lane to the obstruction.

The design objective is to determine the required clear distance from centerline of inside lane to a retaining wall, bridge pier, abutment, cut slope, or other obstruction for a given design speed. Using radius of curvature and minimum sight distance for that design speed, Figure 201.6 gives the clear

## 404.5 Turning Templates & Vehicle Diagrams

Figures 404.5A through G are computer-generated turning templates at an approximate scale of 1"=50' and their associated vehicle diagrams for the design vehicles described in Index 404.3. The radius of the template is measured to the outside front wheel path at the beginning of the curve. Figures 404.5A through G contain the terms defined as follows:

- (1) *Tractor Width* - Width of tractor body.
- (2) *Trailer Width* - Width of semitrailer body.
- (3) *Tractor Track* - Tractor axle width, measured from outside face of tires.
- (4) *Trailer Track* - Semitrailer axle width, measured from outside face of tires.
- (5) *Lock To Lock Time* - The time in seconds that an average driver would take under normal driving conditions to turn the steering wheel of a vehicle from the lock position on one side to the lock position on the other side. The default in AutoTurn software is 6 seconds.
- (6) *Steering Lock Angle* - The maximum angle that the steering wheels can be turned. It is further defined as the average of the maximum angles made by the left and right steering wheels with the longitudinal axis of the vehicle.
- (7) *Articulating Angle* - The maximum angle between the tractor and semitrailer.

## Topic 405 - Intersection Design Standards

### 405.1 Sight Distance

- (1) *Stopping Sight Distance*. See Index 201.1 for minimum stopping sight distance requirements.
- (2) *Corner Sight Distance*.
  - (a) General--At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle, bicyclist or pedestrian waiting at the crossroad and the driver of an approaching vehicle. Line of sight for all users should be included in right of way, in order to preserve sight lines.

Adequate time must be provided for the waiting user to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed.

The values given in Table 405.1A provide 7-1/2 seconds for the driver on the crossroad to complete the necessary maneuver while the approaching vehicle travels at the assumed design speed of the main highway. The 7-1/2 second criterion is normally applied to all lanes of through traffic in order to cover all possible maneuvers by the vehicle at the crossroad. However, by providing the standard corner sight distance to the lane nearest to and farthest from the waiting vehicle, adequate time should be obtained to make the necessary movement. On multilane highways a 7-1/2 second criterion for the outside lane, in both directions of travel, normally will provide increased sight distance to the inside lanes. Consideration should be given to increasing these values on downgrades steeper than 3 percent and longer than 1 mile (see Index 201.3), where there are high truck volumes on the crossroad, or where the skew of the intersection substantially increases the distance traveled by the crossing vehicle.

In determining corner sight distance, a set back distance for the vehicle waiting at the crossroad must be assumed. **Set back for the driver of the vehicle on the crossroad shall be a minimum of 10 feet plus the shoulder width of the major road but not less than 15 feet.** Line of sight for corner sight distance is to be determined from a 3 and 1/2-foot height at the location of the driver of the vehicle on the minor road to a 4 and 1/4-foot object height in the center of the approaching lane of the major road as illustrated in Figure 504.3J. If the major road has a median barrier, a 2-foot object height should be used to determine the median barrier set back.

In some cases the cost to obtain 7-1/2 seconds of corner sight distances

may be excessive. High costs may be attributable to right of way acquisition, building removal, extensive excavation, or inmitigable environmental impacts. In such cases a lesser value of corner sight distance, as described under the following headings, may be used.

- (b) Public Road Intersections (Refer to Topic 205)--At unsignalized public road intersections (see Index 405.7) corner sight distance values given in Table 405.1A should be provided.

At signalized intersections the values for corner sight distances given in Table 405.1A should also be applied whenever possible. Even though traffic flows are designed to move at separate times, unanticipated conflicts can occur due to violation of signal, right turns on red, malfunction of the signal, or use of flashing red/yellow mode.

**Table 405.1A  
Corner Sight Distance  
(7-1/2 Second Criteria)**

Design Speed (mph)	Corner Sight Distance (ft)
25	275
30	330
35	385
40	440
45	495
50	550
55	605
60	660
65	715
70	770

Where restrictive conditions exist, similar to those listed in Index 405.1(2)(a), the minimum value for corner sight distance at both signalized and unsignalized intersections shall be equal to the stopping sight distance as given in Table 201.1, measured as previously described.

- (c) Private Road Intersections (Refer to Index 205.2) and Rural Driveways (Refer to Index 205.4)--**The minimum corner sight distance shall be equal to the stopping sight distance as given in Table 201.1, measured as previously described.**

- (d) Urban Driveways (Refer to Index 205.3)--Corner sight distance requirements as described above are not applied to urban driveways.

- (3) *Decision Sight Distance.* At intersections where the State route turns or crosses another State route, the decision sight distance values given in Table 201.7 should be used. In computing and measuring decision sight distance, the 3.5-foot eye height and the 0.5-foot object height should be used, the object being located on the side of the intersection nearest the approaching driver.

The application of the various sight distance requirements for the different types of intersections is summarized in Table 405.1B.

- (4) *Acceleration Lanes for Turning Moves onto State Highways.* At rural intersections, with "STOP" control on the local cross road, acceleration lanes for left and right turns onto the State facility should be considered. At a minimum, the following features should be evaluated for both the major highway and the cross road:

- divided versus undivided
- number of lanes
- design speed
- gradient
- lane, shoulder and median width
- traffic volume and composition of highway users, including trucks and transit vehicles
- turning volumes
- horizontal curve radii
- sight distance
- proximity of adjacent intersections
- types of adjacent intersections

For additional information and guidance, refer to AASHTO, A Policy on Geometric Design of Highways and Streets, the Headquarters Traffic Liaison and the Design Coordinator.

**Table 405.1B  
Application of Sight Distance  
Requirements**

Intersection Types	Sight Distance		
	Stopping	Corner	Decision
Private Roads	X	X <sup>(1)</sup>	
Public Streets and Roads	X	X	
Signalized Intersections	X	<sup>(2)</sup>	
State Route Inter- sections & Route Direction Changes, with or without Signals	X	X	X

NOTES:

- (1) Using stopping sight distance between an eye height of 3.5 ft and an object height of 4.25 ft. See Index 405.1(2)(a) for setback requirements.
- (2) Apply corner sight distance requirements at signalized intersections whenever possible due to unanticipated violations of the signals or malfunctions of the signals. See Index 405.1(2)(b).

**405.2 Left-turn Channelization**

- (1) *General.* The purpose of a left-turn lane is to expedite the movement of through traffic by, controlling the movement of turning traffic, increasing the capacity of the intersection, and improving safety characteristics.

The District Traffic Branch normally establishes the need for left-turn lanes.

- (2) *Design Elements.*

- (a) **Lane Width – The lane width for both single and double left-turn lanes on State highways shall be 12 feet.**

For conventional State highways with posted speeds less than or equal to 40 miles per hour and AADTT (truck

volume) less than 250 per lane that are in urban, city or town centers (rural main streets), the minimum lane width shall be 11 feet.

When considering lane width reductions adjacent to curbed medians, refer to Index 303.5 for guidance on effective roadway width, which may vary depending on drivers' lateral positioning and shy distance from raised curbs.

- (b) **Approach Taper --** On conventional highways without a median, an approach taper provides space for a left-turn lane by moving traffic laterally to the right. The approach taper is unnecessary where a median is available for the full width of the left-turn lane. Length of the approach taper is given by the formula on Figures 405.2A, B and C.

Figure 405.2A shows a standard left-turn channelization design in which all widening is to the right of approaching traffic and the deceleration lane (see below) begins at the end of the approach taper. This design should be used in all situations where space is available, usually in rural and semi-rural areas or in urban areas with high traffic speeds and/or volumes.

Figures 405.2B and 405.2C show alternate designs foreshortened with the deceleration lane beginning at the 2/3 point of the approach taper so that part of the deceleration takes place in the through traffic lane. Figure 405.2C is shortened further by widening half (or other appropriate fraction) on each side. These designs may be used in urban areas where constraints exist, speeds are moderate and traffic volumes are relatively low.

- (c) **Bay Taper --** A reversing curve along the left edge of the traveled way directs traffic into the left-turn lane. The length of this bay taper should be short to clearly delineate the left-turn move and to discourage through traffic from drifting into the left-turn lane. Table 405.2A gives offset data for design of bay tapers. In urban areas,

## **Appendix L**

Observed Queuing Data



## Rancho Santa Margarita Fast Food Queuing Report

Location: Burger King  
 City: Rancho Santa Margarita  
 Project #: 2353-13-01

Day: Thursday  
 Date: 6/20/2013  
 Performed By: Tiffany Giordano

Time	Vehicles in Queue
11:32AM	0
11:50AM	3
12:10PM	1
12:27PM	2
12:42PM	0
12:57PM	1

Count	Average	Min	Max	95th%
6	1.2	0	3	3

## Rancho Santa Margarita Fast Food Queuing Report

Location: El Pollo Loco  
 City: Rancho Santa Margarita  
 Project #: 2353-13-01

Day: Thursday  
 Date: 6/20/2013  
 Performed By: Tiffany Giordano

Time	Vehicles in Queue
11:29AM	4
11:48AM	11
12:08PM	6
12:26PM	1
12:41PM	2
12:56PM	3

Count	Average	Min	Max	95th%
6	4.5	1	11	10

## Rancho Santa Margarita Fast Food Queuing Report

**Location:** McDonald's  
**City:** Rancho Santa Margarita  
**Project #:** 2353-13-01

**Day:** Thursday  
**Date:** 6/20/2013  
**Performed By:** Tiffany Giordano

Time	Vehicles in Queue
11:24AM	7
11:43AM	10
12:01PM	12
12:21PM	13
12:35PM	5
12:51PM	6

Count	Average	Min	Max	95th%
6	8.8	5	13	13

## Rancho Santa Margarita Fast Food Queuing Report

Location: Wendy's  
 City: Rancho Santa Margarita  
 Project #: 2353-13-01

Day: Thursday  
 Date: 6/20/2013  
 Performed By: Tiffany Giordano

Time	Vehicles in Queue
11:20AM	3
11:40AM	4
11:58AM	5
12:18PM	8
12:33PM	9
12:48PM	3

Count	Average	Min	Max	95th%
6	5.3	3	9	9

SUMMARY RANCHO SANTA MARGARITA QUEUING SURVEY

Location	Count	Average	Min	Max	95th%
Wendy's	6	5.3	3	9	9
McDonald's	6	8.8	5	13	13
El Pollo Loco	6	4.5	1	11	10
Burger King	6	1.2	0	3	3
Combined	24	5.0	0	13	12

## **Appendix M**

Peak Hour Traffic Signal Warrant Analysis Worksheets

Escondido Boulevard and El Norte Parkway

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (AM PEAK HOUR)**

Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **2068**

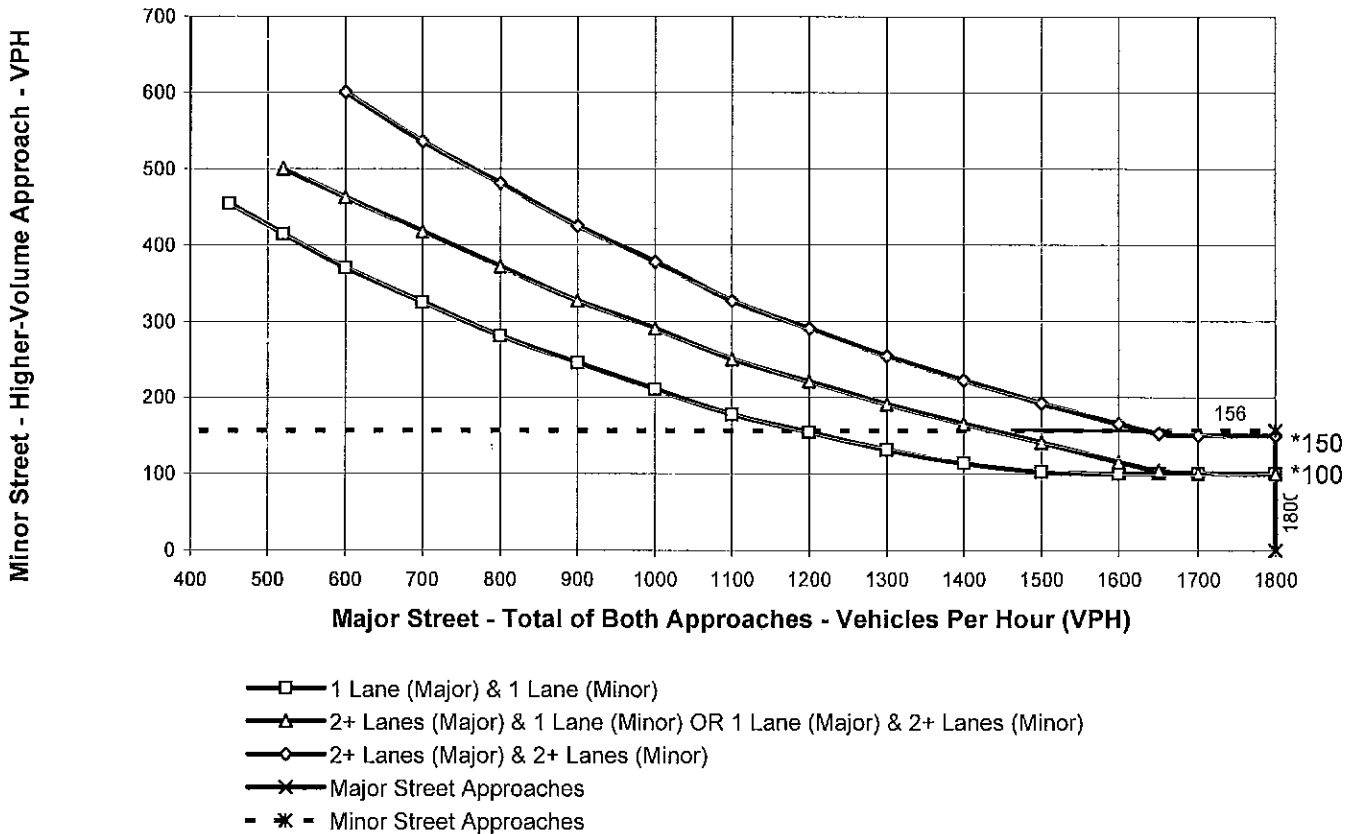
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **156**

Number of Approach Lanes On Minor Street = **1**

**WARRANTED FOR A SIGNAL**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (MID PEAK HOUR)**

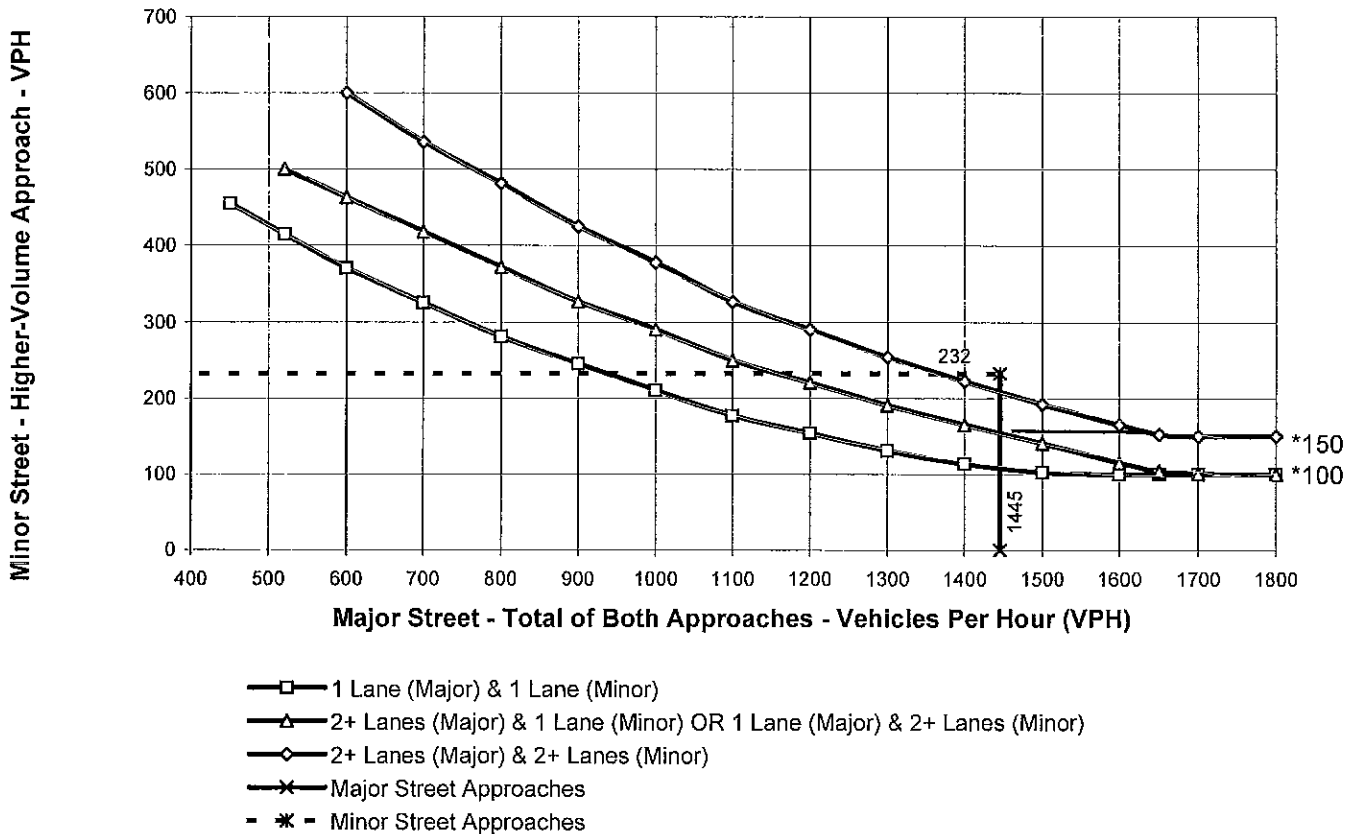
Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **1445**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **232**  
 Number of Approach Lanes On Minor Street = **1**

**WARRANTED FOR A SIGNAL**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (PM PEAK HOUR)**

Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **2326**

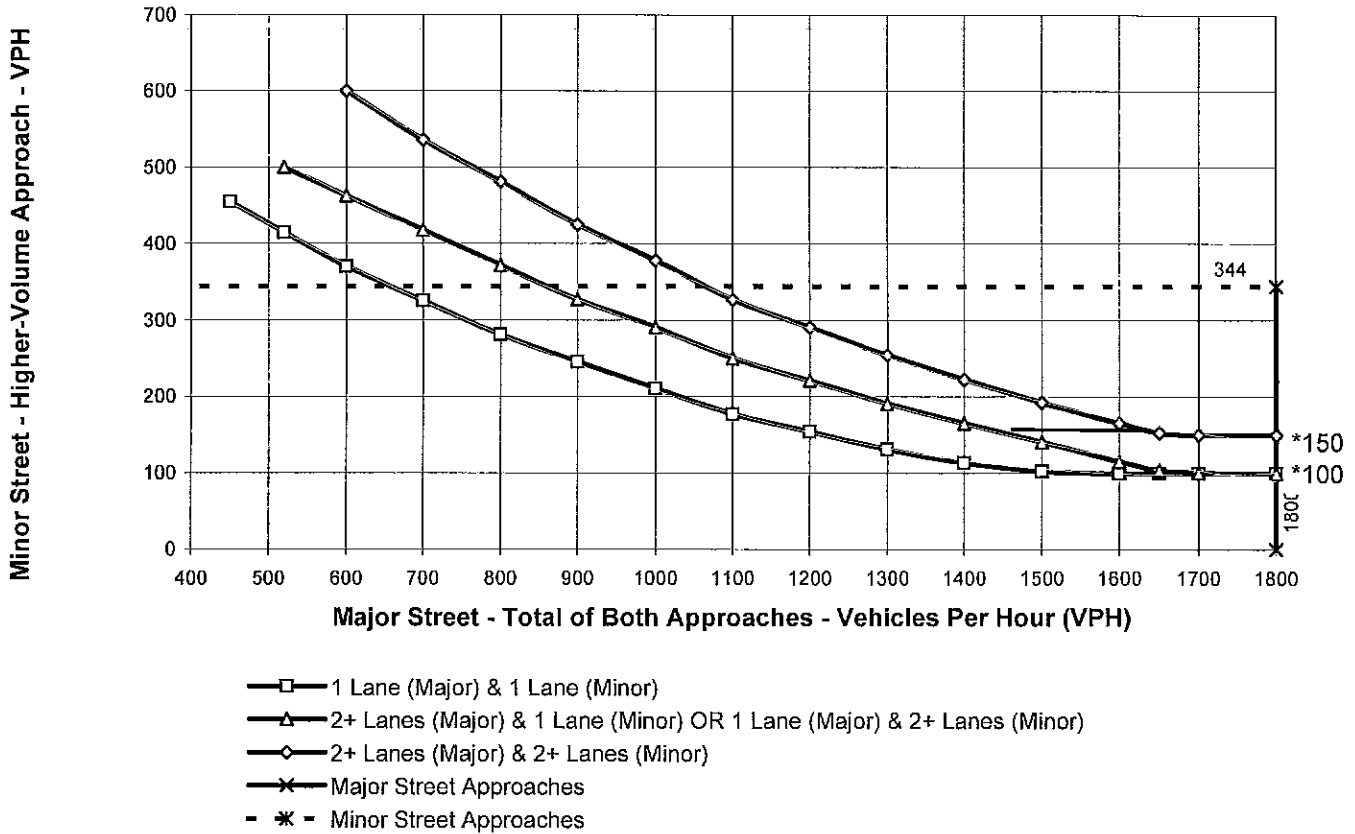
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **344**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (AM PEAK HOUR)**

Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **2110**

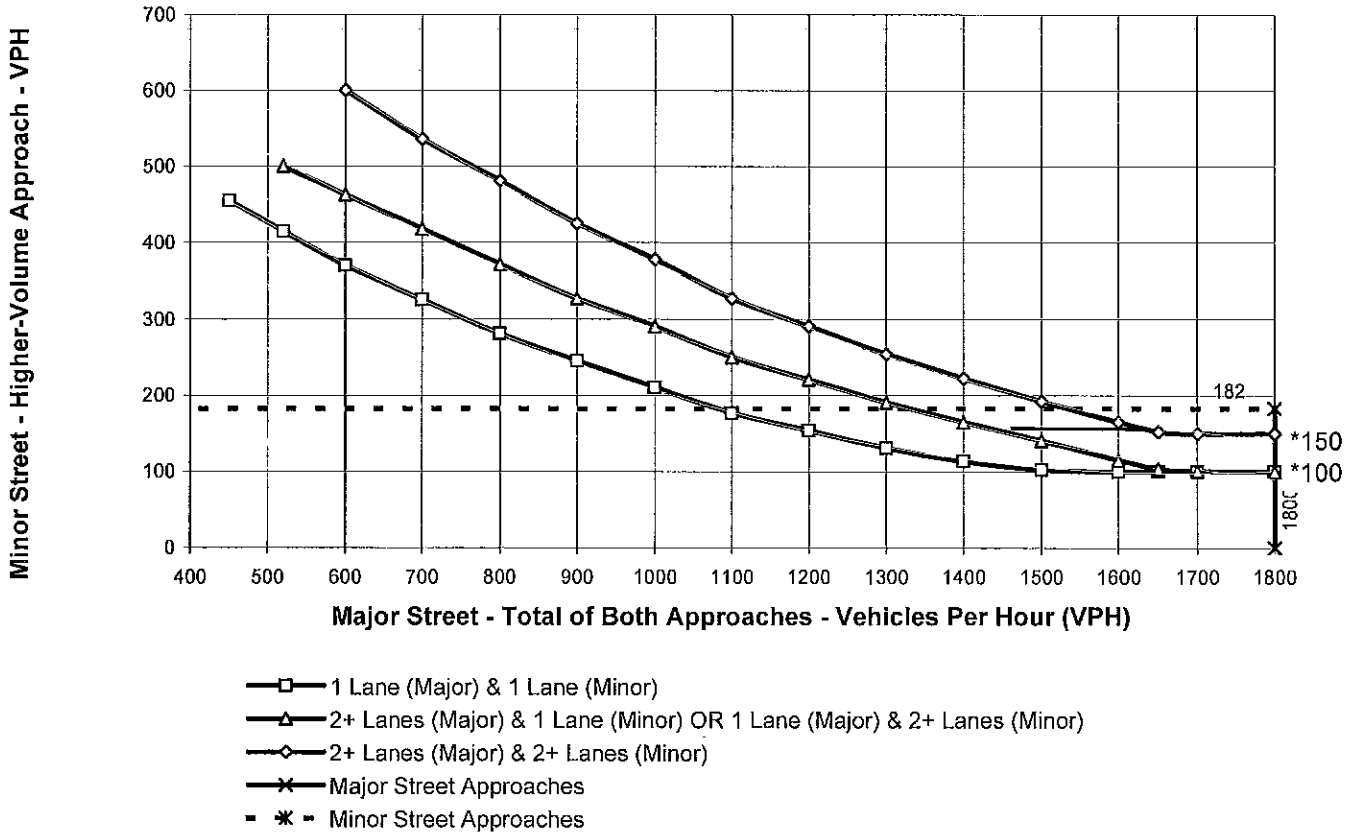
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **182**

Number of Approach Lanes On Minor Street = **1**

**WARRANTED FOR A SIGNAL**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (MID PEAK HOUR)**

Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **1484**

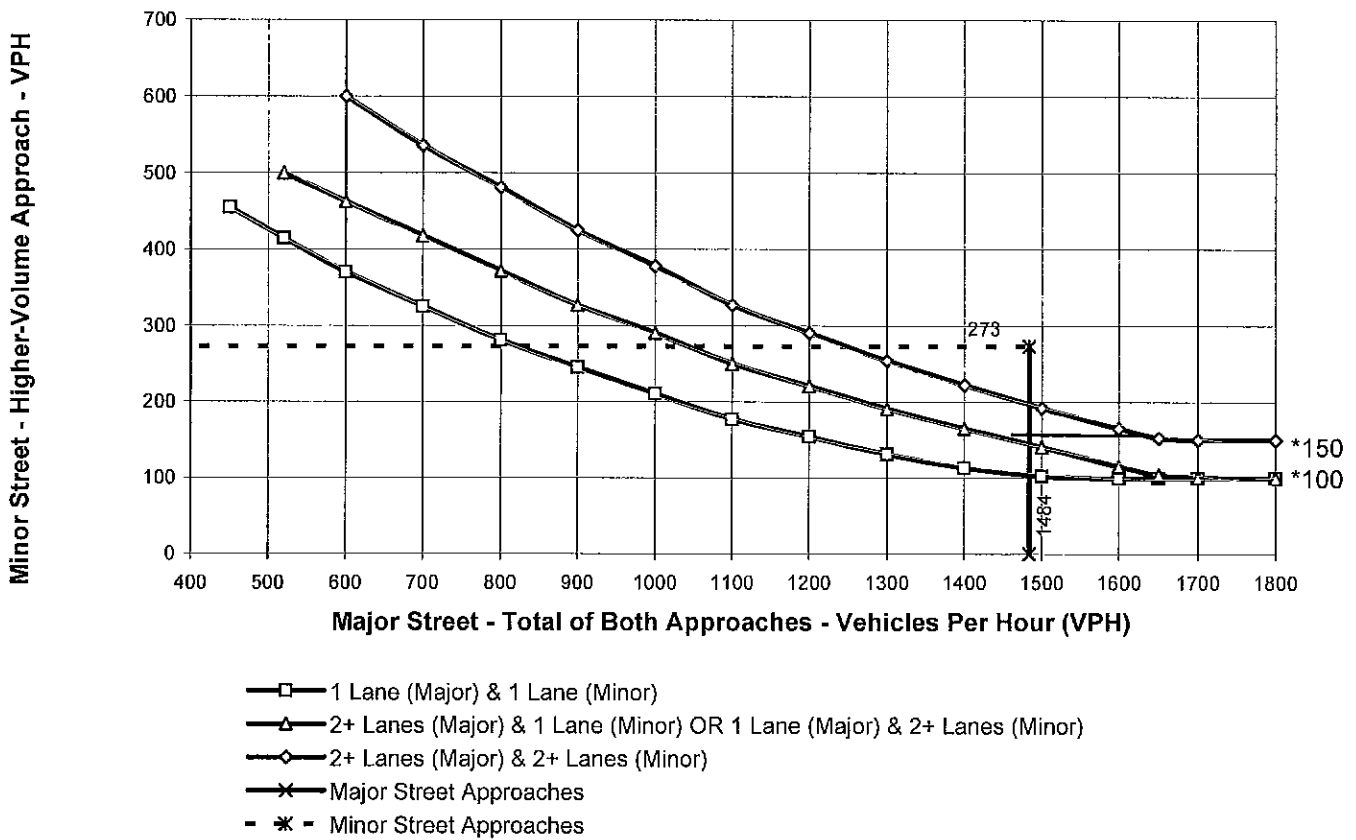
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **273**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (PM PEAK HOUR)**

Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **2365**

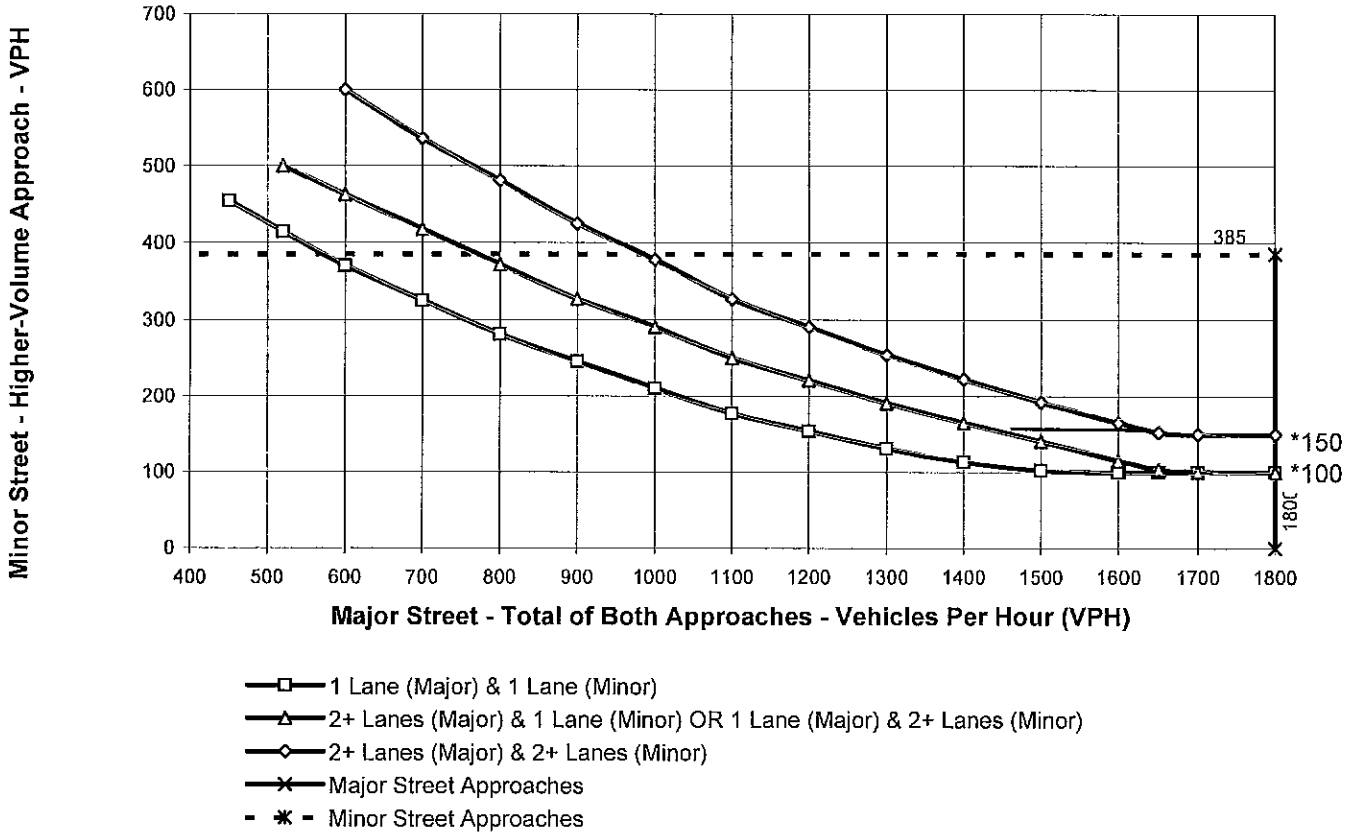
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **385**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (AM PEAK)**

Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **2227**

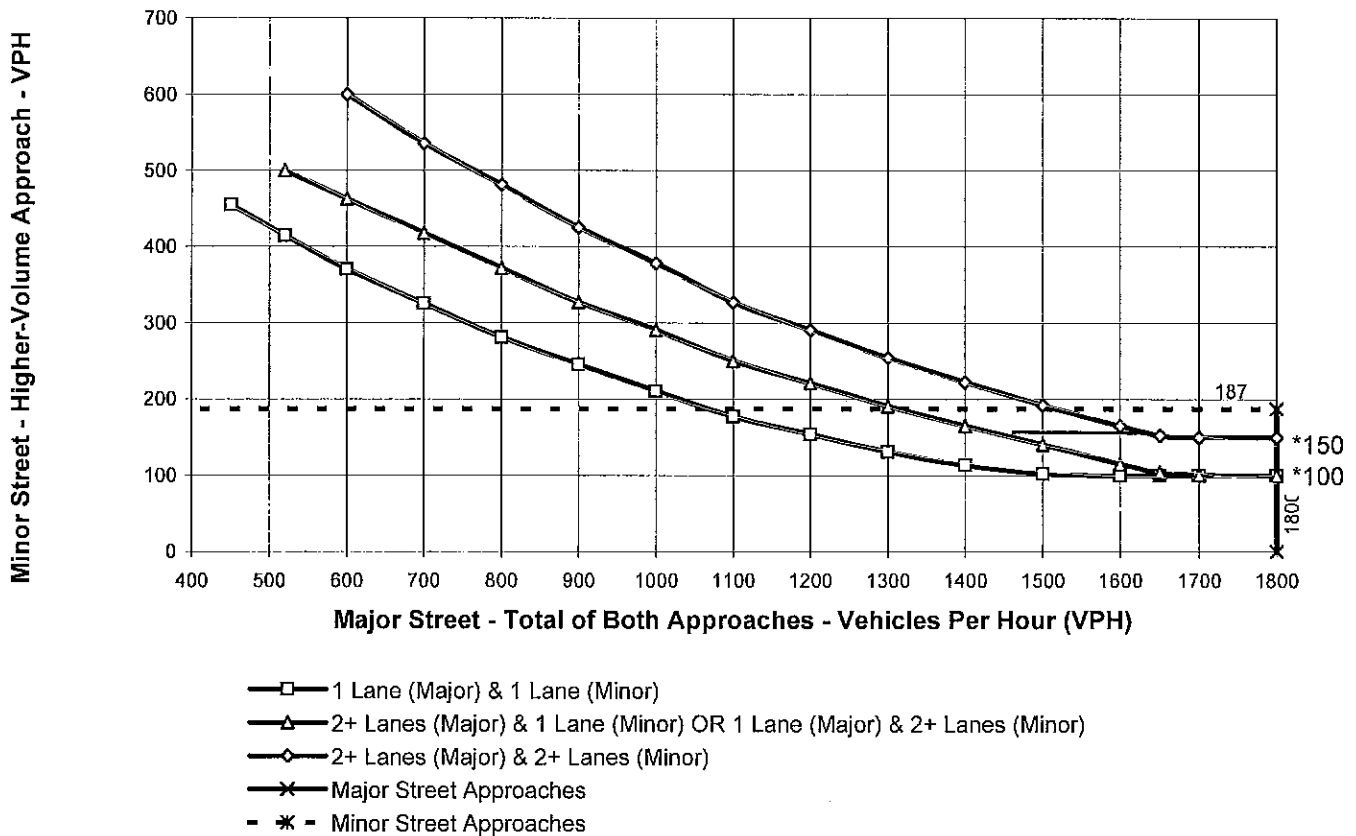
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **187**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (MID PEAK)**

Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **1596**

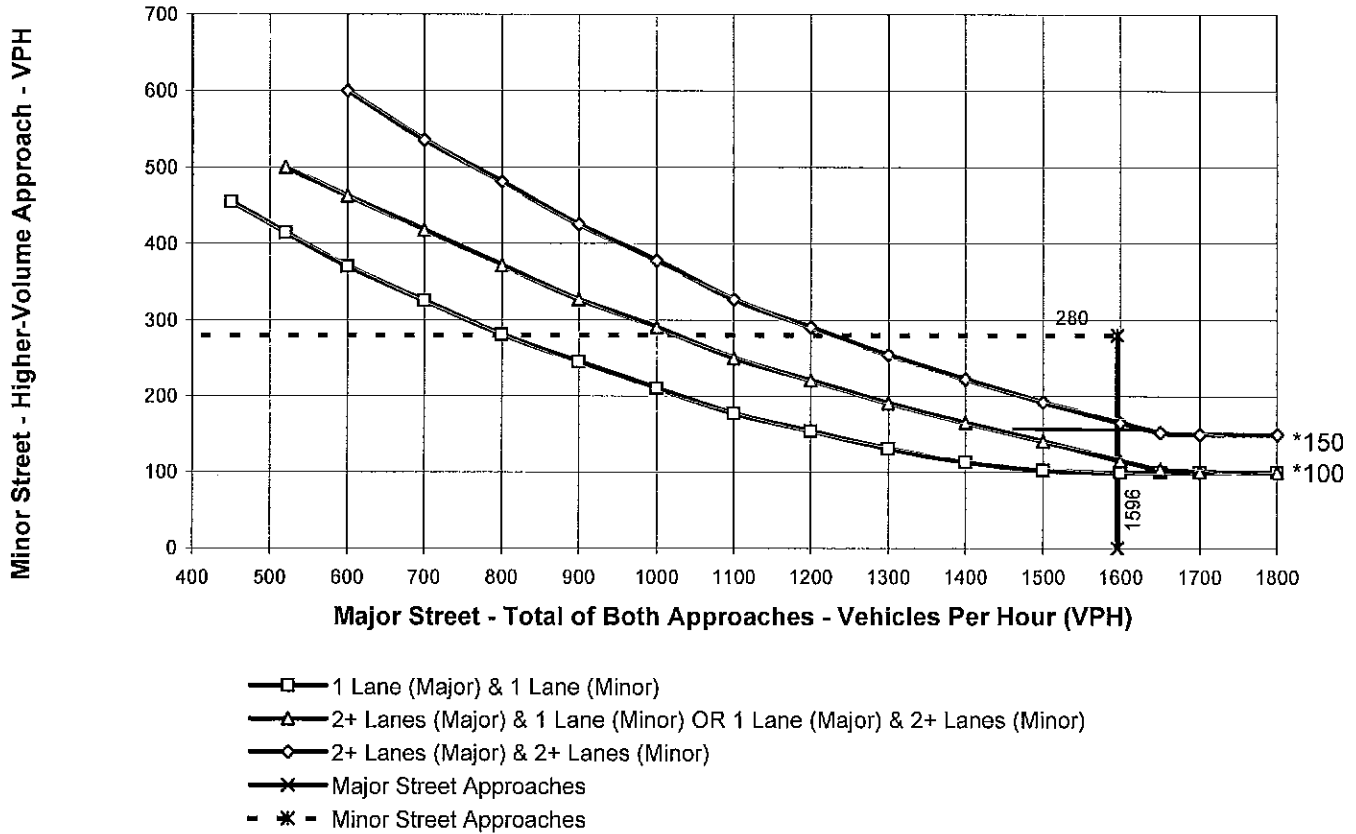
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **280**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (PM PEAK)**

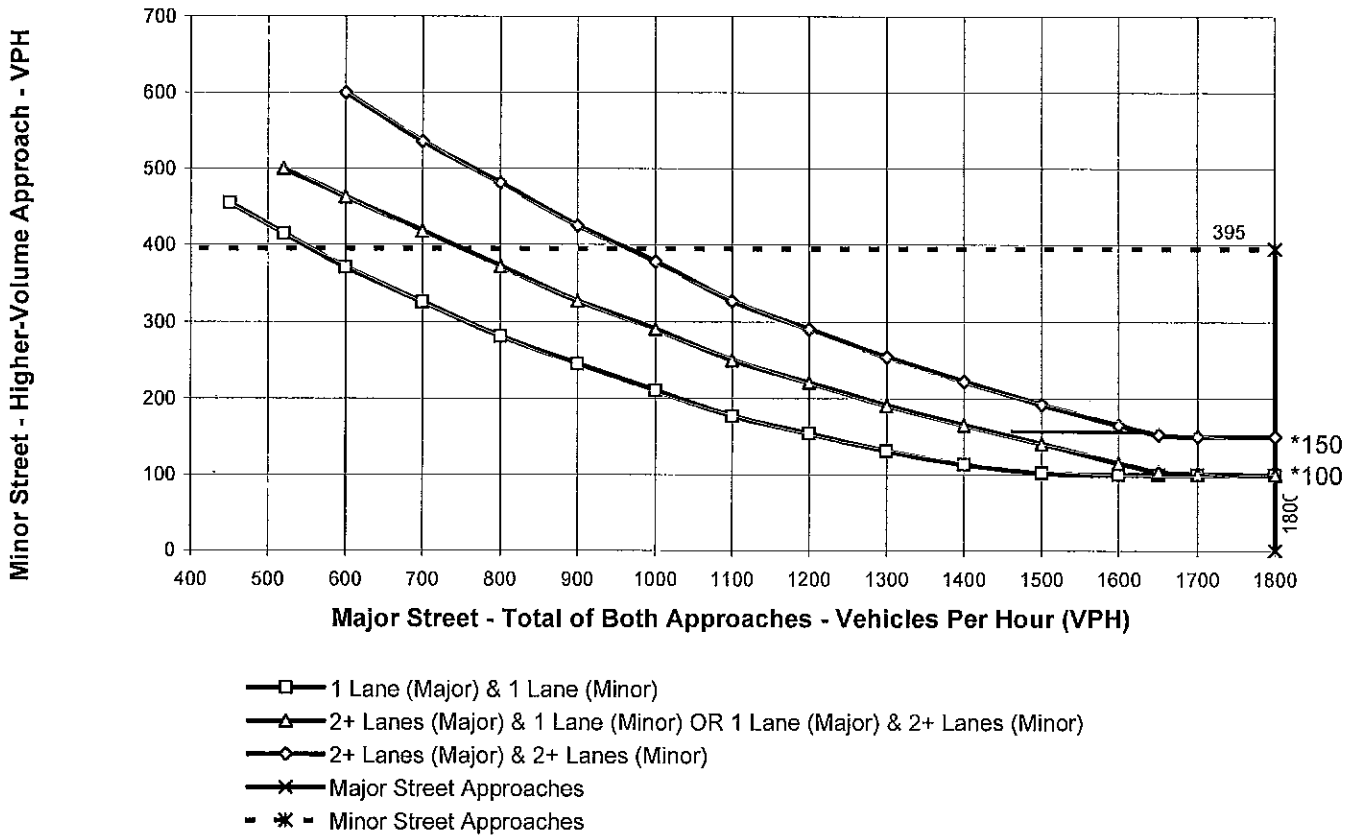
Major Street Name = **El Norte Parkway (EW)**

Total of Both Approaches (VPH) = **2504**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **395**  
 Number of Approach Lanes On Minor Street = **1**

**WARRANTED FOR A SIGNAL**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **BUILDOUT (2035) PLUS PROJECT (AM PEAK)**

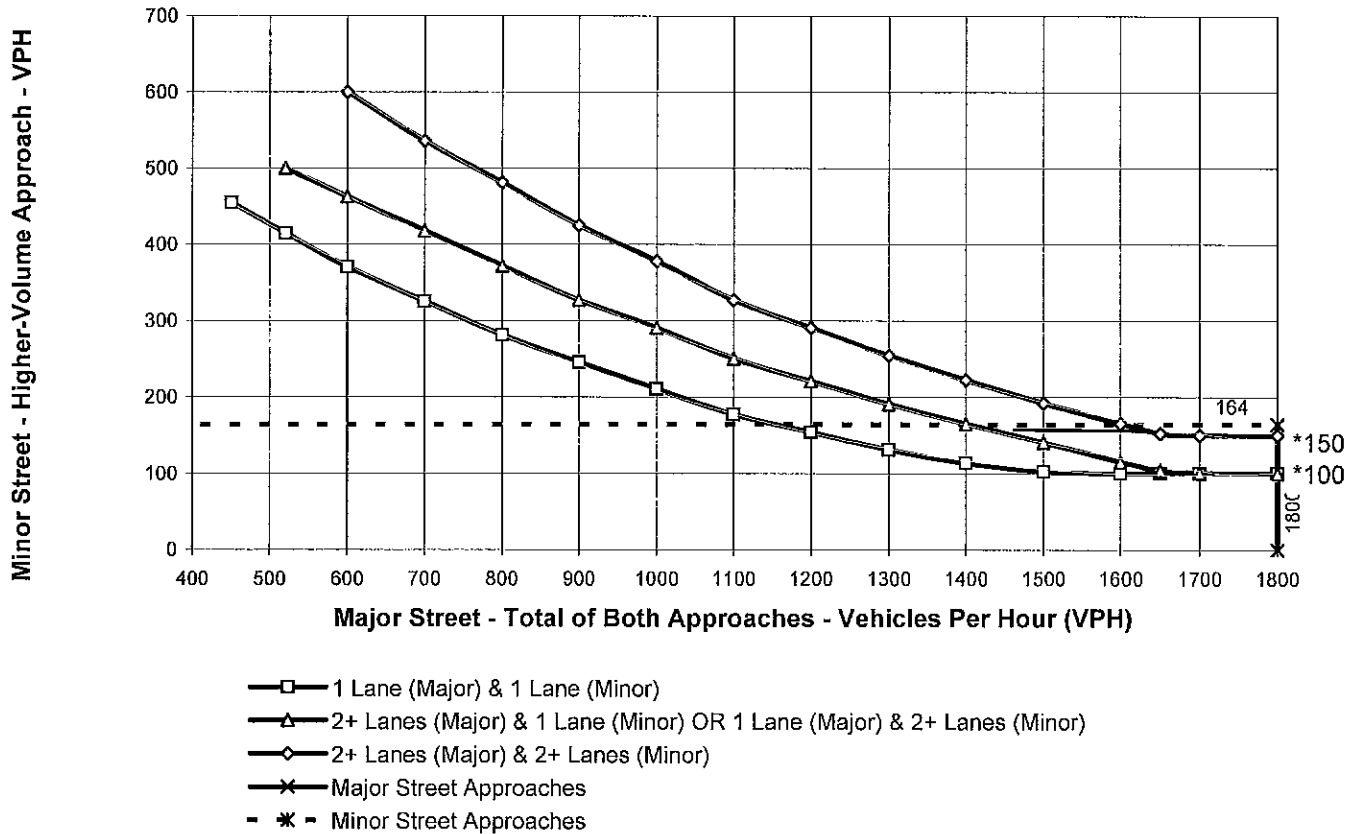
Major Street Name = **EI Norte Parkway (EW)**

Total of Both Approaches (VPH) = **4784**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **164**  
 Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **BUILDOUT (2035) PLUS PROJECT (PM PEAK)**

Major Street Name = **EI Norte Parkway (EW)**

Total of Both Approaches (VPH) = **2729**

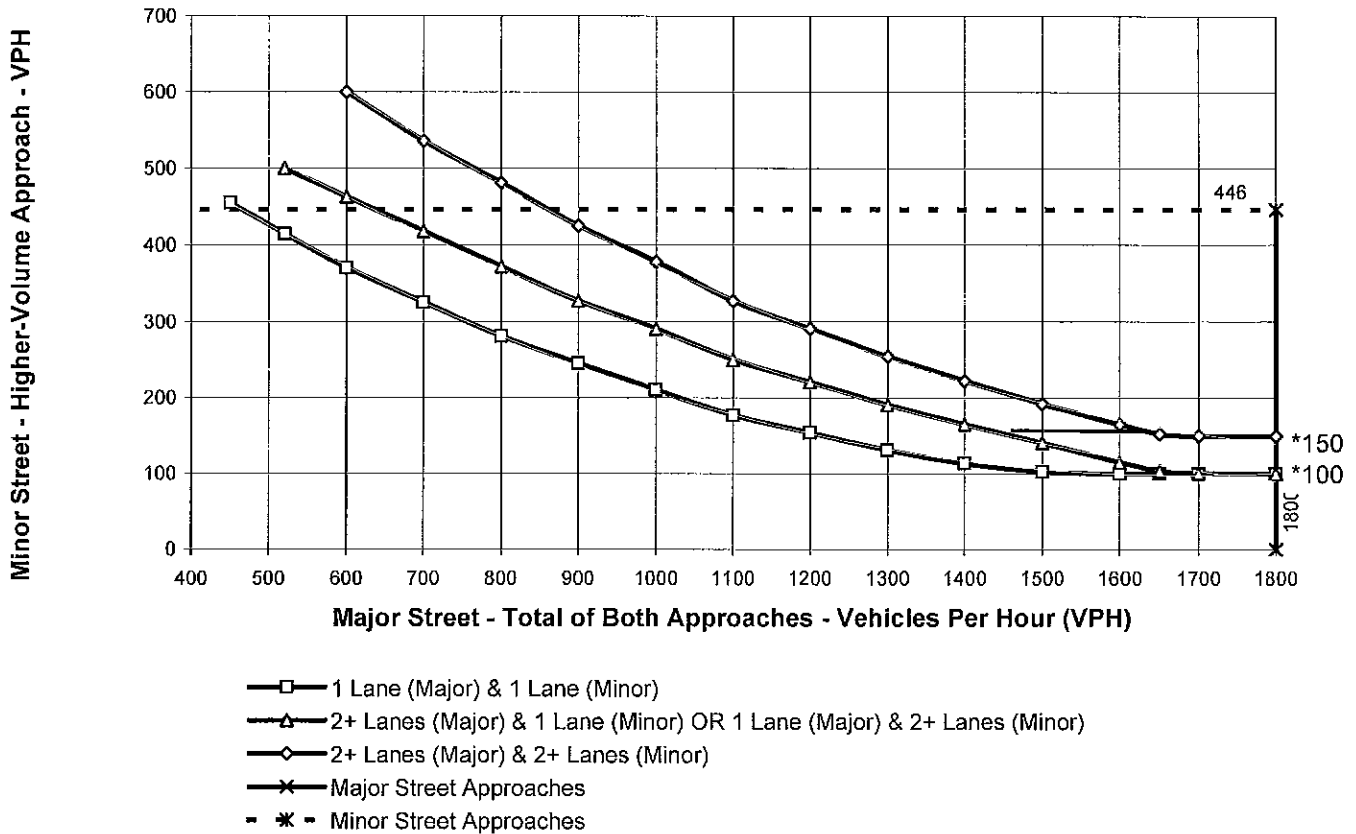
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Escondido Boulevard (NS)**

High Volume Approach (VPH) = **446**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Escondido Boulevard and Lincoln Avenue

### WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (AM PEAK HOUR)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **632**

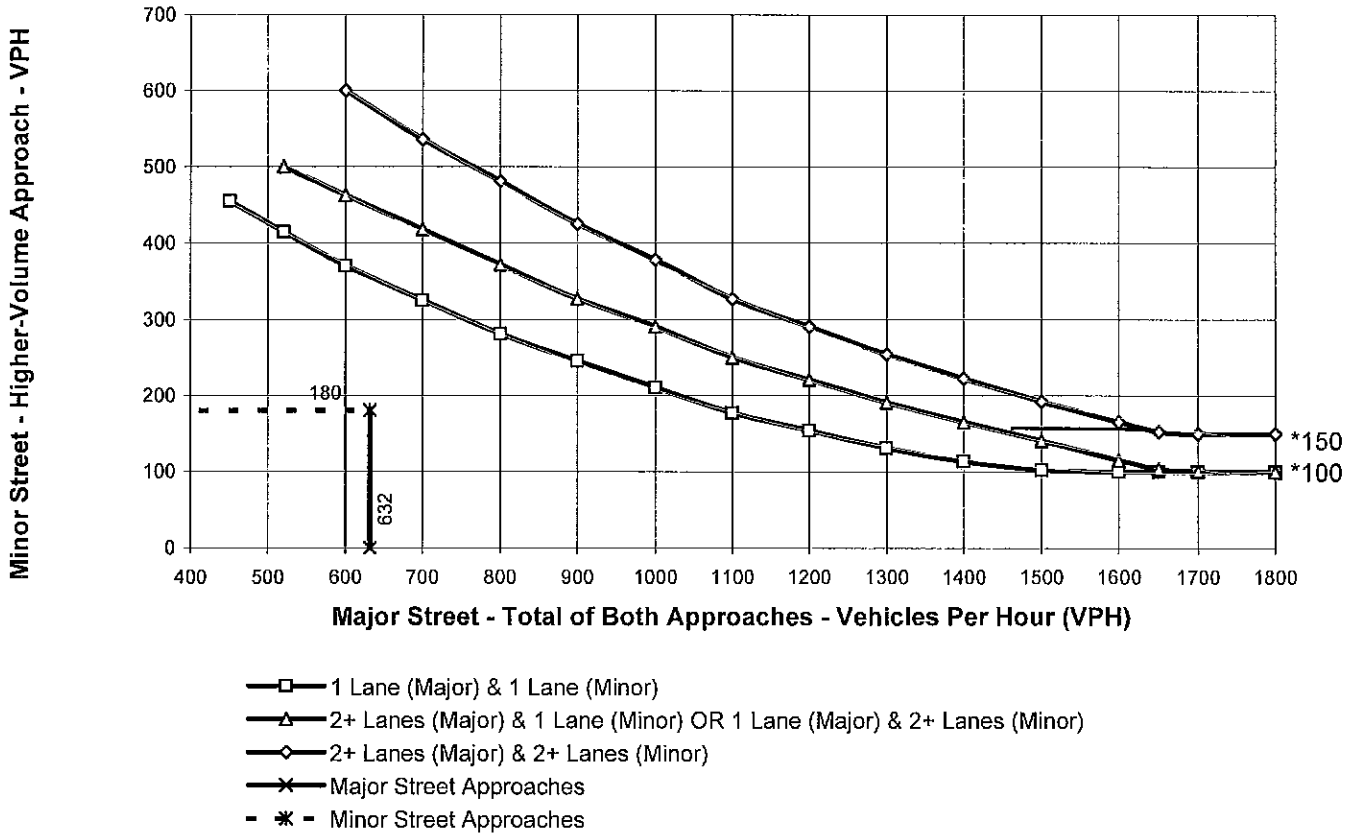
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **180**

Number of Approach Lanes On Minor Street = **1**

#### SIGNAL WARRANT NOT SATISFIED



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (MID PEAK HOUR)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **694**

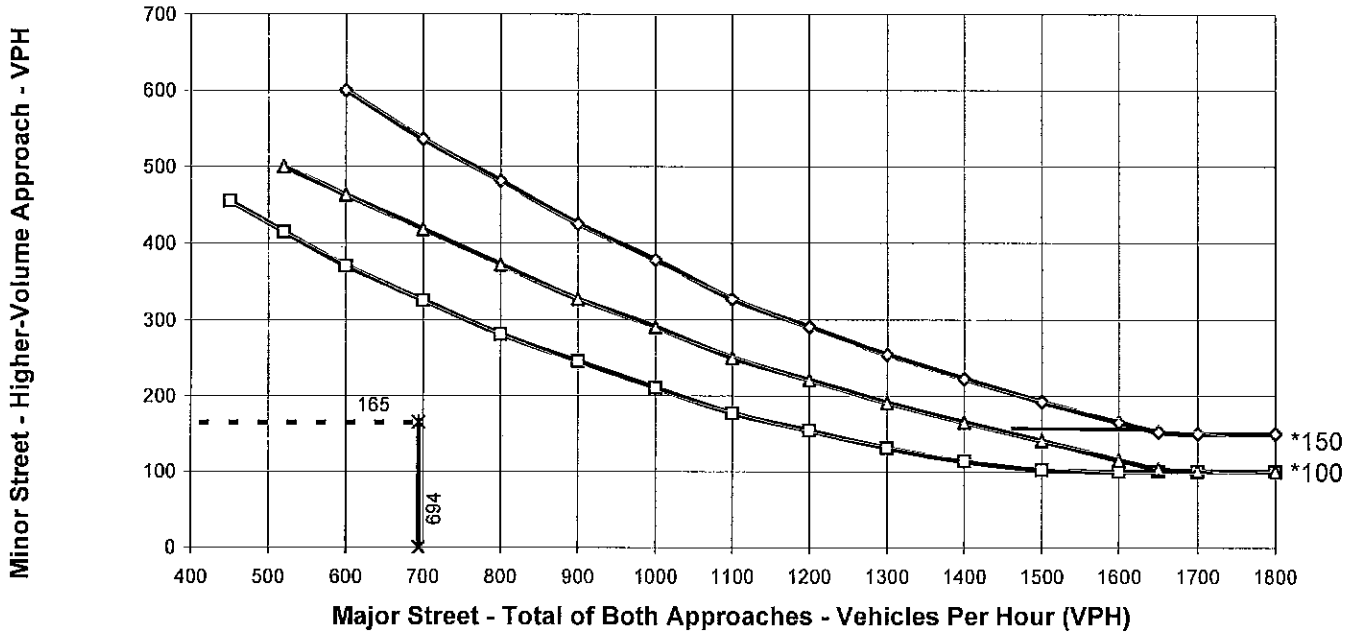
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **165**

Number of Approach Lanes On Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \*— Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (PM PEAK HOUR)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **809**

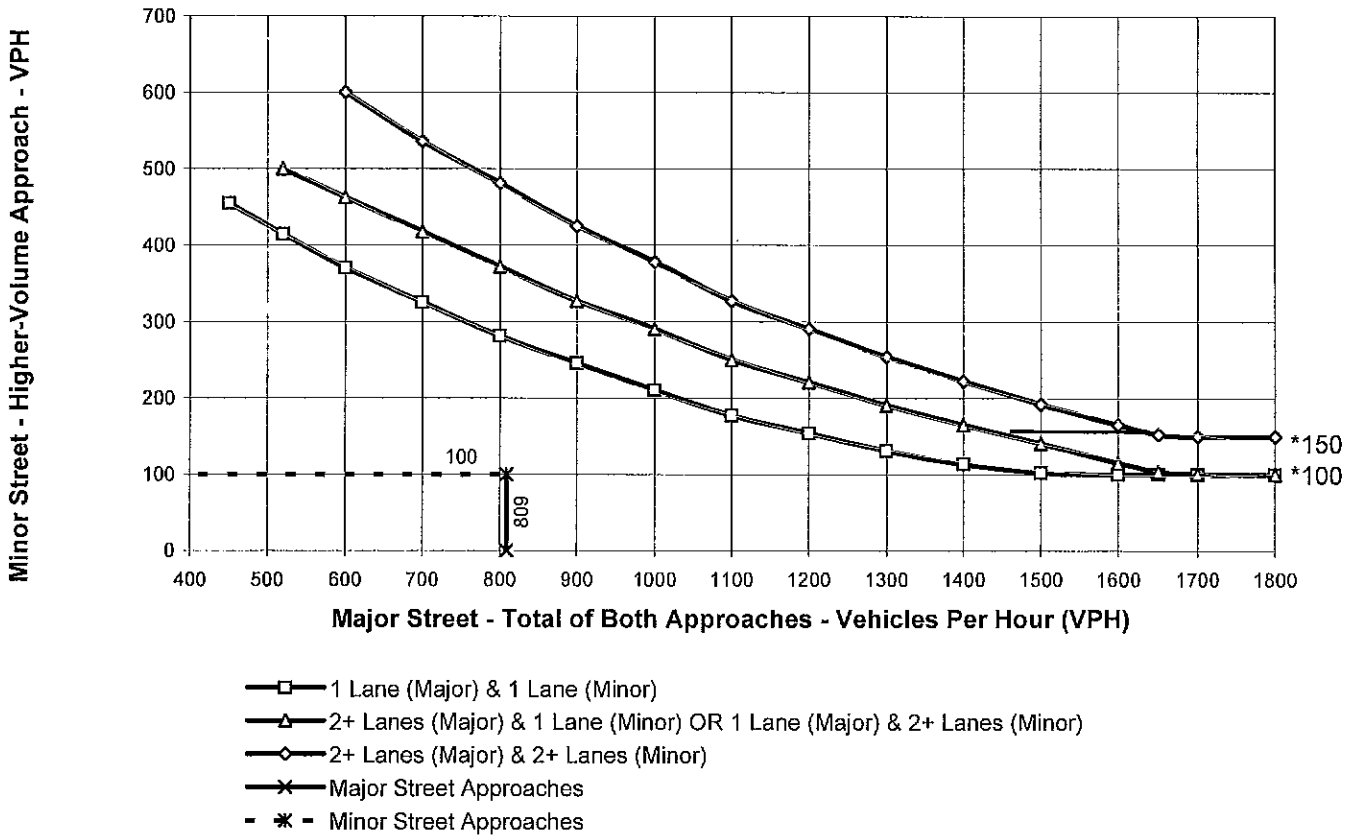
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **100**

Number of Approach Lanes On Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (AM PEAK HOUR)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **748**

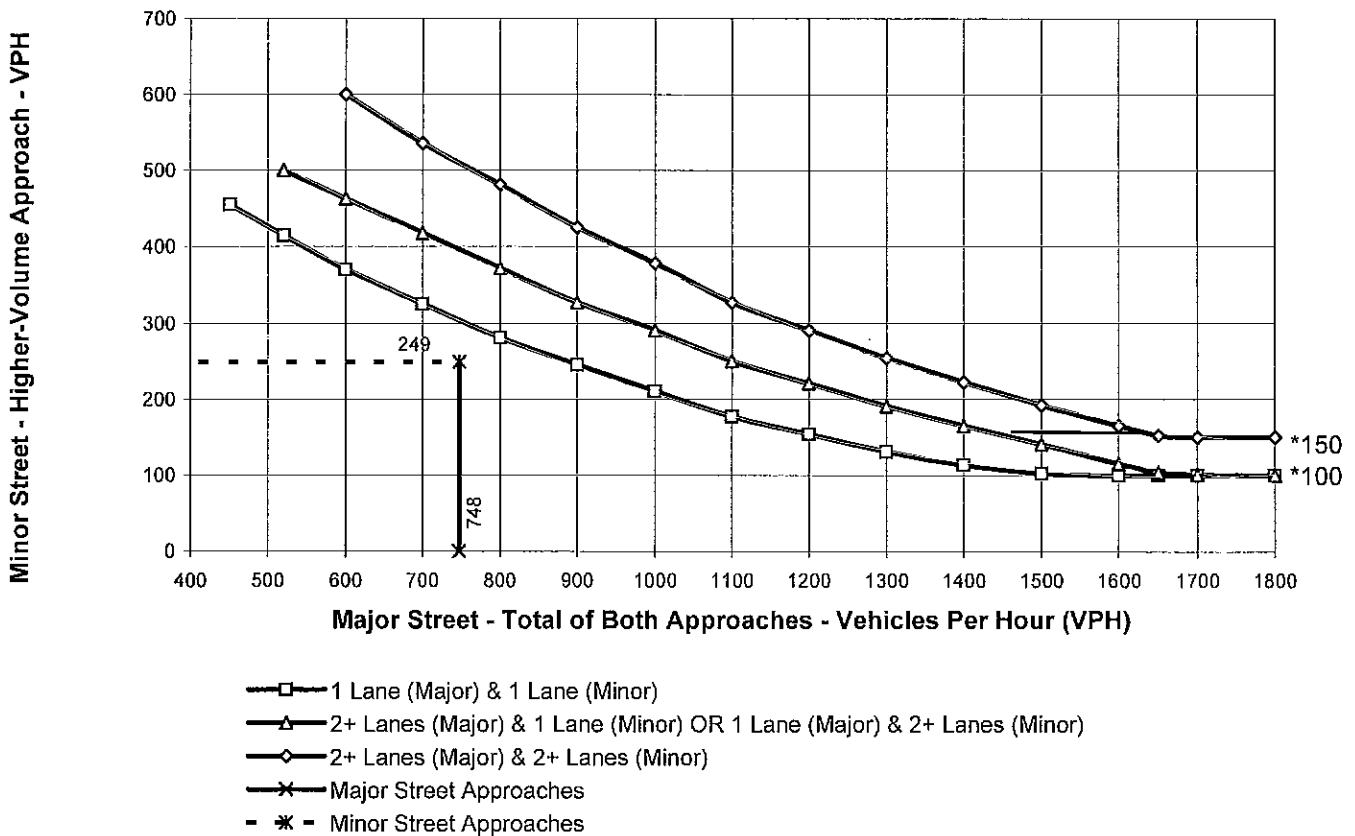
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **249**

Number of Approach Lanes On Minor Street = **1**

### SIGNAL WARRANT NOT SATISFIED



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (MID PEAK HOUR)**

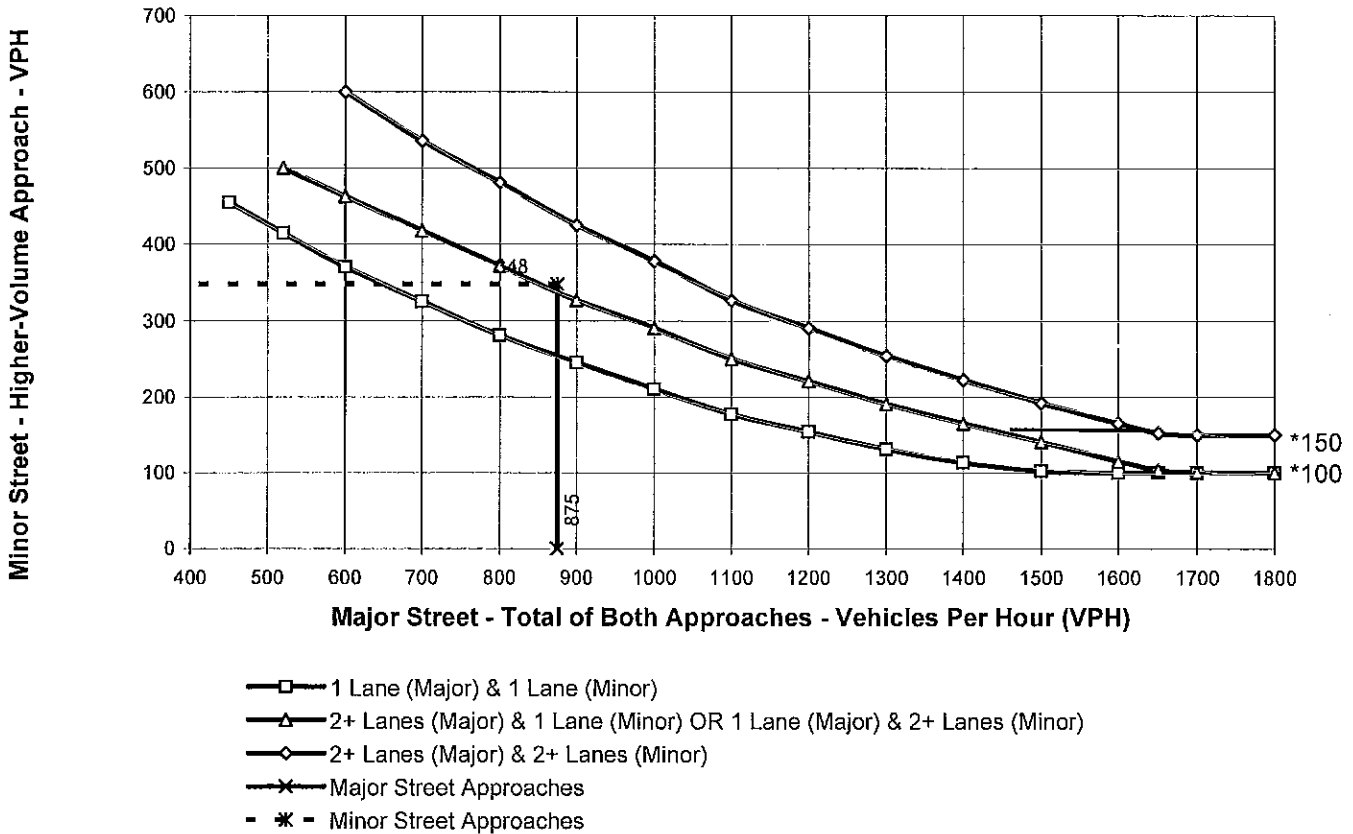
Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **875**  
 Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **348**  
 Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (PM PEAK HOUR)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **990**

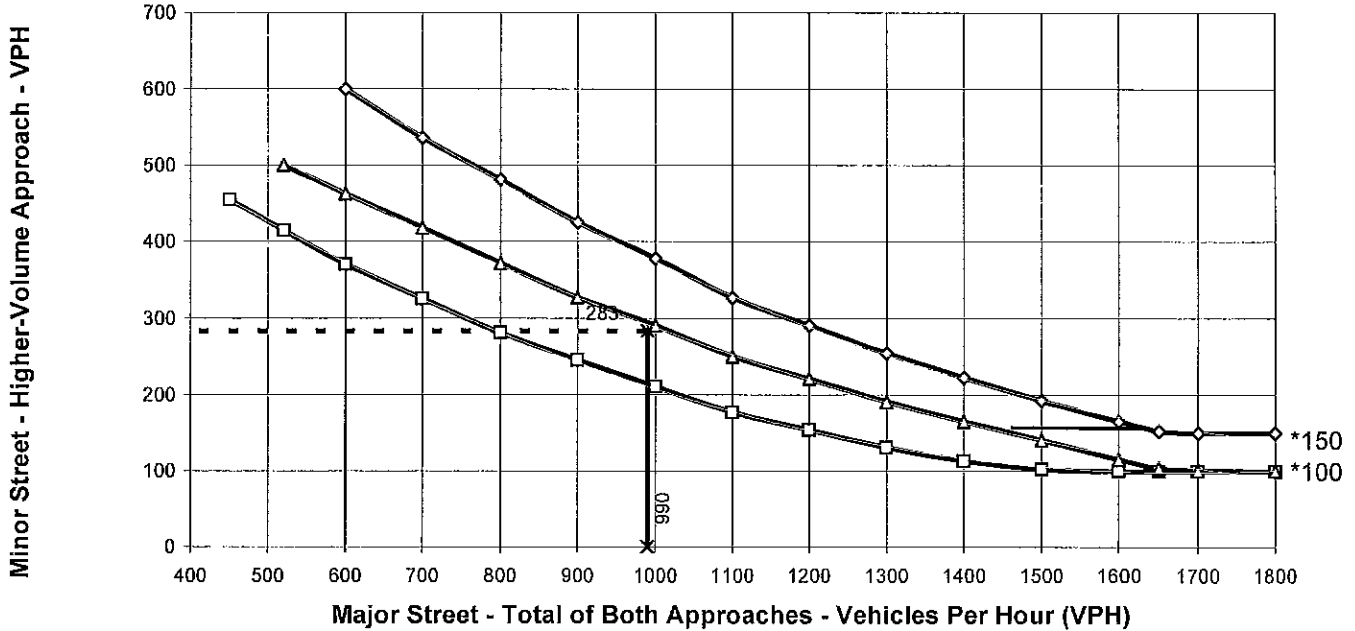
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **283**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (AM PEAK)**

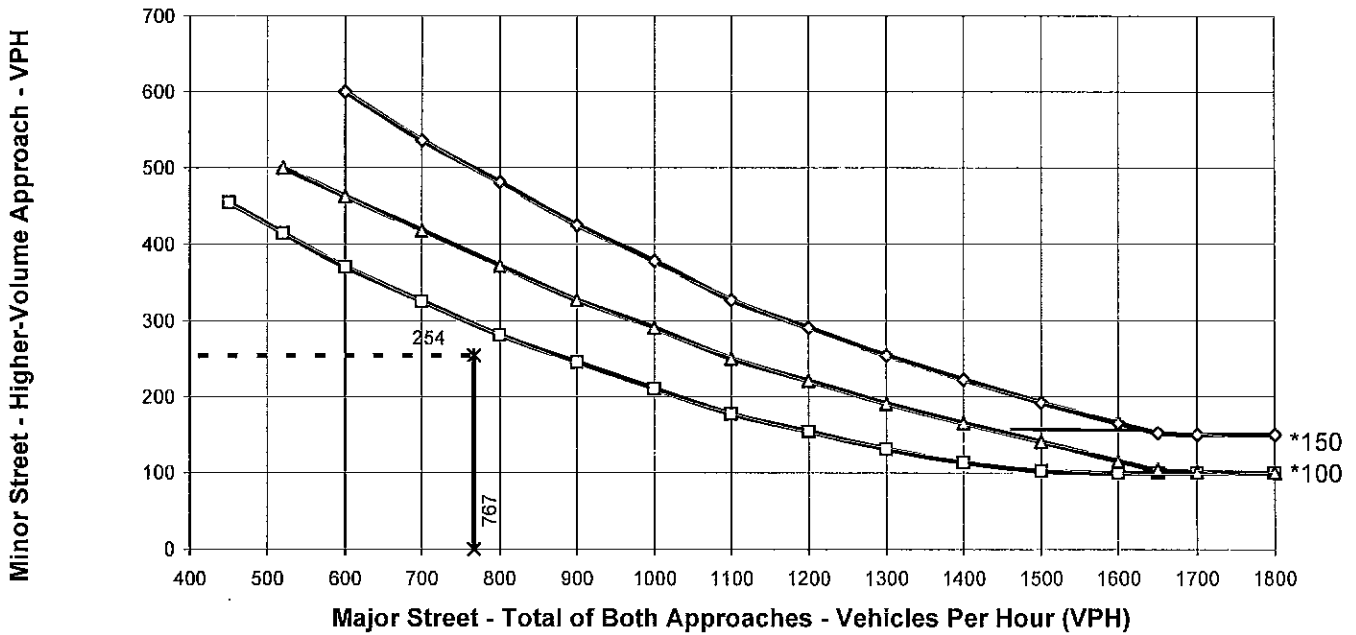
Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **767**  
 Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **254**  
 Number of Approach Lanes On Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (MID PEAK)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **896**

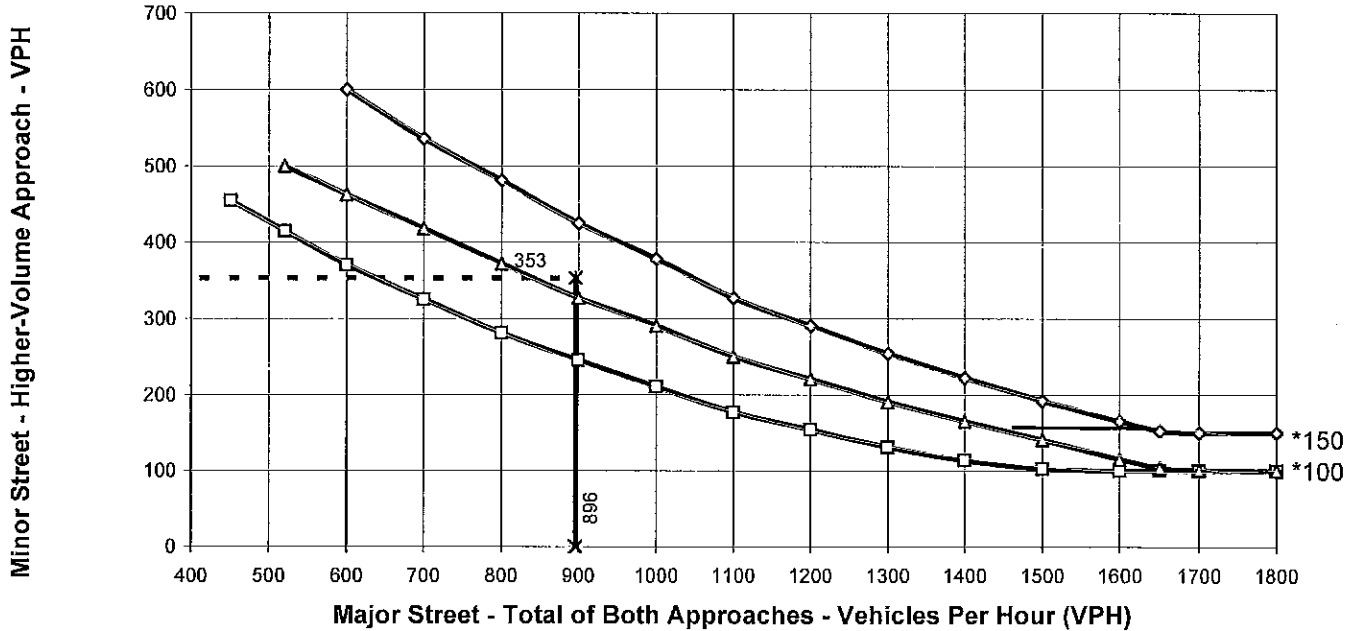
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **353**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (PM PEAK)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **1015**

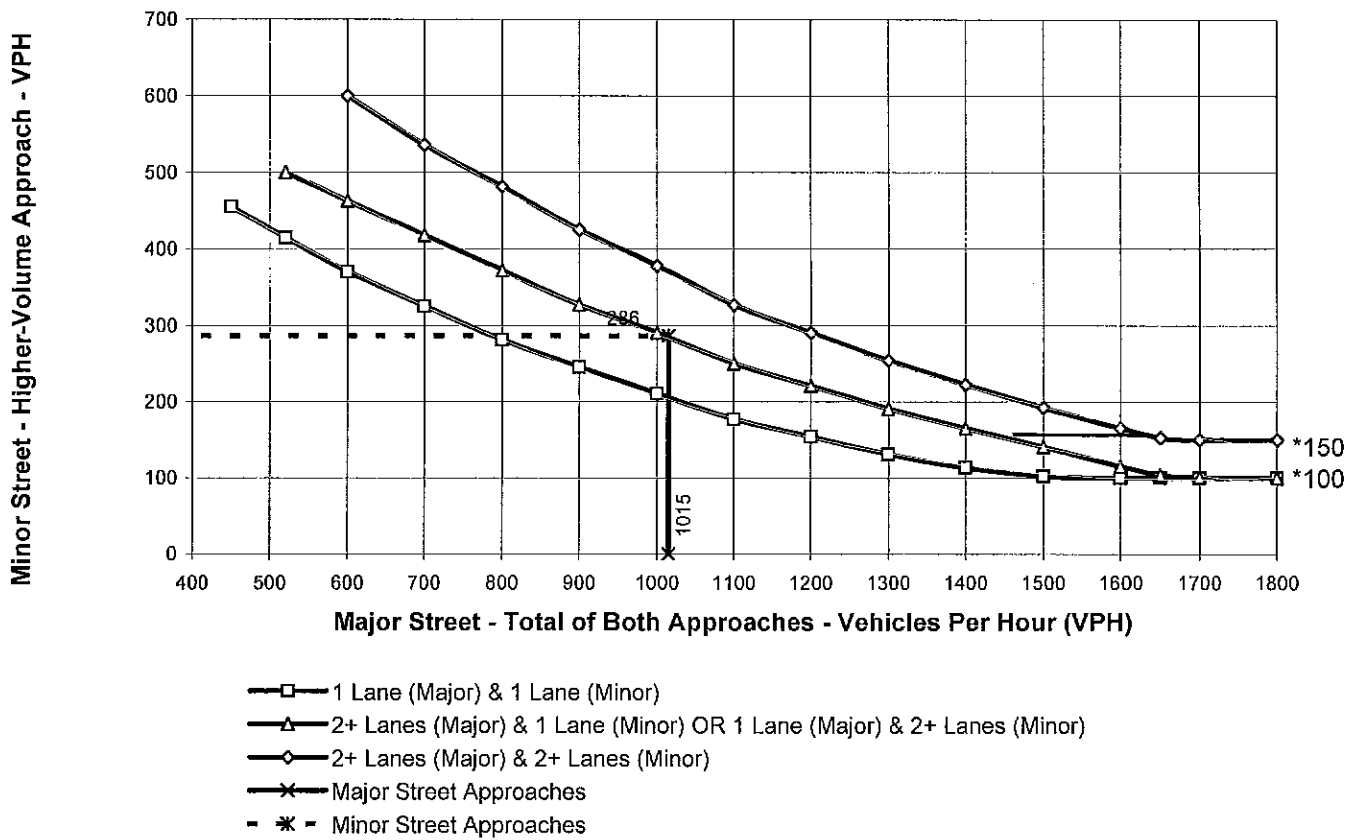
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **286**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **BUILDOUT (2035) PLUS PROJECT (AM PEAK)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **1471**

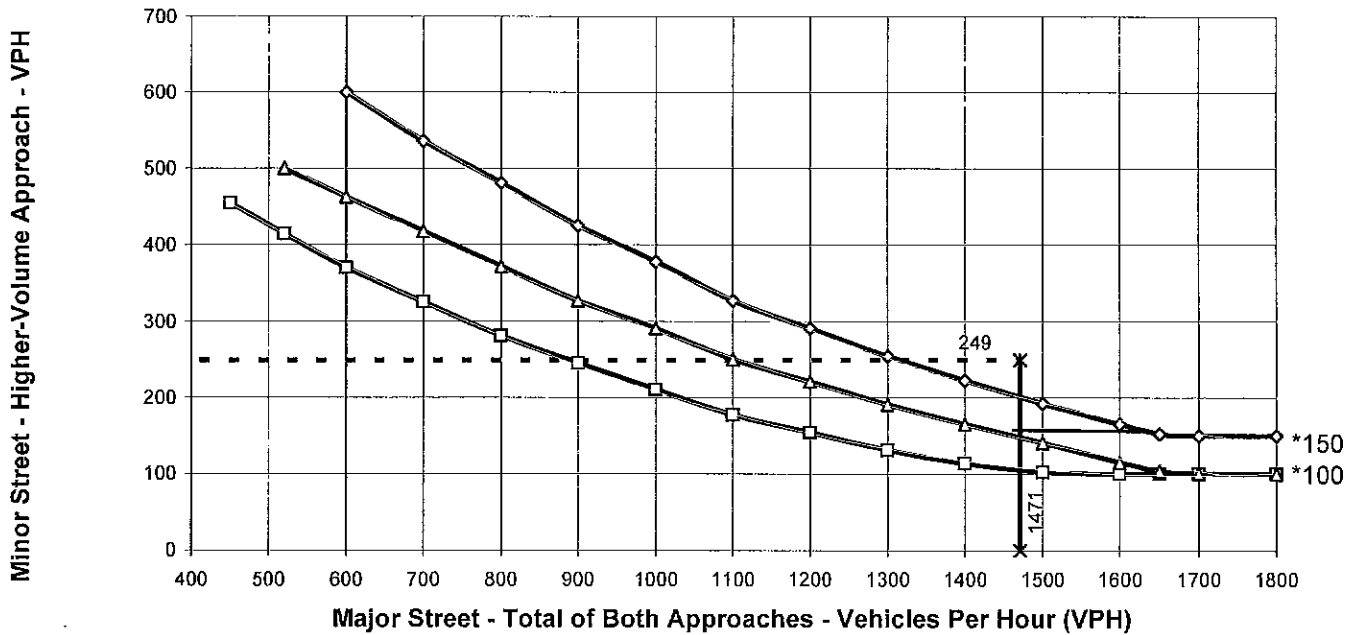
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **249**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **BUILDOUT (2035) PLUS PROJECT (PM PEAK)**

Major Street Name = **Escondido Boulevard (NS)**

Total of Both Approaches (VPH) = **1468**

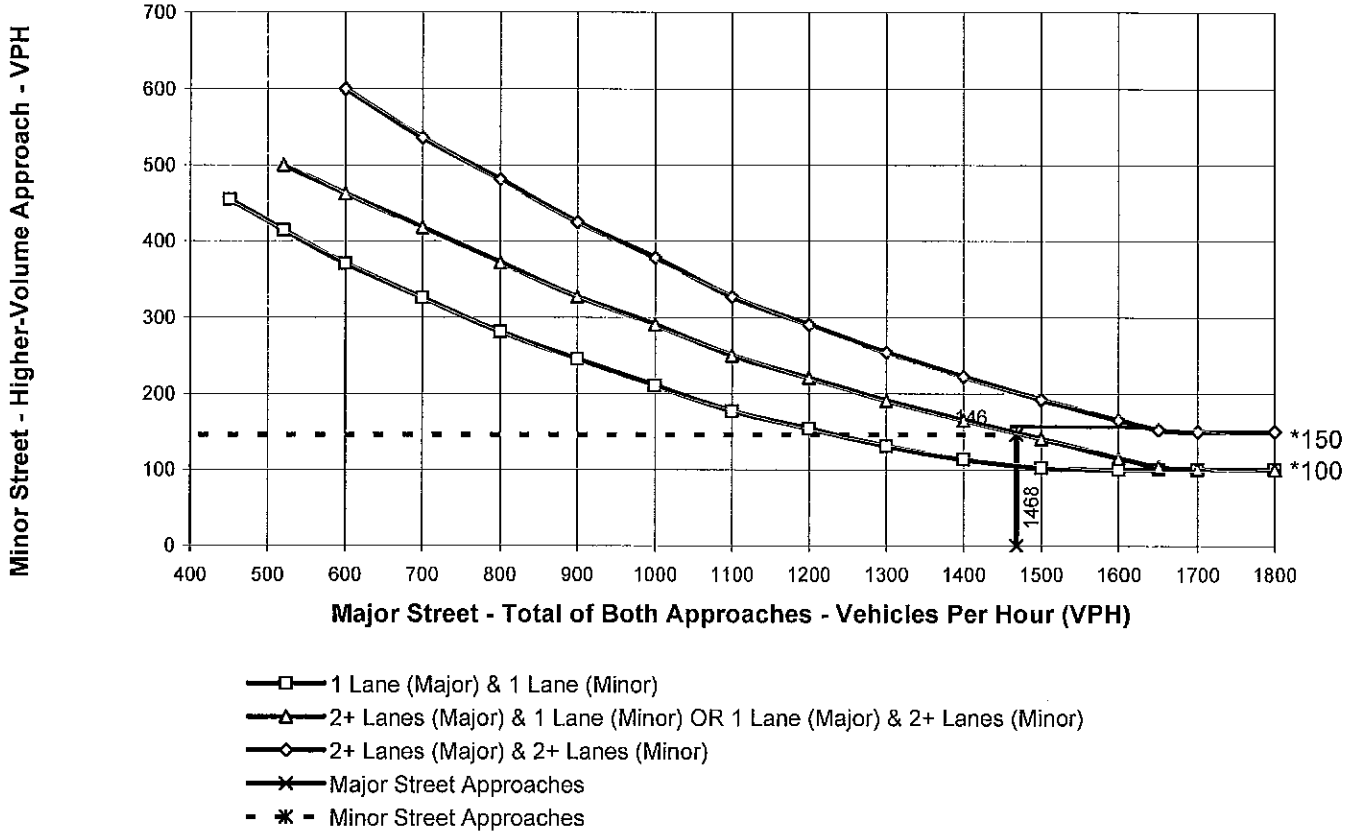
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **146**

Number of Approach Lanes On Minor Street = **1**

**WARRANTED FOR A SIGNAL**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

North Broadway and Lincoln Avenue

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (AM PEAK HOUR)**

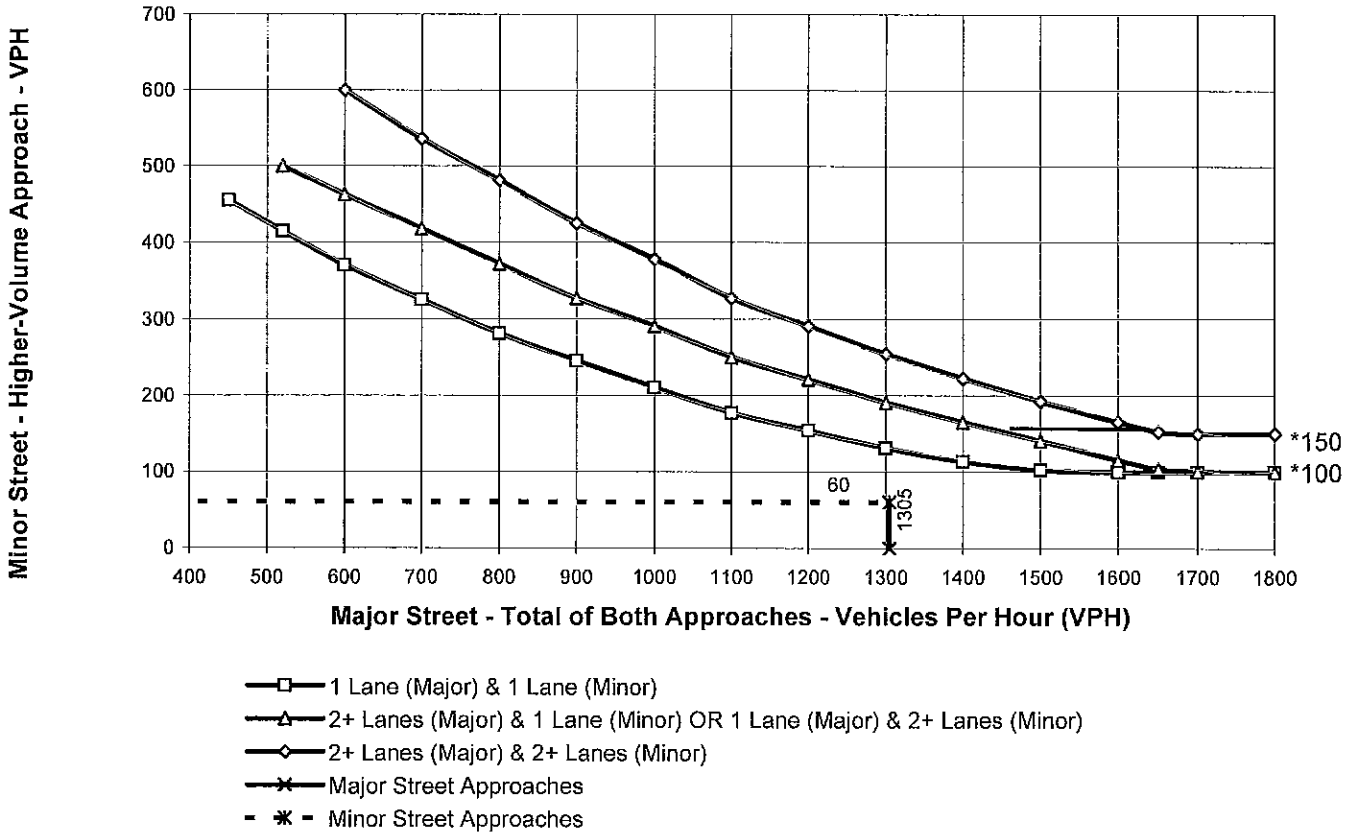
Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1305**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **60**  
 Number of Approach Lanes On Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.



## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (MID PEAK HOUR)**

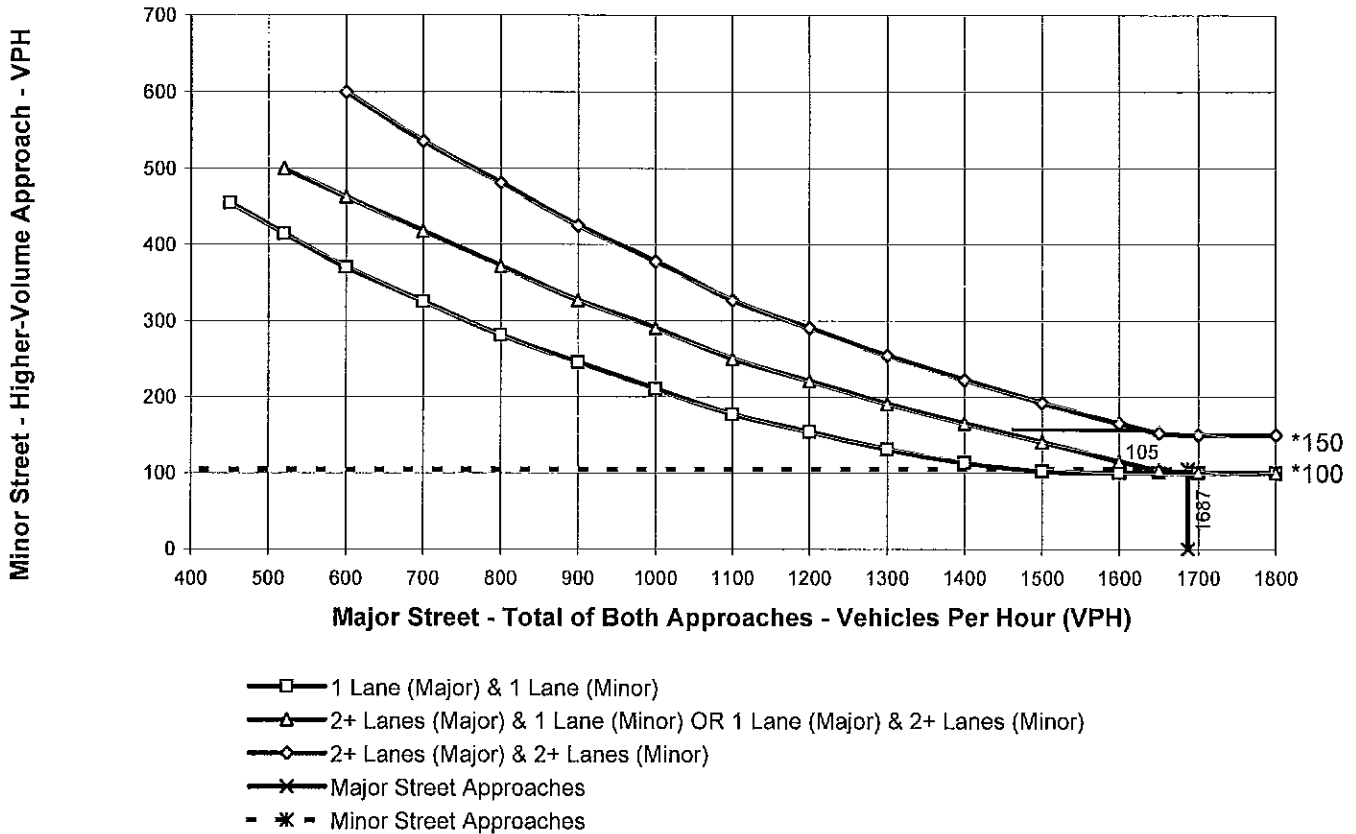
Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1687**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **105**  
 Number of Approach Lanes On Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING (PM PEAK HOUR)**

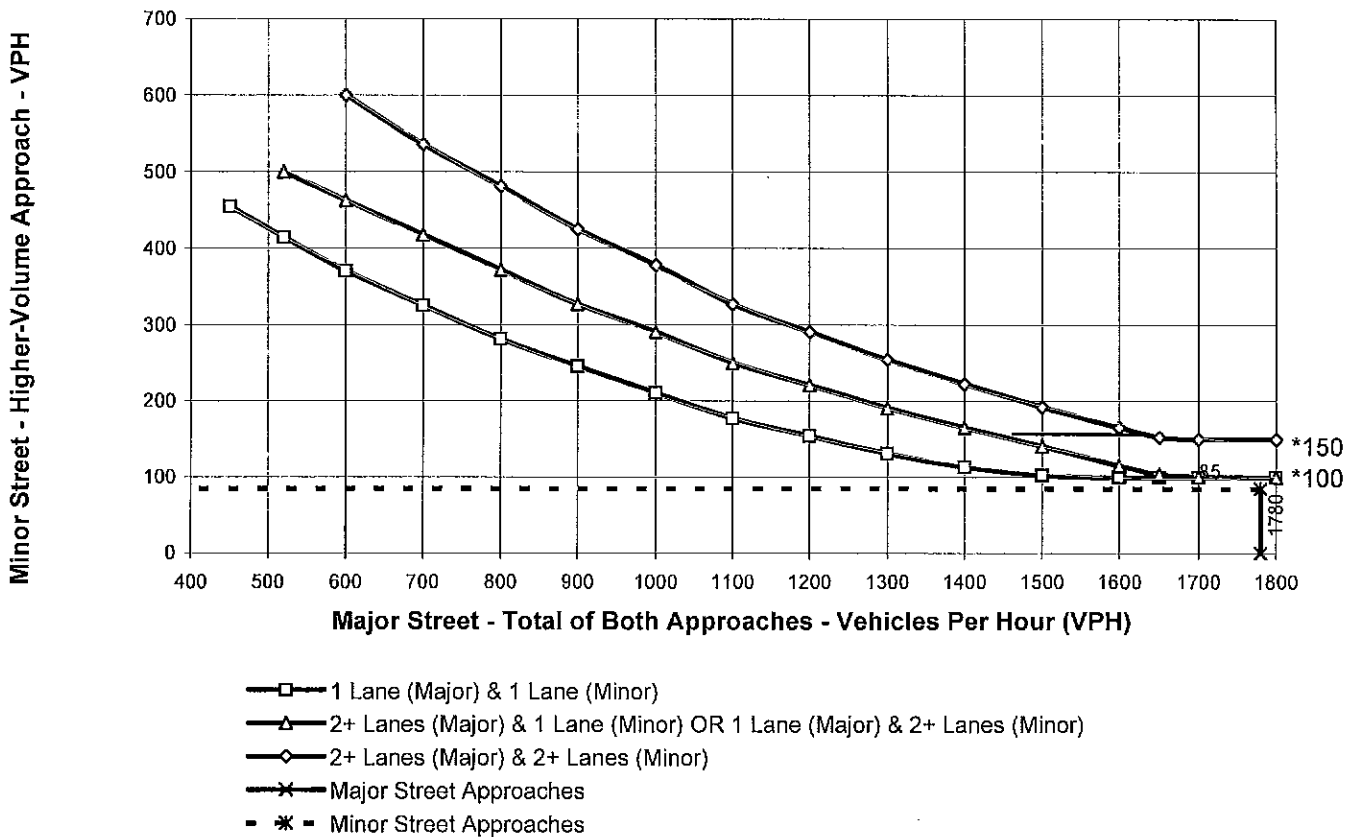
Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1780**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **85**  
 Number of Approach Lanes On Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (AM PEAK HOUR)**

Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1420**

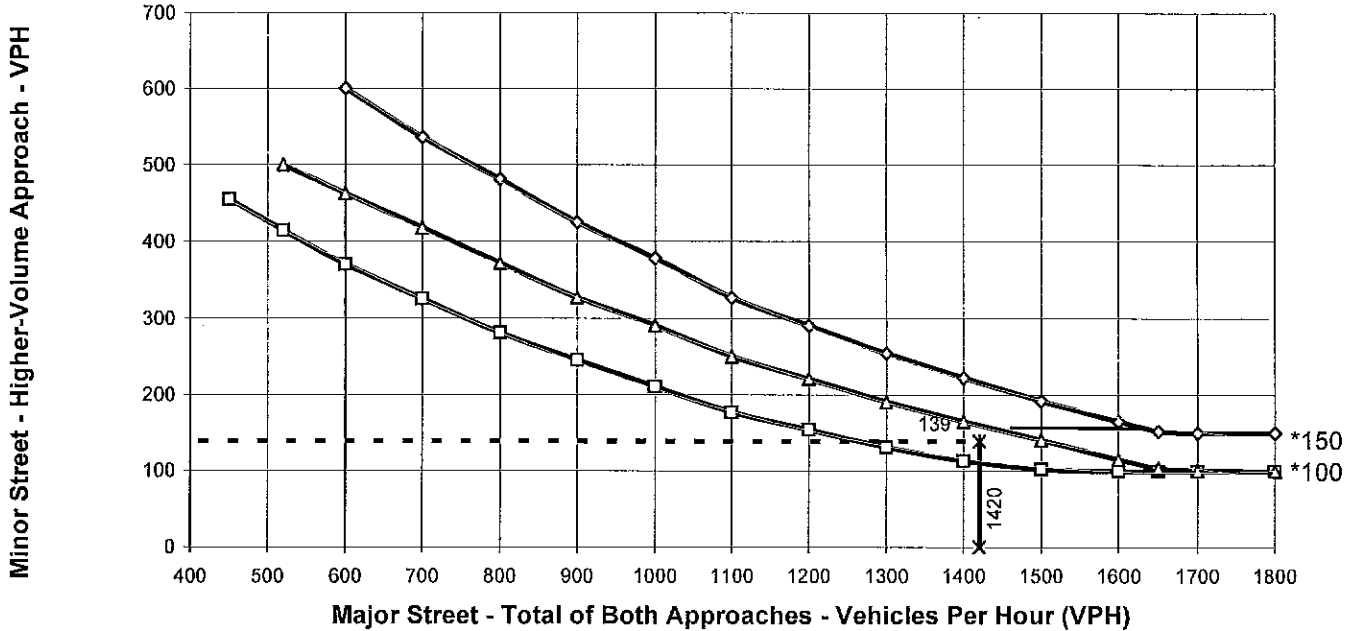
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **139**

Number of Approach Lanes On Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (MID PEAK HOUR)**

Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1867**

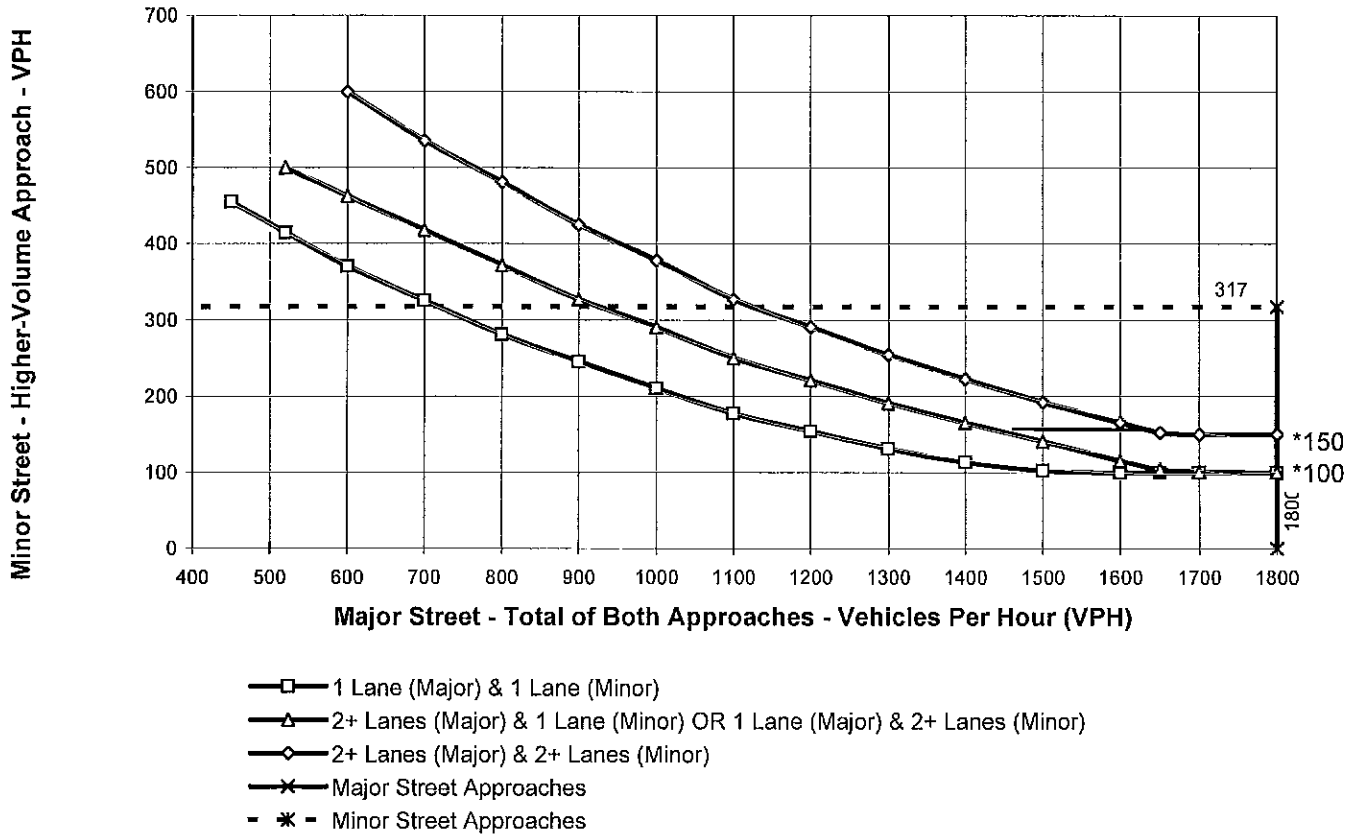
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **317**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **EXISTING PLUS PROJECT (PM PEAK HOUR)**

Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1960**

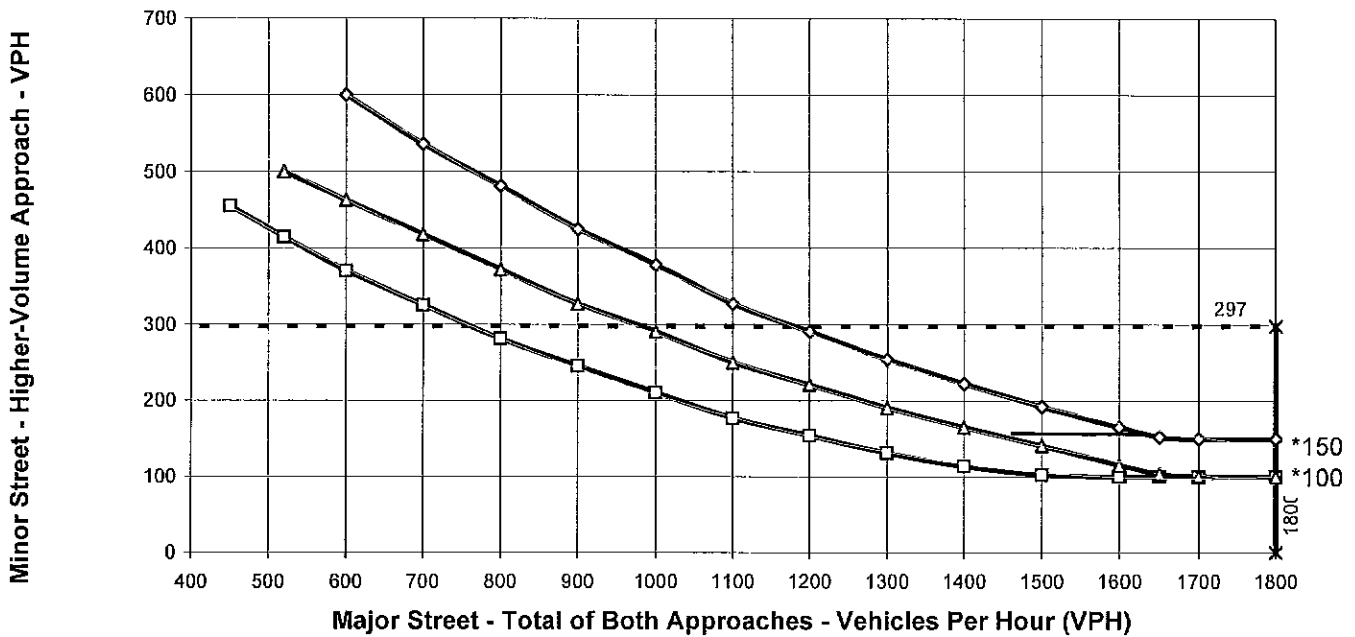
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **297**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (AM PEAK)**

Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1496**

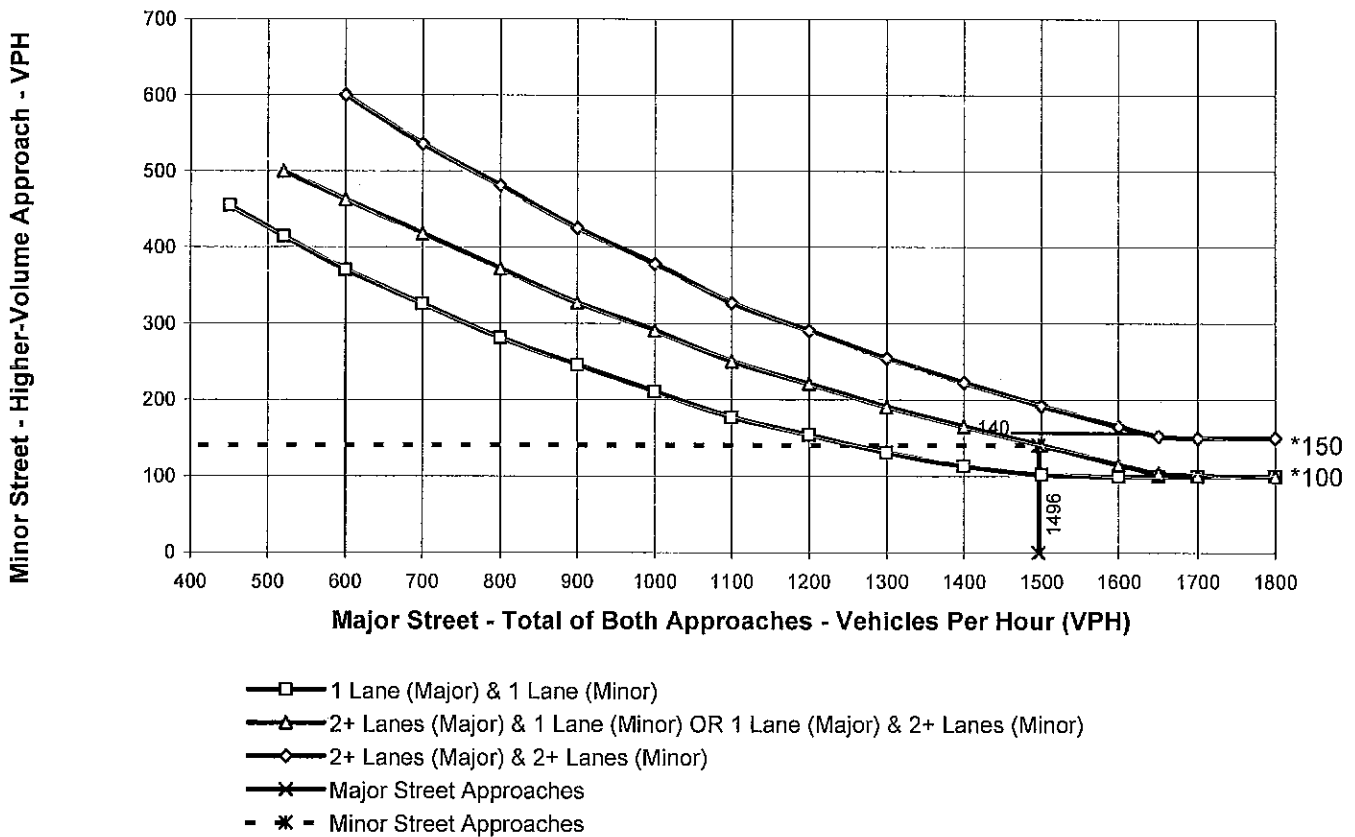
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **140**

Number of Approach Lanes On Minor Street = **1**

**SIGNAL WARRANT NOT SATISFIED**



\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (MID PEAK)**

Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **1963**

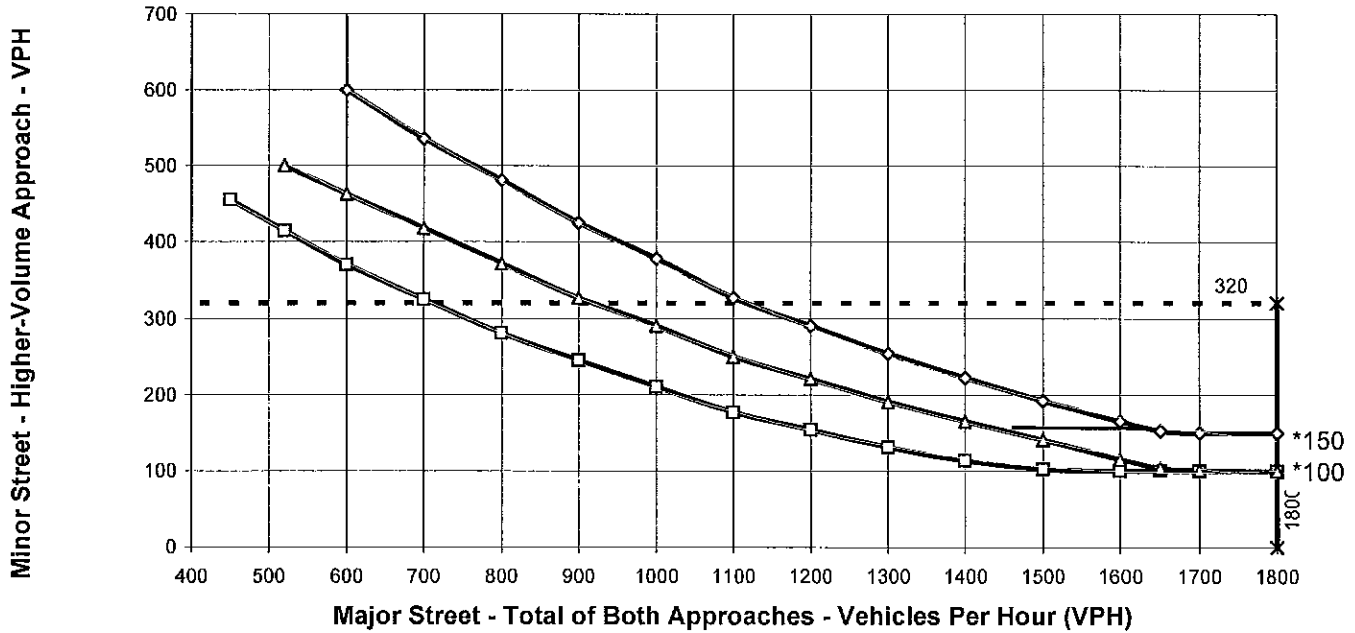
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **320**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **OPENING YR 2016 PLUS PROJECT (PM PEAK)**

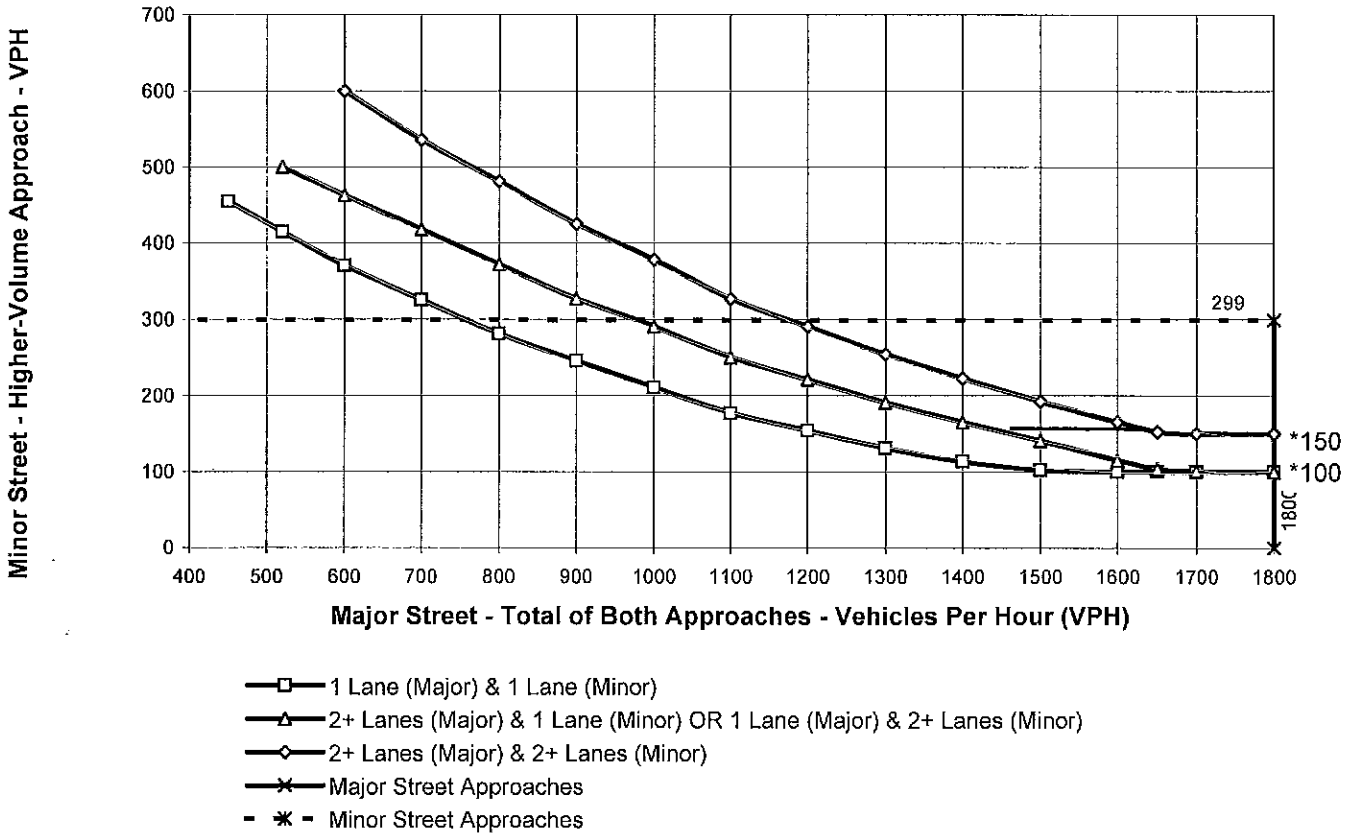
Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **2058**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **299**  
 Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL





## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **BUILDOUT (2035) PLUS PROJECT (AM PEAK)**

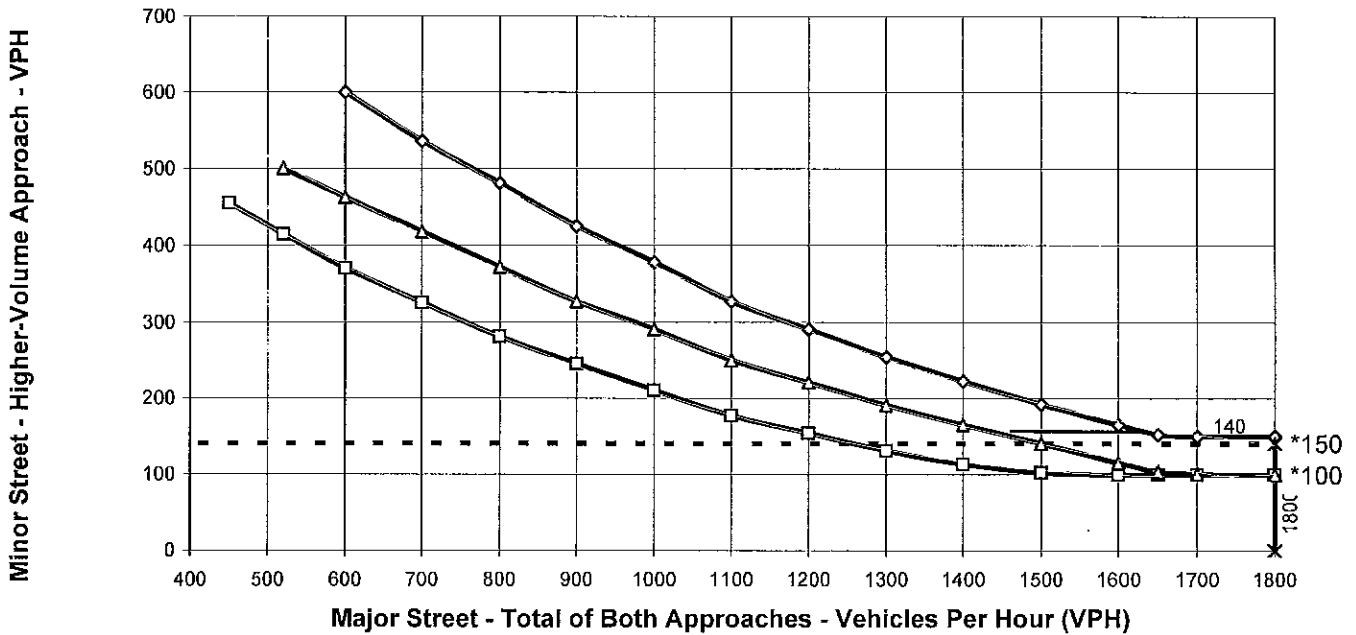
Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **2162**  
 Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **140**  
 Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WARRANT 3, PEAK HOUR (Urban Areas)

Traffic Conditions = **BUILDOUT (2035) PLUS PROJECT (PM PEAK)**

Major Street Name = **North Broadway (NS)**

Total of Both Approaches (VPH) = **2052**

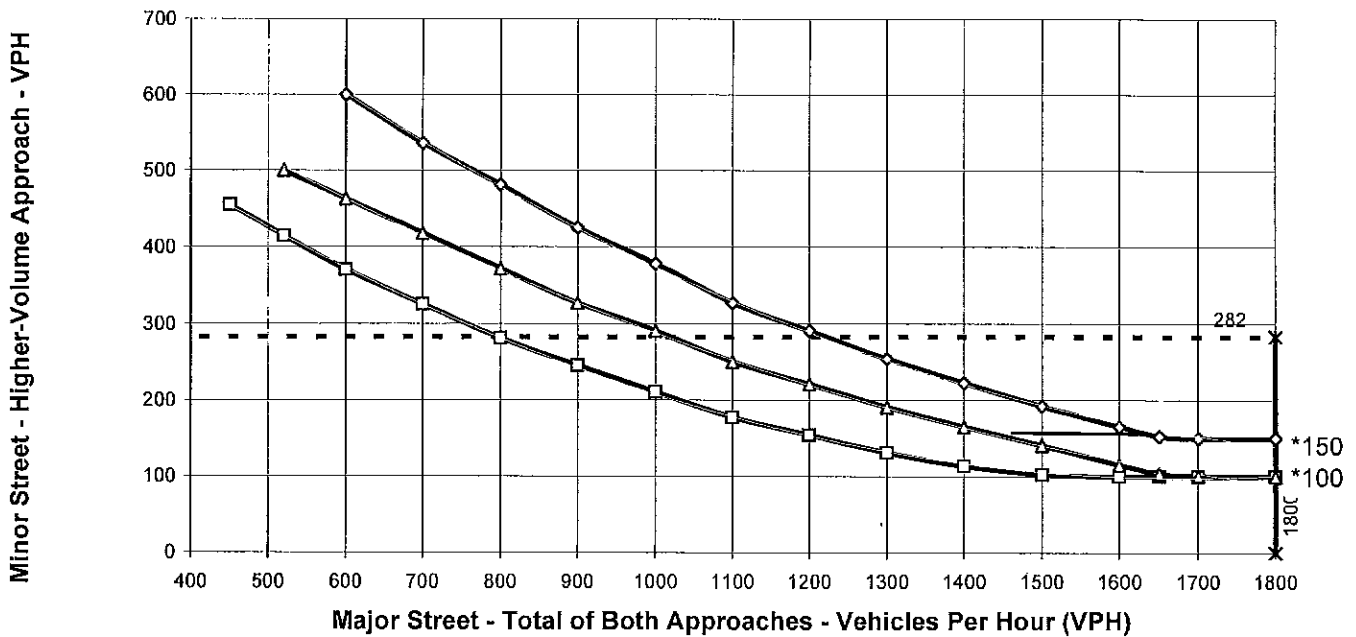
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Lincoln Avenue (EW)**

High Volume Approach (VPH) = **282**

Number of Approach Lanes On Minor Street = **1**

### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- △— 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- ◇— 2+ Lanes (Major) & 2+ Lanes (Minor)
- ×— Major Street Approaches
- \* - Minor Street Approaches

\* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

## **Appendix N**

Intersection Queuing on North Broadway

QUEUE REPORT  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	147	101	278	553	32	866
v/c Ratio	0.16	0.27	0.24	0.77	0.26	0.22	0.78
Control Delay	18.3	4.4	14.4	38.8	8.4	29.5	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay	18.3	4.4	14.4	38.8	9.0	29.5	24.5
Queue Length 50th (ft)	16	0	19	94	41	11	144
Queue Length 95th (ft)	30	11	44	#143	77	32	192
Internal Link Dist (ft)	67		716		196		2202
Turn Bay Length (ft)				100		115	
Base Capacity (vph)	361	537	422	383	2137	147	1106
Starvation Cap Reductn	0	0	0	0	1123	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.27	0.24	0.73	0.55	0.22	0.78

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	322	735	729	128	1044	82	412	288	33	58	626	278
v/c Ratio	0.77	0.51	0.90	0.42	0.84	0.17	0.68	0.21	0.06	0.37	0.62	0.40
Control Delay	72.6	43.2	40.3	66.8	56.9	0.7	59.0	30.0	0.2	70.8	46.6	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.3	5.4
Total Delay	72.6	43.2	40.3	66.8	56.9	0.7	59.0	30.0	0.2	70.8	62.9	24.3
Queue Length 50th (ft)	147	200	488	58	330	0	187	97	0	51	260	109
Queue Length 95th (ft)	213	269	604	102	#467	0	240	132	0	94	318	178
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		5
Base Capacity (vph)	463	1583	983	305	1320	507	1013	1813	734	157	1150	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	516	357
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.46	0.74	0.42	0.79	0.16	0.41	0.16	0.04	0.37	0.99	0.80

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	171	349	110	222	880	29	884
v/c Ratio	0.60	0.64	0.33	0.70	0.37	0.19	0.66
Control Delay	29.5	10.9	14.3	36.5	8.0	29.5	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Total Delay	29.5	10.9	14.3	36.5	8.8	29.5	18.0
Queue Length 50th (ft)	55	21	18	72	63	10	140
Queue Length 95th (ft)	64	23	47	#163	147	32	204
Internal Link Dist (ft)	69		716		196		2202
Turn Bay Length (ft)				100		115	
Base Capacity (vph)	361	618	412	336	2386	150	1349
Starvation Cap Reductn	0	0	0	0	1111	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.56	0.27	0.66	0.69	0.19	0.66

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	613	1343	782	125	949	84	643	387	107	82	590	263
v/c Ratio	0.90	0.81	0.84	0.43	0.91	0.17	0.84	0.32	0.22	0.50	0.74	0.42
Control Delay	80.1	53.8	22.4	74.7	75.1	0.8	70.5	40.4	1.0	80.2	63.3	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	53.0	1.2
Total Delay	80.1	53.8	22.4	74.7	75.1	0.8	70.5	40.4	1.0	80.6	116.4	15.8
Queue Length 50th (ft)	323	465	320	65	358	0	328	160	0	83	314	74
Queue Length 95th (ft)	#415	517	444	103	#433	0	404	208	0	141	380	115
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		5
Base Capacity (vph)	705	1754	951	294	1048	482	811	1203	488	164	794	636
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	7	307	197
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.77	0.82	0.43	0.91	0.17	0.79	0.32	0.22	0.52	1.21	0.60

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	127	207	127	207	1096	32	788
v/c Ratio	0.48	0.45	0.37	0.60	0.46	0.17	0.56
Control Delay	25.0	6.5	14.1	28.0	8.9	24.8	15.5
Queue Delay	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Total Delay	25.0	6.5	14.1	28.0	10.2	24.8	15.5
Queue Length 50th (ft)	38	0	20	61	65	10	100
Queue Length 95th (ft)	70	38	51	#122	199	30	164
Internal Link Dist (ft)	70		716		196		2202
Turn Bay Length (ft)				100		115	
Base Capacity (vph)	418	607	499	361	2360	190	1408
Starvation Cap Reductn	0	0	0	0	988	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.34	0.25	0.57	0.80	0.17	0.56

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.



QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	702	1396	616	96	937	107	736	568	127	91	583	261
v/c Ratio	0.94	0.77	0.63	0.37	0.90	0.23	0.96	0.49	0.21	0.69	0.80	0.40
Control Delay	82.5	49.2	12.3	74.9	74.2	1.1	84.5	45.2	4.0	97.7	66.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.0	1.1
Total Delay	82.5	49.2	12.3	74.9	74.2	1.1	84.5	45.2	4.0	97.7	119.1	11.1
Queue Length 50th (ft)	374	471	197	50	353	0	396	254	0	95	301	46
Queue Length 95th (ft)	#488	530	275	82	#416	0	#471	293	25	#168	361	79
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		5
Base Capacity (vph)	761	1836	975	257	1048	477	768	1155	602	132	727	665
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	291	211
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.76	0.63	0.37	0.89	0.22	0.96	0.49	0.21	0.69	1.34	0.57

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	149	104	284	583	33	922
v/c Ratio	0.31	0.41	0.45	0.67	0.21	0.17	0.61
Control Delay	26.5	7.4	22.9	28.6	6.0	25.6	17.6
Queue Delay	0.0	0.0	0.0	0.8	0.3	0.0	0.0
Total Delay	26.5	7.4	22.9	29.4	6.3	25.6	17.6
Queue Length 50th (ft)	19	0	24	91	24	11	132
Queue Length 95th (ft)	33	13	50	131	80	30	#233
Internal Link Dist (ft)	67		716		196		2202
Turn Bay Length (ft)				100		115	
Base Capacity (vph)	350	537	406	442	2733	197	1509
Starvation Cap Reductn	0	0	0	33	1409	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.28	0.26	0.69	0.44	0.17	0.61

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	341	769	751	135	1100	84	425	299	35	59	664	296
v/c Ratio	0.73	0.49	0.79	0.53	0.90	0.18	0.50	0.21	0.06	0.45	0.84	0.47
Control Delay	75.4	45.5	19.9	79.4	70.8	7.8	53.9	33.4	0.2	82.1	68.2	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.3	13.8
Total Delay	75.4	45.5	19.9	79.4	70.8	7.8	53.9	33.4	0.2	82.1	120.5	38.5
Queue Length 50th (ft)	179	241	336	67	411	0	198	110	0	60	355	154
Queue Length 95th (ft)	216	256	359	114	497	47	254	156	0	97	379	196
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		5
Base Capacity (vph)	568	1741	945	257	1239	476	853	1433	619	132	794	625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	342	305
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.44	0.79	0.53	0.89	0.18	0.50	0.21	0.06	0.45	1.47	0.93

Intersection Summary

HCM 2010 SIGNALIZED  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	173	352	111	224	940	30	925
v/c Ratio	0.60	0.64	0.33	0.73	0.40	0.20	0.67
Control Delay	29.7	11.2	14.2	39.1	8.6	29.2	18.5
Queue Delay	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Total Delay	29.7	11.2	14.2	39.1	9.6	29.2	18.5
Queue Length 50th (ft)	55	22	18	77	69	10	140
Queue Length 95th (ft)	65	24	47	#165	166	32	#224
Internal Link Dist (ft)	69		716		196		2202
Turn Bay Length (ft)				100		115	
Base Capacity (vph)	362	617	411	324	2359	147	1371
Starvation Cap Reductn	0	0	0	0	1073	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.57	0.27	0.69	0.73	0.20	0.67

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	655	1416	807	132	992	85	663	406	114	83	615	276
v/c Ratio	0.93	0.83	0.87	0.46	0.94	0.20	0.89	0.33	0.23	0.63	0.79	0.41
Control Delay	83.1	53.6	26.2	75.8	78.4	1.2	75.2	39.4	1.8	92.8	65.9	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.2	1.0
Total Delay	83.1	53.6	26.2	75.8	78.4	1.2	75.2	39.4	1.8	92.8	119.1	14.6
Queue Length 50th (ft)	349	490	378	69	379	0	347	165	0	86	327	81
Queue Length 95th (ft)	#458	551	521	107	#468	2	#432	213	6	#151	394	154
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		5
Base Capacity (vph)	718	1773	934	290	1056	434	768	1234	490	132	777	686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	331	208
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.80	0.86	0.46	0.94	0.20	0.86	0.33	0.23	0.63	1.38	0.58

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	128	208	130	209	1161	33	827
v/c Ratio	0.48	0.45	0.38	0.60	0.49	0.17	0.59
Control Delay	25.0	6.5	14.0	28.2	9.2	24.9	16.4
Queue Delay	0.0	0.0	0.0	0.0	1.7	0.0	0.0
Total Delay	25.0	6.5	14.0	28.2	10.9	24.9	16.4
Queue Length 50th (ft)	38	0	20	61	71	10	107
Queue Length 95th (ft)	71	38	52	#126	215	31	175
Internal Link Dist (ft)	70		716		196		2202
Turn Bay Length (ft)				100		115	
Base Capacity (vph)	415	608	499	362	2360	189	1400
Starvation Cap Reductn	0	0	0	0	971	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.34	0.26	0.58	0.84	0.17	0.59

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

QUEUE REPORT

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	747	1471	634	101	980	110	759	593	135	92	607	274
v/c Ratio	0.92	0.76	0.64	0.39	0.92	0.23	0.96	0.53	0.23	0.70	1.10	0.44
Control Delay	76.0	46.4	12.2	75.3	76.4	1.1	83.2	47.4	3.1	98.4	125.0	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	1.1
Total Delay	76.0	46.4	12.2	75.3	76.4	1.1	83.2	47.4	3.1	98.4	127.6	12.5
Queue Length 50th (ft)	392	486	189	53	373	0	408	272	0	96	~383	53
Queue Length 95th (ft)	#494	545	260	86	#458	0	#481	313	18	#170	#489	92
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		5
Base Capacity (vph)	843	1957	984	257	1060	484	793	1115	599	132	551	636
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	142	181
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.75	0.64	0.39	0.92	0.23	0.96	0.53	0.23	0.70	1.48	0.60

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues

11: N. BROADWAY & LINCOLN AVE.

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	121	138	292	483	35	1467
v/c Ratio	0.11	0.32	0.52	0.86	0.18	0.30	0.90
Control Delay	32.5	8.9	35.7	44.4	10.1	47.1	29.4
Queue Delay	0.0	1.4	8.7	16.1	0.3	0.0	47.5
Total Delay	32.5	10.3	44.4	60.5	10.4	47.1	77.0
Queue Length 50th (ft)	13	0	59	206	121	19	382
Queue Length 95th (ft)	35	46	118	m241	m141	50	#547
Internal Link Dist (ft)	67		716		196		2202
Turn Bay Length (ft)				175		115	
Base Capacity (vph)	236	377	263	354	2626	118	1636
Starvation Cap Reductn	0	0	0	54	1513	0	0
Spillback Cap Reductn	0	129	90	0	0	0	623
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.49	0.80	0.97	0.43	0.30	1.45

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Queues

12: N. BROADWAY & SR-78 FWY./LINCOLN PKY.

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	260	756	916	193	3420	121	1381	374	44	45	1101	528
v/c Ratio	1.19	0.49	1.02	0.68	2.12	0.22	1.73	0.25	0.08	0.38	1.15	0.95
Control Delay	187.4	52.5	70.1	92.9	536.6	6.9	372.6	34.5	0.3	76.1	119.9	60.8
Queue Delay	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	43.8
Total Delay	190.0	52.5	70.1	92.9	536.6	6.9	372.6	34.5	0.3	76.1	121.5	104.6
Queue Length 50th (ft)	~189	270	~1054	115	~2342	0	~1238	154	0	52	~764	621
Queue Length 95th (ft)	#291	318	#938	162	#2382	49	#1374	196	0	m66	#915	m#783
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		120
Base Capacity (vph)	219	1552	895	314	1610	553	797	1509	573	118	954	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	238	140
Spillback Cap Reductn	34	0	0	0	0	36	0	24	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.41	0.49	1.02	0.61	2.12	0.23	1.73	0.25	0.08	0.38	1.54	1.28

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 SIGNALIZED  
 11: N. BROADWAY & LINCOLN AVE. - MITIGATION

8/26/2014



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	164	133	98	59	1321	53	727
v/c Ratio	0.59	0.33	0.30	0.36	0.57	0.33	0.35
Control Delay	31.7	6.7	11.7	35.7	10.6	34.3	8.6
Queue Delay	0.0	0.0	0.0	0.0	1.2	0.0	0.0
Total Delay	31.7	6.7	11.7	35.7	11.9	34.3	8.6
Queue Length 50th (ft)	58	0	11	21	182	19	84
Queue Length 95th (ft)	104	35	42	#69	251	#61	122
Internal Link Dist (ft)	67		716		196		2202
Turn Bay Length (ft)				100		115	
Base Capacity (vph)	370	501	420	165	2327	163	2073
Starvation Cap Reductn	0	0	0	0	723	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.27	0.23	0.36	0.82	0.33	0.35

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM 2010 SIGNALIZED  
 12: N. BROADWAY & SR-78 FWY./LINCOLN PKY. - MITIGATION

8/26/2014



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	588	1374	606	112	1623	86	1072	518	120	54	617	282
v/c Ratio	1.37	0.75	0.59	0.49	1.08	0.16	1.26	0.38	0.21	0.46	0.84	0.53
Control Delay	234.8	54.5	16.4	81.0	111.3	7.9	177.0	40.7	3.3	93.8	71.0	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.9	2.4
Total Delay	234.8	54.5	16.4	81.0	111.3	7.9	177.0	40.7	3.3	93.8	123.9	19.6
Queue Length 50th (ft)	~470	521	292	67	~794	5	~812	239	0	63	342	84
Queue Length 95th (ft)	#597	618	450	99	#980	34	#951	275	28	116	401	126
Internal Link Dist (ft)		600			741			953			196	
Turn Bay Length (ft)	220		500	200		350	380		220	100		5
Base Capacity (vph)	429	1828	1028	230	1497	522	854	1452	601	118	875	534
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	352	144
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.37	0.75	0.59	0.49	1.08	0.16	1.26	0.36	0.20	0.46	1.18	0.72

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

## **Appendix O**

SANDAG Congestion Mitigation Strategies

<b>4-1</b>	
<b>Strategy:</b>	<b>Improved Traffic Control Devices</b>
<b>Category:</b>	Traffic Systems Management (TSM) Strategies
<b>Congestion Mitigation Objective:</b>	Improving the Transportation System Performance
<b>Description:</b>	<p><b>Traffic Signal Coordination</b> Many techniques are available for traffic signal coordination, including time-based coordination techniques and direct traffic-signal interconnection. Traffic signal coordination is used to increase average through traffic speeds on major arterials. Currently, traffic signal coordination is typically achieved by traffic signal interconnection. Regional and inter-agency coordination of traffic signals can improve travel times on major regional roadways.</p> <p><b>Adaptive Signal Control</b> More advanced techniques of traffic signal coordination attempt to modify the coordination of many signals to prevailing traffic conditions in real-time. All techniques rely on traffic-detection equipment and a central computer monitoring station that uses the collected data to optimize traffic signal coordination and timings to provide more efficient cycle-lengths and green-times.</p> <p><b>Traffic Signal Improvements</b> Regular maintenance, review, and updates are needed for traffic signals, as traffic volume conditions can often change over time. Even minor adjustments to traffic signal timing plans can improve overall signal operations and reduce congestion and delays at intersections. Modifications to traffic signal phasing may be useful, such as the modification of protected left-turn phasing to protected/permitted phasing or vice versa.</p> <p>Advances in technology have resulted in improvements to traffic signal controller technology. The newest traffic signal controllers have the ability to store a multitude of timing plans and timing options, for improved traffic signal operations.</p> <p><b>Traffic Sign Improvements</b> Improved road signage can reduce uncertainty of drivers and thereby reduce congestion on roadways. The intent of any improvements to road signs is to provide better information to the vehicle's driver. The proper placement of traffic signs is important in order to convey the sign's message. Signage can be used to restrict vehicle parking in parking lanes during peak commuting periods, thereby adding an additional travel lane. This technique is called "peak period on-street parking restrictions" and is in use throughout downtown San Diego.</p>
<b>Effectiveness:</b> (Also see the Trip Reduction Guidelines, 2002 CMP, Appendix J)	<p><b>Unit of Measure</b> Reduction in Delay per Vehicle.</p> <p><b>Direct Travel Effect</b> Up to a 10% reduction in delay per vehicle, calculated based on specific improvement.</p>

<b>4-1 Improved Traffic Control Devices (Continued)</b>	
<b>Regional Applicability:</b>	<p>High:</p> <ul style="list-style-type: none"> <li>• Many jurisdictions have implemented traffic signal coordination.</li> <li>• Recent Caltrans projects to improve freeway signage.</li> <li>• Advances in technology have made advanced traffic signal improvements more feasible.</li> <li>• Wireless technology is available.</li> </ul>
<b>Implementation Requirements:</b>	<ul style="list-style-type: none"> <li>• A system of sub-regional Traffic Management Centers is recommended</li> <li>• Adequate right-of-way</li> <li>• Modern traffic signal equipment</li> <li>• Difficult for areas with unusual traffic patterns</li> <li>• Coordination and Adaptive Signal Control require the installation of permanent hardware for traffic signal interconnection</li> <li>• Multi-agency communication and coordination</li> </ul>
<b>References:</b>	<ul style="list-style-type: none"> <li>• ITE. <u>A Toolbox For Alleviating Traffic Congestion and Enhancing Mobility</u>. 1997.</li> <li>• Jagannathan and Khan. "Methodology for the Assessment of Traffic Adaptive Control Systems" <u>ITE Journal</u>, June. 2001.</li> <li>• Dey, Fitzsimons, Morris, and Ng. <u>Adaptive Traffic Signal Interconnect in Menlo Park and Sunnyvale, CA</u>.</li> <li>• Hanbali and Fornal. "Methodology for Evaluating Effectiveness of Traffic-Responsive Systems on Intersection Congestion and Traffic Safety" <u>Transportation Research Record 1603</u>. Paper No. 970065.</li> </ul>
<b>Related Strategies:</b>	<ul style="list-style-type: none"> <li>• Intersection Improvements</li> <li>• Local Traffic Management (Monitoring and Control) &amp; Arterial Monitoring</li> <li>• Advanced Traveler Information</li> </ul>
<b>Estimated Costs:</b>	<p>Low; however, costs could increase dramatically if additional right-of-way is required. Approximately \$5,000 to \$20,000 per intersection location.</p>

<b>5-3</b>	
<b>Strategy:</b>	<b>Roadway Widening</b>
<b>Category:</b>	Capital Strategies
<b>Congestion Mitigation Objective:</b>	Increasing the Transportation System Capacity
<b>Description:</b>	<p>This strategy is the historic solution for congestion mitigation; increasing roadway capacity by building additional roadway lanes. Typically provides direct mitigation to solve impacts from adjacent or sub-regional development. Impact on community character must be considered when widening arterials in an urban environment.</p> <p>Roadway widening often viewed as implementing general plan circulation element vision. Could also be viewed as inducing single occupant vehicle (SOV) travel.</p>
<b>Effectiveness:</b> (Also see the Trip Reduction Guidelines, 2002 CMP, Appendix J)	<p><b>Unit of Measure</b> Vehicles per hour per lane</p> <p><b>Direct Travel Effect</b> New arterial lane = 1,800 vph/ln New freeway lane = 2,200 vph/ln</p> <p><b>Additional Supporting Information</b> Can improve overall facility level of service (LOS) and reduce travel delay, thus improving person carrying capacity.</p>
<b>Regional Applicability:</b>	<p>High:</p> <ul style="list-style-type: none"> <li>• Jurisdictions are limited by monetary constraints and/or community character to increase roadway capacity.</li> <li>• Environmental concerns may constrain any new roadway construction.</li> </ul>
<b>Implementation Requirements:</b>	<ul style="list-style-type: none"> <li>• Potential for congestion mitigation is high, but implementation constraints can limit effectiveness.</li> <li>• Implementation may be funded by regional or local jurisdiction capital improvement programming.</li> <li>• Roadway widening often included as a condition of development approval.</li> <li>• Increasing use of development impact fee (DIF) programs to fund construction of new arterial lanes.</li> </ul>
<b>References:</b>	<ul style="list-style-type: none"> <li>• ITE. <u>A Toolbox For Alleviating Traffic Congestion and Enhancing Mobility</u>. 1997.</li> <li>• Transportation Research Board. <u>2000 Highway Capacity Manual</u>. 2000.</li> </ul>
<b>Related Strategies:</b>	<ul style="list-style-type: none"> <li>• Intersection improvements</li> <li>• Grade Separation/Urban Interchange</li> <li>• Bus Priority Treatments on Surface Streets</li> <li>• Bicycle Facilities</li> </ul>

<b>5-3 Roadway Widening (Continued)</b>	
<b>Estimated Costs:</b>	<ul style="list-style-type: none"><li>• High due to right-of-way requirements and environmental mitigation requirements.</li><li>• Public resistance can further increase costs.</li><li>• New arterial lanes construction cost (including R/W, utilities, traffic control, lighting and landscaping): \$500,000 to 1,000,000 per mile.</li></ul>



5-4	
<b>Strategy:</b>	Intersection Improvements
<b>Category:</b>	Capital Strategies
<b>Congestion Mitigation Objective:</b>	Increasing the Transportation System Capacity
<b>Description:</b>	<p>Similar to roadway widening, this strategy proposes the construction of additional turn and/or thru lanes at intersections. Also includes additional traffic control devices. Improvement strategies may include the implementation of new traffic signal timing plans, with such techniques as protected-permitted phasing and right-turn overlap phasing. Typically provides direct mitigation to solve impacts from adjacent or sub-regional development. Impact on community character must be considered when widening urban intersections. Intersection improvements can allow the incorporation of bus priority treatments/queue jumper bypass lanes.</p> <p>This strategy also includes modern roundabouts as a means of improving intersection operations. Under the right circumstances, modern roundabouts can greatly increase intersection capacity while reducing vehicle delays. More information on the design and application of modern roundabouts can be found in the FHWA publication <u>Roundabouts: An Informational Guide</u>.</p>
<b>Effectiveness:</b> (Also see the Trip Reduction Guidelines, 2002 CMP, Appendix J)	<p><b>Unit of Measure</b> Reduction in delay per vehicle.</p> <p><b>Direct Travel Effect</b> State of the practice techniques; calculate the reduction in vehicle delay based on the specific improvements.</p> <p><b>Additional Supporting Information</b></p> <ul style="list-style-type: none"> <li>• Generally high with proven ability to reduce delay.</li> <li>• Can improve overall facility level of service (LOS) and reduce travel delay, thus improving person carrying capacity.</li> </ul>
<b>Regional Applicability:</b>	High; limited to the extent of widening which is acceptable. Public concerns about excessively wide intersections.
<b>Implementation Requirements:</b>	<ul style="list-style-type: none"> <li>• Implementation may be funded by regional or local jurisdiction capital improvement programming</li> <li>• Intersection widening often included as a condition of development approval</li> <li>• Increasing use of Development Impact Fee (DIF) programs to fund construction of intersection improvements</li> </ul>
<b>References:</b>	<ul style="list-style-type: none"> <li>• ITE. A Toolbox For Alleviating Traffic Congestion and Enhancing Mobility. 1997.</li> <li>• Transportation Research Board. 2000 Highway Capacity Manual. 2000.</li> </ul>

<b>5-4 Intersection Improvements (Continued)</b>	
<b>Related Strategies:</b>	<ul style="list-style-type: none"><li>• Roadway Widening</li><li>• Grade Separation/Urban Interchange</li><li>• Bus Priority Treatments on Surface Streets</li></ul>
<b>Estimated Costs:</b>	<ul style="list-style-type: none"><li>• Varies depending upon application requirements and right-of-way constraints.</li><li>• Improvements to urban intersections can range from approximately \$200,000 to \$1,000,000 per location, including R/W, traffic control/utility modifications, lighting and landscaping.</li></ul>

## **Appendix P**

Scope of Work

December 9, 2013

Mr. Homi Namdari  
 CITY OF ESCONDIDO  
 201 North Broadway  
 Escondido, CA 92025-2798

**Subject: SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS (Revised 12/9/13)**

Dear Mr. Namdari:

RK ENGINEERING GROUP, INC. (RK) is pleased to provide the following Scoping Agreement for the Centerpointe 78 Traffic Impact Analysis. Please review and sign this document to indicate your approval of the scope of work.

**1. Project Overview**

- Project Name: Centerpointe 78
- Project Address: 990 North Broadway, City of Escondido (SWC of North Broadway and Lincoln Avenue)
- Project Description: 43,500 sq. ft. Supermarket and 3,200 sq. ft. Fast Food Restaurant With Drive-Thru

**2. Project Trip Generation**

- SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region
- SANDAG suggested Pass-By for [undiverted and diverted < 1 miles] trip reductions only during PM peak period.

Vehicular Traffic Generation Rates				
Land Use	Quantity	Driveway Vehicle Trip Rate	Peak Hour Ratios	
			AM (in:out)	PM (in:out)
Supermarket	43.500	150 Trips/TSF	4% (7:3)	10% (5:5)
Fast Food Restaurant (With Drive-Thru)	3.200	650 Trips/TSF	7% (5:5)	7% (5:5)

Pass-By Reductions <sup>3</sup>	
Supermarket	40%
Fast Food Restaurant	40%

Project Trip Generation										
Land Use	Qty.	Units	Peak Hour						Daily	
			AM			PM				
			In	Out	Total	In	Out	Total		
1 Supermarket	43.500	TSF	183	78	261	326	327	653	6,525	
	40% Pass-By Trip Reduction <sup>2</sup>		<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	-130	-131	-261	<i>n/a</i>	
	Net Total Supermarket		183	78	261	196	196	392	6,525	
2 Fast Food Restaurant (With Drive-Thru)	3.200	TSF	73	73	146	73	73	146	2,080	
	40% Pass-By Trip Reduction <sup>2</sup>		<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	-29	-29	-58	<i>n/a</i>	
	Net Total Fast Food		73	73	146	44	44	88	6,525	
<b>Full Project Trip Generation</b>			<b>256</b>	<b>151</b>	<b>407</b>	<b>399</b>	<b>400</b>	<b>799</b>	<b>8,605</b>	
<b>Net Total (With Pass-By Trip Reduction)</b>			<b>256</b>	<b>151</b>	<b>407</b>	<b>240</b>	<b>240</b>	<b>480</b>	<b>8,605</b>	

### 3. Trip Distribution and Assignment

- SANDAG Series 12 Select Zone Assignment
- Project traffic will be determined based on the Select Zone Assignment percent distribution and the project trip generation for the AM Peak Hour, PM Peak Hour and Daily conditions.

#### **4. Study Area**

The following study area is based on the latest City of Escondido Traffic Impact Analysis Requirement Guidelines

- 23 Study Area Roadway Segments (see attached Table)
- 16 Study Area Intersections (see attached Table)
- 2 Caltrans Mainline Freeway Segments (see attached Table)

#### **5. Traffic Counts**

Please see the attached table for a detailed list of count locations and times. All traffic counts are taken during normal non-holiday weekday conditions (Tuesday – Thursday) during clear weather and while schools are in regular session.

- 24 Hour 2-Way ADT counts will be taken at the 23 study area roadway segments.
  - Thirteen (13) roadway segment ADTs will be used from data collected on June 6, 2013.
  - Ten (10) additional roadway segment ADTs will be collected.
- Morning (7AM to 9AM) and Evening (4PM to 6PM) peak hour turning movement counts will be taken at all 16 study area intersections.
  - Twelve (12) intersection morning and evening counts will be used from data collected on June 6, 2013
  - Four (4) additional intersection morning and evening counts will be collected.
- Mid-Day intersection turning movement counts will be taken at all study area intersections.
  - Eight (8) new intersection mid-day (2PM-4PM) counts will be collected.
  - Eight (8) new intersection mid-day (12PM-2PM) counts will be collected at all other intersection locations.
- Pedestrian Counts (7AM-9AM, 12:30PM-2:30PM/2PM-4PM and 4PM-6PM) will be taken at nine (9) locations.
  - Four (4) pedestrian morning and evening count locations will be used from data collected on June 6, 2013
  - Five (5) additional pedestrian morning and evening count locations will be collected.
  - Eight (8) new pedestrian mid-day count locations will be collected.
  - One (1) mid-block pedestrian count will be used from June 6, 2013.

## **6. Analysis Scenarios**

- Existing: (AM, Mid-Day, PM, Daily)
- Existing + Project: (AM, Mid-Day, PM, Daily)
- Project Opening Year (2016) + Cumulative Projects; (AM, Mid-Day, PM, Daily)
- Project Opening Year (2016) + Cumulative Projects + Project (AM, Mid-Day, PM, Daily)
- Horizon Year (2035): (AM, PM, Daily)
- Horizon Year (2035) + Project: (AM, PM, Daily)

To assess Project Opening Year (2016) conditions, a 1% per year compound annual growth rate will be added to existing traffic volumes plus added traffic from cumulative projects. For Mid-Day analysis, the worst case PM peak hour project trip generation will be used.

Cumulative projects should be provided by the City of Escondido and would include all approved or reasonably foreseeable pending projects that are expected to influence the study area. Copies of traffic studies for the cumulative projects should be provided. If data is not available for near-term projects, an ambient growth factor should be agreed upon by the City.

## **7. Level of Service Standards and Significant Impact Criteria**

- City of Escondido Traffic Impact Analysis Requirement Guidelines (October 10, 2013)

## **8. Analysis Methodology**

- Highway Capacity Manual (HCM) for intersections and freeway segments
- Volume to Capacity (V/C) ratio analysis will be used for roadway segments
- Caltrans' Traffic Manual will be used for Signal Warrant Analysis

## **9. Additional Items to be Addressed**

- Review project access with regards to sight distance and circulation, and determine the need for any special turn lanes that might be required to serve the project.
- Review internal circulation and drive-thru queuing.
- Develop mitigation measures (i.e. traffic signals, additional lanes, etc.) that may be required to accommodate the project.
- The traffic impact study will be reviewed and signed by a California Registered Traffic Engineer.

Please find attached a location map and table of the study area roadway segments and intersections. Please sign and return a copy of this scoping agreement upon your approval. If you have any questions please call us at (949)474-0809.

Approved  
By:

Bryan Estrada 12/6/13  
Consultant's Representative      Date

\_\_\_\_\_  
City of Escondido Representative      Date